DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 219

[Docket No. 151027994–6421–02]

RIN 0648–BF47

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

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

ACTION: Final rule.

SUMMARY: NMFS' Office of Protected Resources (OPR), upon request of NMFS' Northwest Fisheries Science Center (NWFSC), hereby issues regulations to govern the unintentional taking of marine mammals incidental to fisheries research conducted in the Pacific Ocean 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 August 27, 2018, through August 28, 2023.

ADDRESSES: A copy of NWFSC'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-nwfsc-fisheries-and-ecosystem-research*. In case of problems accessing these documents, please call the contact listed below (see **FOR FURTHER INFORMATION CONTACT**).

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

SUPPLEMENTARY INFORMATION:

Purpose and Need for Regulatory Action

These regulations, issued under the authority of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 *et seq.*), establish a framework for authorizing the take of marine mammals incidental to the NWFSC's fisheries research activities in the California Current and Pacific Northwest.

The NWFSC collects a wide array of information necessary to evaluate the status of exploited fishery resources and the marine environment. NWFSC scientists conduct fishery-independent research onboard NOAA-owned and operated vessels or on chartered vessels. A few surveys are conducted onboard commercial fishing vessels, but the NWFSC designs and executes the studies and funds vessel time.

We received an application from the NWFSC requesting five-year regulations and authorization to take multiple species of marine mammals. Take is anticipated to 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. The regulations are valid for five years from the date of issuance. Please see ''Background'' below for definitions of harassment.

Legal Authority for the Proposed 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, 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 final rule containing five-year regulations, and a subsequent LOA. As directed by this legal authority, this final rule contains mitigation, monitoring, and reporting requirements.

Summary of Major Provisions Within the Final Rule

The following provides a summary of some of the major provisions within the rulemaking for the NWFSC fisheries research activities. We have determined that the NWFSC's adherence to the planned mitigation, monitoring, and reporting measures listed below will achieve the least practicable adverse impact on the affected marine mammals. They include:

- Required monitoring of the sampling areas to detect the presence of marine mammals before deployment of certain research gear.
- Required use of acoustic deterrent devices on surface trawl nets.
- 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

Paragraphs 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1371(a)(5)(A) and (D)) direct 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 if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

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.''

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 August 10, 2015, we received an adequate and complete request from NWFSC for authorization to take marine mammals incidental to fisheries research activities. We received an initial draft of the request on January 2, 2015, followed by a revised draft on April 28, 2015. On August 28, 2015 (80 FR 52256), we published a notice of receipt of NWFSC's application in the **Federal Register**, requesting comments and information related to the NWFSC

request for 30 days. We received comments jointly from The Humane Society of the United States and Whale and Dolphin Conservation, which we considered in development of the notice of proposed rulemaking (81 FR 38516; June 13, 2016) and which are available online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-nwfsc-fisheries-and-ecosystem-research*.

NWFSC plans to conduct fisheries research with trawl gear used at various levels in the water column, hook-and-line gears (including longlines with multiple hooks, rod and reel, and troll deployments), purse seine/tangle net gear, and other gear. If a marine mammal interacts with gear deployed by NWFSC, the outcome could potentially be Level A harassment, serious injury (*i.e.,* any injury that will likely result in mortality), or mortality. Therefore, NWFSC has pooled the estimated number of incidents of take that could reasonably result from gear interactions, and we have assessed the potential impacts accordingly. NWFSC also uses various active acoustic devices in the conduct of fisheries research, and use of these 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 NWFSC research. These regulations are valid for five years from the date of issuance.

NWFSC requests authorization to take individuals of 16 species by Level A harassment, serious injury, or mortality (hereafter referred to as M/SI) and of 34 species by Level B harassment.

Description of the Specified Activity

Overview

The NWFSC collects a wide array of information necessary to evaluate the status of exploited fishery resources and the marine environment. NWFSC scientists conduct fishery-independent research onboard NOAA-owned and operated vessels or on chartered vessels. A few surveys are conducted onboard commercial fishing vessels, but the NWFSC designs and executes the studies and funds vessel time. The NWFSC plans to administer and conduct approximately 36 survey programs over the 5-year period. The gear types used fall into several categories: Towed nets fished at various levels in the water column, longline and other hook and line gear, seine nets, traps, and other gear. Only use of trawl nets, hook and line gears, and purse seine nets 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 NWFSC is the research arm of NMFS in the northwest region of the United States. The NWFSC conducts research and provides scientific advice to manage fisheries and conserve protected species in the geographic research area described below and provides scientific information to support the Pacific Fishery Management Council and numerous other domestic and international fisheries management organizations.

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 NWFSC, 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 NWFSC conducts research in the Pacific Northwest and California Current within three research areas: The California Current Research Area (CCRA), Puget Sound Research Area (PSRA), and Lower Columbia River Research Area (LCRRA). Please see Figures 1–2 through 1–4 in the NWFSC application for maps of the three research areas. We note here that, while the NWFSC specified geographical region extends outside of the U.S. Exclusive Economic Zone (EEZ), from the Mexican EEZ (not including Mexican territorial waters) north into the Canadian EEZ (not including Canadian territorial waters), the MMPA's authority does not extend into foreign territorial waters. These areas were described in detail in our notice of proposed rulemaking (81 FR 38516; June 13, 2016); please see that document for further detail.

Detailed Description of Activities

A detailed description of NWFSC's planned activities was provided in our notice of proposed rulemaking (81 FR 38516; June 13, 2016) 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 June 13, 2016 (81 FR 38516; June 13, 2016), and requested comments and information from the public. During the thirty-day comment period, we received a letter from the Marine Mammal Commission (Commission). The comments and our responses are provided here, and the comments have been posted online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-nwfsc-fisheries-and-ecosystem-research*. Please see the 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 NWFSC 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 appreciate the recommendations and will consider the need for applicant guidance specific to the types of acoustic sources mentioned by the Commission. 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 are currently working to ensure that the use of these types of active acoustic sources is considered consistently and look forward to the Commission's advice as we proceed.

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 plans to focus our work in the coming years on developing guidance regarding the effects of anthropogenic sound on marine mammal behavior. Behavioral response is a complex question and we have determined that additional time is needed to research and address it appropriately.

Comment 2: The Commission recommends that OPR require NWFSC 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) threshold.

Response: Please see our notice of proposed rulemaking (81 FR 38516; June 13, 2016) for discussion related to acoustic terminology and thresholds. The Commission repeats a recommendation made in prior letters and, as we have previously indicated, we disagree with the recommendation. Our previous response is repeated below.

Continuous sounds are those whose sound pressure level remains above that of the ambient sound, with negligibly small fluctuations in level (NIOSH, 1998; ANSI, 2005), while intermittent sounds are defined as sounds with interrupted levels of low or no sound (NIOSH, 1998). Thus, echosounder signals are not continuous sounds but rather intermittent sounds. Intermittent sounds can further be defined as either impulsive or non-impulsive. Impulsive sounds have been 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). Echosounder signals also have durations that are typically very brief (<1 sec), with temporal characteristics that more closely resemble those of impulsive sounds than non-impulsive sounds, which typically have more gradual rise times and longer decays (ANSI, 1995; NIOSH, 1998). With regard to behavioral thresholds, we consider the temporal and spectral characteristics of echosounder signals to more closely resemble those of an impulse sound than a continuous sound.

The Commission suggests that, for certain sources considered here, the interval between pulses would not be discernible to the animal, rendering them effectively continuous. However, echosounder pulses are emitted in a similar fashion as odontocete echolocation click trains. Research indicates that marine mammals, in general, have extremely fine auditory temporal resolution and can detect each signal separately (*e.g.,* Au *et al.,* 1988; Dolphin *et al.,* 1995; Supin and Popov, 1995; Mooney *et al.,* 2009), especially for species with echolocation capabilities. Therefore, it is highly unlikely that marine mammals would perceive echosounder signals as being continuous.

In conclusion, echosounder signals are intermittent rather than continuous signals, and the fine temporal resolution of the marine mammal auditory system allows them to perceive these sounds as such. Further, the physical characteristics of these signals indicate a greater similarity to the way that intermittent, impulsive sounds are received. Therefore, the 160-dB threshold (typically associated with impulsive sources) is more appropriate than the 120-dB threshold (typically associated with continuous sources) for estimating takes by behavioral harassment incidental to use of such sources. This response represents the consensus opinion of acoustics experts from NMFS' Office of Protected Resources and Office of Science and Technology.

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 cause 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: We considered the information cited by the Commission in our 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 work indicates that ''sub-harmonics'' could be ''detectable'' by certain species at distances up to several hundred meters (m). However, this detectability is in reference to ambient noise, not to NMFS's established 160-dB threshold for assessing the potential for incidental take for these sources. A 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—range from 135–166 dB, meaning 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 NWFSC's use of active acoustic sources—and the potential range above threshold would be so small as to essentially discount them.

Mitigation

In order to issue an incidental take authorization 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 subsistence uses. We provided a full description of the planned mitigation measures, including background discussion related to certain elements of the mitigation plan, in our notice of proposed rulemaking (81 FR 38516; June 13, 2016). Please see that document for more detail.

NMFS has considered many potential mitigation measures, including those the NWFSC 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 trawl gear, as well as use of a marine mammal excluder device (MMED) in Nordic 264 trawl nets.

General Measures

Coordination and communication—We require that the NWFSC take all necessary measures to coordinate and communicate in advance of each specific survey with NOAA's Office of Marine and Aviation Operations (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. NWFSC will coordinate and conduct briefings at the outset of each survey and as necessary between the 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. The chief scientist (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.

Vessel speed—Vessel speed during active sampling rarely exceeds 5 knots (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. At any time during a survey or in transit, if a crew member standing watch or dedicated marine mammal observer 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 NWFSC 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 remotely-operated vehicle (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 NWFSC 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—The NWFSC 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. Because incidental take of marine mammals in fishing gear is similar for commercial fisheries and research surveys, NWFSC proposes to adopt these protocols, which are expected to increase post-release survival. 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. NWFSC 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.

Trawl Survey Visual Monitoring and Operational Protocols

Specific mitigation protocols are required for all trawl operations conducted by the NWFSC using Nordic 264 surface trawl gear, midwater trawl gear (modified Cobb, Aleutian Wing, and various commercial nets), and bottom trawl gear (double-rigged shrimp, Poly Nor'easter, modified Aberdeen, beam, and various commercial nets). Separate protocols (described below) are in place for the Kodiak surface trawl and pair trawl gear. Marine mammal watches will be conducted for at least ten minutes prior to the beginning of the planned set and throughout the tow and net retrieval, by scanning the surrounding waters with the naked eye and rangefinding binoculars (or monocular). 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. The CS must confirm with the OOD that no marine mammals have been seen within 500 m (or as far as may be observed if less than 500 m) of the ship or appear to be approaching the ship during the pre-set watch period prior to the deployment of any trawl gear. During nighttime operations, visual observation may be conducted using the naked eye and available vessel lighting but effectiveness is limited. The visual observation period typically occurs during transit leading up to arrival at the sampling station, rather than upon arrival on station. However, in some cases it may be necessary to conduct a plankton tow or other small net cast prior to deploying trawl gear. In these cases, the visual watch will continue until trawl gear is ready to be deployed. Aside from pre-trawl monitoring, the OOD/CS and crew standing watch will visually scan for marine mammals during all daytime operations.

It is important to note that the 500 m distance is provided only as a frame of reference for marine mammal observations that would nominally be of greater concern as regards the potential for interaction with research fishing gear. The primary concern is to avoid all marine mammal interactions (regardless of the numbers of takes proposed for authorization here), and the most appropriate course of action to achieve this goal in any given instance is likely to be related more to event-specific elements than to an arbitrary distance from the vessel. Depending on unpredictable contextual elements, animals sighted at distances greater than 500 m could provoke mitigation action or, conversely, animals sighted at closer range could be determined to not be at risk of interacting with research fishing gear. The NWFSC considers 500 m to be the average effective observation distance, but the actual effective range is determined by numerous factors related to the weather, ship observations, and the species observed.

The primary purpose of conducting pre-trawl visual monitoring is to implement the move-on rule. If marine mammals are sighted within 500 m (or as far as may be observed if less than 500 m) of the vessel 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, NWFSC may elect to either remain onsite to see if the animals move off or may move on to another sampling location. When remaining onsite, the set is delayed (typically for at least ten minutes) and, if the animals depart or appear to no longer be at risk of interacting with the vessel or gear, a further ten minute observation period is

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, move-on rule mitigation protocols would begin anew. If, after moving on, marine mammals remain at risk of interaction, the CS or watch leader may decide to move again or to skip the station. Marine mammals that are sighted further than 500 m from the vessel would be monitored to determine their position and movement in relation to the vessel. If they appear to be closing on the vessel, the move-on rule protocols may be implemented even if they are initially further than 500 m from the vessel.

For surface trawl surveys (*i.e.,* those surveys deploying the Nordic 264 net), which have historically presented the greatest risk of marine mammal interaction, dedicated crew are assigned to marine mammal monitoring duty (*i.e.,* have no other tasks) and care is taken to provide some rest periods for observers to avoid fatigue. At least two pairs of binoculars are available for verification of potential sightings. As the vessel approaches the station, the OOD and at least one assigned member of the scientific party monitor for marine mammals. Within several minutes of arriving on station and finishing their sampling duties, two additional members of the scientific party are assigned to monitor for marine mammals and, for the remainder of the tow, there would be a minimum of three members of the scientific party watching for marine mammals. Depending on the situational context (*e.g.,* numbers of marine mammals seen during the station approach or expected at that particular place and season), additional crew may be assigned to stand watch as necessary to provide full monitoring coverage around the vessel. Up to eight observers in total (including ship's crew standing watch) may be on duty during active trawling. The focus on the full area around the ship continues until trawl retrieval begins, at which point observational focus turns to the stern and the trawl net itself.

For midwater and bottom trawl surveys, the pre-set watch period is conducted by the OOD and bridge crew and typically occurs during transit prior to arrival at the sampling station but may also include time on station if other types of gear or equipment (*e.g.,* bongo nets) are deployed before the trawl. For these trawls, risk of interaction during the tow is lower and monitoring effort is reduced to the bridge crew until trawl retrieval.

For all surveys, although the minimum pre-set watch period is ten minutes, the actual monitoring period is typically longer. During standard trawl operations, at least some of the trackline to be towed is typically traversed prior to setting gear in order to check for hazards. On surface trawl surveys, CTD casts and plankton/bongo net hauls are made prior to setting the trawl. These activities can take 25–35 minutes after the vessel arrives on station, depending on water depth, and monitoring for marine mammals continues throughout these activities. Midwater trawls and bottom trawls do not typically deploy other gears before deploying trawl gear, but reconnaissance of the trackline often takes ten to fifteen minutes after arriving on station. In addition, once the decision is made to deploy the trawl gear, monitoring continues while the net is unspooled, which may take about ten minutes. Before the trawl doors are deployed, the net floats closed on the surface behind the vessel, and appropriate actions can be taken if marine mammals are sighted near the ship. Therefore, the marine mammal monitoring period—which begins before the vessel arrives on station and extends continuously through gear deployment—typically extends for over thirty minutes for all trawl types.

The effectiveness of visual monitoring may be limited depending on weather and lighting conditions. The OOD, CS, or watch leader will determine the best strategy to avoid potential takes of marine mammals based on the species encountered and their numbers and behavior, position, and vector relative to the vessel, as well as any other factors. For example, a whale transiting through the sampling area in the distance may only require a short move from the designated station, whereas a pod of dolphins in close proximity to the vessel may require a longer move from the station or possibly cancellation of the planned tow if the group follows the vessel.

In general, trawl operations will be conducted immediately upon arrival on station (and on conclusion of the pre-watch period) in order to minimize the time during which marine mammals (particularly pinnipeds) may become attracted to the vessel. However, in some cases it will be necessary to conduct small net tows (*e.g.,* bongo net) prior to deploying trawl gear.

Once the trawl net is in the water, the OOD, CS, and/or crew standing watch will continue to visually monitor the surrounding waters and will maintain a lookout for marine mammal presence as far away as environmental conditions allow. If marine mammals are sighted before the gear is fully retrieved, the most appropriate response to avoid marine mammal interaction will be determined by the professional judgment of the CS, watch leader, OOD and other experienced crew as necessary. This judgment will be based on past experience operating trawl gears around marine mammals (*i.e.,* best professional judgment) and on NWFSC training sessions that will facilitate dissemination of expertise operating in these situations (*e.g.,* factors that contribute to marine mammal gear interactions and those that aid in successfully avoiding such events). Best professional judgment takes into consideration the species, numbers, and behavior of the animals, the status of the trawl net operation (*e.g.,* 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. 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 consider 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 NWFSC 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 tow durations of not more than thirty minutes at the target depth will typically be implemented, excluding deployment and retrieval time (which may require an additional thirty minutes, depending on target depth), to reduce the likelihood of attracting and incidentally taking marine mammals. Short tow durations decrease the opportunity for marine mammals to find the vessel and investigate. Trawl tow distances will be

less than 3 nautical miles (nmi)—typically 1–2 nmi, depending on the specific survey and trawl speed—which is expected to reduce the likelihood of attracting and incidentally taking marine mammals. In addition, care will be taken when emptying the trawl to avoid damage to marine mammals that may be caught in the gear but are not visible upon retrieval. The gear will be emptied as quickly as possible after retrieval in order to determine whether or not marine mammals are present. The vessel's crew will clean trawl nets prior to deployment to remove prey items that might attract marine mammals. Catch volumes are typically small with every attempt made to collect all organisms caught in the trawl.

Marine mammal excluder device—Excluder devices are specialized modifications, typically used in trawl nets, which are designed to reduce bycatch by allowing non-target taxa to escape the net. These devices generally consist of a grid of bars fitted into the net that allow target species to pass through the bars into the codend while larger, unwanted taxa (*e.g.,* turtles, sharks, mammals) strike the bars and are ejected through an opening in the net. Marine mammal excluder devices (MMED) have not been proven to be fully effective at preventing marine mammal capture in trawl nets (*e.g.,* Chilvers, 2008) and are not expected to prevent marine mammal capture in NWFSC trawl surveys. It is difficult to effectively test such devices, in terms of effectiveness in excluding marine mammals as opposed to effects on target species catchability, because realistic field trials would necessarily involve marine mammal interactions with trawl nets. Use of artificial surrogates in field trials has not been shown to be a realistic substitute (Gibson and Isakssen, 1998). Nevertheless, we believe it reasonable to assume that use of MMEDs may reduce the likelihood of a given marine mammal interaction with trawl gear resulting in mortality. We do not infer causality, but note that annual marine mammal interactions with the Nordic 264 trawl net have been much reduced for NMFS's Southwest Fisheries Science Center (SWFSC) (relative to 2008) since their use of the MMED began.

Multiple types of midwater trawl nets are used in NWFSC trawl surveys. The Nordic 264 trawl net, used as a surface trawl by NWFSC, is generally much larger than the midwater trawls, is fished at faster speeds, and has a different shape and functionality than these nets. Very few marine mammal interactions with NWFSC pelagic trawl gear have involved nets other than the Nordic 264 (one of 37 total incidents since 1999). Therefore, MMED use is not proposed for nets other than the Nordic 264.

The NWFSC has tested the MMED design used by the SWFSC and found that it caused a significant loss of some salmon species that were the target of their research. More recent experiments have used video cameras attached to the net opening and near the excluder device to test different configurations of the excluder device to minimize loss of target species. The experiments have looked at adding weight and stiffeners to the flap covering the escape hatch to keep it closed and flipping the MMED so the escape hatch faces down rather than up. Based on preliminary results, this downward-pointing escape hatch appears to be the best design for minimizing loss of target species. Additional research will be necessary to calibrate catch levels in tows with the excluder device compared to past tows that did not contain the excluder (*i.e.,* to align the new catchability rates with historical data sets). During these configuration and calibration experiments some nets will be fished without the MMED in order to provide controls for catchability. Once the NWFSC completes these experiments the MMED will be used in all future trawls with the Nordic 264. Please see ''Monitoring and Reporting'' for additional discussion.

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 significant decreases in marine mammal interactions with fishing gear following pinger deployment, with results reported for multiple species and gears (*e.g.,* Kraus *et al.,* 1997; Trippel *et al.,* 1999; Gearin *et al.,* 2000; Palka *et al.,* 2008; Barlow and Cameron, 2003, Carretta *et al.,* 2008; Carretta and Barlow, 2011). Pingers will be deployed during all surface trawl operations (*i.e.,* using the Nordic 264 net), with two pairs of pingers installed near the net opening. The vessel's crew will ensure that pingers are operational prior to deployment. Pinger brands typically used by NWFSC include the Aquatec Subsea Limited model AQUAmark and Fumunda Marine models F10 and F70, with the following attributes: (1) Operational depth of 10–200 m; (2) tones range from 200–400 ms in duration, repeated every five to six seconds; (3) variable frequency of 10–160 kHz; and (4) maximum source level of 145 dB rms re 1 μPa.

Kodiak surface trawl and pair trawl gear—The Kodiak surface trawl, used only in Puget Sound, has only limited potential for marine mammal interaction. This gear type is a small net towed at slow speeds (about 2 kn) as close to shore as the net can be fished, and these characteristics mean that marine mammals would likely be able to avoid the net or swim out of it if necessary. However, rules for cetaceans would be similar as for other net types (*i.e.,* delay and/or move-on if cetaceans observed within approximately 500 m or clearly approaching from greater distance). If killer whales are observed at any distance, the net would not be deployed, and the move-on rule would be invoked.

The pair trawl is used only in the Columbia River and is fished with an open codend. Although unlikely, there is some potential for pinnipeds to become entangled in the net material. NWFSC's practice, which would be allowed under section 109(h) of the MMPA, is to deter pinnipeds from encountering the net using pyrotechnic devices and other measures. Therefore, separate mitigation is not warranted, and we do not discuss NWFSC deterrence of pinnipeds associated with pair trawl surveys further in this document. Please see the NWFSC's Programmatic Environmental Assessment (EA) for further information about this practice.

Longline and Other Hook and Line 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 during the 30-minute period 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. If killer whales are observed at any distance, the set would not occur and the move-on rule would be invoked.

Other types of hook and line surveys (*e.g.,* rod and reel) generally use the same protocols as longline surveys. However, for hook and line surveys in Puget Sound the move-on rule is not required for pinnipeds because they are commonly abundant on shore nearby hook and line sampling locations. Use of the move-on rule in these circumstances would represent an impracticable impact on NWFSC survey operations, and we note that no marine mammals have ever been captured in NWFSC hook and line surveys. However, the NWFSC would implement the move-on rule for hook and line surveys in Puget Sound for any cetaceans that are within 500 m and may be at risk of interaction with the survey operation. If killer whales are observed at any distance, fishing would not occur.

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. NWFSC longline protocols specifically prohibit chumming (releasing additional bait to attract target species to the gear) and spent bait and offal is retained on the vessel until all gear has been retrieved. Some hook and line surveys use barbless hooks, which are less likely to injure a hooked animal.

Seine Survey Visual Monitoring and Operational Protocols

Visual monitoring and operational protocols for seine 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. For purse seine operations, visual monitoring is focused on avoidance of cetaceans and aggregations of pinnipeds. Individual or small numbers of pinnipeds may be attracted to purse seine operations, especially in Puget Sound, and are frequently observed to enter operational purse seines to depredate the catch and exit the net unharmed. Use of the move-on rule in these circumstances would represent an impracticable impact on NWFSC survey operations, and we note that no marine mammals have ever been captured in NWFSC seine surveys.

If pinnipeds are in the immediate vicinity of a purse seine survey, the set may be delayed until animals move away or the move-on rule is determined to be appropriate, but the net would not be opened if already deployed and pinnipeds enter it. However, delay would not be invoked if only few pinnipeds are present (*e.g.,* less than five), and they do not appear to obviously be at risk.

If any dolphins or porpoises are observed within approximately 500 m of the purse seine survey location, the set would be delayed. If any dolphins or porpoises are observed in the net, the net would be immediately opened to free the animals. If killer whales or other large whales are observed at any distance the net would not be set, and the move-on rule would be invoked.

Beach seines are typically set nearshore by small boat crews, who visually survey the area prior to the set. The set would not be made within 200 m of any hauled pinnipeds. Otherwise, marine mammals are unlikely to be at risk of interaction with NWFSC beach seine operations, as the nets are relatively small and deployed and retrieved slowly. If a marine mammal is observed attempting to interact with the beach seine gear, the gear would immediately be lifted and removed from the water.

Tangle net protocols—Tangle nets are used only in the Columbia River. NWFSC attempts to avoid pinnipeds by rotating sampling locations on a daily basis and by avoiding fishing near haulout areas. However, as was described for NWFSC use of pair trawl gear in the LCRRA, NWFSC also deters pinnipeds from interacting with tangle net gear as necessary using pyrotechnic devices and visual presence, a practice allowed under section 109(h) of the MMPA. Therefore, we do not discuss NWFSC deterrence of pinnipeds associated with tangle net surveys further in this document. Please see the NWFSC's draft Programmatic EA for further information about this practice. If pinniped presence in the vicinity of tangle net surveys is so abundant as to be uncontrollable through deterrence, sampling would be discontinued for a given day.

We have carefully evaluated the NWFSC'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. Our evaluation of potential measures included consideration of the following factors in relation to one another: (1) The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals, (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation.

Any mitigation measure(s) we prescribe should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

(1) Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal);

(2) A reduction in the number (total number or number at biologically important time or location) of individual marine mammals exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only);

(3) A reduction in the number (total number or number at a biologically important time or location) of times any individual marine mammal would be exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only);

(4) A reduction in the intensity of exposure to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing the severity of behavioral harassment only);

(5) Avoidance or minimization of adverse effects to marine mammal habitat, paying particular attention to the prey base, blockage or limitation of passage to or from biologically important areas, permanent destruction of habitat, or temporary disturbance of habitat during a biologically important time; and

(6) For monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of the NWFSC's proposed measures, as well as

other measures we considered, we have determined that these 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.

Description of Marine Mammals in the Area of the Specified Activity

We previously reviewed NWFSC'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 referred readers to Sections 3 and 4 of NWFSC's application, as well as to NMFS's Stock Assessment Reports (SARs; *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*). We also provided information related to all species with expected potential for occurrence in the specified geographical region where NWFSC plans to conduct the specified activities, summarizing information related to the population or stock, including potential biological removal (PBR). Current information, as reported in the most recent final 2016 and draft 2017 SARs, is summarized in Table 1 below (Carretta *et al.,* 2017; Muto *et al.,* 2017; *www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*).

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

Common name	Scientific name	Stock	Occurrence			ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
			CC	LCR	PS				
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)									
Family Eschrichtiidae									
Gray whale	*Eschrichtius robustus*	Eastern North Pacific	X		X	-; N	20,990 (0.05; 20,125; 2011)	624	132
Family Balaenopteridae (rorquals)									
Humpback whale	*Megaptera novaeangliae kuzira*	California/Oregon/ Washington (CA/OR/WA)	X		X	E/D; Y	1,918 (0.03; 1,876; 2014)	11[9]	≥9.2
Minke whale	*Balaenoptera acutorostrata scammoni*	CA/OR/WA	X		X	-; N	636 (0.72; 369; 2014)	3.5	≥1.3
Sei whale	*B. borealis borealis*	Eastern North Pacific	X			E/D; Y	519 (0.4; 374; 2014)	0.75	0
Fin whale	*B. physalus physalus*	CA/OR/WA	X			E/D; Y	9,029 (0.12; 8,127; 2014)	81	≥2.0
Blue whale	*B. musculus musculus*	Eastern North Pacific	X			E/D; Y	1,647 (0.07; 1,551; 2011)	2.3[9]	≥0.2
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
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[5]	X			-; N	Unknown	Undet.	0
Family Ziphiidae (beaked whales)									
Cuvier's beaked whale	*Ziphius cavirostris*	CA/OR/WA	X			-; Y	3,274 (0.67; 2,059; 2014)	21	<0.1
Baird's beaked whale	*Berardius bairdii*	CA/OR/WA	X			-; N	2,697 (0.6; 1,633; 2014)	16	0
Hubbs' beaked whale	*Mesoplodon carlhubbsi*	CA/OR/WA[6]	X			-; Y	3,044 (0.54; 1,967; 2014)	20	0.1
Blainville's beaked	*M. densirostris*		X						

whale									
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 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
Long-beaked common dolphin	*Delphinus delphis bairdii*	California	X			-; N	101,305 (0.49; 68,432; 2014)	657	≥35.4
Short-beaked common dolphin	*D. d. delphis*	CA/OR/WA	X			-; N	969,861 (0.17; 839,325; 2014)	8,393	≥40
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	CA/OR/WA	X		X	-; N	26,814 (0.28; 21,195; 2014)	191	7.5
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*[4]	West Coast Transient[7]	X	X	X	-; N	243 (n/a; 2009)	2.4	0
		Eastern North Pacific Offshore	X			-; N	240 (0.49; 162; 2014)	1.6	0
		Eastern North Pacific Southern Resident	X		X	E/D; Y	83 (n/a; 2016)	0.14	0
		Eastern North Pacific Northern Resident	X		X	-; N	261 (n/a; 2011)	1.96	0
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	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
Dall's porpoise	*Phocoenoides dalli dalli*	CA/OR/WA	X	X	X	-; N	25,750 (0.45; 17,954; 2014)	172	0.3
Order Carnivora – Superfamily Pinnipedia									
Family Otariidae (eared seals and sea lions)									
Guadalupe fur seal	*Arctocephalus philippii townsendi*		X			T/D; Y	20,000 (n/a; 15,830; 2010)	542	≥3.2[10]
Northern fur seal	*Callorhinus ursinus*	Pribilof Islands/Eastern Pacific	X			D; Y	637,561 (0.2; 539,638; 2015)	11,602	436
		California	X			-; N	14,050 (n/a; 7,524; 2013)	451	1.8
California sea lion	*Zalophus californianus*	United States	X	X	X	-; N	296,750 (n/a; 153,337; 2011)	9,200	389
Steller sea lion	*Eumetopias jubatus monteriensis*	Eastern U.S.	X	X	X	D; Y	41,638 (n/a; 2015)	2,498	108
Family Phocidae (earless seals)									
Harbor seal	*Phoca vitulina richardii*	California	X			-; N	30,968 (n/a; 27,348; 2012)	1,641	43
		OR/WA Coast[8]	X	X		-; N	24,732 (0.12; 22,380; 1999)	Undet.	10.6
		Washington Northern Inland Waters[8]			X	-; N	11,036 (0.15; 7,213; 1999)	Undet.	9.8
		Southern Puget Sound[8]			X	-; N	1,568 (0.15; 1,025; 1999)	Undet.	3.4

		Hood Canal[8]			X	-; N	1,088 (0.15; 711; 1999)	Undet.	0.2
Northern elephant seal	*Mirounga angustirostris*	California Breeding	X		X	-; N	179,000 (n/a; 81,368; 2010)	4,882	8.8

[1]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.

[2]NMFS marine mammal stock assessment reports at: *www.nmfs.noaa.gov/pr/sars/*. CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable. For three 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.

[3]These values, found in NMFS' 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 2017 SARs (*www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*).

[4]Transient and resident killer whales are considered unnamed subspecies (Committee on Taxonomy, 2017).

[5]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.

[6]The six species of Mesoplodont beaked whales occurring in the CCE 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). Additional managed stocks in the Pacific include *M. stejnegeri* in Alaskan waters and *M. densirostris* in Hawaiian waters.

[7]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.

[8]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.

[9]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. Annual M/SI presented for these species is for U.S. waters only.

[10]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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Prior to 2016, humpback whales were listed under the ESA as an endangered species worldwide. Following a 2015 global status review (Bettridge *et al.,* 2015), NMFS established 14 distinct population segments (DPS) with different listing statuses (81 FR 62259; September 8, 2016) pursuant to the ESA. The DPSs that occur in U.S. waters do not necessarily equate to the existing stocks designated under the MMPA and shown in Table 1. Because MMPA stocks cannot be portioned, *i.e.,* parts managed as ESA-listed while other parts managed as not ESA-listed, until such time as the MMPA stock delineations are reviewed in light of the DPS designations, NMFS considers the existing humpback whale stocks under the MMPA to be endangered and depleted for MMPA management purposes (*e.g.,* selection of a recovery factor, stock status). Within U.S. west coast waters, three current DPSs may occur: The Hawaii DPS (not listed), Mexico DPS (threatened), and Central America DPS (endangered).

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

We provided a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat in our notice of proposed rulemaking (81 FR 38516; June 13, 2016). Specifically, we considered potential effects to marine mammals from ship strike, physical interaction with various gear types, use of active acoustic sources, and visual disturbance of pinnipeds, as well as effects to prey species and to acoustic habitat. The information is not reprinted here.

Estimated Take by Incidental Harassment, Serious Injury, or Mortality

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). Serious injury means any injury that will likely result in mortality (50 CFR 216.3).

Take of marine mammals incidental to NWFSC 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).

Estimated Take Due to Gear Interaction

Historical Interactions—In order to estimate the number of potential incidents of take that could occur by M/SI through gear interaction, we first considered NWFSC's record of past such incidents, and then considered in addition other species that may have similar vulnerabilities to NWFSC trawl gear as those species for which we have historical interaction records. Historical interactions with NWFSC research gear were described in Table 4 of our notice of proposed rulemaking (81 FR 38516; June 13, 2016). Please see that document for more information. Available records are for the years 1999 through present. All historical interactions have taken place in the CCRA, offshore Washington and Oregon, and have occurred during use of the Nordic 264 surface trawl net, with a few exceptions. There is one historical interaction in the PSRA (also using the Nordic 264 surface trawl), and one CCRA historical interaction using the modified Cobb midwater trawl. NWFSC has no historical interactions for any bottom trawl, hook and line, or seine gear, and has no historical interactions in the LCRRA. Please see Figure 6–1 in the NWFSC request for authorization for specific locations of these incidents.

Although some historical interactions resulted in the animal(s) being released alive, no serious injury determinations (NMFS, 2012a; 2012b) were made, and it is possible that some of these animals later died. In order to use these historical interaction records in a precautionary manner 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. Over the past seventeen years, NWFSC has had only infrequent interactions with marine mammals, with 0.1–0.5 animals captured per year for the pinniped species and 1.4 animals captured per year for the Pacific white-sided dolphin. No Steller sea lion has been captured since 2002, northern fur seals have been involved in only one incident (none since 2000), and only a few California sea lions and harbor seals have been involved in interactions with research fishing gear. However, we assume that any of these species could be captured in any year.

In order to produce the most precautionary take estimates possible, we consider all of the data available to us (*i.e.,* since 1999). In consideration of these interaction records, we assume that one individual of each species of otariid pinniped could be captured per year over the course of the five-year period of validity for these proposed regulations, that two individual harbor seals could be captured per year, and that the worst case event could happen each year for Pacific white-sided dolphins (*i.e.,* six dolphins could be captured in a single trawl in each year). Table 2 shows the projected five-year total captures of these five species for this final rule, as described above, for trawl gear only. Although more than one individual of the two sea lion species has been captured in a single tow, interactions with these species have historically occurred only infrequently, and we believe that the above assumption appropriately reflects the likely total number of individuals involved in research gear interactions over a five-year period. We assume that two total harbor seals could be captured per year in recognition of the demonstrated vulnerability to capture in the PSRA (all other species have been captured only in the CCRA). These estimates are based on the assumption that annual effort (*e.g.,* total annual trawl tow time) over the five-year authorization period will not exceed the annual effort during prior years for which we have interaction records.

TABLE 2—PROJECTED FIVE-YEAR TOTAL TAKE IN TRAWL GEAR FOR HISTORICALLY CAPTURED SPECIES

Gear	Species	CCRA average annual take (total)	PSRA average annual take (total)	Projected 5-year total [1]
Trawl	Pacific white-sided dolphin	6 (30)		30
	California sea lion	1 (5)		5
	Harbor seal	1 (5)	1 (5)	10
	Northern fur seal	1 (5)		5
	Steller sea lion	1 (5)		5

[1] Because there are no historical take records from the LCRRA, we incorporate all projected LCRRA takes in Table 3 below.

In order to estimate the total potential number of incidents of M/SI that could occur incidental to the NWFSC's use of trawl, hook and line, and seine gear over the five-year period of validity for these regulations (*i.e.,* takes additional to those described in Table 4 of our notice of proposed rulemaking (81 FR 38516; June 13, 2016)), we first considered whether there are additional species that may have similar vulnerability to capture in trawl 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.

In order to evaluate the potential vulnerability of additional species to trawl and of all species to hook and line and seine gear, we first consulted NMFS's List of Fisheries (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. We provided this information, as presented in the 2015 LOF (79 FR 77919; December 29, 2014), in Table 6 of our notice of proposed rulemaking (81 FR 38516; June 13, 2016) and do not reproduce it here.

Information related to incidental M/SI in relevant commercial fisheries is not, however, the sole determinant of whether it may be appropriate to authorize M/SI incidental to NWFSC survey operations. A number of factors (*e.g.,* species-specific knowledge regarding animal behavior, overall abundance in the geographic region, density relative to NWFSC survey effort, feeding ecology, propensity to travel in groups commonly associated with other species historically taken) were taken into account by the NWFSC 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 NWFSC research gear. Similarly, we have determined that some species groups with documented M/SI are not likely to be vulnerable to capture in NWFSC gear. In these instances, we provide further explanation below. Those species with no records of historical interaction with NWFSC research gear and no documented M/SI in relevant commercial fisheries, and for which the NWFSC has not requested the authorization of incidental take, are not considered further in this section. The NWFSC 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 NWFSC 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. These species are limited to a few delphinid species that we believe may have similar risk of capture as that displayed by the Pacific white-sided dolphin. For these species, we assume it is possible that a worst-case scenario of 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. The former assumption also accounts for the likelihood that, for species that often travel in groups, an incident involving capture of that species is likely to involve more than one individual.

For example, we believe that the Risso's dolphin is potentially vulnerable to capture in trawl gear and may have similar propensity to capture in that gear as does the Pacific white-sided dolphin. Because the greatest number of Pacific white-sided dolphins captured in any one trawl tow was six individuals, we assume that six Risso's dolphins could also be captured in a single incident. However, in recognition of the fact that any incident involving the capture of Risso's dolphins would likely be a rare event, we propose a total take authorization over the five-year period of the number that may result from a single, worst-case incident (six dolphins). While we do not necessarily believe that six Risso's dolphins would be captured in a single incident—and that more capture incidents involving fewer individuals could occur, as opposed to a single, worst-case incident—we believe that this is a reasonable approach to estimating potential incidents of M/SI while balancing what could happen in a worst-case scenario with the potential likelihood that no incidents of capture would actually occur. The SWFSC historical capture of northern right whale dolphins in 2008 provides an instructive example of a situation where a worst-case scenario (six dolphins captured in a single trawl tow) did occur, but overall capture of this species was very rare (no other capture incidents before or since).

Separately, for those species that we believe may have a vulnerability to capture in given gear but that we do not believe may have a similar propensity to capture in that gear as a historically-captured species, we assume that capture would be a rare event such that authorization of a single take over the five-year period is likely sufficient to capture the risk of interaction. For example, from the LOF we infer vulnerability to capture in trawl gear for the Dall's porpoise but do not believe that this species has a similar propensity for interaction in trawl gear as the Pacific white-sided dolphin.

Trawl: From the LOF and SWFSC historical gear interactions, we infer vulnerability to trawl gear in the CCRA for the Risso's dolphin, short- and long-beaked common dolphins, northern right whale dolphin, Dall's porpoise, harbor porpoise, and bottlenose dolphin (offshore stock only; NWFSC research has very little overlap with the distribution of the coastal stock of bottlenose dolphin). We consider some of these species to have a similar propensity for interaction with trawl gear as that demonstrated by the Pacific white-sided dolphin (Risso's dolphin, northern right whale dolphin) and the rest to have lower risk of interaction.

Due to their likely presence in the relevant areas and inference based on historical interactions and the LOF, we assume additional vulnerability and therefore potential take for some of these species in trawl gear used in the PSRA and LCRRA. In the PSRA, these include the harbor porpoise, Dall's porpoise, California sea lion, and Steller sea lion. In the LCRRA these include the harbor porpoise, harbor seal, California sea lion, and Steller sea lion.

For the striped dolphin, 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. The proposed take authorization for this species was determined to be appropriate based on analogy to other similar species that have been taken either in NWFSC operations or in analogous commercial fishery operations. We believe that the striped dolphin has a similar propensity for interaction with trawl gear as that demonstrated by the Pacific white-sided dolphin.

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. This is only likely to occur in the CCRA due to the greater diversity of pinniped and small cetacean species likely to be encountered in that area. Therefore, the NWFSC has requested the authorization of incidental M/SI for one unidentified pinniped and one unidentified small cetacean over the course of the five-year period of proposed authorization.

Hook and line: The process is the same as is described above for trawl gear. From the LOF and SWFSC historical interactions, we infer

vulnerability to hook and line gear in the CCRA for the Risso's dolphin, bottlenose dolphin, striped dolphin, pygmy and dwarf sperm whale (*i.e., Kogia* spp.), short- and long-beaked common dolphins, short-finned pilot whale, and California and Steller sea lions.

Due to their likely presence in the relevant areas and inference based on historical interactions and the LOF, we assume additional vulnerability and therefore potential take for some of these species in hook and line gear used in the PSRA (hook and line gear is not used in the LCRRA). These include the California sea lion and harbor seal.

Seine: The process is the same as is described above for trawl gear. From the LOF, we infer vulnerability to seine and tangle net gear in the CCRA and/or LCRRA for the short-beaked common dolphin, harbor seal, and California sea lion. Long-beaked common dolphin is not included because they are much rarer in Oregon and Washington where seine surveys are conducted. Seine gear is used infrequently in the PSRA (*e.g.,* twelve purse seine sets per year) and the move-on rule applied if any small cetacean is seen within 500 m of the planned set. We do not believe that any take in seine gear is likely in the PSRA.

We also believe that there is a reasonable potential of seine gear interaction for a number of species in the CCRA and/or LCRRA for which there are no LOF records of interaction in commercial fisheries gears. These authorizations reflect the NWFSC's expert judgment regarding the distribution of these species in relation to NWFSC use of seine gear offshore Oregon and Washington. For example, several of these species have the potential to interact with NWFSC purse seine surveys in the Columbia River plume, where there are no corresponding commercial seine fisheries. Therefore, we would not expect the LOF to adequately reflect the risk of marine mammal interaction posed by NWFSC survey activities. Species for which we authorize take in seine gear in the CCRA and/or LCRRA with no LOF interaction records include the Dall's porpoise, Pacific white-sided dolphin, Risso's dolphin, northern right whale dolphin, Steller sea lion, and harbor porpoise. For the harbor porpoise, we expect that there is greater vulnerability to take in these gears (*i.e.,* we expect it could be taken in both the CCRA and LCRRA) and have increased the take authorization relative to the other species accordingly. NWFSC considers the delphinid species to be at risk because of their occurrence in coastal waters offshore Oregon and Washington, and because they often occur in mixed schools and could be caught together in purse seines.

TABLE 3—TOTAL ESTIMATED M/SI DUE TO GEAR INTERACTION, 2018–23

Species	Estimated 5-year total, trawl [1]	Estimated 5-year total, hook and line [1]	Estimated 5-year total, seine [1]	Total, all gears
Kogia spp. [2]		1		1
Bottlenose dolphin [3]	1	1		2
Striped dolphin	6	1		7
Short-beaked common dolphin	1	1	1	3
Long-beaked common dolphin	1	1		2
Pacific white-sided dolphin	30		1	31
Northern right whale dolphin	6		1	7
Risso's dolphin	6	1	1	8
Short-finned pilot whale		1		1
Harbor porpoise [4]	3 (CCRA/PSRA/LCRRA)		2 (CCRA/LCRRA)	5
Dall's porpoise	2 (CCRA/PSRA)		1	3
Northern fur seal [5]	5			5
California sea lion	7 (5 CCRA/PSRA/LCRRA)	2 (CCRA/PSRA)	1 (LCRRA)	10
Steller sea lion	7 (5 CCRA/PSRA/LCRRA)	1	1 (LCRRA)	9
Harbor seal [4]	11 (5 CCRA/5 PSRA/LCRRA	1 (PSRA)	1 (LCRRA)	13
Unidentified pinniped	1			1
Unidentified small cetacean	1			1

[1] Please see our notice of proposed rulemaking (81 FR 38516; June 13, 2016) for full detail related to derivation of these take estimates. Takes proposed for authorization are not specific to any area, but our estimates are informed by area-specific vulnerability. All takes are expected to occur in the CCRA, except where the gear-specific breakdown of expected takes per area is provided. Note that hook and line surveys are not proposed for LCRRA and only limited seine surveys are proposed for PSRA.

[2] We expect that only one *Kogia* spp. may be taken over the five-year timespan and that it could be either a pygmy or dwarf sperm whale.

[3] Incidental take is expected only from the offshore stock.

[4] Incidental take for these species may be of animals from any stock in California, Oregon, or Washington, but expected vulnerability may be assigned to CCE or Washington inland waters stocks according to the expected take proportions shown.

[5] Incidental take may be of animals from either the eastern Pacific or California stock.

Estimated Take Due to Acoustic Harassment

As described in our notice of proposed rulemaking (81 FR 38516; June 13, 2016; ''Potential Effects of the Specified Activity on Marine Mammals''), we believe that NWFSC 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 NWFSC 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 (81 FR 38516; June 13, 2016) 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 may be seen as an overestimate of the potential for behavioral harassment to occur as a result of the operation of these systems.

In 2016, NMFS released updated ''Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing'' with revised metrics and thresholds to assess the potential for injury (*e.g.,* permanent threshold shift) from acoustic sources. While the NWFSC's EA and our proposed rule refer to NMFS's historic guidelines, as the documents were completed prior to the recent release of the technical guidance, the conclusions regarding the potential for injury remain

the same. Most importantly, the technical guidance now explicitly takes into account the duration of the sound through the use of the sound exposure level (SEL) metric, as opposed to the previous use of rms sound pressure level (SPL). The effect of this different metric, in particular for the very short duration sounds used for these echosounders, is to largely reduce the exposure level of sound an animal is exposed to for short duration sounds (*e.g.,* for a 1 millisecond ping, an SPL source level is reduced by 30 dB in the SEL metric) offsetting changes in the thresholds themselves. While energy is accumulated over time using SEL, the previous conclusion that an individual would have to remain exceptionally close to a sound source for unrealistic lengths of time holds, suggesting the likelihood of injury occurring is exceedingly small and is therefore not considered further in this analysis.

The operating frequencies of active acoustic systems used by NWFSC sources only go down to 27–33 kHz for the trawl monitoring system, which is not one of the predominant sources, and to 38 kHz for the EK60 echosounder (see Tables 2 and 8 from our notice of proposed rulemaking (81 FR 38516; June 13, 2016)). These frequencies are above the hearing range of baleen whales (*i.e.,* mysticetes); therefore, baleen whales would not be expected to perceive signals from NWFSC active acoustic sources. We would not expect any exposures to these signals to result in behavioral harassment. Baleen whales are not considered further in this section.

The assessment paradigm for active acoustic sources used in NWFSC 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. For use of these active acoustic systems, the appropriate threshold is 160 dB re 1 μPa (rms). Estimating the number of exposures at the specified received level 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 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. 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 (81 FR 38516; June 13, 2016). 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 proposed rule. Summaries of the results are provided in Table 4 below. Note that NWFSC only uses active acoustic systems for data acquisition purposes in the CCRA, not in the LCRRA or PSRA.

TABLE 4—DENSITIES AND ESTIMATED SOURCE-, STRATUM-, AND SPECIES-SPECIFIC ANNUAL ESTIMATES OF LEVEL B HARASSMENT

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	ME70	SX90	EK60	SX90	
Sperm whale	.....	X	0.002	0.003	1	0	1	3	1	6
Kogia spp	.....	X	0.001	0.002	0	0	1	2	0	3
Cuvier's beaked whale	.....	X	0.004	0.008	2	1	2	7	2	14
Baird's beaked whale	.....	X	0.001	0.002	0	0	1	2	0	3
Mesoplodont beaked whales	.....	X	0.001	0.002	0	0	1	2	0	3
Bottlenose dolphin	X	.....	0.002	0.009	2	1	3	0	0	6
Striped dolphin	X	.....	0.017	0.083	18	6	25	0	0	49
Long-beaked common dolphin	X	.....	0.019	0.096	20	7	28	0	0	55
Short-beaked common dolphin	X	.....	0.309	1.547	325	115	455	0	0	895
Pacific white-sided dolphin	X	.....	0.021	0.105	22	8	31	0	0	61
Northern right whale dolphin	X	.....	0.010	0.049	10	4	14	0	0	28
Risso's dolphin	X	.....	0.010	0.052	11	4	15	0	0	30
Killer whale	X	.....	0.001	0.004	1	0	1	0	0	2
Short-finned pilot whale	.....	X	0.0003	0.001	0	0	0	1	0	1
Harbor porpoise	X	.....	[4] 0.038	0.189	40	14	56	0	0	110
Dall's porpoise	X	.....	0.076	0.378	79	28	111	0	0	218
Guadalupe fur seal	X	.....	[3] 0.007	0.037	8	3	11	0	0	22
Northern fur seal	X	.....	[3] 0.649	3.245	682	241	955	0	0	1,878
California sea lion	X	.....	[3] 0.297	1.484	312	110	437	0	0	859
Steller sea lion	X	.....	[3] 0.060	0.301	63	22	89	0	0	174
Harbor seal	X	.....	[3] 0.056	0.279	59	21	82	0	0	162
Northern elephant seal	.....	X	[3] 0.179	0.358	75	27	105	336	79	622

[1] All density estimates from Barlow and Forney (2007) unless otherwise indicated.

[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] Density estimates derived by NWFSC from SAR abundance estimates and notional study area of 1,000,000 km^2.

[4] ManTech-SRS Technologies (2007) estimated a harbor porpoise density for coastal and inland waters of Washington, which is used as the best available proxy here. There are no known density estimates for harbor porpoises in NWFSC survey areas in the CCRA.

Estimated Take Due to Physical Disturbance

Estimated take due to physical disturbance could potentially happen in the PSRA and LCRRA, and would result in no greater than Level B harassment. It is likely that some pinnipeds will move or flush from known haulouts into the water in response to the presence or sound of NWFSC vessels or researchers, as a result of unintentional approach during survey activity. Behavioral responses may be considered according to the scale shown in Table 5 and based on the method developed by Mortenson (1996). We consider responses corresponding to Levels 2–3 to constitute Level B harassment.

TABLE 5—SEAL 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.
3	Flight	All retreats (flushes) to the water.

The NWFSC has estimated potential incidents of Level B harassment due to physical disturbance (Table 6) by considering the number of seals believed to potentially be present at affected haul-outs and the number of visits expected to be made by NWFSC researchers. The number of haulouts disturbed and number of animals assumed to be on those haulouts was determined by NWFSC on the basis of anecdotal evidence from researchers. Although not all individuals on ''disturbed'' haulouts would necessarily actually be disturbed, and some haulouts 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.

TABLE 6—ESTIMATED ANNUAL LEVEL B HARASSMENT OF PINNIPEDS ASSOCIATED WITH DISTURBANCE BY RESEARCHERS

Species	Location	Estimated total number of animals on potentially disturbed haul-outs	Number of visits per year	Estimated annual Level B harassment
Harbor seal	Puget Sound	1,440	8	11,520
	Columbia River	3,000	25	75,000
California sea lion	Puget Sound	350	8	2,800

Summary of Estimated Incidental Take

Here we provide a summary of the total incidental take authorization on an annual basis, as well other information relevant to the negligible impact analysis. Table 7 shows information relevant to our negligible impact analysis concerning the total annual taking that could occur for each stock from NMFS's scientific research activities when considering incidental take previously authorized for SWFSC (80 FR 58982; September 30, 2015) and take authorized for NWFSC. As footnoted in Table 7, the indicated level of take could occur to any species or stock for those species with multiple stocks (*e.g.,* northern fur seal) or considered as a group (*e.g.,* Mesoplodont beaked whales). However, the harbor porpoise and harbor seal each have multiple stocks spanning the three NWFSC research areas, and we provide further detail regarding our consideration of potential take specific to stocks that may occur in the PSRA and LCRRA. Many stocks do not occur in those research areas and, therefore, would not be vulnerable to interaction with research gear deployed in those areas.

For harbor porpoise, we authorize a total of five takes by M/SI for all stocks combined over the five-year period of validity for these regulations. 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 intended for assessment of the significance of harassment. These takes could occur to any stock; however, our take authorization is informed by reasonable expectation regarding species vulnerability to gear used in the three research areas. Of the five total takes, we expect that two might occur in the CCRA, one in the PSRA, and two in the LCRRA. Therefore, corresponding with the relationship between stock ranges and the location of NWFSC research activities, the likely maximum takes that could accrue to any harbor porpoise stock from California to southern Oregon would be two, while the northern Oregon/Washington coast stock could potentially accrue four takes because it is vulnerable to the takes expected in either the CCRA or LCRRA. In Table 7 below, the total take authorization column reflects the total of four takes that could occur in either the CCRA or LCRRA (and the one take expected in the PSRA, which would occur to the Washington inland waters stock). However, the estimated maximum annual take column reflects the annualized stock-specific risk, *i.e.,* any stock in the CA-southern OR grouping is expected to be vulnerable to a maximum of two takes over the 5-year period (0.4/year) while the northern OR/WA coast stock could be vulnerable to as many as four takes over the five years (0.8/year). This stock-specific accounting does not change our expectation that a total of five takes would occur for all stocks combined but informs our stock-specific negligible impact analysis.

Similarly, the harbor seal has separate designated stocks that may occur in all three research areas. We will authorize a total of thirteen takes by M/SI for all harbor seal stocks combined, and expect that five of these may occur in the CCRA, six in the PSRA, and two in the LCRRA. Therefore, while we would expect that a maximum of five takes could accrue to the California stock, as many as seven takes could occur for the Oregon/Washington coastal stock (which is the only stock that may occur in the LCRRA). Although NMFS has split the former Washington inland waters stock of harbor seals into three separate stocks, we do not have sufficient information to assess stock-specific risk in the PSRA. Separately,

we have estimated that 162 incidents of acoustic harassment may occur for harbor seals due to NWFSC use of active acoustic systems (in the CCRA only) and that, due to the physical presence of researchers, individual harbor seals on haulouts (as many as 3,000) may be disturbed up to 25 times per year in the LCRRA. Therefore, as shown in Table 7, the California stock of harbor seals is vulnerable to only the estimated 162 acoustic harassment takes, but the OR/WA coast stock would be vulnerable to both the acoustic harassment takes as well as the physical disturbance takes. However, note that the percent of estimated population is calculated considering the number of individuals anticipated to be disturbed rather than the number of incidents of disturbance.

We previously authorized take of marine mammals incidental to fisheries research operations conducted by the SWFSC (see 80 FR 58982 and 80 FR 68512). This take would occur to some of the same stocks for which we will authorize take incidental to NWFSC fisheries research operations. Therefore, in order to evaluate the likely impact of the take by M/SI to be authorized pursuant to this rule, we consider not only other ongoing sources of human-caused mortality but the potential mortality authorized for SWFSC. 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 authorized for NWFSC and previously authorized for SWFSC 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 7 and in the following discussion). PBR and annual M/SI values considered in Table 7 reflect the most recent information available.

TABLE 7—SUMMARY INFORMATION RELATED TO NWFSC ANNUAL TAKE AUTHORIZATION, 2018–23

Species [1]	Total annual Level B harassment authorization [2]	Percent of estimated population abundance	Proposed total M/SI [3] authorization, 2018–23	SWFSC total M/SI authorization, 2015–20	Estimated maximum annual M/SI [4]	PBR minus annual M/SI (%) [5]	Stock trend [6]
Sperm whale	6	0.3	0	0	0	n/a	?
Kogia spp	3	0.1	1	1	0.4	19.2 (2.1)	?
Cuvier's beaked whale	14	0.4	0	0	0	n/a	↓
Baird's beaked whale	3	0.1	0	0	0	n/a	?
Mesoplodont beaked whales	3	0.1	0	0	0	n/a	↓
Bottlenose dolphin (offshore stock).	6	0.3	2	9	2.6	9.4 (27.7)	?
Striped dolphin	49	0.2	7	12	4.2	237.2 (1.8)	?
Long-beaked common dolphin.	55	0.1	2	12	3.2	621.6 (0.5)	↑
Short-beaked common dolphin.	895	0.1	3	12	3.4	8,353 (<0.1)	?
Pacific white-sided dolphin	61	0.2	31	35	13.6	189.1 (7.2)	?
Northern right whale dolphin	28	0.1	7	10	3.8	175.2 (2.2)	?
Risso's dolphin	30	0.5	8	12	4.4	42.3 (10.4)	?
Killer whale [7]	2	0.8	0	0	0	n/a	?
Short-finned pilot whale	1	0.1	1	1	0.4	3.3 (12.1)	?
Harbor porpoise (CA-southern OR stocks) [7].	110	3.8	4	5	1.8	20.4 (8.8)	?
Harbor porpoise (Northern OR/WA coast).					2.2	148 (1.5)	?
Harbor porpoise (WA inland waters).	0	n/a	1	0	0.2	58.8 (0.3)	?
Dall's porpoise	218	0.9	3	5	2	171.7 (1.2)	?
Guadalupe fur seal	22	0.1	0	0	0	n/a	↑
Northern fur seal [6]	[8] 1,878	0.3	5	5	2.4	449.4 (0.5)	↑
California sea lion	3,659	0.4	10	25	7.6	8,815 (0.1)	↑
Steller sea lion	174	0.4	9	10	4.4	2,390.6 (0.2)	↑
Harbor seal (CA)	75,162	0.6	5	9	3.2	1,598.2 (0.2)	→
Harbor seal (OR/WA coast)		12.8	2		1.8	Unknown	→
Harbor seal (WA inland waters).	11,520	10.5	6	0	1.2	Unknown	→
Northern elephant seal	622	0.3	5	5	2.2	4,873.2 (0.1)	↑
Unidentified small cetacean	n/a	n/a	1	1	n/a	n/a	n/a
Unidentified pinniped	n/a	n/a	1	2	n/a	n/a	n/a

Please see our notice of proposed rulemaking (81 FR 38516; June 13, 2016) for full details.

[1] For species with multiple stocks or for species groups (*Kogia* spp. and Mesoplodont beaked whales), indicated level of take could occur to individuals from any stock or species except as indicated in table.

[2] Level B harassment totals include estimated take due to acoustic harassment and, for harbor seals and California sea lions, estimated take due to physical disturbance. Active acoustic devices are not used for data acquisition in the PSRA; therefore, no takes by acoustic harassment are expected for stocks that occur entirely or largely in inland waters (*e.g.,* resident killer whales). Takes by physical disturbance for pinniped species represent repeated takes of smaller numbers of individuals (*e.g.,* we expect as many as 1,440 harbor seals in the PSRA to be harassed on as many as eight occasions). The ''percent of estimated population'' column represents this smaller number of individuals taken rather than the total number of take incidents.

[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 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' 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 or cetacean that may be captured in trawl gear in the CCRA. 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). For the Pacific-white sided dolphin, harbor seal (California stock), northern fur seal (California stock), Steller sea lion, and California sea lion, we subtract the annual average of mortalities occurring incidental to fisheries research from the total human-caused M/SI prior to calculating this value, as we explicitly account for predicted future mortalities incidental to fisheries research via the estimated maximum annual M/SI column. In parentheses, we provide the estimated maximum annual M/SI expressed as a percentage of this value.

[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] These species have multiple stocks that may be affected. Values for ''percent of estimated population'' and ''PBR—annual M/SI'' (where relevant) calculated for the stock with the lowest population abundance and/or PBR (as appropriate). This approach assumes that all indicated takes would accrue to the stock in question, which is a very conservative assumption. Stocks in question are the offshore killer whale, Morro Bay harbor porpoise, and California northern fur seal.

[8] Calculated on the basis of relative abundance; *i.e.,* of 1,878 total estimated incidents of Level B harassment, we would expect on the basis of relative abundance in the study area that 98 percent would accrue to the Pribilof Islands/Eastern Pacific stock and two percent would accrue to the California stock.

Negligible Impact Analysis and Determination

We received no public comments or new information indicating any deficiencies in our preliminary determinations, as provided in our notice of proposed rulemaking (81 FR 38516; June 13, 2016).

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 NWFSC'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 rulemaking for the NMFS Southwest Fisheries Science Center has been incorporated into the residual PBR.

We first consider maximum potential incidental M/SI for each stock (Table 7) 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 NWFSC 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.

Analysis—Please see Table 7 for information related to this analysis. The large majority of stocks that may potentially be taken by M/SI (18 of 21) fall below the insignificance threshold, while an additional four 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, and short-finned pilot whale) and those without PBR values (harbor seals along the Oregon and Washington coasts and in Washington inland waters).

As described in greater depth in our notice of proposed rulemaking (81 FR 38516; June 13, 2016), we do not believe that NWFSC use of active acoustic sources has the likely potential to cause any effect exceeding Level B harassment of marine mammals. In addition, for the majority of species, the annual take by Level B harassment is very low in relation to the population abundance estimate (less than one percent). We have produced what we believe to be precautionary estimates of potential incidents of Level B harassment. The procedure for producing these estimates, described in detail in our notice of proposed rulemaking (81 FR 38516; June 13, 2016), represents NMFS's best effort towards balancing the need to quantify the potential for occurrence of Level B harassment due to production of underwater sound with 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 NWFSC operates. The sources considered here have moderate to high output frequencies (10 to 180 kHz), 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 proposed take authorization.

In addition, otariid pinnipeds are less likely than other taxa to perceive acoustic signals generated by NWFSC or, given perception, to react to these signals than the quantitative estimates indicate. This group of pinnipeds has reduced functional hearing at the higher frequencies produced by active acoustic sources considered here (*e.g.,* primary operating frequencies of 40–180 kHz) and, based purely on their auditory capabilities, the potential impacts are likely much less than we have calculated as these relevant factors are not taken into account.

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 NWFSC 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 proposed level of take by M/SI for any species.

Similarly, disturbance of pinnipeds on haulouts by researchers approaching on foot or in small vessels (as is expected for harbor seals in the lower Columbia River and Puget Sound and for California sea lions in Puget Sound) 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 (less than fifteen percent) of the estimated population abundance of the affected stocks would be expected to experience the disturbance.

As noted above, authorized M/SI above the insignificance threshold does not necessarily indicate that the take is unsustainable or that it may constitute more than a negligible impact. Rather, we simply use this metric as a guide to indicate when further evaluation of the available information is warranted. For the offshore stock of bottlenose dolphin, Risso's dolphin, and short-finned pilot whale, maximum total potential M/SI due to NMFS's fisheries research activity (SWFSC and NWFSC combined), while above the insignificance threshold, is low relative to residual PBR (approximately 28, 10, and 12 percent, respectively).

The only known source of other anthropogenic mortality for the offshore stock of bottlenose dolphin and the Risso's dolphin is in commercial fisheries, and such take is considered to be insignificant and approaching zero mortality and serious injury. Therefore, there is no information to suggest that the incremental additional removals due to NWFSC fisheries research cause any concern with regard to annual rates of recruitment or survival for these stocks.

Similarly, commercial fisheries provide the only known cause of anthropogenic mortality for the short-finned pilot whale. However, due to the relatively low PBR value for this stock, such take cannot be considered to be insignificant and approaching zero mortality and serious injury. The only takes in commercial fisheries from 2010–14 were due to interactions with the California drift gillnet fishery, and occurred only in 2014. Therefore, it is unclear that these fishery takes will constitute an ongoing source of mortality and, regardless, any level of removals up to PBR could occur while still allowing the stock to reach or maintain its optimum sustainable population, as indicated in the definition of the PBR metric. The available information, *i.e.,* that there is only one other source of anthropogenic mortality, which has resulted in a low level of mortalities in one year and may not be an ongoing source of mortality, and that the authorized take is low compared to residual PBR (10 percent), indicates that there is no concern regarding the impacts of incremental additional removals due to NWFSC fisheries research on annual rates of recruitment or survival for this stock. Nevertheless, if bycatch in commercial fisheries increases, or other sources of

mortality are recorded for this stock, we will use the adaptive management provisions of these regulations to prescribe increased mitigation sufficient to reduce the likelihood of incidental take in NMFS fisheries research activities. No population trends are known for these three stocks.

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's fisheries research activities (1.8 and 1.2, respectively) is a small fraction of any sustainable take level that might be calculated for either stock. For the reasons stated above, we do not consider the level of take by acoustic and physical disturbance for harbor seals to represent a significant additional population stressor when considered in context with the proposed level of take by M/SI.

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 planned mitigation measures, we find that the total marine mammal take from NWFSC's fisheries research activities will have a negligible impact on the affected marine mammal species or stocks. In summary, this finding of negligible impact 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 (*i.e.,* below ten percent of residual PBR) for a majority of affected stocks; (4) consideration of additional factors for the Risso's dolphin, offshore stock of bottlenose dolphin, and short-finned pilot whale do not reveal cause for concern; (5) available information regarding two harbor seal stocks indicates that total maximum potential M/SI is sustainable; and (6) 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 addition, no M/SI is authorized for any species or stock that is listed under the ESA or considered depleted under the MMPA. 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.

Small Numbers Analysis

Please see Table 7 for information relating to this small numbers analysis. The total amount of taking authorized is less than one percent for a large majority of stocks. The total amount of taking for remaining stocks ranges from four to thirteen percent.

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 mitigation measures, we find that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

Monitoring and Reporting

In order to issue an incidental take authorization 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 such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for incidental take authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area.

Any monitoring requirement we prescribe should improve our understanding of one or more of the following:

- Occurrence of marine mammal species in action area (*e.g.,* presence, abundance, distribution, density);
- 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 responses to acute stressors, or impacts of chronic exposures (behavioral or physiological);
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of an individual; or (2) population, species, or stock;
- Effects on marine mammal habitat and resultant impacts to marine mammals; and
- Mitigation and monitoring effectiveness.

NWFSC 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 the monitoring requirements described below were crafted.

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 NWFSC personnel with no other responsibilities 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 NWFSC 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.

In the PSRA and LCRRA only, the NWFSC will monitor any potential disturbance of hauled-out pinnipeds, 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 5.

Training

NWFSC anticipates that additional information on practices to avoid marine mammal interactions can be gleaned from training sessions and more systematic data collection standards. The NWFSC will conduct annual trainings for all CSs 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, recording of count and disturbance observations, completion of datasheets, and use of equipment. Some of these topics may be familiar to NWFSC staff, who may be professional biologists. The NWFSC shall determine the agenda for these trainings and ensure that all relevant staff have necessary familiarity with these topics. The first such training will include three primary elements:

First, the course will provide an overview of the purpose and need for the authorization, including mandatory mitigation measures by gear and the purpose for each, and species that NWFSC is authorized to incidentally take.

Second, the training will provide detailed descriptions of reporting, data collection, and sampling protocols. This portion of the training 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 biological data collection and sampling training module will include the same sampling and necropsy training that is used for the West Coast Regional Observer training.

Third, NWFSC will also dedicate a portion of training to discussion of best professional judgment (which is recognized as an integral component of mitigation implementation; see ''Mitigation''), 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. 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 NWFSC 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 NWFSC 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, NWFSC believes adopting these protocols for data collection will also increase the information on which ''serious injury'' (SI) determinations (NMFS, 2012a, b) are based and improve scientific knowledge about marine mammals that interact with fisheries research gears and the factors that contribute to these interactions. NWFSC 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.

NWFSC will record interaction information on either existing data forms created by other NMFS programs or will develop their own standardized forms. To aid in SI determinations and comply with the current NMFS Serious Injury Guidelines (NMFS, 2012a, b), 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 NWFSC DEA, ''Protected Species Handling Procedures for NWFSC Fisheries Research Vessels.''

Reporting

As is normally the case, NWFSC 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 NWFSC will follow a phased approach with regard to the cessation of its activities and/or reporting of such events, as described in the proposed regulatory texts following this preamble. In addition, CSs or the cruise leader will provide reports to NWFSC 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 NWFSC 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 NWFSC will submit annual summary reports to OPR including: (1) Annual line-kilometers surveyed during which the EK60, ME70, SX90 (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 hook and line, seine, and trawl gear, including number of sets, hook hours, 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 5, and distance of closest approach; and (5) a written evaluation of the effectiveness of NWFSC 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.

NWFSC 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 SI determinations for marine mammals that are released alive. NWFSC will require that the CS complete data forms and address supplemental questions, both of which have been developed to aid in SI determinations. NWFSC 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 NWFSC will perform all necessary reporting to ensure that any incidental M/SI is incorporated as appropriate into relevant SARs.

Adaptive Management

The regulations governing the take of marine mammals incidental to NWFSC 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 final 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 NWFSC 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 NWFSC 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.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by these actions. Therefore, we have determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

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

On November 10, 2016, the WCRO issued a biological opinion to OPR and to the NWFSC (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 and is not likely to adversely affect any listed marine mammal species. The opinion also concluded that the issuance of the authorizations would not affect any designated critical habitat.

National Environmental Policy Act (NEPA)

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500–1508), NWFSC prepared a Programmatic EA to consider the direct, indirect and cumulative effects to the human environment resulting from the described research activities. OPR made NWFSC's EA available to the public for review and comment, in relation to its suitability for adoption by OPR in order to assess the impacts to the human environment of issuance of regulations and subsequent LOA to NWFSC. Also in compliance with NEPA and the CEQ regulations, as well as NOAA Administrative Order 216–6, OPR relies on NWFSC's EA, which also addresses OPR's action of issuing incidental take authorizations to NWFSC, and signed a Finding of No Significant Impact (FONSI) on March 27, 2018. NWFSC's EA and OPR's FONSI for this action may be found online at *www.nmfs.noaa.gov/pr/permits/incidental/research.htm*.

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 rule will not have a significant economic impact on a substantial number of small entities. The factual basis for the certification was published in the proposed rule and is not repeated here. No comments were received regarding this certification. 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 (COI) subject

to the requirements of the Paperwork Reduction Act (PRA) unless that COI displays a currently valid OMB control number. This rule does not contain a COI 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: July 24, 2018.

Samuel D. Rauch III,

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

For reasons set forth in the preamble, NMFS amends 50 CFR part 219 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 E to part 219 to read as follows:

Subpart E—Taking Marine Mammals Incidental to Northwest Fisheries Science Center Fisheries Research in the Pacific Ocean

Sec.

Subpart E—Taking Marine Mammals Incidental to Northwest Fisheries Science Center Fisheries Research in the Pacific Ocean

§ 219.41 Specified activity and specified geographical region.

(a) Regulations in this subpart apply only to the National Marine Fisheries Service's (NMFS) Northwest Fisheries Science Center (NWFSC) and those persons it authorizes or funds to conduct activities on its behalf for the taking of marine mammals that occurs in the area outlined in paragraph (b) of this section and that occurs incidental to research survey program operations.

(b) The taking of marine mammals by NWFSC may be authorized in a Letter of Authorization (LOA) only if it occurs within the California Current Ecosystem, including Puget Sound and the Columbia River.

§ 219.42 Effective dates.

Regulations in this subpart are effective from August 27, 2018, through August 28, 2023.

§ 219.43 Permissible methods of taking.

(a) Under LOAs issued pursuant to § 216.106 of this chapter and § 219.47, the Holder of the LOA (hereinafter ''NWFSC'') may incidentally, but not intentionally, take marine mammals within the area described in § 219.41(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 seine gear, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the applicable LOA.

§ 219.44 Prohibitions.

Notwithstanding takings contemplated in § 219.41 and authorized by a LOA issued under § 216.106 of this chapter and § 219.47, no person in connection with the activities described in § 219.41 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 § 219.47;

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

(c) Take any marine mammal specified in such LOAs 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 availability of such species or stock of marine mammal for taking for subsistence uses.

§ 219.45 Mitigation requirements.

When conducting the activities identified in § 219.41(a), the mitigation measures contained in any LOA issued under § 216.106 of this chapter and § 219.47 must be implemented. These mitigation measures shall include but are not limited to:

(a) General conditions:

(1) NWFSC 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;

(2) NWFSC 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;

(3) NWFSC 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;

(4) When deploying any type of sampling gear at sea, NWFSC 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; and

(5) NWFSC shall implement handling and/or disentanglement protocols as specified in the guidance that shall be provided to NWFSC survey personnel.

(b) For all research surveys using trawl, hook and line, or seine gear in Puget Sound, the move-on rule mitigation protocol described in paragraph (c)(3) of this section shall be implemented upon observation of killer whales at any distance.

(c) Trawl survey protocols:

(1) NWFSC shall conduct trawl operations as soon as is practicable upon arrival at the sampling station;

(2) NWFSC shall initiate marine mammal watches (visual observation) a minimum of ten minutes prior to beginning of net deployment but shall also conduct monitoring during 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) NWFSC shall implement the move-on rule mitigation protocol, as

described in this paragraph. If one or more marine mammals are observed within 500 meters (m) of the planned location in the 10 minutes before setting the trawl gear, 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, NWFSC 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 10 minute 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 NWFSC shall move again or skip the station. Marine mammals that are sighted further than 500 m from the vessel 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. NWFSC may use best professional judgment in making these decisions;

(4) NWFSC 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, NWFSC shall take the most appropriate action to avoid marine mammal interaction. NWFSC may use best professional judgment in making this decision;

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

(6) When conducting surface trawls using the Nordic 264 net, dedicated crew with no other tasks shall conduct required marine mammal monitoring. Marine mammal monitoring shall be staffed in a stepwise process, with a minimum of two observers beginning pre-set monitoring and increasing to a minimum of four observers prior to and during gear deployment. During the tow, a minimum of three observers shall conduct required monitoring;

(7) NWFSC 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. Trawl nets must be cleaned prior to deployment;

(8) NWFSC must install and use a marine mammal excluder device at all times when the Nordic 264 trawl net is used;

(9) NWFSC must install and use acoustic deterrent devices whenever the Nordic 264 trawl net is used, with two pairs of the devices installed near the net opening. NWFSC must ensure that the devices are operating properly before deploying the net;

(10) For use of the Kodiak surface trawl in Puget Sound, trawl survey protocols described in this section apply only to cetaceans; and

(11) Trawl survey protocols described in this section do not apply to use of pair trawl gear in the Columbia River.

(d) Hook and line (including longline) survey protocols:

(1) NWFSC shall deploy hook and line gear as soon as is practicable upon arrival at the sampling station;

(2) NWFSC shall initiate marine mammal watches (visual observation) no less 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 range-finding binoculars (or monocular). During nighttime operations, visual observation shall be conducted using the naked eye and available vessel lighting;

(3) NWFSC shall implement the move-on rule mitigation protocol, as described in this paragraph. If one or more marine mammals are observed within 500 m of the planned location in the ten minutes 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, NWFSC 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 10 minute 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 NWFSC shall move again or skip the station. Marine mammals that are sighted further than 500 m from the vessel 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. NWFSC may use best professional judgment in making these decisions;

(4) NWFSC 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, NWFSC shall take the most appropriate action to avoid marine mammal interaction. NWFSC may use best professional judgment in making this decision;

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

(6) NWFSC shall implement standard survey protocols, including maximum soak durations and a prohibition on chumming; and

(7) For hook and line surveys in Puget Sound, but not including longline surveys, hook and line survey protocols described in this section apply only to cetaceans.

(e) Seine survey protocols:

(1) NWFSC shall conduct seine operations as soon as is practicable upon arrival at the sampling station;

(2) NWFSC 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) NWFSC shall implement the move-on rule mitigation protocol, as described in this paragraph for use of purse seine gear. If one or more small cetaceans (*i.e.,* dolphin or porpoise) or five or more pinnipeds are observed within 500 m of the planned location before setting the seine gear, 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, NWFSC 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 ten minute 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 NWFSC shall move again or skip the station. Marine mammals that are sighted further than 500 m from the vessel 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. NWFSC may use best professional judgment in making these decisions;

(4) NWFSC shall maintain visual monitoring effort during the entire period of time that seine 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, NWFSC shall take the most appropriate action to avoid marine mammal interaction. NWFSC may use best professional judgment in making this decision;

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

(6) If any cetaceans are observed in a purse seine net, NWFSC shall immediately open the net and free the animals; and

(7) NWFSC shall not make beach seine sets within 200 m of any hauled-out pinniped, and shall immediately remove the gear from the water upon observation of any marine mammal attempting to interact with the gear.

§ 219.46 Requirements for monitoring and reporting.

(a) NWFSC 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 § 219.47 and for preparing for any subsequent request(s) for incidental take authorization.

(b) Visual monitoring program:

(1) Marine mammal visual monitoring shall occur prior to deployment of trawl, seine, and hook and line 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;

(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; and

(3) NWFSC shall conduct census counts of established pinniped haulouts in the Columbia River and Puget Sound that are disturbed by NWFSC research activity, and shall record disturbance of hauled-out pinnipeds due to NWFSC research activity, paying particular attention to the distance at which different species of pinniped are disturbed. Disturbance shall be recorded according to a three-point scale of response severity.

(c) Training:

(1) NWFSC 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. NWFSC may determine the agenda for these trainings;

(2) NWFSC 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) NWFSC shall coordinate with NMFS's Southwest Fisheries Science Center (SWFSC) regarding surveys conducted in the California Current Ecosystem, such that training and guidance related to handling procedures and data collection is consistent.

(d) Handling procedures and data collection:

(1) NWFSC 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);

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

(3) NWFSC 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; and

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

(e) Reporting:

(1) NWFSC shall report all incidents of marine mammal interaction to NMFS's Protected Species Incidental Take database 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) Annual reporting:

(i) NWFSC shall submit an annual summary report to OPR not later than 90 days following the end of a given year. NWFSC shall provide a final report within thirty days following resolution of comments on the draft report:

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

(A) Annual line-kilometers surveyed during which the EK60, ME70, SX90 (or equivalent sources) were predominant and associated pro-rated estimates of actual take;

(B) Summary information regarding use of all hook and line, seine, and trawl gear, including number of sets, hook hours, tows, etc., specific to each gear;

(C) 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;

(D) Summary information related to disturbance of hauled-out pinnipeds, including event-specific total counts of animals present, counts of reactions according to the three-point scale, and distance of closest approach;

(E) A written evaluation of the effectiveness of NWFSC 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;

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

(G) A summary of all relevant training provided by NWFSC and any coordination with SWFSC or NMFS's West Coast Regional Office.

(f) Reporting of injured or dead marine mammals:

(1) In the unanticipated event that the activity defined in § 219.41(a) clearly causes the take of a marine mammal in a prohibited manner, NWFSC 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 NWFSC Director (or designee). The incident must be reported immediately to OPR and the West Coast Regional Stranding Coordinator, NMFS. OPR will review the circumstances of the prohibited take and work with NWFSC to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The immediate decision made by NWFSC 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 NWFSC 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), NWFSC shall immediately report the incident to OPR and the West Coast 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 NWFSC to determine whether additional mitigation measures or modifications to the activities are appropriate;

(3) In the event that NWFSC 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 § 219.41(a) (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, scavenger damage), NWFSC shall report the incident to OPR and the West Coast Regional Stranding Coordinator, NMFS, within 24 hours of the discovery. NWFSC shall provide photographs or video footage or other documentation of the stranded animal sighting to OPR.

§ 219.47 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, NWFSC 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, NWFSC 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, NWFSC must apply for and obtain a modification of the LOA as described in § 219.48 of this chapter.

(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.

§ 219.48 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under § 216.106 of this chapter and § 219.47 for the activity identified in § 219.41(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 measures (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 § 219.47 for the activity identified in § 219.41(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 NWFSC 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 NWFSC'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 § 219.47, 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.

§ 219.49 [Reserved]

§ 219.50 [Reserved]

[FR Doc. 2018–16115 Filed 7–26–18; 8:45 am]

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