DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 219

[Docket No. 170127128–9394–02]

RIN 0648–BG64

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Alaska Fisheries Science Center Fisheries Research

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: NMFS's Office of Protected Resources (OPR), upon request from NMFS's Alaska Fisheries Science Center (AFSC), hereby issues regulations to govern the unintentional taking of marine mammals incidental to fisheries research conducted in multiple specified geographical regions over the course of five years. These regulations, which allow for the issuance of Letters of Authorization (LOA) for the incidental take of marine mammals during the described activities and specified timeframes, prescribe the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, as well as requirements pertaining to the monitoring and reporting of such taking.

DATES: Effective from October 7, 2019, through October 7, 2024.

ADDRESSES: A copy of AFSC's application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-afsc-fisheries-and-ecosystem-research.* In case of problems accessing these documents, please call the contact listed below.

FOR FURTHER INFORMATION CONTACT: Ben Laws, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Purpose and Need for Regulatory Action

These regulations establish a framework under the authority of the MMPA (16 U.S.C. 1361 *et seq.*) to allow for the authorization of take of marine mammals incidental to the AFSC's fisheries research activities in the Gulf of Alaska, Bering Sea, and Arctic Ocean, and, by AFSC's request, also includes fisheries research activities of the International Pacific Halibut Commission (IPHC), which occur in the Bering Sea, Gulf of Alaska, and off of the U.S. west coast.

We received an application from the AFSC requesting five-year regulations and authorization to take multiple species of marine mammals. Take would occur by Level B harassment incidental to the use of active acoustic devices, as well as by visual disturbance of pinnipeds, and by Level A harassment, serious injury, or mortality incidental to the use of fisheries research gear. Please see ''Background'' below for definitions of harassment.

Legal Authority for the Action

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1371(a)(5)(A)) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region for up to five years if, after notice and public comment, the agency makes certain findings and issues regulations that set forth permissible methods of taking pursuant to that activity and other means of effecting the ''least practicable adverse impact'' on the affected species or stocks and their habitat (see the discussion below in the ''Mitigation'' section), as well as monitoring and reporting requirements. Section 101(a)(5)(A) of the MMPA and the implementing regulations at 50 CFR part 216, subpart I provide the legal basis for issuing this rule containing five-year regulations, and for any subsequent LOAs. As directed by this legal authority, the regulations contain mitigation, monitoring, and reporting requirements.

Summary of Major Provisions Within the Regulations

Following is a summary of the major provisions of these regulations regarding AFSC fisheries research activities. These measures include:

- Required monitoring of the sampling areas to detect the presence of marine mammals before deployment of certain research gear.
- Required implementation of the mitigation strategy known as the ''move-on rule mitigation protocol'' which incorporates best professional judgment, when necessary during certain research fishing operations.

Background

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1361 *et seq.*) directs the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made, regulations are issued, and notice is provided to the public.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

NMFS has defined ''negligible impact'' in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

NMFS has defined ''unmitigable adverse impact'' in 50 CFR 216.103 as an impact resulting from the specified activity:

(1) That is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by: (i) Causing the marine mammals to abandon or avoid hunting areas; (ii) directly displacing subsistence users; or (iii) placing physical barriers between the marine mammals and the subsistence hunters; and

(2) That cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

The MMPA states that the term ''take'' means to harass, hunt, capture, kill or attempt to harass, hunt, capture, or kill any marine mammal.

Except with respect to certain activities not pertinent here, the MMPA defines ''harassment'' as: Any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Summary of Request

On June 28, 2016, we received an adequate and complete request from AFSC for authorization to take marine

mammals incidental to fisheries research activities. On October 18, 2016 (81 FR 71709), we published a notice of receipt of AFSC's application in the **Federal Register**, requesting comments and information related to the AFSC request for thirty days. We received comments jointly from The Humane Society of the United States and Whale and Dolphin Conservation (HSUS/WDC). Subsequently, AFSC presented substantive revisions to the application, including revisions to the take authorization request as well as incorporation of the IPHC fisheries research activities. We received this revised application, which was determined to be adequate and complete, on September 6, 2017. We then published a notice of its receipt in the **Federal Register**, requesting comments and information for thirty days, on September 14, 2017 (82 FR 43223). We received no comments in response to this second review period. The original comments received from HSUS/WDC are available online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-afsc-fisheries-and-ecosystem-research* and were considered in development of the proposed rule. We published a Notice of Proposed Rulemaking in the **Federal Register** on August 1, 2018 (83 FR 37638) and requested comments and information from the public. Please see ''Comments and Responses,'' below.

AFSC conducts fisheries research using trawl gear used at various levels in the water column, hook-and-line gear (including longlines with multiple hooks), gillnets, and other gear. If a marine mammal interacts with gear deployed by AFSC, the outcome could potentially be Level A harassment, serious injury (*i.e.,* any injury that will likely result in mortality), or mortality. Although any given gear interaction could result in an outcome less severe than mortality or serious injury, we do not have sufficient information to allow parsing these potential outcomes. Therefore, AFSC presents a pooled estimate of the number of potential incidents of gear interaction and, for analytical purposes we assume that gear interactions would result in serious injury or mortality. AFSC also uses various active acoustic devices in the conduct of fisheries research, and use of some devices has the potential to result in Level B harassment of marine mammals. Level B harassment of pinnipeds hauled out may also occur, as a result of visual disturbance from vessels conducting AFSC research.

AFSC requested authorization to take individuals of 19 species by Level A harassment, serious injury, or mortality (hereafter referred to as M/SI) and of 25 species by Level B harassment. These regulations are effective for five years.

Description of the Specified Activity

Overview

The AFSC collects a wide array of information necessary to evaluate the status of exploited fishery resources and the marine environment. AFSC scientists conduct fishery-independent research onboard NOAA-owned and operated vessels or on chartered vessels. Such research may also be conducted by cooperating scientists on non-NOAA vessels when the AFSC helps fund the research. The AFSC plans to administer and conduct approximately 58 survey programs over the five-year period, within three separate research areas (some survey programs are conducted across more than one research area). The gear types used fall into several categories: towed nets fished at various levels in the water column, longline gear, gillnets and seine nets, traps, and other gear. Only use of trawl nets, longlines, and gillnets are likely to result in interaction with marine mammals. Many of these surveys also use active acoustic devices.

The Federal government has a responsibility to conserve and protect living marine resources in U.S. waters and has also entered into a number of international agreements and treaties related to the management of living marine resources in international waters outside the United States. NOAA has the primary responsibility for managing marine finfish and shellfish species and their habitats, with that responsibility delegated within NOAA to NMFS.

In order to direct and coordinate the collection of scientific information needed to make informed fishery management decisions, Congress created six regional fisheries science centers, each a distinct organizational entity and the scientific focal point within NMFS for region-based Federal fisheries-related research. This research is aimed at monitoring fish stock recruitment, abundance, survival and biological rates, geographic distribution of species and stocks, ecosystem process changes, and marine ecological research. The AFSC is the research arm of NMFS in the Alaska region of the United States. The AFSC conducts research and provides scientific advice to manage fisheries and conserve protected species in the geographic research areas described below and provides scientific information to support the North Pacific Fishery Management Council and other domestic and international fisheries management organizations.

The IPHC, established by a convention between the governments of Canada and the United States, is an international fisheries organization mandated to conduct research on and management of the stocks of Pacific halibut (*Hippoglossus stenolepis*) within the Convention waters of both nations. The Northern Pacific Halibut Act of 1982 (16 U.S.C. 773), which amended the earlier Northern Pacific Halibut Act of 1937, is the enabling legislation that gives effect to the Convention in the United States. Although operating in U.S. waters (and, therefore, subject to the MMPA prohibition on ''take'' of marine mammals), the IPHC is not appropriately considered to be a U.S. citizen (as defined by the MMPA) and cannot be issued an incidental take authorization. For purposes of MMPA compliance, the AFSC sponsors the IPHC research activities occurring in U.S. waters, with applicable mitigation, monitoring, and reporting requirements conveyed to the IPHC via Letters of Acknowledgement issued by the AFSC pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Fishery-independent data necessary to the management of halibut stocks is collected using longline gear aboard chartered commercial vessels within multiple IPHC regulatory areas, including within U.S. waters of the Bering Sea, Gulf of Alaska, and off the U.S. west coast. The IPHC plans to conduct two survey programs over the five-year period. IPHC activity and requested take authorization is described in Appendix C of AFSC's application.

Dates and Duration

The specified activity may occur at any time during the five-year period of validity of the regulations. Dates and duration of individual surveys are inherently uncertain, based on congressional funding levels for the AFSC, weather conditions, or ship contingencies. In addition, cooperative research is designed to provide flexibility on a yearly basis in order to address issues as they arise. Some cooperative research projects last multiple years or may continue with modifications. Other projects only last one year and are not continued. Most cooperative research projects go through an annual competitive selection process to determine which projects should be funded based on proposals developed by many independent researchers and fishing industry participants.

Specified Geographical Region

The AFSC conducts research in Alaska within three research areas considered to be distinct specified geographical regions: The Gulf of Alaska Research Area (GOARA), the Bering Sea/Aleutian Islands Research Area (BSAIRA), and the Chukchi Sea and Beaufort Sea Research Area (CSBSRA). Please see Figures 2–1 through 2–3 in the AFSC application for maps of the three research areas. We note here that, while the specified geographical regions within which the AFSC operates may extend outside of the U.S. Exclusive Economic Zone (EEZ), *i.e.,* into the Canadian EEZ (but not including Canadian territorial waters), the MMPA's authority does not extend into foreign territorial waters. IPHC research activities are carried out within the BSAIRA and GOARA but also within a fourth specified geographical region, *i.e.,* off the U.S. west coast (see Figure C–3 of the AFSC application). The IPHC operates from 36°40′ N (approximately Monterey Bay, California) at the southernmost extension northward to the Canadian border, including U.S. waters within Puget Sound. These areas were described in detail in our Notice of Proposed Rulemaking (83 FR 37638; August 1, 2018); please see that document for further detail.

Detailed Description of Activities

A detailed description of AFSC's planned activities was provided in our Notice of Proposed Rulemaking (83 FR 37638; August 1, 2018) and is not repeated here. No changes have been made to the specified activities described therein.

Comments and Responses

We published a Notice of Proposed Rulemaking in the **Federal Register** on August 1, 2018 (83 FR 37638), and requested comments and information from the public. During the thirty-day comment period, we received letters from the Marine Mammal Commission (Commission), the Ecological Sciences Communication Initiative (ECO–SCI), and from three private citizens. Of the latter, one comment expressed general opposition, one expressed general support, and one was not relevant to the proposed rulemaking. The remaining comments and our responses are provided here, and the comments have been posted online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-afsc-fisheries-and-ecosystem-research.* Please see the Commission's comment letter for full rationale behind the recommendations we respond to below. No changes were made to the proposed rule as a result of these comments.

Comment 1: The Commission provides general recommendations—not specific to the proposed AFSC rulemaking—that NMFS develop criteria and guidance for determining when prospective applicants should request taking by Level B harassment from the use of echosounders, other sonars, and sub-bottom profilers and that NMFS formulate a strategy for updating its generic behavioral harassment thresholds for all types of sound sources as soon as possible.

Response: We thank the Commission for its continued interest in these issues. Generally speaking, there has been a lack of information and scientific consensus regarding the potential effects of scientific sonars on marine mammals, which may differ depending on the system and species in question as well as the environment in which the system is operated. We will continue to evaluate the need for applicant guidance specific to the types of acoustic sources mentioned by the Commission.

With regard to revision of existing behavioral harassment criteria, NMFS agrees that this is necessary. NMFS is continuing our examination of the effects of noise on marine mammal behavior and is focused on developing guidance regarding the effects of anthropogenic sound on marine mammal behavior. Behavioral response is a complex question, and NMFS will take the time that is necessary to research and address it appropriately.

Comment 2: The Commission recommends that OPR require AFSC to estimate the numbers of marine mammals taken by Level B harassment incidental to use of active acoustic sources (*e.g.,* echosounders) based on the 120-decibel (dB) rather than the 160-dB root mean square (rms) sound pressure level (SPL) threshold.

Response: Please see our Notice of Proposed Rulemaking (83 FR 37638; August 1, 2018) for discussion related to acoustic terminology and thresholds. The Commission repeats a recommendation made in prior letters concerning proposed authorization of take incidental to use of scientific sonars (such as echosounders). As we have described in responding to those prior comments (*e.g.,* 83 FR 36370), our evaluation of the available information leads us to disagree with this recommendation. After review of the Commission's recommendation in this case, our assessment is unchanged. While the Commission presents certain valid points in attempting to justify their recommendation (*e.g.,* certain sensitive species are known to respond to sound exposures at lower levels), these points do not ultimately support the recommendation.

First, we provide some necessary background on implementation of acoustic thresholds. NMFS has historically used generalized acoustic thresholds based on received levels to predict the occurrence of behavioral harassment, given the practical need to use a relatively simple threshold based on information that is available for most activities. Thresholds were selected in consideration largely of measured avoidance responses of mysticete whales to airgun signals and to industrial noise sources, such as drilling. The selected thresholds of 160 dB rms SPL and 120 dB rms SPL, respectively, have been extended for use since then for estimation of behavioral harassment associated with noise exposure from sources associated with other common activities as well.

Separately, NMFS and the U.S. Navy have historically worked closely together to develop appropriate criteria specific to use of low- and mid-frequency active sonar and underwater explosives. The Commission's reference to the Navy's use of different acoustic harassment criteria is not relevant, as those criteria were developed, and have evolved over time in reflection of available science, with specific reference to military sonar or underwater detonations.

The Commission misinterprets how NMFS characterizes scientific sonars, so we provide clarification here. Sound sources can be divided into broad categories based on various criteria or for various purposes. As discussed by Richardson *et al.* (1995), source characteristics include strength of signal amplitude, distribution of sound frequency and, importantly in context of these thresholds, variability over time. With regard to temporal properties, sounds are generally considered to be either continuous or transient (*i.e.,* intermittent). Continuous sounds, which are produced by the industrial noise sources for which the 120-dB behavioral harassment threshold was selected, are simply those whose sound pressure level remains above ambient sound during the observation period (ANSI, 2005). Intermittent sounds are defined as sounds with interrupted levels of low or no sound (NIOSH, 1998). Simply put, a continuous noise source produces a signal that continues over time, while an intermittent source produces signals of relatively short duration having an obvious start and end with predictable patterns of bursts of sound and silent periods (*i.e.,* duty

cycle) (Richardson and Malme, 1993). It is this fundamental temporal distinction that is most important for categorizing sound types in terms of their potential to cause a behavioral response. For example, Gomez *et al.* (2016) found a significant relationship between source type and marine mammal behavioral response when sources were split into continuous (*e.g.,* shipping, icebreaking, drilling) versus intermittent (*e.g.,* sonar, seismic, explosives) types. In addition, there have been various studies noting differences in responses to intermittent and continuous sound sources for other species (*e.g.,* Neo *et al.,* 2014; Radford *et al.,* 2016; Nichols *et al.,* 2015).

Sound sources may also be categorized based on their potential to cause physical damage to auditory structures and/or result in threshold shifts. In contrast to the temporal distinction discussed above, the most important factor for understanding the differing potential for these outcomes across source types is simply whether the sound is impulsive or not. Impulsive sounds, such as those produced by airguns, are defined as sounds which are typically transient, brief (< 1 sec), broadband, and consist of a high peak pressure with rapid rise time and rapid decay (ANSI, 1986; NIOSH, 1998). These sounds are generally considered to have greater potential to cause auditory injury and/or result in threshold shifts. Non-impulsive sounds can be broadband, narrowband or tonal, brief or prolonged, continuous or intermittent, and typically do not have the high peak pressure with rapid rise/decay time that impulsive sounds do (ANSI, 1995; NIOSH, 1998). Because the selection of the 160-dB behavioral threshold was focused largely on airgun signals, it has historically been commonly referred to as the ''impulse noise'' threshold (including by NMFS). However, this longstanding confusion in terminology—*i.e.,* the erroneous impulsive/continuous dichotomy—presents a narrow view of the sound sources to which the thresholds apply, and inappropriately implies a limitation in scope of applicability for the 160-dB behavioral threshold in particular.

An impulsive sound is by definition intermittent; however, not all intermittent sounds are impulsive. Many sound sources for which it is generally appropriate to consider the authorization of incidental take are in fact either impulsive (and intermittent) (*e.g.,* impact pile driving) or continuous (and non-impulsive) (*e.g.,* vibratory pile driving). However, scientific sonars present a less common case where the sound produced is considered intermittent but non-impulsive. Herein lies the crux of the Commission's argument, *i.e.,* that because scientific sonars used by NMFS's science centers are not impulsive sound sources, they must be assessed using the 120-dB behavioral threshold appropriate for continuous noise sources. However, given the existing paradigm—dichotomous thresholds appropriate for generic use in evaluating the potential for behavioral harassment resulting from exposure to continuous or intermittent sound sources—the Commission does not adequately explain why potential harassment from an intermittent sound source should be evaluated using a threshold developed for use with continuous sound sources. As we have stated in prior responses to this recommendation, consideration of the preceding factors leads to a conclusion that the 160-dB threshold is more appropriate for use than is the 120-dB threshold.

As noted above, the Commission first claims generically that we are using an incorrect threshold, because scientific sonars do not produce impulse noise. However, in bridging the gap from this generic assertion to their specific recommendation that the 120-dB continuous noise threshold should be used, the Commission makes several leaps of logic that we address here. The Commission's justification is in large part seemingly based on citation to examples in the literature of the most sensitive species responding at lower received levels to sources dissimilar to those considered here. There are three critical errors in this approach.

First, the citation of examples of animals ''responding to sound'' does not equate to behavioral harassment, as defined by the MMPA. As noted above under ''Background,'' the MMPA defines Level B harassment as acts with the potential to disturb a marine mammal by causing *disruption of behavioral patterns.* While it is possible that some animals do in fact experience Level B harassment upon exposure to intermittent sounds at received levels less than the 160-dB threshold, this is not in and of itself adequate justification for using a lower threshold. Implicit in the use of a step function for quantifying behavioral harassment is the realistic assumption, due to behavioral context and other factors, that some animals exposed to received levels below the threshold will in fact experience harassment, while others exposed to levels above the threshold will not. Moreover, a brief, transient behavioral response should not necessarily be considered as having the potential to disturb by disrupting behavioral patterns.

Many of the examples given by the Commission demonstrate mild responses, but not behavioral changes more likely to indicate Level B harassment. For example, the Commission discusses two studies (Quick *et al.,* 2017; Cholewiak *et al.,* 2017) that describe responses to one of the same sources considered here (the EK60 echosounder). We addressed Quick *et al.* (2017) in our Notice of Proposed Rulemaking, describing the authors' findings that, while tagged pilot whales increased heading variance during exposure to the EK60, tag data did not show an overt response to the echosounder or a change to foraging behavior. (Digital acoustic recording tags were attached to study animals; EK60 signals were within audible range for the animals with received levels ranging from 117–125 dB). Similarly, the authors report that visual observations of behavior did not indicate any dramatic response, unusual behaviors, changes in heading, or cessation of biologically important behavior such as feeding. No evidence is presented that could be reasonably construed as Level B harassment. Cholewiak *et al.* (2017) describe responses of beaked whales to the EK60 echosounder, finding that they were significantly less likely to be detected acoustically while echosounders were active. However, it is not clear that this response should be considered as Level B harassment when considered in context of what is likely a brief, transient effect given the mobile nature of the surveys and the fact that some beaked whale populations are known to have high site fidelity. (We note that the Commission cites these studies as support for Lurton and DeRuiter (2011)'s suggestion of 130 dB as a reasonable behavioral response threshold. Given that a ''behavioral response threshold'' does not equate to a behavioral harassment threshold, we are unsure about the intended implication. In addition, Lurton and DeRuiter casually offer this threshold as a result of a ''conservative approach'' using ''response thresholds of the most sensitive species studied to date.'' NMFS does not agree with any suggestion that this equates to an appropriate behavioral harassment threshold). Watkins and Schevill (1975) note that sperm whales ''temporarily interrupted'' sound production in response to sound from pingers. No avoidance behavior was observed, and the authors note that ''there appeared to be no startle reactions, no sudden movements, or changes in the activity of the whales.'' Kastelein *et al.* (2006a)

describe the response of harbor porpoise to an experimental acoustic alarm (discussed below; power averaged source level of 145 dB), while also noting that a striped dolphin showed no reaction to the alarm, despite both species being able to clearly detect the signal.

Second, unlike the studies discussed above which relate to echosounders, many of the cited studies do not present a relevant comparison. These studies discuss sources that are not appropriately or easily compared to the sources considered here and/or address responses of animals in experimental environments that are not appropriately compared to the likely exposure context here. For example, aside from the well-developed literature concerning ''acoustic harassment'' or ''acoustic deterrent'' devices—which are obviously designed for the express purpose of harassing marine mammals (usually specific species or groups)—Kastelein *et al.* (2006b) describe harbor seal responses to signals used as part of an underwater data communication network. In this case, seals in a pool were exposed to signals of relatively long duration (1–2 seconds) and high duty cycle for 15 minutes, with experimental signals of continuously varying frequency, three different sound blocks, or frequency sweeps. These seals swam away from the sound (though they did not attempt to reduce exposure by putting their heads out of the water), but this result is of questionable relevance to understanding the likely response of seals in the wild that may be exposed to a 1-ms single-frequency signal from an echosounder moving past the seal as a transient stimulus.

Some studies do not provide a relevant comparison not only because of differences in the source, but because they address sources (in some cases multiple sources) that are stationary (for extended periods of time in some cases), whereas AFSC surveys are infrequent and transient in any given location. Morton (2000) presents only brief speculation that an observed decline in abundance of Pacific white-sided dolphin coincided with introduction of 194-dB (source level) acoustic deterrent devices—an observation that is not relevant to consideration of a single mobile source that would be transient in space and time relevant to a receiver. Morton and Symonds (2002) similarly address displacement from a specific area due to a profusion of ''high-powered'' deterrent devices (the same 194-dB system discussed briefly in Morton (2000)) placed in restricted passages for extended time periods (6 years).

Third, the Commission relies heavily on the use of examples pertaining to the most sensitive species, which does not support an argument that the 120-dB threshold should be applied to all species. NMFS has acknowledged that the scientific evidence indicates that certain species are, in general, more acoustically sensitive than others. In particular, harbor porpoise and beaked whales are considered to be behaviorally sensitive, and it may be appropriate to consider use of lower behavioral harassment thresholds for these species. NMFS is considering this issue in its current work of developing new guidelines for assessing behavioral harassment; however, until this work is completed and new guidelines are identified (if appropriate), the existing generic thresholds are retained. Moreover, as is discussed above for other reasons, the majority of examples cited by the Commission are of limited relevance in terms of comparison of sound sources. In support of their statement that numerous researchers have observed marine mammals responding to sound from sources claimed to be similar to those considered herein, the Commission indeed cites numerous studies; however, the vast majority of these address responses of harbor porpoise or beaked whales to various types of acoustic alarms or deterrent devices.

We acknowledge that the Commission presents legitimate points in support of defining a threshold specific to non-impulsive, intermittent sources and that, among the large number of cited studies, there are a few that show relevant results of individual animals responding to exposure at lower received levels in ways that could be considered harassment. As noted in a previous comment response, NMFS is currently engaged in an ongoing effort towards developing updated guidance regarding the effects of anthropogenic sound on marine mammal behavior. However, prior to conclusion of this effort, NMFS will continue using the historical Level B harassment thresholds (or derivations thereof) and will appropriately evaluate behavioral harassment due to intermittent sound sources relative to the 160-dB threshold.

Comment 3: The Commission notes that NMFS has delineated two categories of acoustic sources, largely based on frequency, with those sources operating at frequencies greater than the known hearing ranges of any marine mammal (*i.e.,* >180 kilohertz (kHz)) lacking the potential to disturb marine mammals by causing disruption of behavioral patterns. The Commission describes the recent scientific literature on acoustic sources with frequencies above 180 kHz (*i.e.,* Deng *et al.,* 2014; Hastie *et al.,* 2014) and recommends that we estimate numbers of takes associated with those acoustic sources (or similar acoustic sources) with frequencies above 180 kHz that have been shown to elicit behavioral responses above the 120-dB threshold.

Response: As the Commission acknowledges, we considered the cited information in our Notice of Proposed Rulemaking. NMFS's response regarding the appropriateness of the 120-dB versus 160-dB rms thresholds was provided above in the response to Comment #2. In general, the referenced literature indicates only that sub-harmonics could be detectable by certain species at distances up to several hundred meters. As we have noted in previous responses, behavioral response to a stimulus does not necessarily indicate that Level B harassment, as defined by the MMPA, has occurred. Source levels of the secondary peaks considered in these studies—those within the hearing range of some marine mammals—mean that these sub-harmonics would either be below the threshold for behavioral harassment or would attenuate to such a level within a few meters. Beyond these important study details, these high-frequency (*i.e.,* Category 1) sources and any energy they may produce below the primary frequency that could be audible to marine mammals would be dominated by a few primary sources (*e.g.,* EK60) that are operated near-continuously—much like other Category 2 sources considered in our assessment of potential incidental take from AFSC's use of active acoustic sources—and the potential range above threshold would be so small as to essentially discount them. Further, recent sound source verification testing of these and other similar systems did not observe any sub-harmonics in any of the systems tested under controlled conditions (Crocker and Fratantonio, 2016). While this can occur during actual operations, the phenomenon may be the result of issues with the system or its installation on a vessel rather than an issue that is inherent to the output of the system. There is no evidence to suggest that Level B harassment of marine mammals should be expected in relation to use of active acoustic sources at frequencies exceeding 180 kHz.

Comment 4: ECO–SCI appears to suggest that we failed to use the best scientific evidence available in developing our proposed rulemaking and in making our preliminary determinations under the MMPA.

Response: As explained in detail in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638), NMFS did use the best scientific evidence available. In cases where population abundance estimates are not presented in NMFS' Stock Assessment Reports, either due to lack of available data or because the available data are considered outdated, we carefully described the data that are available, how those data support our assessment of the size and health of affected populations, and the process by which we evaluated the effects of the specified activity on the affected marine mammal species and stocks. The ECO–SCI comment letter evidences a limited understanding of the available data and confusion regarding relevant statutory and regulatory processes; and, ultimately, the commenter's apparent claims are not supported.

Description of Marine Mammals in the Area of the Specified Activity

We have reviewed AFSC's species descriptions—which summarize available information regarding status and trends, distribution and habitat preferences, behavior and life history, and auditory capabilities of the potentially affected species—for accuracy and completeness and refer the reader to Sections 3 and 4 of AFSC's application (and Sections 3 and 4 of Appendix C, which specifically addresses the IPHC activities), instead of reprinting the information here. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SAR; *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS's website (*www.fisheries.noaa.gov/find-species*).

Table 1 lists all species with expected potential for occurrence in the specified geographical regions where AFSC and IPHC plan to conduct the specified activities and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2018). PBR, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population, is discussed in greater detail later in this document (see ''Negligible Impact Analysis'').

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in the specified geographical regions are assessed in either NMFS's U.S. Alaska SARs or U.S. Pacific SARs. All values presented in Table 1 are the most recent available at the time of writing and are available in the 2017 SARs (Carretta *et al.,* 2018; Muto *et al.,* 2018) or draft 2018 SARs (available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*).

Forty species (with 88 managed stocks) are considered to have the potential to co-occur with AFSC and IPHC activities. Species that could potentially occur in the research areas but are not expected to have the potential for interaction with AFSC research gear or that are not likely to be harassed by AFSC's use of active acoustic devices are described briefly but omitted from further analysis. These include extralimital species, which are species that do not normally occur in a given area but for which there are one or more occurrence records that are considered beyond the normal range of the species. Species considered to be extralimital here are the narwhal (*Monodon monoceros;* CSBSRA only), Bryde's whale (*Balaenoptera edeni brydei;* IPHC U.S. west coast research area only), and the Western North Pacific stock of the gray whale (see our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638) for additional discussion of the gray whale). In addition, the sea otter is found in coastal waters—with the northern (or eastern) sea otter (*Enhydra lutris kenyoni*) found in Alaska—and the Pacific walrus (*Odobenus rosmarus divergens*) and polar bear (*Ursus maritimus*) may also occur in AFSC research areas. However, these species are managed by the U.S. Fish and Wildlife Service and are not considered further in this document.

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Table 1. Marine Mammals Potentially Present in the Vicinity of AFSC Research Activities

Common name	Scientific name	Stock	Occurrence[1]				ESA/ MMPA status; Strategic (Y/N)[2]	Stock abundance (CV, N_{min}, most recent abundance survey)[3]	PBR	Annual M/SI[4]
			WC	GOA	BSAI	CSBS				
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)										
Family Balaenidae										
North Pacific right whale	*Eubalaena japonica*	Eastern North Pacific (ENP)		X	X		E/D; Y	31 (0.226; 26; 2015)	0.05	0
Bowhead whale	*Balaena mysticetus*	Western Arctic			X	X	E/D; Y	16,820 (0.052; 16,100; 2011)	161	46
Family Eschrichtiidae										
Gray whale	*Eschrichtius robustus*	ENP	X	X	X	X	-; N	26,960 (0.05; 25,849; 2016)	801	138
Family Balaenopteridae (rorquals)										
Humpback whale	*Megaptera novaeangliae kuzira*	California/ Oregon/ Washington (CA/OR/WA)*	X				E/D; Y	2,900 (0.03; 2,784; 2014)	16.7[12]	≥38.6
		Central North Pacific (CNP)*		X	X		E/D; Y	10,103 (0.3; 7,891; 2006)	83	26
		Western North Pacific*		X	X	X	E/D; Y	1,107 (0.3; 865; 2006)	3	3
Minke whale	*Balaenoptera acutorostrata scammoni*	CA/OR/WA	X				-; N	636 (0.72; 369; 2014)	3.5	≥1.3
		Alaska*		X	X	X	-; N	Unknown	n/a	0
Sei whale	*B. borealis borealis*	ENP	X	X	X		E/D; Y	519 (0.4; 374; 2014)	0.75	≥0.2
Fin whale	*B. physalus physalus*	CA/OR/WA	X				E/D; Y	9,029 (0.12; 8,127; 2014)	81	≥43.5
		Northeast Pacific*		X	X	X	E/D; Y	Unknown	n/a	0.6
Blue whale	*B. musculus musculus*	ENP	X	X	X		E/D; Y	1,647 (0.07; 1,551; 2011)	2.3[12]	≥19
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)										
Family Physeteridae										
Sperm whale	*Physeter macrocephalus*	CA/OR/WA	X				E/D; Y	1,997 (0.57; 1,270; 2014)	2.5	0.9
		North Pacific*		X	X		E/D; Y	Unknown	n/a	4.4
Family Kogiidae										
Pygmy sperm whale	*Kogia breviceps*	CA/OR/WA	X				-; N	4,111 (1.12; 1,924; 2014)	19.2	0
Dwarf sperm whale	*K. sima*	CA/OR/WA[6]	X				-; N	Unknown	n/a	0
Family Ziphiidae (beaked whales)										

Cuvier's beaked whale	*Ziphius cavirostris*	CA/OR/WA	X				-; N	3,274 (0.67; 2,059; 2014)	21	<0.1
		Alaska		X	X		-; N	Unknown	n/a	0
Baird's beaked whale	*Berardius bairdii*	CA/OR/WA	X				-; N	2,697 (0.6; 1,633; 2014)	16	0
		Alaska		X	X		-; N	Unknown	n/a	0
Stejneger's beaked whale	*Mesoplodon stejnegeri*	Alaska		X	X		-; N	Unknown	n/a	0
Hubbs' beaked whale	*M. carlhubbsi*	CA/OR/WA[7]	X				-; N	3,044 (0.54; 1,967; 2014)	20	0.1
Blainville's beaked whale	*M. densirostris*		X							
Ginkgo-toothed beaked whale	*M. ginkgodens*		X							
Perrin's beaked whale	*M. perrini*		X							
Lesser (pygmy) beaked whale	*M. peruvianus*		X							
Stejneger's beaked whale	*M. stejnegeri*		X							
Family Monodontidae										
Beluga whale	*Delphinapterus leucas*	Beaufort Sea[9]			X	X	-; N	39,258 (0.229; 32,453; 1992)	n/a	139
		Eastern Chukchi Sea			X	X	-; N	20,752 (0.7; 12,194; 2012)	244	67
		Eastern Bering Sea[9]			X		-; N	6,994 (0.37; 5,173; 2000)	n/a	206
		Bristol Bay[9]			X		-; N	1,926 (0.25; 1,565; 2005)	n/a	25
		Cook Inlet[10]		X			E/D; Y	327 (0.06; 311; 2016)	n/a	0
Family Delphinidae										
Common bottlenose dolphin	*Tursiops truncatus truncatus*	CA/OR/WA Offshore	X				-; N	1,924 (0.54; 1,255; 2014)	11	≥1.6
		California Coastal	X				-; N	453 (0.06; 346; 2011)	2.7	≥2.0
Striped dolphin	*Stenella coeruleoalba*	CA/OR/WA	X				-; N	29,211 (0.2; 24,782; 2014)	238	≥0.8
ENP long-beaked common dolphin	*Delphinus delphis bairdii*	California	X				-; N	101,305 (0.49; 68,432; 2014)	657	≥35.4
Common	*D. d. delphis*	CA/OR/WA	X				-; N	969,861	8,393	≥40

dolphin								(0.17; 839,325; 2014)		
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	CA/OR/WA	X				-; N	26,814 (0.28; 21,195; 2014)	191	7.5
		North Pacific[9]		X	X		-; N	26,880 (n/a; 26,880; 1990)	n/a	0
Northern right whale dolphin	*Lissodelphis borealis*	CA/OR/WA	X				-; N	26,556 (0.44; 18,608; 2014)	179	3.8
Risso's dolphin	*Grampus griseus*	CA/OR/WA	X				-; N	6,336 (0.32; 4,817; 2014)	46	≥3.7
Killer whale	*Orcinus orca*[5]	ENP Offshore	X	X	X		-; N	300 (0.1; 276; 2012)	2.8	0
		West Coast Transient[8]	X	X			-; N	243 (n/a; 2009)	2.4	0
		AT1 Transient		X			D; Y	7 (n/a; 2017)	0.01	0
		ENP Gulf of Alaska, Aleutian Islands, and Bering Sea Transient		X	X	X	-; N	587 (n/a; 2012)	5.9	1
		ENP Southern Resident	X				E/D; Y	77 (n/a; 2017)	0.13	0
		ENP Northern Resident	X	X			-; N	261 (n/a; 2011)	1.96	0
		ENP Alaska Resident		X	X		-; N	2,347 (n/a; 2012)	24	1
Short-finned pilot whale	*Globicephala macrorhynchus*	CA/OR/WA	X				-; N	836 (0.79; 466; 2014)	4.5	1.2
Family Phocoenidae (porpoises)										
Harbor porpoise	*Phocoena phocoena vomerina*	Morro Bay	X				-; N	2,917 (0.41; 2,102; 2012)	21	≥0.6
		Monterey Bay	X				-; N	3,715 (0.51; 2,480; 2011)	25	0
		San Francisco-Russian River	X				-; N	9,886 (0.51; 6,625; 2011)	66	0
		Northern CA/Southern OR	X				-; N	35,769 (0.52; 23,749; 2011)	475	≥0.6
		Northern OR/WA Coast	X				-; N	21,487 (0.44; 15,123; 2011)	151	≥3
		Washington Inland Waters	X				-; N	11,233 (0.37; 8,308; 2015)	66	≥7.2
		Southeast Alaska*		X			-; Y	Unknown	n/a	34
		Gulf of Alaska[9]		X			-; Y	31,046	n/a	72

								(0.21; 26,064; 1998)		
		Bering Sea[9]			X	X	-; Y	48,215 (0.22; 40,150; 1999)	n/a	0.4
Dall's porpoise	*Phocoenoides dalli dalli*	CA/OR/WA	X				-; N	25,750 (0.45; 17,954; 2014)	172	0.3
		Alaska[9]		X	X		-; N	83,400 (0.097; n/a; 1991)	n/a	38
Order Carnivora – Superfamily Pinnipedia										
Family Otariidae (eared seals and sea lions)										
Guadalupe fur seal	*Arctocephalus philippii townsendi*	Mexico to California	X				T/D; Y	20,000 (n/a; 15,830; 2010)	542	≥3.2[13]
Northern fur seal	*Callorhinus ursinus*	Pribilof Islands/Eastern Pacific	X	X	X		D; Y	620,660 (0.2; 525,333; 2016)	11,295	457
		California	X	X			-; N	14,050 (n/a; 7,524; 2013)	451	1.8
California sea lion	*Zalophus californianus*	United States	X				-; N	257,606 (n/a; 233,515; 2014)	14,011	≥319
Steller sea lion	*Eumetopias jubatus monteriensis*	Eastern U.S.	X	X			-; N	41,638 (n/a; 2015)	2,498	108
	E. j. jubatus	Western U.S.		X	X		E/D; Y	54,267 (n/a; 2017)	326	252
Family Phocidae (earless seals)										
Bearded seal	*Erignathus barbatus nauticus*	Alaska (Beringia DPS)*			X	X	T/D; Y	273,676*	8,210*	557
Harbor seal	*Phoca vitulina richardii*	California	X				-; N	30,968 (n/a; 27,348; 2012)	1,641	43
		OR/WA Coast[9]	X				-; N	24,732 (0.12; 22,380; 1999)	n/a	10.6
		Washington Northern Inland Waters[9]	X				-; N	11,036 (0.15; 7,213; 1999)	n/a	9.8
		Southern Puget Sound[9]	X				-; N	1,568 (0.15; 1,025; 1999)	n/a	3.4
		Hood Canal[9]	X				-; N	1,088 (0.15; 711; 1999)	n/a	0.2
		Clarence Strait[11]		X			-; N	31,634 (4,518; 29,093; 2011)	1,222	41
		Dixon/Cape Decision[11]		X			-; N	18,105 (1,614;	703	69

								16,727; 2011)		
		Sitka/Chatham Strait[11]		X			-; N	14,855 (2,106; 13,212; 2011)	555	77
		Lynn Canal/ Stephens Passage[11]		X			-; N	9,478 (1,467; 8,605; 2011)	155	50
		Glacier Bay/Icy Strait[11]		X			-; N	7,210 (1,866; 5,647; 2011)	169	104
		Cook Inlet/ Shelikof Strait[11]		X			-; N	27,386 (3,328; 25,651; 2011)	770	234
		Prince William Sound[11]		X			-; N	29,889 (13,846; 27,936; 2011)	838	279
		South Kodiak[11]		X			-; N	19,199 (2,429; 17,479; 2011)	314	128
		North Kodiak[11]		X			-; N	8,321 (1,619; 7,096; 2011)	298	37
		Bristol Bay[11]			X		-; N	32,350 (6,882; 28,146; 2011)	1,182	142
		Pribilof Islands[11]			X		-; N	232 (n/a; 2010)	7	0
		Aleutian Islands[11]			X		-; N	6,431 (882; 5,772; 2011)	173	90
Spotted seal	*P. largha*	Alaska			X	X	-; N	461,625 (n/a; 423,237; 2013)	12,697	329
Ringed seal	*Pusa hispida hispida*	Alaska*			X	X	T/D; N	Unknown	n/a	1,054
Ribbon seal	*Histriophoca fasciata*	Alaska			X	X	-; N	184,000 (n/a; 163,086; 2013)	9,785	3.9
Northern elephant seal	*Mirounga angustirostris*	California Breeding	X	X	X		-; N	179,000 (n/a; 81,368; 2010)	4,882	8.8

*Stocks marked with an asterisk were addressed in further detail in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638).

[1]WC: west coast (including Puget Sound); GOA: Gulf of Alaska; BSAI: Bering Sea/Aleutian Islands; CSBS: Chukchi Sea/Beaufort Sea

[2]Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[3]NMFS marine mammal stock assessment reports at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*. CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable. For most stocks of killer whales, the abundance values represent direct counts of individually identifiable animals; therefore there is only a single abundance estimate with no associated CV. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the species' (or similar species') life history to arrive at a best abundance estimate; therefore, there is no associated CV. In these cases, the minimum abundance may represent actual counts of all animals ashore.

[4]These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, subsistence hunting, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value. All M/SI values are as presented in the draft 2018 SARs.

[5]Transient and resident killer whales are considered unnamed subspecies (Committee on Taxonomy, 2018).

[6]No information is available to estimate the population size of dwarf sperm whales off the U.S. west coast, as no sightings of this species have been documented despite numerous vessel surveys of this region (Carretta *et al*., 2017). Dwarf and pygmy sperm whales are difficult to differentiate at sea but, based on previous sighting surveys and historical stranding data, it is thought that recent ship survey sightings were of pygmy sperm whales.

[7]The six species of Mesoplodont beaked whales occurring in the CA/OR/WA region are managed as a single stock due to the rarity of records and the difficulty in distinguishing these animals to species in the field. Based on bycatch and stranding records, it appears that *M. carlhubbsi* is the most commonly encountered of these species (Carretta *et al*., 2008; Moore and Barlow, 2013).

[8]The abundance estimate for this stock includes only animals from the "inner coast" population occurring in inside waters of southeastern Alaska, British Columbia, and Washington—excluding animals from the "outer coast" subpopulation, including animals from California—and therefore should be considered a minimum count. For comparison, the previous abundance estimate for this stock, including counts of animals from California that are now considered outdated, was 354.

[9]Abundance estimates for these stocks are not considered current. PBR is therefore considered undetermined for these stocks, as there is no current minimum abundance estimate for use in calculation. We nevertheless present the most recent abundance estimates, as these represent the best available information for use in this document.

[10]Despite current abundance information for the Cook Inlet stock of beluga whales, a PBR cannot be calculated because the stock does not meet the assumptions inherent to the use of the PBR equation, *i.e.*, despite low abundance relative to historical estimates and low known levels of human-caused mortality since 1999, the stock is not increasing (for unknown reasons).

[11]For harbor seal stocks in Alaska, abundance estimates are based on aerial survey data with survey counts adjusted to account for the influence of external conditions (*e.g.*, tide, time of day, day of year) on the number of seals hauled out on shore, and counted, during the surveys. Corrections are also made to account for the proportion of seals in the water and not counted. The minimum population estimate is calculated as the lower bound of the 80 percent credible interval obtained from the posterior distribution of abundance estimates. For these stocks, an estimate of standard error associated with the abundance estimate is provided rather than CV. For the Pribilof Islands stock, the abundance estimate represents a complete count of individuals in the stock.

[12]These stocks are known to spend a portion of their time outside the U.S. EEZ. Therefore, the PBR presented here is the allocation for U.S. waters only and is a portion of the total. The total PBR for blue whales is 9.3 (one-quarter allocation for U.S. waters), and the total for CA/OR/WA humpback whales is 33.4 (one half allocation for U.S. waters). Annual M/SI presented for these species is for U.S. waters only.

[13]This represents annual M/SI in U.S. waters. However, the vast majority of M/SI for this stock—the level of which is unknown—would likely occur in Mexican waters.

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Additional detail regarding the affected species and stocks was provided in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638) and is not repeated here.

Take Reduction Planning—Take reduction plans are designed to help recover and prevent the depletion of strategic marine mammal stocks that interact with certain U.S. commercial fisheries, as required by Section 118 of the MMPA. The immediate goal of a take reduction plan is to reduce, within

six months of its implementation, the M/SI of marine mammals incidental to commercial fishing to less than the PBR level. The long-term goal is to reduce, within five years of its implementation, the M/SI of marine mammals incidental to commercial fishing to insignificant levels, approaching a zero serious injury and mortality rate, taking into account the economics of the fishery, the availability of existing technology, and existing state or regional fishery management plans. Take reduction teams are convened to develop these plans.

There are no take reduction plans currently in effect for Alaskan fisheries. For marine mammals off the U.S. west coast, there is currently one take reduction plan in effect (Pacific Offshore Cetacean Take Reduction Plan). The goal of this plan is to reduce M/SI of several marine mammal stocks incidental to the California thresher shark/swordfish drift gillnet fishery (CA DGN). A team was convened in 1996 and a final plan produced in 1997 (62 FR 51805; October 3, 1997). Marine mammal stocks of concern initially included the California, Oregon, and Washington stocks for beaked whales, short-finned pilot whales, pygmy sperm whales, sperm whales, and humpback whales. The most recent five-year averages of M/SI for these stocks are below PBR. More information is available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/pacific-offshore-cetacean-take-reduction-plan.* Of the stocks of concern, the AFSC requested the authorization of incidental M/SI for the short-finned pilot whale only (on behalf of IPHC; see ''Estimated Take'' later in this document). The most recent reported average annual human-caused mortality for short-finned pilot whales (2010–14) is 1.2 animals. The IPHC does not use drift gillnets in its fisheries research program; therefore, take reduction measures applicable to the CA DGN fisheries are not relevant.

Unusual Mortality Events (UME)—A UME is defined under the MMPA as a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response. From 1991 to the present, there have been 19 formally recognized UMEs on the U.S. west coast or in Alaska involving species under NMFS' jurisdiction. The only currently ongoing investigations involve Guadalupe fur seals and California sea lions along the west coast. Increased strandings of Guadalupe fur seals (up to eight times the historical average) have occurred along the entire coast of California. These increased strandings were reported beginning in January 2015 and peaked from April through June 2015, but have remained well above average through 2018. Findings from the majority of stranded animals include malnutrition with secondary bacterial and parasitic infections. Beginning in January 2013, elevated strandings of California sea lion pups were observed in southern California, with live sea lion strandings nearly three times higher than the historical average. Findings to date indicate that a likely contributor to the large number of stranded, malnourished pups was a change in the availability of sea lion prey for nursing mothers, especially sardines. These UMEs are occurring in the same areas and the causes and mechanisms of this remain under investigation (*www.fisheries.noaa.gov/national/marine-life-distress/2015-2019-guadalupe-fur-seal-unusual-mortality-event-california; www.fisheries.noaa.gov/national/marine-life-distress/2013-2017-california-sea-lion-unusual-mortality-event-california*; accessed March 18, 2019).

Another recent, notable UME involved large whales and occurred in the western Gulf of Alaska and off of British Columbia, Canada. Beginning in May 2015, elevated large whale mortalities (primarily fin and humpback whales) occurred in the areas around Kodiak Island, Afognak Island, Chirikof Island, the Semidi Islands, and the southern shoreline of the Alaska Peninsula. Although most carcasses have been non-retrievable as they were discovered floating and in a state of moderate to severe decomposition, the UME is likely attributable to ecological factors, *i.e.,* the 2015 El Niño, ''warm water blob,'' and the Pacific Coast domoic acid bloom. The dates of the UME are considered to be from May 22 through December 31, 2015 (western Gulf of Alaska) and from April 23, 2015, through April 16, 2016 (British Columbia). More information is available online at *www.fisheries.noaa.gov/national/marine-life-distress/2015-2016-large-whale-unusual-mortality-event-western-gulf-alaska.*

Additional UMEs in the past ten years include those involving ringed, ribbon, spotted, and bearded seals (collectively ''ice seals'') (2011; disease); harbor porpoises in California (2008; cause determined to be ecological factors); Guadalupe fur seals in the Northwest (2007; undetermined); large whales in California (2007; human interaction); cetaceans in California (2007; undetermined); and harbor porpoises in the Pacific Northwest (2006; undetermined). For more information on UMEs, please visit: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-unusual-mortality-events.*

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.,* low-frequency cetaceans). Subsequently, NMFS (2016) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 dB threshold from the normalized composite audiograms, with an exception for lower limits for low-frequency cetaceans where the result was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. The functional groups and the associated frequencies are indicated below (note that these frequency ranges correspond to the range for the composite group, with the entire range not necessarily reflecting the capabilities of every species within that group):

- Low-frequency cetaceans (mysticetes): Generalized hearing is estimated to occur between approximately 7 Hz and 35 kHz, with best hearing estimated to be from 100 Hz to 8 kHz;
- Mid-frequency cetaceans (larger toothed whales, beaked whales, and most delphinids): Generalized hearing is estimated to occur between approximately 150 Hz and 160 kHz, with best hearing from 10 to less than 100 kHz;
- High-frequency cetaceans (porpoises, river dolphins, and members of the genera *Kogia* and *Cephalorhynchus;* including two members of the genus *Lagenorhynchus,*

on the basis of recent echolocation data and genetic data): Generalized hearing is estimated to occur between approximately 275 Hz and 160 kHz;

- Pinnipeds in water; Phocidae (true seals): Functional hearing is estimated to occur between approximately 50 Hz to 86 kHz, with best hearing between 1–50 kHz;
- Pinnipeds in water; Otariidae (eared seals): Functional hearing is estimated to occur between 60 Hz and 39 kHz for Otariidae, with best hearing between 2–48 kHz.

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Forty marine mammal species (30 cetacean and ten pinniped (four otariid and six phocid) species) have the potential to co-occur with AFSC and IPHC research activities. Please refer to Table 1. Of the 30 cetacean species that may be present, eight are classified as low-frequency cetaceans (*i.e.,* all mysticete species), eighteen are classified as mid-frequency cetaceans (*i.e.,* all delphinid and ziphiid species and the sperm whale), and four are classified as high-frequency cetaceans (*i.e.,* porpoises and *Kogia* spp.).

Potential Effects of the Specified Activity on Marine Mammals and Their Habitat

We provided discussion of the potential effects of the specified activity on marine mammals and their habitat in our **Federal Register** Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638). Therefore, we do not reprint the information here but refer the reader to that document. That document included a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The ''Estimated Take'' section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The ''Negligible Impact Analysis and Determination'' section considers the content of this section and the material it references, the ''Estimated Take'' section, and the ''Mitigation'' section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

Estimated Take

This section provides an estimate of the number of incidental takes proposed for authorization, which will inform both NMFS's consideration of whether the number of takes is ''small'' and the negligible impact determination.

Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines ''harassment'' as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Take of marine mammals incidental to AFSC research activities could occur as a result of (1) injury or mortality due to gear interaction (Level A harassment, serious injury, or mortality); (2) behavioral disturbance resulting from the use of active acoustic sources (Level B harassment only); or (3) behavioral disturbance of pinnipeds resulting from incidental approach of researchers (Level B harassment only). Below we describe how the potential take is estimated.

Estimated Take Due to Gear Interaction

In order to estimate the number of potential incidents of take that could occur through gear interaction, we first consider AFSC's and IPHC's record of past such incidents, and then consider in addition other species that may have similar vulnerabilities to AFSC trawl and IPHC longline gear as those species for which we have historical interaction records. Historical interactions with research gear are described in Table 2, and we anticipate that all species that interacted with AFSC or IPHC fisheries research gear historically could potentially be taken in the future. Available records are for the years 2004 through present (AFSC) and 1998 through present (IPHC). All historical AFSC interactions have taken place in the GOARA, and have occurred during use of either the Cantrawl surface trawl net or with a bottom trawl. Historical IPHC interactions have occurred during use of bottom longlines and were located in the GOARA (southeast Alaska) or west coast (offshore Oregon). AFSC has no historical interactions for any longline or gillnet gear, and there are no historical interactions in the BSAIRA or CSBSRA. Please see Figures 6–1 and C–6 in the AFSC request for authorization for specific locations of these incidents.

TABLE 2—HISTORICAL INTERACTIONS WITH RESEARCH GEAR

Gear	Survey	Date	Location [1]	Species	Number killed	Number released alive	Total
Bottom longline	IPHC setline	7/17/1999	West coast	Harbor seal	1		1
Bottom longline	IPHC setline	7/23/2003	SE Alaska	Steller sea lion	1		1
Bottom longline	IPHC setline	7/16/2007	SE Alaska	Steller sea lion	1		1
Bottom trawl	Gulf of Alaska Biennial Shelf and Slope Bottom Trawl Groundfish Survey.	6/13/2009	GOARA	Northern fur seal [2].	1		1
Bottom longline	IPHC setline	7/31/2011	West coast	Harbor seal	1		1
Surface trawl (Cantrawl)	Gulf of Alaska Assessment	9/10/2011	GOARA	Dall's porpoise	1		1
Surface trawl (Cantrawl)	Gulf of Alaska Assessment	9/21/2011	GOARA	Dall's porpoise	1		1
Bottom trawl	ADFG Large Mesh Trawl Survey	9/5/2014	GOARA	Harbor seal	1		1
Bottom longline	IPHC setline	7/22/2016	SE Alaska	Steller sea lion	1		1
Bottom longline	Longline Stock Assessment Survey.	8/18/2019	GOARA	Steller sea lion	1		1
Total individuals captured				Northern fur seal	1		1
				Dall's porpoise	2		2
				Harbor seal	3		3
				Steller sea lion	4		4

[1] AFSC interactions are described by research area. IPHC research programs are not distributed according to AFSC research areas and so are described by geographic location. Specific locations of all interactions are shown in Figures 6–1 and C–6 of the application.

[2] Based on the location of this incident, the captured animal was believed to be from the eastern Pacific stock of northern fur seal.

In order to use these historical interaction records as the basis for the take estimation process, and because we have no specific information to indicate whether any given future interaction might result in M/SI versus Level A harassment, we conservatively assume that all interactions equate to mortality for these fishing gear interactions. AFSC and IPHC have historically had only infrequent interactions with marine mammals, *e.g.,* from 2004–2015 AFSC conducted at least 1,250 trawl tows per year, with only three (a fourth occurred during a survey conducted by the Alaska Department of Fish and Game) marine mammal interactions (Table 2). However, we assume that any of the historically-captured species (northern fur seal, Dall's porpoise, harbor seal, Steller sea lion) could be captured in any year.

We consider all of the interaction records available to us. In consideration of these data, we assume that one individual of each of the historically-captured species (Table 2) could be captured per year over the course of the five-year period of validity for these regulations, specific to relevant survey operations where the species occur (*e.g.,* one harbor seal taken per year specific to IPHC longline survey operations, one Dall's porpoise taken per year specific to AFSC trawl survey operations in GOARA, one Dall's porpoise taken per year specific to AFSC trawl survey operations in BSAIRA). Table 3 shows the projected five-year total captures of the historically-captured species for this rule, as described above, for AFSC trawl gear and IPHC longline gear only. Although more than one individual Dall's porpoise has been captured in a single year, interactions have historically occurred only infrequently. Therefore, we believe that the above assumption appropriately reflects the likely total number of individuals involved in research gear interactions over a five-year period and that the assumption is precautionary in that it separately accounts for potential vulnerability of species to gear interaction in the different research areas. Harbor seals are expected to have less frequency of interaction than the fur seal or Steller sea lion due to their more inshore and coastal distribution. AFSC requested authorization of one take per harbor seal stock in each relevant research area over the 5-year period (note that these takes are not included in Table 3 but are incorporated in Table 5). These estimates are based on the assumption that annual effort (*e.g.,* total annual trawl tow time) over the five-year authorization period will be approximately equivalent to the annual effort during prior years for which we have interaction records.

TABLE 3—PROJECTED FIVE-YEAR TOTAL TAKE FOR HISTORICALLY CAPTURED SPECIES [1]

Gear	Species	AFSC GOARA average annual take (total)	AFSC BSAIRA average annual take (total)	IPHC average annual take (total) [2]	Projected 5-year total
Trawl	Northern fur seal [3]	1 (5)	1 (5)		10
	Dall's porpoise	1 (5)	1 (5)		10
Longline	Harbor seal			1 (5)	5
	Steller sea lion [4]			1 (5)	5

[1] Projected takes based on species interaction records in analogous commercial fisheries (versus historical records) are incorporated in Table 5 below, as are all projected takes within the CSBSRA.

[2] IPHC activities are not defined by the three AFSC research areas and may occur anywhere within the IPHC research areas off the U.S. west coast or in the Gulf of Alaska and Bering Sea. Projected IPHC harbor seal takes could occur to any stock of harbor seal. Historical IPHC takes of Steller sea lion have been of the eastern DPS (based on geographic location), but potential future takes could occur to either eastern or western DPS.

[3] Referring to expected potential future takes of eastern Pacific stock northern fur seals in AFSC trawl gear on basis of historical record. Additional take of California stock northern fur seals, inferred based on vulnerability and geographic overlap, are incorporated in Table 5 below.

[4] Immediately prior to publication of this final rule, a Steller sea lion take occurred in AFSC longline operations in the GOARA (Table 2). However, this incident does not affect our overall evaluation of the likelihood for Steller sea lion take due to AFSC longline operations, and we retain the analytical structure discussed herein.

As background to the process of determining which species not historically taken may have sufficient vulnerability to capture in AFSC gear to justify inclusion in the take authorization request (or whether species historically taken may have vulnerability to gears in which they have not historically been taken or additional vulnerability not reflected above due to activity in other areas such as the CSBSRA), we note that the AFSC is NMFS' research arm in Alaska and may be considered as a leading source of expert knowledge regarding marine mammals (*e.g.,* behavior, abundance, density) in the areas where they operate. The species for which the take request was formulated were selected by the AFSC, and we have concurred with these decisions. We also note that, in addition to consulting NMFS's List of Fisheries (LOF; described below), the historical interaction records described above for the IPHC informed our consideration of risk of interaction due to AFSC's use of longline gear (for which there are no historical interaction records).

In order to estimate the total potential number of incidents of takes that could occur incidental to the AFSC's use of trawl, longline, and gillnet gear, and IPHC's use of longline gear, over the five-year period of validity for these regulations (*i.e.,* takes additional to those described in Table 3), we first consider whether there are additional species that may have similar vulnerability to capture in trawl or longline gear as the five species described above that have been taken historically and then evaluate the potential vulnerability of these and other species to additional gears.

We believe that the Pacific white-sided dolphin likely has similar vulnerability to capture in trawl gear as the Dall's porpoise, given similar habitat preferences and with documented vulnerability to capture in both commercial and research trawls. The harbor porpoise is also considered vulnerable to capture in trawl gear, but likely with less frequency of interaction given its inshore and coastal distribution. The Steller sea lion is considered to have similar vulnerability to capture in trawl gear as the northern fur seal, given similar habitat preferences and with documented vulnerability to capture in commercial trawls. In addition to the one northern fur seal per year from the eastern Pacific stock that could be captured in each

relevant research area (Table 3), we assume that one additional northern fur seal from the California stock could be taken in trawl gear over the 5-year period. The assumed lesser frequency of interaction is due to presumed lower occurrence of California stock fur seals in AFSC research areas. Only approximately half of this relatively small stock of fur seals ranges to the eastern GOARA. Similar to the harbor porpoise, spotted seals are expected to have similar vulnerability to capture in trawl gear as historically captured pinnipeds, but with less frequency of interaction due to its more inshore and coastal distribution. AFSC requested authorization of one take of spotted seal in each relevant research area over the 5-year period. This assumption is supported by LOF records (Table 5).

Historical IPHC take records also illustrate likely similar vulnerabilities to capture by AFSC longline gear (as demonstrated by a recent take by AFSC longline gear in the GOARA; Table 2). However, due to reduced use of longline gear by AFSC relative to IPHC activity, we expect that one Steller sea lion from each DPS could be taken over the 5-year period in each relevant research area. Despite IPHC records of harbor seal capture in longline gear, we do not believe that AFSC use of longline gear presents similar risk, in part due to the relative infrequency of use but also because of a lack of expected geographic overlap between AFSC longline sets and harbor seal occurrence. IPHC conducts many more longline sets per year but also conducts survey effort further inshore than does AFSC (water depths of 18 m). No take of harbor seals incidental to AFSC longline survey effort is authorized. Northern fur seals and California sea lions are considered analogous to Steller sea lions due to similar vulnerability to capture in longline gear. AFSC has requested authorization of one take over the 5-year period for each fur seal stock in each research area where fur seals are found and, on behalf of IPHC, requested authorization of one fur seal per year (which could be from either stock) and one California sea lion over the 5-year period. Finally, the spotted seal may have similar vulnerability to interaction with longline gear as the harbor seal, but likely with less frequency given the limited overlap between the species range and survey effort. We authorize one take over the 5-year period for IPHC survey effort, but none for AFSC given very little expected overlap. These assumptions are supported by LOF records (Table 5).

In order to evaluate the potential vulnerability of additional species to trawl and longline and of all species to gillnet gear, we first consulted the LOF, which classifies U.S. commercial fisheries into one of three categories according to the level of incidental marine mammal M/SI that is known to occur on an annual basis over the most recent five-year period (generally) for which data has been analyzed: Category I, frequent incidental M/SI; Category II, occasional incidental M/SI; and Category III, remote likelihood of or no known incidental M/SI. We provide summary information, as presented in the 2018 LOF (83 FR 5349; February 7, 2018), in Table 4. In order to simplify information presented, and to encompass information related to other similar species from different locations, we group marine mammals by genus (where there is more than one member of the genus found in U.S. waters). Where there are documented incidents of M/SI incidental to relevant commercial fisheries, we note whether we believe those incidents provide sufficient basis upon which to infer vulnerability to capture in AFSC or IPHC research gear. For a listing of all Category I, II, and II fisheries using relevant gears, associated estimates of fishery participants, and specific locations and fisheries associated with the historical fisheries takes indicated in Table 4 below, please see the 2018 LOF. For specific numbers of marine mammal takes associated with these fisheries, please see the relevant SARs. More information is available online at *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-list-fisheries* and *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.*

TABLE 4—U.S. COMMERCIAL FISHERIES INTERACTIONS FOR TRAWL, LONGLINE, AND GILLNET GEAR FOR RELEVANT SPECIES

Species [1]	Trawl [2]	Vulnerability inferred?	Longline [2]	Vulnerability inferred?	Gillnet [2]	Vulnerability inferred?
North Pacific right whale	N	N	N	N	N	N
Bowhead whale	N	N	N	N	N	N
Gray whale	Y	N	N	N	Y	N
Humpback whale	Y	N	Y	N	Y	N
Balaenoptera spp	Y	N	Y	N	Y	N
Sperm whale	N	N	Y	Y	Y	N
Kogia spp	n/a	n/a	Y	N	n/a	n/a
Cuvier's beaked whale	N	N	Y	N	N	N
Baird's beaked whale	N	N	N	N	N	N
Mesoplodon spp	N	N	Y	N	N	N
Beluga whale	N	Y	N	N	Y	N
Common bottlenose dolphin	n/a	n/a	Y	Y	n/a	n/a
Stenella spp	n/a	n/a	Y	N	n/a	n/a
Delphinus spp	n/a	n/a	Y	Y	n/a	n/a
Lagenorhynchus spp	Y	Y	N	N	Y	Y
Northern right whale dolphin	n/a	n/a	N	N	n/a	n/a
Risso's dolphin	n/a	n/a	Y	Y	n/a	n/a
Killer whale	Y	N	Y	Y	N	N
Globicephala spp	n/a	n/a	Y	Y	n/a	n/a
Harbor porpoise	Y	Y	Y	N	Y	Y
Dall's porpoise [3]	n/a	n/a	Y	Y	Y	Y
Guadalupe fur seal [4]	n/a	n/a	N	N	n/a	n/a
Northern fur seal [3]	n/a	n/a	Y	Y	Y	Y
California sea lion [5]	n/a	n/a	Y	Y	n/a	n/a
Steller sea lion [3]	Y	Y	n/a	n/a	Y	Y
Bearded seal	Y	Y	N	N	N	N
Phoca spp [3]	Y	Y	n/a	n/a	Y	Y

TABLE 4—U.S. COMMERCIAL FISHERIES INTERACTIONS FOR TRAWL, LONGLINE, AND GILLNET GEAR FOR RELEVANT SPECIES—Continued

Species [1]	Trawl [2]	Vulnerability inferred?	Longline [2]	Vulnerability inferred?	Gillnet [2]	Vulnerability inferred?
Ringed seal	Y	Y	Y	Y	N	N
Ribbon seal	Y	Y	N	N	N	N
Northern elephant seal	Y	Y	Y	N	Y	N

[1] Please refer to Table 1 for taxonomic reference.
[2] Indicates whether any member of the genus has documented incidental M/SI in a U.S. fishery using that gear in the most recent five-year timespan for which data is available. For those species not expected to occur in Alaskan waters, trawl and gillnet gear are not applicable (these gears would only be used in Alaskan waters).
[3] This exercise is considered ''not applicable'' for those species historically captured by AFSC or IPHC gear. Historical record, rather than analogy, is considered the best information upon which to base a take estimate.
[4] It is likely that Guadalupe fur seals are taken in Mexican fisheries, but there are no available records.
[5] There are no records of take for California sea lions in commercial longline fisheries, but there have been multiple takes of California sea lions in longline surveys conducted by NMFS's Southwest Fisheries Science Center. We therefore infer vulnerability for the species to research longline gear.

Information related to incidental M/SI in relevant commercial fisheries is not, however, the sole determinant of whether it may be appropriate to authorize take incidental to AFSC survey operations. A number of factors (*e.g.,* species-specific knowledge regarding animal behavior, overall abundance in the geographic region, density relative to AFSC survey effort, feeding ecology, propensity to travel in groups commonly associated with other species historically taken) were taken into account by the AFSC to determine whether a species may have a similar vulnerability to certain types of gear as historically taken species. In some cases, we have determined that species without documented M/SI may nevertheless be vulnerable to capture in AFSC research gear. Similarly, we have determined that some species groups with documented M/SI are not likely to be vulnerable to capture in AFSC gear. In these instances, we provide further explanation below. Those species with no records of historical interaction with AFSC research gear and no documented M/SI in relevant commercial fisheries, and for which the AFSC has not requested the authorization of incidental take, are not considered further in this section. The AFSC believes generally that any sex or age class of those species for which take authorization is requested could be captured.

In order to estimate a number of individuals that could potentially be captured in AFSC research gear for those species not historically captured, we first determine which species may have vulnerability to capture in a given gear. Of those species, we then determine whether any may have similar propensity to capture in a given gear as a historically captured species. For these species, we assume it is possible that take could occur while at the same time contending that, absent significant range shifts or changes in habitat usage, capture of a species not historically captured would likely be a very rare event. Therefore, we assume that capture would be a rare event such that authorization of a single take over the five-year period, for each region where the gear is used and the species is present, is likely sufficient to capture the risk of interaction.

Trawl—From the 2018 LOF, we infer vulnerability to trawl gear for the bearded seal, ringed seal, ribbon seal, and northern elephant seal. This is in addition to the species for which vulnerability is indicated by historical AFSC interactions (described above).

For the beluga whale, we believe that there is a reasonable likelihood of incidental take in trawl gear although there are no records of incidental M/SI in relevant commercial fisheries. Commercial fisheries using trawl gear have largely been absent from areas where beluga whales occur and, in particular, there are no commercial trawl fisheries in the CSBSRA. AFSC examined the potential for incidental take of beluga whales by evaluating the areas of overlap between their planned fisheries research activities and beluga whale distribution, considering the seasonality of both the research activities and the species distributions as well as other factors that may influence the degree of potential overlap such as sea and shorefast ice occurrence. In considering the possible take of beluga whales, the AFSC considered that beluga whales show behavior similar to large dolphins and porpoises. While no belugas have been taken in AFSC research or commercial trawl fisheries, there have been takes of large dolphins elsewhere in trawls. Beluga whales may occur in summer periods within the Chukchi and Beaufort Sea regions where the AFSC may be conducting trawl surveys. Thus, AFSC requested authorization of one take each from two stocks of beluga whale (eastern Chukchi stock and Beaufort Sea stock) in fisheries research trawl surveys over the 5-year authorization period. Potential spatiotemporal overlap between AFSC trawl survey activities and other beluga whale stocks was evaluated and determined to not support a take authorization request for other stocks of beluga whale.

It is also possible that a captured animal may not be able to be identified to species with certainty. Certain pinnipeds and small cetaceans are difficult to differentiate at sea, especially in low-light situations or when a quick release is necessary. For example, a captured delphinid that is struggling in the net may escape or be freed before positive identification is made. Therefore, the AFSC requested the authorization of incidental take for one unidentified pinniped and one unidentified small cetacean in trawl gear for each research area over the course of the five-year period of authorization. One exception is for small cetaceans in the CSBSRA, as no cetacean interactions with trawl gear are expected in that region (other than the aforementioned potential beluga whale interactions), as small cetaceans occur only rarely in this region.

Longline—The process is the same as is described above for trawl gear. From the 2018 LOF, we infer vulnerability to longline gear for the Dall's porpoise, Risso's dolphin, bottlenose dolphin, common dolphin, short-finned pilot whale, and ringed seal. This is in addition to the species for which vulnerability is indicated by historical AFSC interactions (described above).

Based on the 2018 LOF and historical observations of sperm whale and killer whale interactions with research longline gear, we also infer vulnerability

to interaction with longline gear for killer whales (Alaska resident stock only) and sperm whales (North Pacific stock only). Although we generally believe that, despite records of interaction with analogous commercial fisheries, the potential for incidental take of any large whale (*i.e.,* baleen whales or sperm whale), beaked whale, or killer whale in research gear is so unlikely as to be discountable, there is a long history of attempted depredation of longline gear by animals from these stocks in Alaska, with take of these species having occurred in commercial fisheries. Between 2010 and 2014, five sperm whales are recorded as having been seriously injured in the Gulf of Alaska sablefish longline fishery, while there have been two instances of killer whale M/SI in BSAI longline fisheries (Helker *et al.,* 2016). Cetaceans have never been caught or entangled in AFSC or IPHC longline research gear. If interactions occur, marine mammals depredate hooked fish from the gear, but typically leave the hooks attached although occasionally bent or broken (*i.e.,* evidence of the interaction). Certain species, particularly killer whales in the Bering Sea and sperm whales in the Gulf of Alaska, are commonly attracted to longline fishing operations and are adept at removing fish from longline gear as it is retrieved. Although we consider it unlikely that AFSC or IPHC research activities would result in any takes of either sperm whales or killer whales, AFSC requested the authorization of such take as a precautionary measure, given the observed interactions of these species with research longline gear. Since longline depredation by sperm whales is known to occur only in Alaskan waters, requested take is limited to the North Pacific stock. Commercial fishery takes have been reported for both transient and resident stocks of killer whale. However, the Alaska resident stock consumes fish (*e.g.,* Herman *et al.,* 2005) and is most likely to be involved in depredation of research catch. In contrast, transient killer whales feed on marine mammals and are less likely to interact with research longline gears, and the limited effort for AFSC and IPHC research surveys compared to commercial fisheries does not justify take authorization for transient whales.

Although there are LOF interaction records in longlines for stenellid dolphin species, the harbor porpoise, and the northern elephant seal, we do not authorize take of these species through use of longline. No take is anticipated for the striped dolphin or for the long-beaked stock of common dolphin and coastal stock of bottlenose dolphin because of their expected pelagic and southerly distributions (respectively) relative to expected IPHC survey effort. Harbor porpoise have only been recorded as taken in commercial fisheries through use of pelagic longline in the Atlantic Ocean; there are no records of incidental take of harbor porpoise in longline fisheries in Alaska or off the U.S. west coast. Similarly, the LOF indicates that elephant seal interaction occurred only in a Hawaiian pelagic longline fishery.

As described for trawl gear, it is also possible that a captured animal may not be able to be identified to species with certainty. Although we expect that cetaceans would likely be able to be identified when captured in longline gear, pinnipeds are considered more likely to escape before the animal may be identified. Therefore, the AFSC requested the authorization of incidental take for one unidentified pinniped for each relevant research area, in addition to one unidentified pinniped captured in IPHC surveys, over the course of the five-year period of authorization.

Gillnet—The process is the same as is described above for trawl gear. From the 2018 LOF, we infer vulnerability to gillnet gear for the Pacific white-sided dolphin, harbor porpoise, Dall's porpoise, harbor seal, northern fur seal, and Steller sea lion. Gillnets are used only in Prince William Sound and at Little Port Walter in southeast Alaska. Therefore, only one take is authorized for relevant stocks of the vulnerable species over the 5-year period. This includes both the eastern Pacific and California stocks of northern fur seal and the Prince William Sound and Sitka/Chatham Strait stocks of harbor seal. Although there are LOF interaction records in gillnets for the sperm whale, beluga whale, and the northern elephant seal, we do not expect these species to be present in areas where AFSC plans to use gillnet research gear and no take of these species through use of gillnet is authorized.

AFSC also expects that there may be an interaction resulting in escape of an unidentified cetacean in gillnet gear, and requested the authorization of incidental take for one unidentified cetacean over the course of the five-year period of authorization.

TABLE 5—TOTAL ESTIMATED TAKE DUE TO GEAR INTERACTION, 2019–24 [1]

Species	Estimated 5-year total, trawl	Estimated 5-year total, longline (AFSC)	Estimated 5-year total, longline (IPHC) [2]	Estimated 5-year total, gillnet	Total, all gears
Sperm whale (North Pacific)		1 (GOARA)	1		2
Beluga whale (eastern Chukchi)	1 (CSBSRA)				1
Beluga whale (Beaufort Sea)	1 (CSBSRA)				1
Bottlenose dolphin (offshore)			1		1
Common dolphin			1		1
Pacific white-sided dolphin	5 (GOARA)			1	6
Risso's dolphin			1		1
Killer whale (Alaska resident)		1 (BSAIRA)	1		2
Short-finned pilot whale			1		1
Harbor porpoise (Southeast Alaska) [3]					1
Harbor porpoise (Gulf of Alaska)	1			1	2
Harbor porpoise (Bering Sea)	1				1
Dall's porpoise	10 (5 GOARA/5 BSAIRA)	2 (1 GOARA/1 BSAIRA)	1	1	14
Northern fur seal (eastern Pacific)	10 (5 GOARA/5 BSAIRA)	2 (1 GOARA/1 BSAIRA)	5	1	13–18
Northern fur seal (California)	1 (GOARA)	1 (GOARA)		1	3–8
California sea lion			1		1
Steller sea lion (eastern)	5	1	5	1	7–12
Steller sea lion (western)	10 (5 GOARA/5 BSAIRA)	2 (1 GOARA/1 BSAIRA)	1	13–18	
Bearded seal	2 (1 BSAIRA/1 CSBSRA)				2
Harbor seal [4]	12		5	2	19
Spotted seal	2 (1 BSAIRA/1 CSBSRA)		1		3
Ringed seal	2 (1 BSAIRA/1 CSBSRA)	1	1		4
Ribbon seal	2 (1 BSAIRA/1 CSBSRA)				2
Northern elephant seal	1				1

TABLE 5—TOTAL ESTIMATED TAKE DUE TO GEAR INTERACTION, 2019–24 [1]—Continued

Species	Estimated 5-year total, trawl	Estimated 5-year total, longline (AFSC)	Estimated 5-year total, longline (IPHC) [2]	Estimated 5-year total, gillnet	Total, all gears
Unidentified pinniped [5]	3	2	1		6
Unidentified small cetacean [6]	2			1	3

[1] Please see Table 4 and preceding text for derivation of take estimates. Takes numbers are informed by area- and gear-specific vulnerability. However, IPHC longline takes are considered separately. AFSC use of gillnets occurs only in the GOARA. Only trawl gear is used in the CSBSRA.

[2] Potential IPHC takes are not specific to any area or stock. For example, the one expected take of Dall's porpoise could occur to an individual of either the CA/OR/WA or Alaska stocks. For harbor seals, although five total takes may occur over the 5-year period of the regulations, no more than one take is anticipated from any given stock.

[3] For harbor porpoise in southeast Alaska, we authorize take of one animal in all gears combined (*i.e.,* trawl and gillnet) over the 5-year period. In general, harbor porpoise would be expected to have the same vulnerability to particular gears regardless of stock. However, AFSC plans to use acoustic pingers on surface trawl nets in southeast Alaska, reducing the likelihood of porpoise interaction with that gear. Use of acoustic pingers is planned for gillnets in both southeast Alaska and in the Gulf of Alaska.

[4] For trawl gear, the numbers include one take during the 5-year period for each Alaskan harbor seal stock (three stocks in BSAIRA and nine stocks in GOARA). For gillnet gear, the numbers include one take during the 5-year period for the Prince William Sound and Sitka/Chatham Strait stocks. For IPHC longline surveys, the five takes could occur for any harbor seal stock, though no more than one take would be expected to occur over the 5-year period for any given stock.

[5] Includes one unidentified pinniped in each research area (trawl) and one unidentified pinniped in the GOARA and BSAIRA and for IPHC surveys (longline).

[6] Includes one unidentified small cetacean in the GOARA and BSAIRA (trawl) and one unidentified cetacean in the GOARA (gillnet). This is not anticipated to apply to harbor porpoise in southeast Alaska, as the already low probability of gear interaction is further reduced through use of additional mitigation (described in footnote 3).

Whales—For large whales (baleen whales and sperm whales) and small whales (considered here to be beaked whales, *Kogia* spp., and killer whales), observed M/SI is extremely rare for trawl and gillnet gear and, for most of these species, only slightly more common in longline gear. Furthermore, with the exception of sperm whales and killer whales (who attempt to depredate longline gear), most of these species longline interactions are with pelagic gear. Baleen whale interactions with longline gear represent entanglements in pelagic mainlines, while beaked whales and *Kogia* spp. typically have a pelagic distribution resulting in a lack of spatial overlap with bottom longline fisheries. Although whale species could become captured or entangled in AFSC gear, the probability of interaction is extremely low considering the lower level of effort relative to that of commercial fisheries. For example, there were estimated to be three total incidents of sperm whale M/SI in the Hawaii deep-set longline fishery over a five-year period. This fishery has 129 participants, and the fishery as a whole exerts substantially greater effort in a given year than does the AFSC. In a very rough estimate, we can say that these three estimated incidents represent an insignificant per-participant interaction rate of 0.005 per year, despite the greater effort. Similarly, there were zero documented interactions over a five-year period in the Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline fishery, despite a reported fishing effort of 8,044 sets and 5,955,800 hooks in 2011 alone (Garrison and Stokes, 2012). With an average soak time of ten to fourteen hours, this represents an approximate minimum of almost sixty million hook hours. AFSC and IPHC effort is a small fraction of this per year. Other large whales and small whales have similarly low rates of interaction with commercial fisheries, despite the significantly greater effort. In addition, most large whales and small whales generally have, with few exceptions, very low densities in areas where AFSC and IPHC research occurs relative to other species (see Tables 6–8). With exceptions for sperm whales and killer whales that are known to depredate research longline gear in particular locations, we believe it extremely unlikely that any large whale or small whale would be captured or entangled in AFSC research gear.

Estimated Take Due to Acoustic Harassment

As described in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638; ''Potential Effects of the Specified Activity on Marine Mammals and Their Habitat''), we believe that AFSC use of active acoustic sources has, at most, the potential to cause Level B harassment of marine mammals. In order to attempt to quantify the potential for Level B harassment to occur, NMFS (including the AFSC and acoustics experts from other parts of NMFS) developed an analytical framework considering characteristics of the active acoustic systems described in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638) under ''Description of Active Acoustic Sound Sources,'' their expected patterns of use, and characteristics of the marine mammal species that may interact with them. We believe that this quantitative assessment benefits from its simplicity and consistency with current NMFS acoustic guidance regarding Level B harassment but caution that, based on a number of deliberately precautionary assumptions, the resulting take estimates are likely an overestimate of the potential for behavioral harassment to occur as a result of the operation of these systems. Additional details on the approach used and the assumptions made that result in these estimates are described below.

As discussed in in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638), available information suggests that the likelihood of auditory injury occurring is exceedingly small. Therefore, potential auditory injury is not considered further in this analysis.

The assessment paradigm for active acoustic sources used in AFSC fisheries research is relatively straightforward and has a number of key simplifying assumptions. NMFS's current acoustic guidance requires in most cases that we assume Level B harassment occurs when a marine mammal receives an acoustic signal at or above a simple step-function threshold. Estimating the number of exposures at the specified received level (160 dB rms) requires several determinations, each of which is described sequentially below:

(1) A detailed characterization of the acoustic characteristics of the effective sound source or sources in operation;

(2) The operational areas exposed to levels at or above those associated with Level B harassment when these sources are in operation;

(3) A method for quantifying the resulting sound fields around these sources; and

(4) An estimate of the average density for marine mammal species in each area of operation.

Quantifying the spatial and temporal dimension of the sound exposure footprint (or ''swath width'') of the active acoustic devices in operation on moving vessels and their relationship to the average density of marine mammals enables a quantitative estimate of the number of individuals for which sound

levels exceed the relevant threshold for each area. The number of potential incidents of Level B harassment is ultimately estimated as the product of the volume of water ensonified at 160 dB rms or higher (to a maximum depth of 500 m) and the volumetric density of animals determined from simple assumptions about their vertical stratification in the water column. Specifically, reasonable assumptions based on what is known about diving behavior across different marine mammal species were made to segregate those that predominately remain in the upper 200 m of the water column versus those that regularly dive deeper during foraging and transit. Because depths range dramatically along the margin of the continental slope that define the outer edge of the survey areas, but deeper surveyed depths rarely range over 500 m in practice, the depth range for determining volumes was set at 500 m for deep diving species. We described the approach used (including methods for estimating each of the calculations described above) and the assumptions made that result in conservative estimates in significant detail in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638). There have been no changes made to the approach, the informational inputs, or the results. Therefore, we do not repeat the discussion here and refer the reader to the Notice of Proposed Rulemaking. Summaries of the results are provided in Table 6–8 below. Note that the IPHC does not use active acoustic systems for data acquisition purposes; therefore, potential Level B harassment is only considered for AFSC survey operations in the GOARA, BSAIRA, and CSBSRA.

TABLE 6—DENSITIES AND ESTIMATED SOURCE-, STRATUM-, AND SPECIES-SPECIFIC ANNUAL ESTIMATES OF LEVEL B HARASSMENT IN THE GOARA

Species	Shallow	Deep	Area density (animals/km^2) [1]	Volumetric density (animals/km^3) [2]	Estimated Level B harassment, 0–200 m		Estimated Level B harassment, >200 m		Total
					EK60	ES60	EK60	ES60	
North Pacific right whale	X		0.005	0.027	0.1				1
Gray whale	X		1.700	8.500	4,649.4				4,650
Humpback whale (CNP)	X		0.065	0.327	115.4				116
Humpback whale (WNP)	X		0.001	0.004	1.2				2
Minke whale	X		0.001	0.006	2.1				3
Sei whale	X		0.000	0.000	0.01				1
Fin whale	X		0.020	0.100	35.3				36
Blue whale	X		0.000	0.001	0.2				1
Sperm whale		X	0.001	0.002	0.7	0.2	1.3	0.2	3
Cuvier's beaked whale		X	0.000	0.000	0.1	0	0.1	0	1
Baird's beaked whale		X	0.002	0.003	1.2	0.3	2.1	0.3	4
Stejneger's beaked whale		X	0.005	0.010	3.6	0.8	6.4	0.8	12
Beluga whale (Cook Inlet) [3]	X		0.200	1.000		2.5			3
Pacific white-sided dolphin	X		0.015	0.075	26.5	5.9			33
Killer whale (offshore)	X		0.011	0.055	19.4	4.3			24
Killer whale (west coast transient)	X		0.006	0.028	9.9	2.2			13
Killer whale (AT1 transient)	X		0.001	0.004	1.2	0.3			2
Killer whale (GOA/BSAI transient)	X		0.001	0.004	1.2	0.3			2
Killer whale (northern resident)	X		0.003	0.013	4.4	1.0			6
Killer whale (AK resident)	X		0.009	0.045	15.9	3.5			20
Harbor porpoise (GOA)	X		0.200	1.000	547.0	102.9			650
Harbor porpoise (SEAK)	X		0.110	0.550	300.8	56.6			358
Dall's porpoise	X		1.600	8.000	4,375.9	823.3			5,200
Northern fur seal (CA) [4]	X		0.044	0.219	119.5	22.5			143
Northern fur seal (EP—winter) [5]	X		0.377	1.883	458.0				459
Northern fur seal (EP—summer)	X		0.116	0.582	176.7	59.9			237
Steller sea lion (eastern; GOA-wide)	X		0.059	0.294	160.8	30.3			192
Steller sea lion (eastern; E144)	X		0.221	1.103	603.3	113.5			717
Steller sea lion (eastern; W144)	X		0.001	0.006	3.3	0.6			4
Steller sea lion (western; GOA-wide)	X		0.035	0.176	96.0	18.1			115
Steller sea lion (western; E144)	X		0.003	0.015	7.9	1.5			10
Steller sea lion (western; W144)	X		0.048	0.239	130.7	24.6			156
Harbor seal (Clarence Strait)	X		0.099	0.494	174.6	38.7			214
Harbor seal (Dixon/Cape Decision)	X		0.057	0.283	99.9	22.1			123
Harbor seal (Sitka/Chatham Strait)	X		0.046	0.232	82.0	18.2			101
Harbor seal (Lynn Canal/Stephens Passage)	X		0.030	0.148	52.3	11.6			64
Harbor seal (Glacier Bay/Icy Strait)	X		0.022	0.113	39.8	8.8			49
Harbor seal (Cook Inlet/Shelikof Strait)	X		0.031	0.156	54.9	12.2			68
Harbor seal (Prince William Sound)	X		0.061	0.303	107.2	23.7			131
Harbor seal (South Kodiak)	X		0.022	0.109	38.6	8.5			48
Harbor seal (North Kodiak)	X		0.009	0.472	16.7	3.7			21
Northern elephant seal		X	0.020	0.045	15.9	3.5	28.3	3.6	52

[1] Sources and derivation of marine mammal density information are provided in Table 6–10d of AFSC's application.

[2] Volumetric density estimates derived by dividing area density estimates by 0.2 km (for shallow species) or 0.5 km (for deep species), corresponding with defined depth strata.

[3] The EK60 is not used in areas of Cook Inlet where beluga whales may be present.

[4] Individuals from the California stock of northern fur seals are assumed to occur only east of 144° W.

[5] The EK60 is not used in winter in areas where the northern fur seal may be present.

TABLE 7—DENSITIES AND ESTIMATED SOURCE-, STRATUM-, AND SPECIES-SPECIFIC ANNUAL ESTIMATES OF LEVEL B HARASSMENT IN THE BSAIRA

Species	Shallow	Deep	Area density (animals/km^2) [1]	Volumetric density (animals/km^3) [2]	Estimated Level B harassment, 0–200 m			Estimated Level B harassment, >200 m		Total
					EK60	ES60	7111	EK60	ES60	
North Pacific right whale	X		0.000	0.002	0.1					1
Bowhead whale	X		0.017	0.085	41.5					42
Gray whale	X		0.380	1.900	928.5					929
Humpback whale (CNP)	X		0.018	0.092	45.0					45
Humpback whale (WNP)	X		0.002	0.008	3.9					4
Minke whale	X		0.002	0.011	4.3					5
Sei whale	X		0.000	0.001	0.4					1
Fin whale	X		0.001	0.007	3.4					4
Sperm whale		X	0.008	0.016	6.5	5.5	0.3	4.2	1.9	19
Cuvier's beaked whale		X	0.000	0.000	0.1	0.1	0	0	0	1
Baird's beaked whale		X	0.002	0.003	1.4	1.2	0.1	0.9	0.4	4
Stejneger's beaked whale		X	0.001	0.002	1.0	0.8	0	0.6	0.3	3
Beluga whale (Bristol Bay) [3]	X		0.700	3.500						0
Beluga whale (eastern Bering Sea)	X		0.242	0.484	493.7	419.5	24.9			939
Pacific white-sided dolphin	X		0.005	0.027	11.0	9.4	0.6			21
Killer whale (offshore)	X		0.011	0.055	22.4	19.1	1.1			43
Killer whale (GOA/BSAI transient)	X		0.003	0.013	5.3	4.5	0.3			11
Killer whale (AK resident)	X		0.001	0.005	2.0	1.7	0.1			4
Harbor porpoise (Bering Sea)	X		0.450	2.250	918.1	780.1	46.3			1,745
Dall's porpoise	X		0.033	0.164	79.9	58.8	3.4			143
Northern fur seal (EP—winter) [4]	X		0.075	0.377	18.2					19
Northern fur seal (EP—summer)	X		0.215	1.075	473.6	386.6				861
Steller sea lion (eastern)	X		0.000	0.001	0.2	0.2				1
Steller sea lion (western)	X		0.012	0.060	29.1	21.4				51
Bearded seal	X		0.394	1.968	961.5	707.4				1,669
Harbor seal (Aleutian Islands)	X		0.003	0.014	5.9	5.0				11
Harbor seal (Pribilof Islands)	X		0.000	0.001	0.2	0.2				1
Harbor seal (Bristol Bay)	X		0.015	0.072	29.5	25.1				55
Spotted seal	X		0.601	3.006	1,125.1	827.8				1,953
Ringed seal	X		0.349	1.746	853.3	627.7				1,481
Ribbon seal	X		0.241	1.204	450.5	331.4				782

[1] Sources and derivation of marine mammal density information are provided in Table 6–10d of AFSC's application.
[2] Volumetric density estimates derived by dividing area density estimates by 0.2 km (for shallow species) or 0.5 km (for deep species), corresponding with defined depth strata.
[3] Acoustic sources considered in this analysis are not used in areas of Bristol Bay where beluga whales may occur.
[4] The ES60 is not used during winter in BSAIRA.

TABLE 8—DENSITIES AND ESTIMATED SOURCE-, STRATUM-, AND SPECIES-SPECIFIC ANNUAL ESTIMATES OF LEVEL B HARASSMENT IN THE CSBSRA

Species	Shallow	Deep	Area density (animals/km^2) [1]	Volumetric density (animals/km^3) [2]	Estimated Level B harassment, 0–200 m	Total
					ES60	
Bowhead whale	X		2.270	11.350		0
Gray whale	X		0.010	0.050		0
Humpback whale (CNP)	X		0.000	0.001		0
Humpback whale (WNP)	X		0.000	0.000		0
Minke whale	X		0.000	0.001		0
Fin whale	X		0.000	0.001		0
Beluga whale (Beaufort Sea)	X		0.008	0.040	3.0	3
Beluga whale (eastern Chukchi Sea)	X		0.008	0.040	3.0	3
Killer whale (GOA/BSAI transient)	X		0.000	0.000	0.003	1
Harbor porpoise (Bering Sea)	X		0.000	0.001	0.03	1
Bearded seal	X		0.175	0.875	58.0	58
Spotted seal	X		0.460	2.302	152.5	153
Ringed seal	X		1.765	8.825	584.6	585
Ribbon seal	X		0.184	0.922	75	62

[1] Sources and derivation of marine mammal density information are provided in Table 6–10d of AFSC's application.
[2] Volumetric density estimates derived by dividing area density estimates by 0.2 km.

Estimated Take Due to Physical Disturbance

Take due to physical disturbance could potentially happen, as it is likely that some pinnipeds will move or flush from known haul-outs into the water in response to the presence or sound of AFSC vessels or researchers. Such events could occur as a result of unintentional approach during survey activity, in the GOARA or BSAIRA only. Physical disturbance would result in no greater than Level B harassment. Behavioral responses may be considered according to the scale shown in Table 9 and based on the method developed by Mortenson (1996). We consider responses corresponding to Levels 2–3 to constitute Level B harassment.

TABLE 9—PINNIPED RESPONSE TO DISTURBANCE

Level	Type of response	Definition
1	Alert	Seal head orientation or brief movement in response to disturbance, which may include turning head towards the disturbance, craning head and neck while holding the body rigid in a u-shaped position, changing from a lying to a sitting position, or brief movement of less than twice the animal's body length.
2	Movement	Movements away from the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degrees.
3	Flight	All retreats (flushes) to the water.

The AFSC estimated potential incidents of Level B harassment due to physical disturbance (Table 10) by considering the number of seals believed to potentially be present at affected haul-outs or rookeries and the number of visits within a certain distance of the haul-out expected to be made by AFSC researchers. The take estimation method was described in detail in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638). AFSC does not believe that any research activities would result in physical disturbance of pinnipeds other than Steller sea lions or harbor seals. Similarly, no disturbance is expected of eastern Steller sea lions due to a lack of overlap between known haul-outs or rookeries and research activities.

Although not all individuals on ''disturbed'' haul-outs would necessarily actually be disturbed, and some haul-outs may experience some disturbance at distances greater than expected, we believe that this approach is a reasonable effort towards accounting for this potential source of disturbance. The results are likely overestimates, because some activities may only be one-time, sporadic, or biennial activities, but are assumed to happen on an annual basis.

TABLE 10—ESTIMATED ANNUAL LEVEL B HARASSMENT OF PINNIPEDS ASSOCIATED WITH DISTURBANCE BY RESEARCHERS

Species	Stock	Estimated annual Level B harassment
Harbor seal	Clarence Strait	28
	Dixon/Cape Decision	30
	Sitka/Chatham Strait	864
	Lynn Canal/Stephens Passage	45
	Glacier Bay/Icy Strait	20
	Cook Inlet/Shelikof Strait	2,554
	Prince William Sound	3,063
	South Kodiak	3,761
	North Kodiak	885
	Bristol Bay	132
	Pribilof Islands	28
	Aleutian Islands	290
Steller sea lion	Western DPS (GOARA)	3,082
	Western DPS (BSAIRA)	112

Effects of Specified Activities on Subsistence Uses of Marine Mammals

The availability of the affected marine mammal stocks or species for subsistence uses may be impacted by this activity. The subsistence uses that may be affected and the potential impacts of the activity on those uses are described in section 8 of the AFSC's application. Measures included in this rulemaking to reduce the impacts of the activity on subsistence uses are described in Appendix B of the AFSC's application. For full details, please see those documents. Last, the information from this section and the Mitigation section is analyzed to determine whether the necessary findings may be made in the Unmitigable Adverse Impact Analysis and Determination section.

Mitigation

Under Section 101(a)(5)(A) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (''least practicable adverse impact''). NMFS does not have a regulatory definition for ''least practicable adverse impact.'' However, NMFS's implementing regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or

stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, implementation of the measure(s) is expected to reduce impacts to marine mammal species or stocks, their habitat, and their availability for subsistence uses. This analysis will consider such things as the nature of the potential adverse impact (such as likelihood, scope, and range), the likelihood that the measure will be effective if implemented, and the likelihood of successful implementation.

(2) The practicability of the measure for applicant implementation. Practicability of implementation may consider such things as cost, impact on operations, personnel safety, and practicality of implementation.

The following suite of mitigation measures and procedures, *i.e.,* measures taken to monitor, avoid, or minimize the encounter and potential take of marine mammals, will be employed by the AFSC during research cruises and activities. These procedures are the same whether the survey is conducted AFSC, IPHC, or is an AFSC-supported survey, which may be conducted onboard a variety of vessels, *e.g.,* on board a NOAA vessel or charter vessel. The procedures described are based on protocols used during previous research surveys and/or best practices developed for commercial fisheries using similar gear. The AFSC conducts a large variety of research operations, but only activities using trawl, longline, and gillnet gears are expected to present a reasonable likelihood of resulting in incidental take of marine mammals. AFSC's past survey operations have resulted in marine mammal interactions. These protocols are designed to continue the past record of few interactions while providing credible, documented, and safe encounters with observed or captured animals. Mitigation procedures will be focused on those situations where mammals, in the best professional judgement of the vessel operator and Chief Scientist (CS), pose a risk of incidental take. In many instances, the AFSC will use streamlined protocols and training for protected species developed in collaboration with the North Pacific Groundfish and Halibut Observer Program.

The AFSC has invested significant time and effort in identifying technologies, practices, and equipment to minimize the impact of the proposed activities on marine mammal species and stocks and their habitat. These efforts have resulted in the consideration of many potential mitigation measures, including those the AFSC has determined to be feasible and has implemented in recent years as a standard part of sampling protocols. These measures include the move-on rule mitigation protocol (also referred to in the preamble as the move-on rule), protected species visual watches and use of acoustic pingers on gillnet gear and on surface trawls in southeast Alaska.

Effective monitoring is a key step in implementing mitigation measures and is achieved through regular marine mammal watches. Marine mammal watches are a standard part of conducting AFSC fisheries research activities, particularly those activities that use gears that are known to or potentially interact with marine mammals. Marine mammal watches and monitoring occur during daylight hours prior to deployment of gear (*e.g.,* trawls, gillnets, and longline gear), and they continue until gear is brought back on board. If marine mammals are sighted in the area and are considered to be at risk of interaction with the research gear, then the sampling station is either moved or canceled or the activity is suspended until the marine mammals are no longer in the area. On smaller vessels, the CS and the vessel operator are typically those looking for marine mammals and other protected species. When marine mammal researchers are on board (distinct from marine mammal observers dedicated to monitoring for potential gear interactions), they will record the estimated species and numbers of animals present and their behavior using protocols similar or adapted from the North Pacific Groundfish and Halibut Observer Program. If marine mammal researchers are not on board or available, then the CS in cooperation with the vessel operator will monitor for marine mammals and provide training as practical to bridge crew and other crew to observe and record such information. Because marine mammals are frequently observed in Alaskan waters, marine mammal observations may be limited to those animals that directly interact with or are near to the vessel or gear. NOAA vessels, chartered vessels, and affiliated vessels or studies are required to monitor interactions with marine mammals but are limited to reporting direct interactions, dead animals, or entangled whales.

General Measures

Coordination and Communication—When AFSC survey effort is conducted aboard NOAA-owned vessels, there are both vessel officers and crew and a scientific party. Vessel officers and crew are not composed of AFSC staff but are employees of NOAA's Office of Marine and Aviation Operations (OMAO), which is responsible for the management and operation of NOAA fleet ships and aircraft and is composed of uniformed officers of the NOAA Commissioned Corps as well as civilians. The ship's officers and crew provide mission support and assistance to embarked scientists, and the vessel's Commanding Officer (CO) has ultimate responsibility for vessel and passenger safety and, therefore, decision authority. When AFSC survey effort is conducted aboard cooperative platforms (*i.e.,* non-NOAA vessels), ultimate responsibility and decision authority again rests with non-AFSC personnel (*i.e.,* vessel's master or captain). Decision authority includes the implementation of mitigation measures (*e.g.,* whether to stop deployment of trawl gear upon observation of marine mammals). The scientific party involved in any AFSC survey effort is composed, in part or whole, of AFSC staff and is led by a CS. Therefore, because the AFSC—not OMAO or any other entity that may have authority over survey platforms used by AFSC—is the applicant to whom any incidental take authorization issued under the authority of these regulations would be issued, we require that the AFSC take all necessary measures to coordinate and communicate in advance of each specific survey with OMAO, or other relevant parties, to ensure that all mitigation measures and monitoring requirements described herein, as well as the specific manner of implementation and relevant event-contingent decision-making processes, are clearly understood and agreed-upon. This may involve description of all required measures when submitting cruise instructions to OMAO or when completing contracts with external entities. AFSC will coordinate and conduct briefings at the outset of each survey and as necessary between ship's crew (CO/master or designee(s), as appropriate) and scientific party in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures. The CS will be responsible for coordination with the Officer on Deck (OOD; or equivalent on non-NOAA platforms) to ensure that requirements, procedures, and decision-

making processes are understood and properly implemented.

As described previously, for IPHC longline survey operations, applicable mitigation, monitoring, and reporting requirements would be conveyed from the AFSC to the IPHC via Letters of Acknowledgement issued by the AFSC pursuant to the MSA. Although IPHC survey effort is not conducted aboard NOAA platforms, the same communication and coordination requirements would apply to IPHC surveys.

Vessel Speed—Vessel speed during active sampling rarely exceeds 5 kn, with typical speeds being 2–4 kn. Transit speeds vary from 6–14 kn but average 10 kn. These low vessel speeds minimize the potential for ship strike (see ''Potential Effects of the Specified Activity on Marine Mammals and Their Habitat'' in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638) for an in-depth discussion of ship strike). In addition, when research vessels are operating in areas and times where greater risk is expected due to marine mammal presence, *e.g.,* Seguam Pass during humpback whale migration, additional crew are brought up to the bridge to monitor for whales. In such cases vessel captains may also reduce speed to improve the chances of observing whales and avoiding them. At any time during a survey or in transit, if a crew member or designated marine mammal observer standing watch sights marine mammals that may intersect with the vessel course that individual will immediately communicate the presence of marine mammals to the bridge for appropriate course alteration or speed reduction, as possible, to avoid incidental collisions.

Other Gears—The AFSC deploys a wide variety of gear to sample the marine environment during all of their research cruises. Many of these types of gear (*e.g.,* plankton nets, video camera and ROV deployments) are not considered to pose any risk to marine mammals and are therefore not subject to specific mitigation measures. However, at all times when the AFSC is conducting survey operations at sea, the OOD and/or CS and crew will monitor for any unusual circumstances that may arise at a sampling site and use best professional judgment to avoid any potential risks to marine mammals during use of all research equipment.

Handling Procedures—Handling procedures are those taken to return a live animal to the sea or process a dead animal. The AFSC will implement a number of handling protocols to minimize potential harm to marine mammals that are incidentally taken during the course of fisheries research activities. In general, protocols have already been prepared for use on commercial fishing vessels; these have been adapted from the North Pacific Fishery Observer Manual. These procedures are expected to increase post-release survival and, in general, following a ''common sense'' approach to handling captured or entangled marine mammals will present the best chance of minimizing injury to the animal and of decreasing risks to scientists and vessel crew. Handling or disentangling marine mammals carries inherent safety risks, and using best professional judgment and ensuring human safety is paramount.

Captured live or injured marine mammals are released from research gear and returned to the water as soon as possible with no gear or as little gear remaining on the animal as possible. Animals are released without removing them from the water if possible and data collection is conducted in such a manner as not to delay release of the animal(s) or endanger the crew. AFSC staff will be instructed on how to identify different species; handle and bring marine mammals aboard a vessel; assess the level of consciousness; remove fishing gear; and return marine mammals to water. For further information regarding handling procedures, please see section 11.7 of AFSC's application.

Other Measures—AFSC scientists are aware of the need to prevent or minimize disturbance of marine mammals when operating vessels nearshore around pinniped rookeries and haul-outs, and other places where marine mammals are aggregated. Minimum approaches shall be not less than 1 km from the aggregation area.

Trawl Survey Visual Monitoring and Operational Protocols

Visual monitoring protocols, described above, are an integral component of trawl mitigation protocols. Observation of marine mammal presence and behaviors in the vicinity of AFSC trawl survey operations allows for the application of professional judgment in determining the appropriate course of action to minimize the incidence of marine mammal gear interactions. The OOD, CS or other designated member of the scientific party, and crew standing watch on the bridge visually scan surrounding waters with the naked eye and rangefinding binoculars (or monocular) for marine mammals prior to, during, and until all trawl operations are completed. Some sets may be made at night or other limited visibility conditions, when visual observation may be conducted using the naked eye and available vessel lighting with limited effectiveness.

Most research vessels engaged in trawling will have their station in view for 15 minutes or 2 nmi prior to reaching the station, depending upon the sea state and weather. Many vessels will inspect the tow path before deploying the trawl gear, adding another 15 minutes of observation time and gear preparation prior to deployment. Lookouts immediately alert the OOD and CS as to their best estimate of the species and number of animals observed and any observed animal's distance, bearing, and direction of travel relative to the ship's position. If any marine mammals are sighted around the vessel before setting gear, the vessel may be moved away from the animals to a different section of the sampling area if the animals appear to be at risk of interaction with the gear. This is what is referred to as the ''move-on'' rule.

If marine mammals are observed at or near the station, the CS and the vessel operator will determine the best strategy to avoid potential takes based on the species encountered, their numbers and behavior, their position and vector relative to the vessel, and other factors. For instance, a whale transiting through the area and heading away from the vessel may not require any move, or may require only a short move from the initial sampling site, while a pod of dolphins gathered around the vessel may require a longer move from the initial sampling site or possibly cancellation of the station if the dolphins follow the vessel. After moving on, if marine mammals are still visible from the vessel and appear to be at risk, the CS may decide, in consultation with the vessel operator, to move again or to skip the station. In many cases, the survey design can accommodate sampling at an alternate site. In most cases, gear is not deployed if marine mammals have been sighted from the ship in its approach to the station unless those animals do not appear to be in danger of interactions with the gear, as determined by the judgment of the CS and vessel operator. The efficacy of the ''move-on'' rule is limited during night time or other periods of limited visibility; although operational lighting from the vessel illuminates the water in the immediate vicinity of the vessel during gear setting and retrieval. In these cases, it is again the judgment of the CS as based on experience and in consultation with the vessel operator to exercise due diligence and to decide on appropriate course of

action to avoid unintentional interactions.

Once the trawl net is in the water, the OOD, CS or other designated scientist, and/or crew standing watch continue to monitor the waters around the vessel and maintain a lookout for marine mammals as environmental conditions allow (as noted previously, visibility can be limited for various reasons). If marine mammals are sighted before the gear is fully retrieved, the most appropriate response to avoid incidental take is determined by the professional judgment of the OOD, in consultation with the CS and vessel operator as necessary. These judgments take into consideration the species, numbers, and behavior of the animals, the status of the trawl net operation (net opening, depth, and distance from the stern), the time it would take to retrieve the net, and safety considerations for changing speed or course. If marine mammals are sighted during haul-back operations, there is the potential for entanglement during retrieval of the net, especially when the trawl doors have been retrieved and the net is near the surface and no longer under tension. The risk of catching an animal may be reduced if the trawling continues and the haul-back is delayed until after the marine mammal has lost interest in the gear or left the area. The appropriate course of action to minimize the risk of incidental take is determined by the professional judgment of the OOD, vessel operator, and the CS based on all situation variables, even if the choices compromise the value of the data collected at the station. We recognize that it is not possible to dictate in advance the exact course of action that the OOD or CS should take in any given event involving the presence of marine mammals in proximity to an ongoing trawl tow, given the sheer number of potential variables, combinations of variables that may determine the appropriate course of action, and the need to prioritize human safety in the operation of fishing gear at sea. Nevertheless, we require a full accounting of factors that shape both successful and unsuccessful decisions, and these details will be fed back into AFSC training efforts and ultimately help to refine the best professional judgment that determines the course of action taken in any given scenario (see further discussion in ''Monitoring and Reporting'').

If trawling operations have been suspended because of the presence of marine mammals, the vessel will resume trawl operations (when practicable) only when the animals are believed to have departed the area. This decision is at the discretion of the OOD/CS and is dependent on the situation.

Standard survey protocols that are expected to lessen the likelihood of marine mammal interactions include standardized tow durations and distances. Standard bottom trawl tow durations of not more than 15–30 minutes at the target depth will typically be implemented, excluding deployment and retrieval time, to reduce the likelihood of attracting and incidentally taking marine mammals. Short tow durations, and the resulting short tow distances (typically 1–2 nmi), decrease the opportunity for marine mammals to find the vessel and investigate. The scientific crew will avoid dumping previous catches when the net is being retrieved, especially when the net is at the surface at the trawl alley. This practice of dumping fish when the net is near the vessel may train marine mammals to expect food when the net is retrieved and may capture the protected species.

In operations in areas of southeast Alaska deploying surface nets, several additional measures have been employed to minimize the likelihood of marine mammal encounters, including no offal discard prior to or during the trawling at a station, trawling of short duration and seldom at night, no trawling less than one kilometer from pinniped rookeries or haul-outs, and deployment of acoustic pingers attached on the trawl foot or head ropes. Pingers are acoustic deterrents that are intended to deter the presence of marine mammals and therefore decrease the probability of entanglement or unintended capture of marine mammals.

Acoustic Deterrent Devices—Acoustic deterrent devices (pingers) are underwater sound-emitting devices that have been shown to decrease the probability of interactions with certain species of marine mammals when fishing gear is fitted with the devices. Multiple studies have reported large decreases in harbor porpoise mortality (approximately eighty to ninety percent) in bottom-set gillnets (nets composed of vertical panes of netting, typically set in a straight line and either anchored to the bottom or drifting) during controlled experiments (*e.g.,* Kraus *et al.,* 1997; Trippel *et al.,* 1999; Gearin *et al.,* 2000; Palka *et al.,* 2008). Pingers (10 kHz, 132 dB, 300 ms every 4 s) would be deployed on surface trawl nets deployed in southeast Alaska. Pingers would also be deployed on gillnets. Please see ''Marine Mammal Hearing'' for reference to functional and best hearing ranges for marine mammals.

Longline Survey Visual Monitoring and Operational Protocols

Visual monitoring requirements for all longline surveys are similar to the general protocols described above for trawl surveys. Please see that section for full details of the visual monitoring protocol and the move-on rule mitigation protocol. In summary, requirements for longline surveys are to: (1) Conduct visual monitoring prior to arrival on station; (2) implement the move-on rule if marine mammals are observed within the area around the vessel and may be at risk of interacting with the vessel or gear; (3) deploy gear as soon as possible upon arrival on station (depending on presence of marine mammals); and (4) maintain visual monitoring effort throughout deployment and retrieval of the longline gear. As was described for trawl gear, the OOD, CS, or watch leader will use best professional judgment to minimize the risk to marine mammals from potential gear interactions during deployment and retrieval of gear. If marine mammals are detected during setting operations and are considered to be at risk, immediate retrieval or suspension of operations may be warranted. If operations have been suspended because of the presence of marine mammals, the vessel will resume setting (when practicable) only when the animals are believed to have departed the area. If marine mammals are detected during retrieval operations and are considered to be at risk, haul-back may be postponed. These decisions are at the discretion of the OOD/CS and are dependent on the situation.

As for trawl surveys, some standard survey protocols are expected to minimize the potential for marine mammal interactions. Soak times are typically short relative to commercial fishing operations, measured from the time the last hook is in the water to when the first hook is brought out of the water. AFSC longline protocols specifically prohibit chumming (releasing additional bait to attract target species to the gear). Spent bait and offal are discarded away from the longline retrieval area but not retained until completion of longline retrieval. Due to the volume of fish caught with each set and the length of time it takes to retrieve the longline (up to eight hours), the retention of spent bait and offal until the gear is completely retrieved is not possible.

Whales, particularly killer whales in the Bering Sea and sperm whales in the Gulf of Alaska, are commonly attracted to longline fishing operations and have learned how to remove fish from

longline gear as it is retrieved. Such depredation of fish off the longline by whales can significantly affect catch rate and species composition of data collected by the survey. The effect of depredation activity on survey results has been a research subject for many years and many aspects are therefore recorded as part of normal survey protocols, including the amount of catch potentially depredated (percent of empty hooks or damaged fish), number of whales visible, behavior of whales, whale proximity to the vessel, and any whale/vessel interactions. Sperm whale depredation can be difficult to determine because they can alternate between diving deep to depredate the line and swimming at the surface eating offal (see below). The presence of sperm whales at the surface does not mean they are actively depredating the line.

The Alaska Longline Survey uses bottom longline gear with a 16-km mainline. Sets are made in the morning if no killer whales or sperm whales are present and the longline gear is allowed to soak for three hours before haul-back begins. Due to the length of the mainline and numbers of hooks involved, it takes up to eight hours to complete the haul-back. Whales have learned to associate particular sounds with longline operations and typically arrive on scene as the gear is being retrieved. Efforts have been made to avoid depredation by allowing the line to sink back down but such strategies have proved impractical as whales can wait in the area for days and fish caught on the line are then eaten by other demersal marine organisms. The only practical way to minimize depredation if whales find the vessel is to continue retrieving the gear as quickly as possible. As killer whales may also follow the survey vessel between stations, the station order has been altered to disrupt the survey pattern as a means to dissuade the animals from this behavior and to avoid continued interactions.

Gillnet Survey Visual Monitoring and Operational Protocols

Visual monitoring and operational protocols for gillnet surveys are similar to those described previously for trawl surveys, with a focus on visual observation in the survey area and avoidance of marine mammals that may be at risk of interaction with survey vessels or gear. Gillnets are not deployed if marine mammals have been sighted on arrival at the sample site. The exception is for animals that, because of their behavior, travel vector or other factors, do not appear to be at risk of interaction with the gillnet gear. If no marine mammals are present, the gear is set and monitored continuously during the soak. If a marine mammal is sighted during the soak and appears to be at risk of interaction with the gear, then the gear is pulled immediately. As noted above, pingers would be deployed on gillnets, which are used only at the Little Port Walter Research Station in southeast Alaska and in Prince William Sound.

We have carefully evaluated the AFSC's planned mitigation measures and considered a range of other measures in the context of ensuring that we prescribed the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Based on our evaluation of these measures, we have determined that the mitigation measures provide the means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for subsistence uses.

Monitoring and Reporting

In order to issue an LOA for an activity, Section 101(a)(5)(A) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of the authorized taking. NMFS's MMPA implementing regulations further describe the information that an applicant should provide when requesting an authorization (50 CFR 216.104(a)(13)), including the means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and the level of taking or impacts on populations of marine mammals.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of significant interactions with marine mammal species in action area (*e.g.,* animals that came close to the vessel, contacted the gear, or are otherwise rare or displaying unusual behavior).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) Action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.,* age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

AFSC plans to make more systematic its training, operations, data collection, animal handling and sampling protocols, etc. in order to improve its ability to understand how mitigation measures influence interaction rates and ensure its research operations are conducted in an informed manner and consistent with lessons learned from those with experience operating these gears in close proximity to marine mammals. It is in this spirit that we require the monitoring requirements described below.

Visual Monitoring

Marine mammal watches are a standard part of conducting fisheries research activities, and are implemented as described previously in ''Mitigation.'' Dedicated marine mammal visual monitoring occurs as described (1) for some period prior to deployment of most research gear; (2) throughout deployment and active fishing of all research gears; (3) for some period prior to retrieval of longline gear; and (4) throughout retrieval of all research gear. This visual monitoring is performed by trained AFSC personnel or other trained crew during the monitoring period. Observers record the species and estimated number of animals present and their behaviors, which may be valuable information towards an understanding of whether certain species may be attracted to vessels or certain survey gears. Separately, marine mammal watches are conducted by watch-standers (those navigating the vessel and other crew; these will typically not be AFSC personnel) at all times when the vessel is being operated. The primary focus for this type of watch is to avoid striking marine mammals and to generally avoid navigational hazards. These watch-standers typically have other duties associated with navigation and other vessel operations and are not required to record or report

to the scientific party data on marine mammal sightings, except when gear is being deployed or retrieved.

AFSC will also monitor disturbance of hauled-out pinnipeds resulting from the presence of researchers, paying particular attention to the distance at which different species of pinniped are disturbed. Disturbance will be recorded according to the three-point scale, representing increasing seal response to disturbance, shown in Table 9.

Training

AFSC anticipates that additional information on practices to avoid marine mammal interactions can be gleaned from training sessions and more systematic data collection standards. The AFSC will conduct annual trainings for all chief scientists and other personnel who may be responsible for conducting marine mammal visual observations or handling incidentally captured marine mammals to explain mitigation measures and monitoring and reporting requirements, mitigation and monitoring protocols, marine mammal identification, recording of count and disturbance observations, completion of datasheets, and use of equipment. Some of these topics may be familiar to AFSC staff, who may be professional biologists; the AFSC shall determine the agenda for these trainings and ensure that all relevant staff have necessary familiarity with these topics. The AFSC will work with the North Pacific Fisheries Groundfish and Halibut Observer Program to customize a new training program. The first such training will include three primary elements: (1) An overview of the purpose and need for the authorization, including mandatory mitigation measures by gear and the purpose for each, and species that AFSC is authorized to incidentally take; (2) detailed descriptions of reporting, data collection, and sampling protocols; and (3) discussion of best professional judgment (which is recognized as an integral component of mitigation implementation; see ''Mitigation'').

The second topic will include instruction on how to complete new data collection forms such as the marine mammal watch log, the incidental take form (*e.g.,* specific gear configuration and details relevant to an interaction with protected species), and forms used for species identification and biological sampling.

The third topic will include use of professional judgment in any incidents of marine mammal interaction and instructive examples where use of best professional judgment was determined to be successful or unsuccessful. We recognize that many factors come into play regarding decision-making at sea and that it is not practicable to simplify what are inherently variable and complex situational decisions into rules that may be defined on paper. However, it is our intent that use of best professional judgment be an iterative process from year to year, in which any at-sea decision-maker (*i.e.,* responsible for decisions regarding the avoidance of marine mammal interactions with survey gear through the application of best professional judgment) learns from the prior experience of all relevant AFSC personnel (rather than from solely their own experience). The outcome should be increased transparency in decision-making processes where best professional judgment is appropriate and, to the extent possible, some degree of standardization across common situations, with an ultimate goal of reducing marine mammal interactions. It is the responsibility of the AFSC to facilitate such exchange.

Handling Procedures and Data Collection

Improved standardization of handling procedures were discussed previously in ''Mitigation.'' In addition to the benefits implementing these protocols are believed to have on the animals through increased post-release survival, AFSC believes adopting these protocols for data collection will also increase the information on which ''serious injury'' determinations (NMFS, 2012a, 2012b) are based and improve scientific knowledge about marine mammals that interact with fisheries research gears and the factors that contribute to these interactions. AFSC personnel will be provided standard guidance and training regarding handling of marine mammals, including how to identify different species, bring an individual aboard a vessel, assess the level of consciousness, remove fishing gear, return an individual to water and log activities pertaining to the interaction.

AFSC will record interaction information on their own standardized forms. To aid in serious injury determinations and comply with the current NMFS Serious Injury Guidelines (NMFS, 2012a, 2012b), researchers will also answer a series of supplemental questions on the details of marine mammal interactions.

Finally, for any marine mammals that are killed during fisheries research activities, scientists will collect data and samples pursuant to Appendix D of the AFSC EA, ''Protected Species Mitigation and Handling Procedures for AFSC Fisheries Research Vessels.''

Reporting

As is normally the case, AFSC will coordinate with the relevant stranding coordinators for any unusual marine mammal behavior and any stranding, beached live/dead, or floating marine mammals that are encountered during field research activities. The AFSC will follow a phased approach with regard to the cessation of its activities and/or reporting of such events, as described in the regulatory texts following this preamble. In addition, Chief Scientists (or cruise leader, CS) will provide reports to AFSC leadership and to the Office of Protected Resources (OPR). As a result, when marine mammals interact with survey gear, whether killed or released alive, a report provided by the CS will fully describe any observations of the animals, the context (vessel and conditions), decisions made and rationale for decisions made in vessel and gear handling. The circumstances of these events are critical in enabling AFSC and OPR to better evaluate the conditions under which takes are most likely occur. We believe in the long term this will allow the avoidance of these types of events in the future.

The AFSC will submit annual summary reports to OPR including: (1) Annual line-kilometers surveyed during which the EK60, ME70, ES60, 7111 (or equivalent sources) were predominant (see ''Estimated Take by Acoustic Harassment'' for further discussion), specific to each region; (2) summary information regarding use of all longline, gillnet, and trawl gear, including number of sets, tows, etc., specific to each research area and gear; (3) accounts of all incidents of marine mammal interactions, including circumstances of the event and descriptions of any mitigation procedures implemented or not implemented and why; (4) summary information related to any disturbance of pinnipeds, including event-specific total counts of animals present, counts of reactions according to the three-point scale shown in Table 9, and distance of closest approach; and (5) a written evaluation of the effectiveness of AFSC mitigation strategies in reducing the number of marine mammal interactions with survey gear, including best professional judgment and suggestions for changes to the mitigation strategies, if any. The period of reporting will be annually, beginning one year post-issuance of any LOA, and the report must be submitted not less than ninety days following the end of a given year. Submission of this information is in service of an adaptive management framework allowing NMFS to make

appropriate modifications to mitigation and/or monitoring strategies, as necessary, during the five-year period of validity for these regulations.

NMFS has established a formal incidental take reporting system, the Protected Species Incidental Take (PSIT) database, requiring that incidental takes of protected species be reported within 48 hours of the occurrence. The PSIT generates automated messages to NMFS leadership and other relevant staff, alerting them to the event and to the fact that updated information describing the circumstances of the event has been inputted to the database. The PSIT and CS reports represent not only valuable real-time reporting and information dissemination tools but also serve as an archive of information that may be mined in the future to study why takes occur by species, gear, region, etc.

AFSC will also collect and report all necessary data, to the extent practicable given the primacy of human safety and the well-being of captured or entangled marine mammals, to facilitate serious injury (SI) determinations for marine mammals that are released alive. AFSC will require that the CS complete data forms and address supplemental questions, both of which have been developed to aid in SI determinations. AFSC understands the critical need to provide as much relevant information as possible about marine mammal interactions to inform decisions regarding SI determinations. In addition, the AFSC will perform all necessary reporting to ensure that any incidental M/SI is incorporated as appropriate into relevant SARs.

Negligible Impact Analysis and Determination

Introduction—NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be ''taken'' by mortality, serious injury, and Level A or Level B harassment, we consider other factors, such as the likely nature of any behavioral responses (*e.g.,* intensity, duration), the context of any such responses (*e.g.,* critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS's implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.,* as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, and specific consideration of take by M/SI previously authorized for other NMFS research activities).

We note here that the takes from potential gear interactions enumerated below could result in non-serious injury, but their worse potential outcome (mortality) is analyzed for the purposes of the negligible impact determination. We discuss here the connection between the mechanisms for authorizing incidental take under section 101(a)(5) for activities, such as AFSC's research activities, and for authorizing incidental take from commercial fisheries. In 1988, Congress amended the MMPA's provisions for addressing incidental take of marine mammals in commercial fishing operations. Congress directed NMFS to develop and recommend a new long-term regime to govern such incidental taking (see MMC, 1994). The need to develop a system suited to the unique circumstances of commercial fishing operations led NMFS to suggest a new conceptual means and associated regulatory framework. That concept, Potential Biological Removal (PBR), and a system for developing plans containing regulatory and voluntary measures to reduce incidental take for fisheries that exceed PBR were incorporated as sections 117 and 118 in the 1994 amendments to the MMPA.

PBR is defined in the MMPA (16 U.S.C. 1362(20)) as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population, and is a measure to be considered when evaluating the effects of M/SI on a marine mammal species or stock. Optimum sustainable population (OSP) is defined by the MMPA (16 U.S.C. 1362(9)) as the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element. A primary goal of the MMPA is to ensure that each species or stock of marine mammal is maintained at or returned to its OSP.

PBR values are calculated by NMFS as the level of annual removal from a stock that will allow that stock to equilibrate within OSP at least 95 percent of the time, and is the product of factors relating to the minimum population estimate of the stock (N_{min}); the productivity rate of the stock at a small population size; and a recovery factor. Determination of appropriate values for these three elements incorporates significant precaution, such that application of the parameter to the management of marine mammal stocks may be reasonably certain to achieve the goals of the MMPA. For example, calculation of N_{min} incorporates the precision and variability associated with abundance information and is intended to provide reasonable assurance that the stock size is equal to or greater than the estimate (Barlow *et al.,* 1995). In general, the three factors are developed on a stock-specific basis in consideration of one another in order to produce conservative PBR values that appropriately account for both imprecision that may be estimated as well as potential bias stemming from lack of knowledge (Wade, 1998).

PBR can be used as a consideration of the effects of M/SI on a marine mammal stock but was applied specifically to work within the management framework for commercial fishing incidental take. PBR cannot be applied appropriately outside of the section 118 regulatory framework for which it was designed without consideration of how it applies in section 118 and how other statutory management frameworks in the MMPA differ. PBR was not designed as an absolute threshold limiting commercial fisheries, but rather as a means to evaluate the relative impacts of those activities on marine mammal stocks. Even where commercial fishing is causing M/SI at levels that exceed PBR, the fishery is not suspended. When M/SI exceeds PBR, NMFS may develop a take reduction plan, usually with the assistance of a take reduction team. The take reduction plan will include measures to reduce and/or minimize the taking of marine mammals by commercial fisheries to a level below the stock's PBR. That is, where the total annual human-caused M/SI exceeds PBR, NMFS is not required to halt fishing activities contributing to total M/SI but rather utilizes the take reduction process to further mitigate the effects of fishery activities via additional bycatch

reduction measures. PBR is not used to grant or deny authorization of commercial fisheries that may incidentally take marine mammals.

Similarly, to the extent consideration of PBR may be relevant to considering the impacts of incidental take from activities other than commercial fisheries, using it as the sole reason to deny incidental take authorization for those activities would be inconsistent with Congress's intent under section 101(a)(5) and the use of PBR under section 118. The standard for authorizing incidental take under section 101(a)(5) continues to be, among other things, whether the total taking will have a negligible impact on the species or stock. When Congress amended the MMPA in 1994 to add section 118 for commercial fishing, it did not alter the standards for authorizing non-commercial fishing incidental take under section 101(a)(5), acknowledging that negligible impact under section 101(a)(5) is a separate standard from PBR under section 118. In fact, in 1994 Congress also amended section 101(a)(5)(E) (a separate provision governing commercial fishing incidental take for species listed under the Endangered Species Act) to add compliance with the new section 118 but kept the requirement for a negligible impact finding, showing that the determination of negligible impact and application of PBR may share certain features but are different.

Since the introduction of PBR, NMFS has used the concept almost entirely within the context of implementing sections 117 and 118 and other commercial fisheries management-related provisions of the MMPA. The MMPA requires that PBR be estimated in stock assessment reports and that it be used in applications related to the management of take incidental to commercial fisheries (*i.e.,* the take reduction planning process described in section 118 of the MMPA and the determination of whether a stock is ''strategic'' (16 U.S.C. 1362(19))), but nothing in the MMPA requires the application of PBR outside the management of commercial fisheries interactions with marine mammals.

Nonetheless, NMFS recognizes that as a quantitative metric, PBR may be useful in certain instances as a consideration when evaluating the impacts of other human-caused activities on marine mammal stocks. Outside the commercial fishing context, and in consideration of all known human-caused mortality, PBR can help inform the potential effects of M/SI caused by activities authorized under 101(a)(5)(A) on marine mammal stocks. As noted by NMFS and the USFWS in our implementation regulations for the 1986 amendments to the MMPA (54 FR 40341, September 29, 1989), the Services consider many factors, when available, in making a negligible impact determination, including, but not limited to, the status of the species or stock relative to OSP (if known), whether the recruitment rate for the species or stock is increasing, decreasing, stable, or unknown, the size and distribution of the population, and existing impacts and environmental conditions. To specifically use PBR, along with other factors, to evaluate the effects of M/SI, we first calculate a metric for each species or stock that incorporates information regarding ongoing anthropogenic M/SI into the PBR value (*i.e.,* PBR minus the total annual anthropogenic mortality/serious injury estimate), which is called ''residual PBR'' (Wood *et al.,* 2012). We then consider how the anticipated potential incidental M/SI from the activities being evaluated compares to residual PBR. Anticipated or potential M/SI that exceeds residual PBR is considered to have a higher likelihood of adversely affecting rates of recruitment or survival, while anticipated M/SI that is equal to or less than residual PBR has a lower likelihood (both examples given without consideration of other types of take, which also factor into a negligible impact determination). In such cases where the anticipated M/SI is near, at, or above residual PBR, consideration of other factors, including those outlined above as well as mitigation and other factors (positive or negative), is especially important to assessing whether the M/SI will have a negligible impact on the stock. As described above, PBR is a conservative metric and is not intended to be used as a solid cap on mortality—accordingly, impacts from M/SI that exceed residual PBR may still potentially be found to be negligible in light of other factors that offset concern, especially when robust mitigation and adaptive management provisions are included.

Alternately, for a species or stock with incidental M/SI less than 10 percent of residual PBR, we consider M/SI from the specified activities to represent an insignificant incremental increase in ongoing anthropogenic M/SI that alone (*i.e.,* in the absence of any other take) cannot affect annual rates of recruitment and survival. In a prior incidental take rulemaking and in the commercial fishing context, this threshold is identified as the significance threshold, but it is more accurately an insignificance threshold outside commercial fishing because it represents the level at which there is no need to consider other factors in determining the role of M/SI in affecting rates of recruitment and survival. Assuming that any additional incidental take by harassment would not exceed the negligible impact level, the anticipated M/SI caused by the activities being evaluated would have a negligible impact on the species or stock. This 10 percent was identified as a workload simplification consideration to avoid the need to provide unnecessary additional information when the conclusion is relatively obvious; but as described above, values above 10 percent have no particular significance associated with them until and unless they approach residual PBR.

Our evaluation of the M/SI for each of the species and stocks for which mortality could occur follows. In addition, all mortality authorized for some of the same species or stocks over the next several years pursuant to our final rulemakings for the NMFS Southwest Fisheries Science Center and the NMFS Northwest Fisheries Science Center has been incorporated into the residual PBR.

We first consider maximum potential incidental M/SI for each stock (Table 4) in consideration of NMFS's threshold for identifying insignificant M/SI take (10 percent of residual PBR (69 FR 43338; July 20, 2004)). By considering the maximum potential incidental M/SI in relation to PBR and ongoing sources of anthropogenic mortality, we begin our evaluation of whether the potential incremental addition of M/SI through AFSC research activities may affect the species' or stock's annual rates of recruitment or survival. We also consider the interaction of those mortalities with incidental taking of that species or stock by harassment pursuant to the specified activity.

Summary of Estimated Incidental Take

Here we provide a summary of the total incidental take authorization on an annual basis, as well as other information relevant to the negligible impact analysis. Table 11 shows information relevant to our negligible impact analysis concerning the total annual taking that could occur for each stock from NMFS' scientific research activities when considering incidental take previously authorized for SWFSC (80 FR 58982; September 30, 2015) and NWFSC (83 FR 36370; July 27, 2018) and AFSC. Scientific research activities conducted by the SWFSC and/or NWFSC may impact the same populations of marine mammals expected to be impacted by IPHC survey

activities occurring off of the U.S. west coast. We authorize take by M/SI over the five-year period of validity for these regulations as indicated in Table 11 below. For the purposes of the negligible impact analysis, we assume that all of these takes could potentially be in the form of M/SI; PBR is not appropriate for direct assessment of the significance of harassment.

For some stocks, a range is provided in the ''Total M/SI Authorization'' columns of Table 11 (below). In these cases, the worst case potential outcome is used to derive the value presented in the ''Estimated Maximum Annual M/SI'' column (Table 11, below). For example, we present ranges of 13–18 and 3–8 as the total take authorization over five years for the eastern Pacific and California stocks of northern fur seal, respectively. These ranges reflect that, as part of the overall take authorization for AFSC, a total of five takes of northern fur seals are expected to occur as a result specifically of IPHC longline operations. These five takes are considered as potentially accruing to either stock; therefore, we assess the consequences of the take authorization for these stocks as though the maximum could occur to both. The ten total takes expected to potentially occur as a result of SWFSC and/or NWFSC survey operations could also occur to individuals from either stock. Similarly, we assume that IPHC survey operations specifically could result in incidental take of up to five harbor seals over the five years, and that these takes could occur for any stock of harbor seal (but that no more than one take would be expected from any given stock). Therefore, although only five takes are expected from IPHC activities, we assume that one take accrues to each of the 17 harbor seal stocks that may overlap with the IPHC surveys. For the NWFSC, we assumed that nine total takes of harbor seal could occur over five years, and that these takes could occur to either the California or Oregon/Washington coast stocks. Over five years, six total takes were expected to result from NWFSC/SWFSC survey operations within Washington inland waters—potentially occurring to any of the three stocks of harbor seals occurring in those waters. The value presented for ''Estimated Maximum Annual M/SI'' for each stock reflects these considerations. Similar considerations result in the ranges given for Steller sea lions (Table 11). This stock-specific accounting does not change our expectations regarding the combined total number of takes that would actually occur for each stock, but informs our stock-specific negligible impact analysis.

We previously authorized take of marine mammals incidental to fisheries research operations conducted by the SWFSC (see 80 FR 58982 and 80 FR 68512), and NWFSC (see 81 FR 38516 and 83 FR 36370). This take would occur to some of the same stocks for which we authorize take incidental to AFSC fisheries research operations. Therefore, in order to evaluate the likely impact of the take by M/SI in this rule, we consider not only other ongoing sources of human-caused mortality but the potential mortality authorized for SWFSC/NWFSC. As used in this document, other ongoing sources of human-caused (anthropogenic) mortality refers to estimates of realized or actual annual mortality reported in the SARs and does not include authorized or unknown mortality. Below, we consider the total taking by M/SI for AFSC and previously authorized for SWFSC/NWFSC together to produce a maximum annual M/SI take level (including take of unidentified marine mammals that could accrue to any relevant stock) and compare that value to the stock's PBR value, considering ongoing sources of anthropogenic mortality (as described in footnote 4 of Table 11 and in the following discussion). PBR and annual M/SI values considered in Table 11 reflect the most recent information available (*i.e.,* draft 2018 SARs).

TABLE 11—SUMMARY INFORMATION RELATED TO AFSC ANNUAL TAKE AUTHORIZATION, 2019–24

Species [1]	Stock	Total annual Level B harassment authorization [2]	Percent of estimated population abundance	AFSC/IPHC total M/SI authorization, 2019–24 [3]	SWFSC/NWFSC total M/SI authorization	Estimated maximum annual M/SI [4]	PBR minus annual M/SI (%) [5]	Stock trend [6]
North Pacific right whale	ENP	2	6.5	0	0	0	n/a	?
Bowhead whale	Western Arctic	42	0.2	0	0	0	n/a	↑
Gray whale	ENP	5,579	21.7	0	0	0	n/a	→
Humpback whale	CNP	161	1.6	0	0	0	n/a	↑
	WNP	6	0.5	0	0	0	n/a	↑
Minke whale	Alaska	8	0.2 [8]	0	0	0	n/a	?
Sei whale	ENP	2	0.4	0	0	0	n/a	↑
Fin whale	Northeast Pacific	40	3.9 [8]	0	0	0	n/a	↑
Blue whale	ENP	1	0.1	0	0	0	n/a	→
Sperm whale	North Pacific	22	Unknown	2	0	0.4	?	?
Cuvier's beaked whale	Alaska	2	Unknown	0	0	0	n/a	?
Baird's beaked whale	Alaska	8	Unknown	0	0	0	n/a	?
Stejneger's beaked whale	Alaska	15	Unknown	0	0	0	n/a	?
Beluga whale	Beaufort Sea	3	0.0	1	0	0.2	?	↑ or →
	Eastern Chukchi Sea	3	0.1	1	0	0.2	?	?
	Eastern Bering Sea	939	13.4	0	0	0	n/a	?
	Bristol Bay	0	n/a	0	0	0	n/a	↑
	Cook Inlet	3	0.9	0	0	0	n/a	↓
Bottlenose dolphin	CA/OR/WA Offshore	0	n/a	1	11	2.8	9.4 (29.8)	?
Common dolphin	CA/OR/WA	0	n/a	1	15	3.6	8,353 (0.0)	↑
Pacific white-sided dolphin	NP	54	0.2	6	0	1.6	?	?
Risso's dolphin	CA/OR/WA	0	n/a	1	20	4.6	42.3 (10.9)	?
Killer whale	ENP Offshore	67	22.3	0	0	n/a	n/a	?
	West Coast Transient	13	5.3	0	0	n/a	n/a	↑
	AT1 Transient	2	28.6	0	0	n/a	n/a	↓
	ENP Gulf of Alaska, Aleutian Islands, and Bering Sea Transient.	14	2.4	0	0	n/a	n/a	→
	ENP Northern Resident	6	2.3	0	0	n/a	n/a	↑
	ENP Alaska Resident	24	1.0	2	0	0.4	23 (1.7)	↑
Short-finned pilot whale	CA/OR/WA	0	n/a	1	2	0.6	3.3 (18.2)	?
Harbor porpoise	Southeast Alaska	358	12.4 [8]	1	0	0.2	?	↓ or →
	Gulf of Alaska	650	2.1	2	0	0.8	?	?

TABLE 11—SUMMARY INFORMATION RELATED TO AFSC ANNUAL TAKE AUTHORIZATION, 2019–24—Continued

Species [1]	Stock	Total annual Level B harassment authorization [2]	Percent of estimated population abundance	AFSC/IPHC total M/SI authorization, 2019–24 [3]	SWFSC/ NWFSC total M/SI authorization	Estimated maximum annual M/ SI [4]	PBR minus annual M/SI (%) [5]	Stock trend [6]
	Bering Sea	1,746	3.6	1	0	0.4	?	?
Dall's porpoise	CA/OR/WA	0	n/a	1	8	2.2	171.7 (1.3)	?
	Alaska	5,343	6.4	14	0	3.4	?	?
Northern fur seal	Pribilof Islands/Eastern Pacific.	1,576	0.3	13–18	10	7.0	10,838 (0.1)	↓
	California	143	1.0	3–8		4.6	449.2 (1.0)	↑
California sea lion	United States	0	n/a	1	35	8.0	13,692 (0.1)	↑
Steller sea lion	Eastern U.S.	914	2.2	7–12	19	7.4	2,390 (0.3)	↑
	Western U.S.	3,526	6.5	13–18	0	4.6	74 (6.2)	[7] ?
Bearded seal	Alaska (Beringia DPS)	1,727	0.6	2	0	0.8	7,653 (0.0)	?
Harbor seal	California	0	n/a	1	5–14	3.6	1,598 (0.2)	→
	OR/WA Coast	0	n/a	1	2–11	2.2	?	→
	Washington Inland Waters	0	n/a	1	6	1.6	?	→
	Clarence Strait	242	0.8	2	0	0.8	1,181 (0.1)	↑
	Dixon/Cape Decision	153	0.8	2	0	0.8	634 (0.1)	↑
	Sitka/Chatham Strait	965	6.5	3	0	1.0	483 (0.2)	↑
	Lynn Canal/Stephens Passage.	109	1.2	2	0	0.8	105 (0.8)	↓
	Glacier Bay/Icy Strait	69	1.0	2	0	0.8	65 (1.2)	↑
	Cook Inlet/Shelikof Strait	2,622	9.6	2	0	0.8	536 (0.1)	↑
	Prince William Sound	3,194	10.7	3	0	1.0	559 (0.2)	↓
	South Kodiak	3,809	19.8	2	0	0.8	186 (0.4)	↓
	North Kodiak	906	10.9	2	0	0.8	261 (0.3)	↑
	Bristol Bay	187	0.6	2	0	0.8	1,040 (0.1)	↑
	Pribilof Islands	29	12.5	2	0	0.8	7 (11.4)	→
	Aleutian Islands	301	4.7	2	0	0.8	83 (1.0)	↑
Spotted seal	Alaska	2,106	0.5	3	0	1.2	12,368 (0.0)	?
Ringed seal	Alaska	2,066	1.2 [8]	4	0	1.6	?	?
Ribbon seal	Alaska	1,404	0.8	2	0	0.8	9,781.1 (0.0)	?
Northern elephant seal	California Breeding	52	0.0	1	10	2.6	4,873.2 (0.1)	↑

Please see Tables 5, 6, 7, 8, and 10 and preceding text for details.

[1] For some species with multiple stocks, indicated level of take could occur to individuals from any stock (as indicated in table). For some stocks, a range is presented.

[2] Level B harassment totals include estimated take due to acoustic harassment and, for harbor seals and Steller sea lions, estimated take due to physical disturbance. Active acoustic devices are not used for data acquisition by IPHC; therefore, no takes by acoustic harassment are expected for stocks that occur entirely outside of Alaskan waters.

[3] As explained earlier in this document, gear interaction could result in mortality, serious injury, or Level A harassment. Because we do not have sufficient information to enable us to parse out these outcomes, we present such take as a pool. For purposes of this negligible impact analysis we assume the worst case scenario (that all such takes incidental to research activities result in mortality).

[4] This column represents the total number of incidents of M/SI that could potentially accrue to the specified species or stock as a result of NMFS's fisheries research activities and is the number carried forward for evaluation in the negligible impact analysis (later in this document). To reach this total, we add one to the total for each pinniped that may be captured in trawl gear in each of the three AFSC research areas; one to the total for each pinniped that may be captured in AFSC longline gear in the GOARA and BSAIRA; and one to the total for each pinniped that may be captured in IPHC longline gear. We also add one to the total of each small cetacean that may be captured in trawl gear in the GOARA and BSAIRA and one to the total of each small cetacean that may be captured in gillnet gear (GOARA only). This represents the potential that the take of an unidentified pinniped or small cetacean could accrue to any given stock captured in that gear in that area. The take authorization is formulated as a five-year total; the annual average is used only for purposes of negligible impact analysis. We recognize that portions of an animal may not be taken in a given year.

[5] This value represents the calculated PBR less the average annual estimate of ongoing anthropogenic mortalities (*i.e.,* total annual human-caused M/SI, which is presented in the SARs) (see Table 1). In parentheses, we provide the estimated maximum annual M/SI expressed as a percentage of this value. For some stocks, a minimum population abundance value (and therefore PBR) is unavailable. In these cases, the proportion of estimated population abundance represented by the Level B harassment total and/or the proportion of residual PBR represented by the estimated maximum annual M/SI cannot be calculated.

[6] See relevant SARs for more information regarding stock status and trends. Interannual increases may not be interpreted as evidence of a trend. Based on the most recent abundance estimates, harbor seal stocks may have reached carrying capacity and appear stable. A time series of stock-specific abundance estimates for harbor porpoise shows either increasing or stable estimates, but it is not statistically valid to infer a trend.

[7] For western Steller sea lions, it is not appropriate to identify a single trend. Using data collected through 2017, there is strong evidence that non-pup and pup counts increased at ~2 percent per year between 2002 and 2017. However, there are strong regional differences across the range in Alaska, with positive trends east of Samalga Pass (~170° W) in the Gulf of Alaska and eastern Bering Sea and negative trends to the west in the Aleutian Islands. For more information, please see the draft 2018 SAR.

[8] No official abundance estimate is provided for these stocks; however, we use the best available information regarding population abundance for comparison with the total annual Level B harassment authorization. For the minke whale, surveys covering portions of the stock range provide a partial abundance estimate of 2,020 (CV = 0.73) + 1,233 (CV = 0.34) whales. For the fin whale, we use the minimum abundance estimate provided for a portion of the stock range (1,036 whales). Surveys in 2010–2012 provide an abundance estimate of 398 (CV = 0.12) + 577 (CV = 0.14) harbor porpoises in southeast Alaska. However, the resulting total of 975 is not corrected for observer perception bias and porpoise availability at the surface, which is particularly influential for estimates of porpoise abundance. Therefore, we apply a previously estimated correction factor of 2.96 (Hobbs and Waite, 2010) to this estimate for a provisional abundance estimate of 2,886. For the ringed seal, a partial abundance estimate (that does not account for availability bias) of 170,000 seals is given. For more information, please see the relevant SARs.

Analysis—The majority of stocks that may potentially be taken by M/SI (25 of 41) fall below the insignificance threshold (*i.e.,* 10 percent of residual PBR), while an additional 11 stocks do not have current PBR values and therefore are evaluated using other factors. We first consider stocks expected to be affected only by behavioral harassment and those stocks that fall below the insignificance threshold. Next, we consider those stocks above the insignificance threshold (*i.e.,* the offshore stock of bottlenose dolphin, Risso's dolphin, short-finned pilot whale, and the Pribilof Islands stock of harbor seal) and those without PBR values (harbor seal stocks along the Oregon and Washington coasts and in Washington inland waters; two stocks of beluga whale; three stocks of harbor porpoise; sperm whale; Pacific white-sided dolphin; the Alaska stock of Dall's porpoise; and the ringed seal).

As described in greater depth previously (see ''Acoustic Effects'' in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638)), we do not believe that AFSC use of active acoustic sources has the likely potential to cause any effect exceeding Level B harassment of marine mammals. We

have produced what we believe to be precautionary estimates of potential incidents of Level B harassment. There is a general lack of information related to the specific way that these acoustic signals, which are generally highly directional and transient, interact with the physical environment and to a meaningful understanding of marine mammal perception of these signals and occurrence in the areas where AFSC operates. The procedure for producing these estimates, described in detail in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638; ''Estimated Take Due to Acoustic Harassment''), represents NMFS's best effort towards balancing the need to quantify the potential for occurrence of Level B harassment with this general lack of information. The sources considered here have moderate to high output frequencies, generally short ping durations, and are typically focused (highly directional) to serve their intended purpose of mapping specific objects, depths, or environmental features. In addition, some of these sources can be operated in different output modes (*e.g.,* energy can be distributed among multiple output beams) that may lessen the likelihood of perception by and potential impacts on marine mammals in comparison with the quantitative estimates that guide our estimated take numbers. We also produced estimates of incidents of potential Level B harassment due to disturbance of hauled-out pinnipeds that may result from the physical presence of researchers; these estimates are combined with the estimates of Level B harassment that may result from use of active acoustic devices.

Here, we consider authorized Level B harassment less than five percent of population abundance to be de minimis, while authorized Level B harassment between 5-15 percent is low. A moderate amount of authorized taking by Level B harassment would be from 15–25 percent, and high above 25 percent. Of the 49 stocks that may be subject to Level B harassment, the level of taking would represent a de minimis impact for 31 stocks and a low impact for an additional ten stocks. We do not consider these impacts further for these 41 stocks. The level of taking by Level B harassment would represent a moderate impact on three additional stocks, the South Kodiak stock of harbor seals, the gray whale, and the offshore stock of killer whales. No taking by M/SI is authorized for the latter two stocks, whereas M/SI is authorized for the harbor seal stock. Therefore, we consider these potential impacts in conjunction with the level of taking by M/SI. The annual taking by M/SI projected for this stock equates to less than one percent of residual PBR; therefore we do not consider this stock further. The total taking by Level B harassment represents a high level of impact for one stock (AT1 stock of killer whale). We discuss this in further detail below. For an additional four stocks (sperm whale and Alaska stocks of three beaked whale species), there is no abundance estimate upon which to base a comparison. However, we note that the anticipated number of incidents of take by Level B harassment are very low (2–22 for these four stocks) and likely represent a de minimis impact on these stocks.

As described previously, there is some minimal potential for temporary effects to hearing for certain marine mammals, but most effects would likely be limited to temporary behavioral disturbance. Effects on individuals that are taken by Level B harassment will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring), reactions that are considered to be of low severity (*e.g.,* Ellison *et al.,* 2012). Individuals may move away from the source if disturbed; but, because the source is itself moving and because of the directional nature of the sources considered here, there is unlikely to be even temporary displacement from areas of significance and any disturbance would be of short duration. Although there is no information on which to base any distinction between incidents of harassment and individuals harassed, the same factors, in conjunction with the fact that AFSC survey effort is widely dispersed in space and time, indicate that repeated exposures of the same individuals would be very unlikely. For these reasons, we do not consider the level of take by acoustic disturbance to represent a significant additional population stressor when considered in context with the level of take by M/SI for any species, including those for which no abundance estimate is available.

There are no additional impacts other than Level B harassment expected for the AT1 stock of killer whales. It should be noted that the AT1 stock of transient killer whales has a critically low population abundance of seven whales. Although the estimate of take by Level B harassment is at 29 percent, this represents only two estimated incidents of temporary and insignificant behavioral disruption, which would not be expected to affect annual rates of recruitment or survival for the stock. We do not discuss this stock further.

Similarly, disturbance of pinnipeds on haul-outs by researchers (expected for harbor seals and Steller sea lions in the GOARA and BSAIRA) are expected to be infrequent and cause only a temporary disturbance on the order of minutes. As noted previously, monitoring results from other activities involving the disturbance of pinnipeds and relevant studies of pinniped populations that experience more regular vessel disturbance indicate that individually significant or population level impacts are unlikely to occur. When considering the individual animals likely affected by this disturbance, only a small fraction of the estimated population abundance of the affected stocks would be expected to experience the disturbance.

For Risso's dolphin, short-finned pilot whale, and the offshore stock of bottlenose dolphin, maximum total potential M/SI due to NMFS' fisheries research activity (SWFSC, NWFSC, and AFSC combined) is approximately 11, 18, and 30 percent of residual PBR, respectively. For example, PBR for Risso's dolphin is currently set at 46 and the annual average of known ongoing anthropogenic M/SI is 3.7, yielding a residual PBR value of 42.3. The maximum combined annual average M/SI incidental to NMFS fisheries research activity is 4.6, or 10.9 percent of residual PBR. The only known source of other anthropogenic mortality for these species is in commercial fisheries. For the Risso's dolphin and offshore stock of bottlenose dolphin, such take is considered to be insignificant and approaching zero mortality and serious injury. This is not the case for the short-finned pilot whale; however, the annual take from fisheries (1.2) and from NMFS's fisheries research (0.6) are both very low. There are no other factors that would lead us to believe that take by M/SI of 18 percent of residual PBR would be problematic for this species. Total potential M/SI due to NMFS' fisheries research activity is approximately 11 percent of residual PBR for the Pribilof Islands stock of harbor seals. However, there are no other known sources of anthropogenic M/SI for this stock or other known significant stressors; therefore, there is no indication that the take by M/SI of 11 percent of residual PBR would be problematic for this stock.

PBR is unknown for harbor seals on the Oregon and Washington coasts and in Washington inland waters (comprised of the Hood Canal, southern Puget Sound, and Washington northern

inland waters stocks). The Hood Canal, southern Puget Sound, and Washington northern inland waters stocks were formerly a single inland waters stock. Both the Oregon/Washington coast and Washington inland waters stocks of harbor seal were considered to be stable following the most recent abundance estimates (in 1999, stock abundances were estimated at 24,732 and 13,692, respectively). However, a Washington Department of Fish and Wildlife expert (S. Jeffries) stated an unofficial abundance of 32,000 harbor seals in Washington (Mapes, 2013). Therefore, it is reasonable to assume that at worst, the stocks have not declined since the last abundance estimates. Ongoing anthropogenic mortality is estimated at 10.6 harbor seals per year for the coastal stock and 13.4 for inland waters seals; therefore, we reasonably assume that the maximum potential annual M/SI incidental to NMFS' fisheries research activities (2.2 and 1.6, respectively) is a small fraction of any sustainable take level that might be calculated for either stock.

As noted above, PBR is also undetermined for the sperm whale, Pacific white-sided dolphin, two stocks of beluga whale, three stocks of harbor porpoise, Alaska stock of Dall's porpoise, and the ringed seal. We follow a similar approach as for harbor seals (see above) in evaluating the significance of the proposed M/SI by describing available information regarding population abundance and other sources of anthropogenic M/SI.

- Rice (1989) estimated that there were 930,000 sperm whales in the North Pacific following the conclusion of commercial whaling. However, this estimate included areas beyond the range of the U.S. North Pacific stock of sperm whales. Kato and Miyashita (1998) produced an estimate of 102,112 (CV = 0.155) sperm whales in the western North Pacific. However, this estimate is considered to be positively biased, and includes whales outside of Alaskan waters. Commercial fishing is the only other source of ongoing anthropogenic M/SI, which is estimated to be 3.7 whales per year. When considered in conjunction with the maximum total annual M/SI anticipated as a result of NMFS fisheries research activities (0.4), we expect that the resulting total annual M/SI (4.1) is a small fraction of any sustainable take level that might be calculated for the stock.
- Historically, the minimum population estimate for the Central North Pacific stock of Pacific white-sided dolphin was 26,880, based on the sum of abundance estimates for four separate survey blocks north of 45°N from surveys conducted during 1987–1990, reported in Buckland *et al.* (1993). This was considered a minimum estimate because the abundance of animals in a fifth block, which straddled the boundary of the two stocks for this species, was not included in the estimate for the North Pacific stock. In addition, much of the potential habitat for this stock was not surveyed between 1987 and 1990 (Muto *et al.,* 2018). Using this minimum abundance estimate in the PBR equation, assuming the default 4 percent productivity rate and a recovery factor of 0.5 (as recommended for stocks of unknown status), produces a PBR value of 268.8. There are no other sources of anthropogenic M/SI for this stock. The maximum total annual M/SI anticipated as a result of NMFS fisheries research activities (1.6) would represent 0.6 percent of residual PBR.
- The historical abundance estimates available in the SARs for the Beaufort Sea and eastern Chukchi stocks of beluga whale allow for calculation of residual PBR values of 510 and 177, respectively. The authorized takes by M/SI for these two stocks are therefore less than 0.1 percent and 0.1 percent, respectively, of the residual PBR values.
- For the Alaska stock of Dall's porpoise, no current estimate of minimum population abundance is available. However, an abundance estimate of 83,400 was estimated on the basis of data collected form 1987–1991 (Hobbs and Lerczak, 1993). Using this population estimate and its associated CV of 0.097, the minimum abundance would be 76,874. Using this estimate with the default productivity rate and the recovery factor for stocks expected to be within the OSP level (Buckland *et al.,* 1993), a PBR value of 1,537.5 may be calculated. Accounting for ongoing M/SI due to commercial fisheries, the maximum total annual M/SI anticipated as a result of NMFS fisheries research activities (3.4) would represent 0.2 percent of residual PBR.
- For the Bering Sea stock of harbor porpoise, a minimum abundance estimate of 40,039 was calculated by Hobbs and Waite (2010) on the basis of a partial abundance estimate, derived from 1999 aerial surveys of Bristol Bay. Although this estimate is formally considered outdated for use in calculating PBR values, we use it here in the same way as the Pacific white-sided dolphin and Dall's porpoise, addressed above. As for the Pacific white-sided dolphin, we use the default productivity rate and recovery factor for stocks of unknown status to calculate a PBR value of 400.4. Accounting for minimal fisheries mortality, the maximum total annual M/SI anticipated as a result of NMFS fisheries research activities (0.4) would represent 0.1 percent of residual PBR.
- For the Gulf of Alaska stock of harbor porpoise, a minimum abundance estimate of 25,987 was calculated by Hobbs and Waite (2010) on the basis of an abundance estimate derived from 1998 aerial surveys of the western Gulf of Alaska. Using the default productivity rate and recovery factor for stocks of unknown status, we calculate a nominal PBR value of 259.9. Accounting for relatively significant ongoing fisheries mortality, the maximum total annual M/SI anticipated as a result of NMFS fisheries research activities (0.8) would represent 0.4 percent of residual PBR.
- A negatively biased minimum abundance estimate of 896 was calculated for the southeast Alaska stock of harbor porpoise on the basis of 2010–2012 aerial surveys (Muto *et al.,* 2018). The estimate is negatively biased because it does not account for observer perception bias and porpoise availability at the surface. However, use of a widely accepted correction factor (2.96) provides a minimum abundance estimate of 2,652 and a corresponding PBR value of 26.5. This PBR value is less than estimated annual ongoing mortality due to commercial fisheries (34). However, the maximum total annual M/SI anticipated as a result of NMFS fisheries research activities (0.2) represents a minimum potential take of one animal over the 5-year period and would represent an insignificant incremental addition to the total annual M/SI (0.6 percent).
- Although NMFS does not provide a formal PBR value for the ringed seal, Muto *et al.* (2018) provide a minimum abundance estimate of 170,000 seals in the U.S. sector of the Bering Sea. This is not considered a reliable estimate for the stock because it does not account for seals in the Chukchi and Beaufort Seas. However, as this is a conservative minimum abundance estimate, we use the corresponding PBR value of 5,100 given by Muto *et al.* (2018). Accounting for minimal ongoing M/SI due to commercial fisheries, as well as ongoing subsistence harvest of ringed seals, the maximum total annual M/SI anticipated as a result of NMFS fisheries research activities (1.6) would represent 0.04 percent of residual PBR.

In summary, our negligible impact analysis is founded on the following factors: (1) The possibility of injury, serious injury, or mortality from the use of active acoustic devices may reasonably be considered discountable; (2) the anticipated incidents of Level B

harassment from the use of active acoustic devices and physical disturbance of pinnipeds consist of, at worst, temporary and relatively minor modifications in behavior; (3) the predicted number of incidents of potential mortality are at insignificant levels for a majority of affected stocks; (4) consideration of additional factors for Risso's dolphin, short-finned pilot whale, the offshore stock of bottlenose dolphin, and the Pribilof Islands stock of harbor seal do not reveal cause for concern; (5) total maximum potential M/SI incidental to NMFS fisheries research activity for southeast Alaska harbor porpoise, considered in conjunction with other sources of ongoing mortality, presents only a minimal incremental additional to total M/SI; (6) available information regarding stocks for which no current PBR estimate is available indicates that total maximum potential M/SI is sustainable; and (7) the presumed efficacy of the planned mitigation measures in reducing the effects of the specified activity to the level of least practicable adverse impact. In combination, we believe that these factors demonstrate that the specified activity will have only short-term effects on individuals (resulting from Level B harassment) and that the total level of taking will not impact rates of recruitment or survival sufficiently to result in population-level impacts.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, we find that the total marine mammal take from the proposed activities will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Section 101(a)(5)(A) of the MMPA for specified activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

Please see Table 11 for information relating to this small numbers analysis. The total amount of taking to be authorized is less than five percent for a majority of stocks, and the total amount of taking to be authorized is less than one-third of the stock abundance for all stocks.

Based on the analysis contained herein of the planned activity (including the required mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

In order to issue an LOA, NMFS must find that the specified activity will not have an ''unmitigable adverse impact'' on the subsistence uses of the affected marine mammal species or stocks by Alaskan Natives. NMFS has defined ''unmitigable adverse impact'' in 50 CFR 216.103 as an impact resulting from the specified activity that:

(1) Is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by:

(i) Causing the marine mammals to abandon or avoid hunting areas;

(ii) Directly displacing subsistence users; or

(iii) Placing physical barriers between the marine mammals and the subsistence hunters; and

(2) cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

As described in this preamble, the AFSC requested authorization of take incidental to fisheries research activities within Alaskan waters. The planned activities have the potential to result in M/SI of marine mammals as a result of incidental interaction with research gear, and have the potential to result in incidental Level B harassment of marine mammals as a result of the use of active acoustic devices or because of the physical presence of researchers at locations where pinnipeds may be hauled out. These activities also have the potential to result in impacts on the availability of marine mammals for subsistence uses. The AFSC is aware of this potential and is committed to implementing actions to avoid or to minimize any such effects to Alaska Native subsistence communities. The AFSC addresses the potential for their research activities to impact subsistence uses on the following factors:

Actions That May Cause Marine Mammals To Abandon or Avoid Hunting Areas

Some AFSC fisheries research efforts use high-frequency mapping and fish-finding sonars to assess abundance and distribution of target stocks of fish. The high frequency transient sound sources operated by the AFSC are used for a wide variety of environmental and remote-object sensing in the marine environment. These acoustic sources, which are present on most AFSC fishery research vessels, include a variety of single, dual, and multi-beam echosounders, sources used to determine the orientation of trawl nets, and several current profilers. Some of these acoustic sources are likely to be audible to some marine mammal species. Among the marine mammals, most of these sources are unlikely to be audible to whales and most pinnipeds, whereas they may be detected by odontocete cetaceans (and particularly high frequency specialists such as harbor porpoise). There is relatively little direct information about behavioral responses of marine mammals, including the odontocete cetaceans to these devices, but the responses that have been measured in a variety of species to audible sounds suggest that the most likely behavioral responses (if any) would be localized short-term avoidance behavior (see ''Potential Effects of Specified Activities on Marine Mammals and their Habitat'' in our Notice of Proposed Rulemaking (August 1, 2018; 83 FR 37638)). As a general conclusion, while some of the active acoustic sources used during AFSC fisheries research surveys are likely to be detected by some marine species (particularly phocid pinnipeds and odontocete cetaceans), the sound sources with potential for disturbance would be temporary and transient in any particular location as the research vessels move through an area. Any changes in marine mammal behavior in response to the sound sources or physical presence of the research vessel would likely involve temporary avoidance behavior in the vicinity of the research vessel and would return to normal after the vessel passed. Given the small number of research vessels involved and their infrequent and inconsistent presence in any given area from day to day, it is unlikely that the activity would cause animals to avoid any particular area.

Most AFSC fisheries research activities occur well away from land and, in cases where they do approach land, include mitigation measures to minimize the risk of disturbing

pinnipeds hauled out on land. Any incidental disturbance of pinnipeds on haul-outs would likely be infrequent and result in temporary or short term changes in behavior. This sporadic and temporary type of disturbance is not likely to result in a change in use or abandonment of a known haul-out.

AFSC fisheries research activities generally are highly transient and short term (*e.g.,* several hours to a day in any one location) in duration and take place well out to sea, far from coastal or ice pack subsistence hunting activities. It is possible, albeit unlikely, for these fisheries research sound sources to interact with migratory species hunted for subsistence such that there could be short term alterations in migratory pathways. However, as described in the AFSC Communication Plan (Appendix B of AFSC's application), the AFSC will work with subsistence users to identify important areas for marine mammals and subsistence hunters early in the planning process as well as in real time to identify the potential for overlap between migratory pathways, key hunting regions and seasons, and proposed fisheries research. This communication should lead to avoidance of any issues of displacement of marine mammals and their prey.

Activities That May Directly Displace Subsistence Users

AFSC fisheries research primarily utilizes ocean-going ships generally suited for offshore work. These vessels are not designed to work in or near sea ice where much of the subsistence harvest of pinnipeds occurs; thus research activities are most likely to occur outside of periods when this type of hunting occurs. Due to the desire to avoid disturbing pinnipeds hauled out on land, these ships largely avoid nearshore routes that might otherwise put them in the path of seal hunters.

Bowhead whale hunts may occur near sea ice in the spring or in open water in the fall. AFSC fisheries research is only conducted during the open water season in the Arctic so there is no risk of potential interference with subsistence hunts in the spring. However, AFSC fisheries research vessels may be present in whale hunting areas in the fall and could potentially interfere with subsistence activities. The communications plan is designed to minimize the risk of any such interference by advance planning and communication between AFSC scientists and subsistence hunting organizations (*e.g.,* Alaska Eskimo Whaling Commission) and real-time communication between AFSC research vessels as they approach subsistence areas and nearby coastal community contacts. The AFSC is committed to alter its research plans to address any concerns about potential interference and to avoid any such interference in the field.

AFSC fisheries research vessels make port calls in established harbors and ports, thus reducing the chances for interaction with the transit of hunters to and from coastal villages to nearby hunting regions. As described in the Communication Plan provided as Appendix B of AFSC's application, in those rare cases where a research vessel may need to anchor offshore from a subsistence community, AFSC personnel will, within the limits of maritime safety, direct the ship to a predetermined location in coordination with the local subsistence community so as to avoid interfering with those activities.

Activities That May Place Physical Barriers (Vessels and Gear) Between the Marine Mammals and the Subsistence Hunters

The AFSC uses a variety of towed nets and sampling gear to conduct its fisheries and ecosystem research. However, current operational guidelines designed to reduce incidental catch of marine mammals include measures that direct activities away from marine mammals near the research vessel (move-on rule). These measures will reduce the possibility for placing any barriers between subsistence hunters and their marine mammal prey. As outlined in the Communication Plan, AFSC will not deploy such research gear when subsistence hunters have been visually observed in the area.

AFSC fisheries research will also strive to avoid working in any areas when migrating species are present in the immediate vicinity. Per the Communication Plan, the AFSC will coordinate both in advance and in real time with known marine mammal hunting communities within the immediate vicinity of research to avoid any interactions between hunting activity and fisheries research vessels or gear.

We provided AFSC's draft Communication Plan (Appendix B of their application) to the public and invited comment on the document. No comments were received in relation to the Plan; therefore, we find that the plan is appropriate for minimizing the potential for impacts to subsistence uses of marine mammals. The AFSC is committed to conducting its activities in ways that do not affect the availability of marine mammals to subsistence hunters. The AFSC will implement standard operational procedures and mitigation measures to minimize direct impacts on marine mammals and will work with Alaska Native organizations and coastal communities to develop effective communication protocols to minimize the risk of potential interference with subsistence activities. The AFSC will thus work to ensure that its research activities do not negatively impact the availability of marine mammals to Alaska Native subsistence users.

Based on the description of the specified activity, the measures described to minimize adverse effects on the availability of marine mammals for subsistence purposes, and the required mitigation and monitoring measures, we have determined that there will not be an unmitigable adverse impact on subsistence uses from AFSC's activities.

Adaptive Management

The regulations governing the take of marine mammals incidental to AFSC fisheries research survey operations contain an adaptive management component. The inclusion of an adaptive management component will be both valuable and necessary within the context of five-year regulations for activities that have been associated with marine mammal mortality.

The reporting requirements associated with this rule are designed to provide OPR with monitoring data from the previous year to allow consideration of whether any changes are appropriate. OPR and the AFSC will meet annually to discuss the monitoring reports and current science and whether mitigation or monitoring modifications are appropriate. The use of adaptive management allows OPR to consider new information from different sources to determine (with input from the AFSC regarding practicability) on an annual or biennial basis if mitigation or monitoring measures should be modified (including additions or deletions). Mitigation measures could be modified if new data suggests that such modifications would have a reasonable likelihood of reducing adverse effects to marine mammals and if the measures are practicable.

The following are some of the possible sources of applicable data to be considered through the adaptive management process: (1) Results from monitoring reports, as required by MMPA authorizations; (2) results from general marine mammal and sound research; and (3) any information which reveals that marine mammals may have been taken in a manner, extent, or

number not authorized by these regulations or subsequent LOAs.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must evaluate our proposed action (*i.e.,* the promulgation of regulations and subsequent issuance of incidental take authorization) and alternatives with respect to potential impacts on the human environment. Accordingly, NMFS prepared an Environmental Assessment (EA; *Programmatic Environmental Assessment for Fisheries and Ecosystem Research Conducted and Funded by the Alaska Fisheries Science Center*) to consider the environmental impacts associated with the AFSC's proposed activities as well as the issuance of the regulations and subsequent incidental take authorization. We made the EA available to the public for review and comment, in relation to its suitability for use by OPR as an assessment of the impacts to the human environment of issuance of regulations and subsequent LOAs to AFSC. OPR subsequently signed a Finding of No Significant Impact (FONSI). The final PEA is available on request (see **FOR FURTHER INFORMATION CONTACT**) and the FONSI is posted online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-afsc-fisheries-and-ecosystem-research.*

Endangered Species Act (ESA)

There are multiple marine mammal species listed under the ESA with confirmed or possible occurrence in the specified geographical regions (see Table 1). The authorization of incidental take pursuant to the AFSC's specified activity would not affect any designated critical habitat. OPR requested initiation of consultation with NMFS's Alaska Regional Office (AKRO) under section 7 of the ESA on the promulgation of five-year regulations and the subsequent issuance of LOAs to AFSC under section 101(a)(5)(A) of the MMPA.

On April 5, 2019, the AKRO issued a biological opinion to OPR and to the AFSC (concerning the conduct of the specified activities) which concluded that the issuance of the authorizations is not likely to jeopardize the continued existence of any listed species, including marine mammals.

Classification

Pursuant to the procedures established to implement Executive Order 12866, the Office of Management and Budget has determined that this rule is not significant.

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration at the proposed rule stage that this action will not have a significant economic impact on a substantial number of small entities. AFSC is the sole entity that would be subject to the requirements of these regulations, and the AFSC is not a small governmental jurisdiction, small organization, or small business, as defined by the RFA. No comments were received regarding this certification or on the economic impacts of the rule more generally. As a result, a regulatory flexibility analysis is not required and none has been prepared.

Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act (PRA) unless that collection of information displays a currently valid OMB control number. However, this rule does not contain a collection-of-information requirement subject to the provisions of the PRA because the applicant is a Federal agency.

List of Subjects in 50 CFR Part 219

Exports, Fish, Imports, Indians, Labeling, Marine mammals, Penalties, Reporting and recordkeeping requirements, Seafood, Transportation.

Dated: August 28, 2019.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For reasons set forth in the preamble, 50 CFR part 219 is amended as follows:

PART 219—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

■ 1. The authority citation for part 219 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.*

■ 2. Add subpart F to read as follows:

Subpart F—Taking Marine Mammals Incidental to Alaska Fisheries Science Center Fisheries Research

Sec.

Subpart F—Taking Marine Mammals Incidental to Alaska Fisheries Science Center Fisheries Research

§ 219.51 Specified activity and specified geographical region.

(a) Regulations in this subpart apply only to the National Marine Fisheries Service's (NMFS) Alaska Fisheries Science Center (AFSC) and those persons it authorizes or funds to conduct activities on its behalf, including the International Pacific Halibut Commission (IPHC), for the taking of marine mammals that occurs in the areas outlined in paragraph (b) of this section and that occurs incidental to research survey program operations.

(b) The taking of marine mammals by AFSC may be authorized in a Letter of Authorization (LOA) only if it occurs within the Gulf of Alaska, Bering Sea and Aleutian Islands, Chukchi Sea and Beaufort Sea, or is conducted by the IPHC in the Bering Sea and Aleutian Islands, Gulf of Alaska, or off the U.S. West Coast.

§ 219.52 Effective dates.

Regulations in this subpart are effective from October 7, 2019, through October 7, 2024.

§ 219.53 Permissible methods of taking.

Under LOAs issued pursuant to §§ 216.106 of this chapter and 219.57, the Holder of the LOA (hereinafter ''AFSC'') may incidentally, but not intentionally, take marine mammals within the area described in § 219.51(b) by Level B harassment associated with use of active acoustic systems and physical or visual disturbance of hauled-out pinnipeds and by Level A harassment, serious injury, or mortality associated with use of hook and line gear, trawl gear, and gillnet gear, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA.

§ 219.54 Prohibitions.

Notwithstanding takings contemplated in § 219.51 and authorized by a LOA issued under §§ 216.106 of this chapter and 219.57, no person in connection with the activities described in § 219.51 may:

(a) Violate, or fail to comply with, the terms, conditions, and requirements of this subpart or a LOA issued under §§ 216.106 of this chapter and 219.57;

(b) Take any marine mammal not specified in such LOA;

(c) Take any marine mammal specified in such LOA in any manner other than as specified;

(d) Take a marine mammal specified in such LOA if NMFS determines such taking results in more than a negligible impact on the species or stocks of such marine mammal; or

(e) Take a marine mammal specified in such LOA if NMFS determines such taking results in an unmitigable adverse impact on the species or stock of such marine mammal for taking for subsistence uses.

§ 219.55 Mitigation requirements.

When conducting the activities identified in § 219.51(a), the mitigation measures contained in any LOA issued under §§ 216.106 of this chapter and 219.57 must be implemented. These mitigation measures shall include but are not limited to:

(a) *General conditions.* (1) AFSC shall convey relevant mitigation, monitoring, and reporting requirements to the IPHC, as indicated in the following subparts;

(2) AFSC shall take all necessary measures to coordinate and communicate in advance of each specific survey with the National Oceanic and Atmospheric Administration's (NOAA) Office of Marine and Aviation Operations (OMAO) or other relevant parties on non-NOAA platforms to ensure that all mitigation measures and monitoring requirements described herein, as well as the specific manner of implementation and relevant event-contingent decision-making processes, are clearly understood and agreed upon. AFSC shall convey this requirement to IPHC;

(3) AFSC shall coordinate and conduct briefings at the outset of each survey and as necessary between ship's crew (Commanding Officer/master or designee(s), as appropriate) and scientific party in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures. AFSC shall convey this requirement to IPHC;

(4) AFSC shall coordinate as necessary on a daily basis during survey cruises with OMAO personnel or other relevant personnel on non-NOAA platforms to ensure that requirements, procedures, and decision-making processes are understood and properly implemented. AFSC shall convey this requirement to IPHC;

(5) When deploying any type of sampling gear at sea, AFSC shall at all times monitor for any unusual circumstances that may arise at a sampling site and use best professional judgment to avoid any potential risks to marine mammals during use of all research equipment. AFSC shall convey this requirement to IPHC;

(6) AFSC shall implement handling and/or disentanglement protocols as specified in the guidance that shall be provided to AFSC survey personnel. AFSC shall convey this requirement to IPHC;

(7) AFSC shall not approach within 1 km of locations where marine mammals are aggregated, including pinniped rookeries and haul-outs; and

(8) AFSC shall adhere to a final Communication Plan. In summary and in accordance with the Plan, AFSC shall:

(i) Notify and provide potentially affected Alaska Native subsistence communities with the Communication Plan through a series of mailings, direct contacts, and planned meetings throughout the regions where AFSC fisheries research is expected to occur;

(ii) Meet with potentially affected subsistence communities to discuss planned activities and to resolve potential conflicts regarding any aspects of either the fisheries research operations or the Communication Plan;

(iii) Develop field operations plans as necessary, which shall address how researchers will consult and maintain communication with contacts in the potentially affected subsistence communities when in the field, including a list of local contacts and contact mechanisms, and which shall describe operational procedures and actions planned to avoid or minimize the risk of interactions between AFSC fisheries research and local subsistence activities;

(iv) Schedule post-season informational sessions with subsistence contacts from the study areas to brief them on the outcome of the AFSC fisheries research and to assess performance of the Communication Plan and individual field operations or cruise plans in working to minimize effects to subsistence activities; and

(v) Evaluate overall effectiveness of the Communications Plan in year four of any LOA issued pursuant to §§ 216.106 of this chapter and 219.57.

(b) *Trawl survey protocols.* (1) AFSC shall conduct trawl operations as soon as is practicable upon arrival at the sampling station;

(2) AFSC shall initiate marine mammal watches (visual observation) at least 15 minutes prior to beginning of net deployment, but shall also conduct monitoring during any pre-set activities including trackline reconnaissance, CTD casts, and plankton or bongo net hauls. Marine mammal watches shall be conducted by scanning the surrounding waters with the naked eye and rangefinding binoculars (or monocular). During nighttime operations, visual observation shall be conducted using the naked eye and available vessel lighting;

(3) AFSC shall implement the move-on rule mitigation protocol, as described in this paragraph. If one or more marine mammals are observed and are considered at risk of interacting with the vessel or research gear, or appear to be approaching the vessel and are considered at risk of interaction, AFSC shall either remain onsite or move on to another sampling location. If remaining onsite, the set shall be delayed. If the animals depart or appear to no longer be at risk of interacting with the vessel or gear, a further observation period shall be conducted. If no further observations are made or the animals still do not appear to be at risk of interaction, then the set may be made. If the vessel is moved to a different section of the sampling area, the move-on rule mitigation protocol would begin anew. If, after moving on, marine mammals remain at risk of interaction, the AFSC shall move again or skip the station. Marine mammals that are sighted shall be monitored to determine their position and movement in relation to the vessel to determine whether the move-on rule mitigation protocol should be implemented. AFSC may use best professional judgment in making these decisions;

(4) AFSC shall maintain visual monitoring effort during the entire period of time that trawl gear is in the water (*i.e.,* throughout gear deployment, fishing, and retrieval). If marine mammals are sighted before the gear is fully removed from the water, AFSC shall take the most appropriate action to avoid marine mammal interaction. AFSC may use best professional judgment in making this decision;

(5) If trawling operations have been suspended because of the presence of marine mammals, AFSC may resume trawl operations when practicable only when the animals are believed to have departed the area. AFSC may use best professional judgment in making this determination;

(6) AFSC shall implement standard survey protocols to minimize potential for marine mammal interactions, including maximum tow durations at target depth and maximum tow distance, and shall carefully empty the trawl as quickly as possible upon retrieval; and

(7) Whenever surface trawl nets are used in southeast Alaska, AFSC must install and use acoustic deterrent devices, with two pairs of the devices installed near the net opening. AFSC must ensure that the devices are operating properly before deploying the net.

(c) *Longline survey protocols.* (1) AFSC shall deploy longline gear as soon as is practicable upon arrival at the sampling station. AFSC shall convey this requirement to IPHC;

(2) AFSC shall initiate marine mammal watches (visual observation) no less than 30 minutes (or for the duration of transit between set locations, if shorter than 30 minutes) prior to both deployment and retrieval of longline gear. Marine mammal watches shall be conducted by scanning the surrounding waters with the naked eye and rangefinding binoculars (or monocular). During nighttime operations, visual observation shall be conducted using the naked eye and available vessel lighting. AFSC shall convey this requirement to IPHC;

(3) AFSC shall implement the move-on rule mitigation protocol, as described in this paragraph. If one or more marine mammals are observed in the vicinity of the planned location before gear deployment, and are considered at risk of interacting with the vessel or research gear, or appear to be approaching the vessel and are considered at risk of interaction, AFSC shall either remain onsite or move on to another sampling location. If remaining onsite, the set shall be delayed. If the animals depart or appear to no longer be at risk of interacting with the vessel or gear, a further observation period shall be conducted. If no further observations are made or the animals still do not appear to be at risk of interaction, then the set may be made. If the vessel is moved to a different section of the sampling area, the move-on rule mitigation protocol would begin anew. If, after moving on, marine mammals remain at risk of interaction, the AFSC shall move again or skip the station. Marine mammals that are sighted shall be monitored to determine their position and movement in relation to the vessel to determine whether the move-on rule mitigation protocol should be implemented. AFSC may use best professional judgment in making these decisions. AFSC shall convey this requirement to IPHC;

(4) AFSC shall maintain visual monitoring effort during the entire period of gear deployment and retrieval. If marine mammals are sighted before the gear is fully deployed or retrieved, AFSC shall take the most appropriate action to avoid marine mammal interaction. AFSC may use best professional judgment in making this decision. AFSC shall convey this requirement to IPHC; and

(5) If deployment or retrieval operations have been suspended because of the presence of marine mammals, AFSC may resume such operations when practicable only when the animals are believed to have departed the area. AFSC may use best professional judgment in making this decision. AFSC shall convey this requirement to IPHC.

(d) *Gillnet survey protocols.* (1) AFSC shall conduct gillnet operations as soon as is practicable upon arrival at the sampling station;

(2) AFSC shall conduct marine mammal watches (visual observation) prior to beginning of net deployment. Marine mammal watches shall be conducted by scanning the surrounding waters with the naked eye and rangefinding binoculars (or monocular);

(3) AFSC shall implement the move-on rule mitigation protocol. If one or more marine mammals are observed in the vicinity of the planned location before gear deployment, and are considered at risk of interacting with research gear, AFSC shall either remain onsite or move on to another sampling location. If remaining onsite, the set shall be delayed. If the animals depart or appear to no longer be at risk of interacting with the gear, a further observation period shall be conducted. If no further observations are made or the animals still do not appear to be at risk of interaction, then the set may be made. If the vessel is moved to a different area, the move-on rule mitigation protocol would begin anew. If, after moving on, marine mammals remain at risk of interaction, the AFSC shall move again or skip the station. Marine mammals that are sighted shall be monitored to determine their position and movement in relation to the vessel to determine whether the move-on rule mitigation protocol should be implemented. AFSC may use best professional judgment in making these decisions;

(4) AFSC shall maintain visual monitoring effort during the entire period of time that gillnet gear is in the water (*i.e.,* throughout gear deployment, fishing, and retrieval). If marine mammals are sighted before the gear is fully removed from the water, and appear to be at risk of interaction with the gear, AFSC shall pull the gear immediately. AFSC may use best professional judgment in making this decision;

(5) If gillnet operations have been suspended because of the presence of marine mammals, AFSC may resume gillnet operations when practicable only when the animals are believed to have departed the area. AFSC may use best professional judgment in making this determination; and

(6) AFSC must install and use acoustic deterrent devices whenever gillnets are used. AFSC must ensure that the devices are operating properly before deploying the net.

§ 219.56 Requirements for monitoring and reporting.

(a) *Compliance coordinator.* AFSC shall designate a compliance coordinator who shall be responsible for ensuring compliance with all requirements of any LOA issued pursuant to §§ 216.106 of this chapter and 219.57 and for preparing for any subsequent request(s) for incidental take authorization. AFSC shall convey this requirement to IPHC.

(b) *Visual monitoring program.* (1) Marine mammal visual monitoring shall occur prior to deployment of trawl, longline, and gillnet gear, respectively; throughout deployment of gear and active fishing of research gears (not including longline soak time); prior to retrieval of longline gear; and throughout retrieval of all research gear. AFSC shall convey this requirement to IPHC; and

(2) Marine mammal watches shall be conducted by watch-standers (those navigating the vessel and/or other crew) at all times when the vessel is being operated. AFSC shall convey this requirement to IPHC.

(c) *Training.* (1) AFSC must conduct annual training for all chief scientists and other personnel who may be responsible for conducting dedicated marine mammal visual observations to explain mitigation measures and monitoring and reporting requirements, mitigation and monitoring protocols, marine mammal identification, completion of datasheets, and use of equipment. AFSC may determine the agenda for these trainings;

(2) AFSC shall also dedicate a portion of training to discussion of best professional judgment, including use in any incidents of marine mammal interaction and instructive examples where use of best professional judgment was determined to be successful or unsuccessful; and

(3) AFSC shall convey these training requirements to IPHC.

(d) *Handling procedures and data collection.* (1) AFSC must develop and implement standardized marine mammal handling, disentanglement, and data collection procedures. These standard procedures will be subject to

approval by NMFS's Office of Protected Resources (OPR). AFSC shall convey these procedures to IPHC;

(2) When practicable, for any marine mammal interaction involving the release of a live animal, AFSC shall collect necessary data to facilitate a serious injury determination. AFSC shall convey this requirement to IPHC;

(3) AFSC shall provide its relevant personnel with standard guidance and training regarding handling of marine mammals, including how to identify different species, bring an individual aboard a vessel, assess the level of consciousness, remove fishing gear, return an individual to water, and log activities pertaining to the interaction. AFSC shall convey this requirement to IPHC; and

(4) AFSC shall record such data on standardized forms, which will be subject to approval by OPR. AFSC shall also answer a standard series of supplemental questions regarding the details of any marine mammal interaction. AFSC shall convey this requirement to IPHC.

(e) *Reporting.* (1) AFSC shall report all incidents of marine mammal interaction to NMFS's Protected Species Incidental Take database, including those resulting from IPHC activities, within 48 hours of occurrence and shall provide supplemental information to OPR upon request. Information related to marine mammal interaction (animal captured or entangled in research gear) must include details of survey effort, full descriptions of any observations of the animals, the context (vessel and conditions), decisions made, and rationale for decisions made in vessel and gear handling;

(2) AFSC must submit annual reports.

(i) AFSC shall submit an annual summary report to OPR not later than ninety days following the end of a given year. AFSC shall provide a final report within thirty days following resolution of comments on the draft report; and

(ii) These reports shall contain, at minimum, the following:

(A) Annual line-kilometers surveyed during which the EK60, ME70, ES60, 7111 (or equivalent sources) were predominant and associated pro-rated estimates of actual take;

(B) Summary information regarding use of all longline, gillnet, and trawl gear, including number of sets, tows, etc., specific to each gear;

(C) Accounts of all incidents of significant marine mammal interactions, including circumstances of the event and descriptions of any mitigation procedures implemented or not implemented and why;

(D) A written evaluation of the effectiveness of AFSC mitigation strategies in reducing the number of marine mammal interactions with survey gear, including best professional judgment and suggestions for changes to the mitigation strategies, if any;

(E) Final outcome of serious injury determinations for all incidents of marine mammal interactions where the animal(s) were released alive; and

(F) A summary of all relevant training provided by AFSC and any coordination with NMFS' Alaska Regional Office.

(3) AFSC shall convey these reporting requirements to IPHC and shall provide IPHC reports to OPR subject to the same schedule.

(f) *Reporting of injured or dead marine mammals.* (1) In the unanticipated event that the activity defined in § 219.51(a) clearly causes the take of a marine mammal in a prohibited manner, AFSC personnel engaged in the research activity shall immediately cease such activity until such time as an appropriate decision regarding activity continuation can be made by the AFSC Director (or designee). The incident must be reported immediately to OPR and the Alaska Regional Stranding Coordinator, NMFS. OPR will review the circumstances of the prohibited take and work with AFSC to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The immediate decision made by AFSC regarding continuation of the specified activity is subject to OPR concurrence. The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the incident;

(ii) Description of the incident;

(iii) Environmental conditions (*e.g.,* wind speed and direction, Beaufort sea state, cloud cover, visibility);

(iv) Description of all marine mammal observations in the 24 hours preceding the incident;

(v) Species identification or description of the animal(s) involved;

(vi) Status of all sound source use in the 24 hours preceding the incident;

(vii) Water depth;

(viii) Fate of the animal(s); and

(ix) Photographs or video footage of the animal(s).

(2) In the event that AFSC discovers an injured or dead marine mammal and determines that the cause of the injury or death is unknown and the death is relatively recent (*e.g.,* in less than a moderate state of decomposition), AFSC shall immediately report the incident to OPR and the Alaska Regional Stranding Coordinator, NMFS. The report must include the information identified in paragraph (f)(1) of this section. Activities may continue while OPR reviews the circumstances of the incident. OPR will work with AFSC to determine whether additional mitigation measures or modifications to the activities are appropriate.

(3) In the event that AFSC discovers an injured or dead marine mammal and determines that the injury or death is not associated with or related to the activities defined in § 219.51(a) (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, scavenger damage), AFSC shall report the incident to OPR and the Alaska Regional Stranding Coordinator, NMFS, within 24 hours of the discovery. AFSC shall provide photographs or video footage or other documentation of the stranded animal sighting to OPR.

(4) AFSC shall convey these requirements to IPHC.

§ 219.57 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, AFSC must apply for and obtain a Letter of Authorization (LOA).

(b) An LOA, unless suspended or revoked, may be effective for a period of time not to exceed the expiration date of these regulations.

(c) If an LOA expires prior to the expiration date of these regulations, AFSC may apply for and obtain a renewal of the LOA.

(d) In the event of projected changes to the activity or to mitigation and monitoring measures required by an LOA, AFSC must apply for and obtain a modification of the LOA as described in § 219.58.

(e) The LOA shall set forth:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact (*i.e.,* mitigation) on the species, its habitat, and on the availability of the species for subsistence uses; and

(3) Requirements for monitoring and reporting.

(f) Issuance of the LOA shall be based on a determination that the level of taking will be consistent with the findings made for the total taking allowable under these regulations.

(g) Notice of issuance or denial of an LOA shall be published in the **Federal Register** within thirty days of a determination.

§ 219.58 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under §§ 216.106 of this chapter and 219.57 for the

activity identified in § 219.51(a) shall be renewed or modified upon request by the applicant, provided that:

(1) The proposed specified activity and mitigation, monitoring, and reporting measures, as well as the anticipated impacts, are the same as those described and analyzed for these regulations (excluding changes made pursuant to the adaptive management provision in paragraph (c)(1) of this section), and

(2) OPR determines that the mitigation, monitoring, and reporting measures required by the previous LOA under these regulations were implemented.

(b) For an LOA modification or renewal requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting (excluding changes made pursuant to the adaptive management provision in paragraph (c)(1) of this section) that do not change the findings made for the regulations or result in no more than a minor change in the total estimated number of takes (or distribution by species or years), OPR may publish a notice of proposed LOA in the **Federal Register**, including the associated analysis of the change, and solicit public comment before issuing the LOA.

(c) An LOA issued under §§ 216.106 of this chapter and 219.57 for the activity identified in § 219.51(a) may be modified by OPR under the following circumstances:

(1) *Adaptive management.* OPR may modify (including augment) the existing mitigation, monitoring, or reporting measures (after consulting with AFSC regarding the practicability of the modifications) if doing so creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth in the preamble for these regulations.

(i) Possible sources of data that could contribute to the decision to modify the mitigation, monitoring, or reporting measures in an LOA:

(A) Results from AFSC's monitoring from the previous year(s);

(B) Results from other marine mammal and/or sound research or studies; and

(C) Any information that reveals marine mammals may have been taken in a manner, extent or number not authorized by these regulations or subsequent LOAs.

(ii) If, through adaptive management, the modifications to the mitigation, monitoring, or reporting measures are substantial, OPR will publish a notice of proposed LOA in the **Federal Register** and solicit public comment.

(2) *Emergencies.* If OPR determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in LOAs issued pursuant to §§ 216.106 of this chapter and 219.57, an LOA may be modified without prior notice or opportunity for public comment. Notice would be published in the **Federal Register** within thirty days of the action.

§§ 219.59–219.60 [Reserved]

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