DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 219

[Docket No. 200810–0212]

RIN 0648–BJ71

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

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

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS's Office of Protected Resources (OPR) has received a request from NMFS's Southwest Fisheries Science Center (SWFSC) for authorization to take marine mammals incidental to fisheries research conducted in multiple specified geographical regions, over the course of five years from the date of issuance. As required by the Marine Mammal Protection Act (MMPA), NMFS is proposing regulations to govern that take, and requests comments on the proposed regulations. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than September 28, 2020.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2020–0111, by the following method:

- *Electronic submission:* Submit all public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2020-0111,* click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous).

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

SUPPLEMENTARY INFORMATION:

Availability

A copy of SWFSC's application and any supporting documents, as well as a list of the references cited in this document, may be obtained online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-research-and-other-activities.* In case of problems accessing these documents, please call the contact listed above (see **FOR FURTHER INFORMATION CONTACT**).

Purpose and Need for Regulatory Action

This proposed rule would establish a framework under the authority of the MMPA (16 U.S.C. 1361 *et seq.*) to allow for the authorization of take of marine mammals incidental to the SWFSC's fisheries research activities in the California Current Ecosystem and the Antarctic Marine Living Resources Ecosystem research areas.

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

Legal Authority for the 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 and other means of effecting the ''least practicable adverse impact'' on the affected species or stocks and their habitat (see the discussion below in the ''Proposed Mitigation'' section), as well as monitoring and reporting requirements. Section 101(a)(5)(A) of the MMPA and the implementing regulations at 50 CFR part 216, subpart I provide the legal basis for issuing this proposed rule containing five-year regulations, and for any subsequent LOAs. As directed by this legal authority, this proposed rule contains mitigation, monitoring, and reporting requirements.

Summary of Major Provisions Within the Proposed Rule

Following is a summary of the major provisions of this proposed rule regarding SWFSC fisheries research activities. These measures include:

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

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other ''means of effecting the least practicable adverse impact'' on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as ''mitigation''); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must evaluate our proposed action (*i.e.,* the promulgation of regulations and subsequent issuance of incidental take authorization) and alternatives with respect to potential impacts on the human environment.

In 2015, NMFS prepared a Programmatic Environmental Assessment (PEA; *Programmatic Environmental Assessment for Fisheries Research Conducted and Funded by the Southwest Fisheries Science Center*) to consider the direct, indirect and cumulative effects to the human environment resulting from SWFSC's activities as well as the NMFS Office of Protected Resources (OPR) issuance of the regulations and subsequent incidental take authorization. NMFS made the PEA available to the public for review and comment, in relation specifically to its suitability for assessment of the impacts of our action under the MMPA. OPR signed a Finding of No Significant Impact (FONSI) related to our action under the MMPA on August 31, 2015. The PEA and the 2015 FONSI are available online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-swfsc-fisheries-and-ecosystem-research.*

On May 11, 2020, NMFS announced the availability of a ''*Draft Supplemental Programmatic Environmental Assessment (SPEA) for Fisheries Research Conducted and Funded by the Southwest Fisheries Science Center*'' for review and comment (85 FR 27719). The purpose of the Draft SPEA is to evaluate potential direct, indirect, and cumulative effects of unforeseen changes in research that were not analyzed in the 2015 PEA, or new research activities along the U.S. West Coast, throughout the Eastern Tropical Pacific Ocean, and in the Scotia Sea area off Antarctica. Where necessary, updates to certain information on species, stock status or other components of the affected environment that may result in different conclusions from the 2015 PEA are presented in this analysis.

Information in the PEA, SPEA, SWFSC's application, and this notice collectively provide the environmental information related to proposed issuance of these regulations and subsequent incidental take authorization for public review and comment. We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the request for incidental take authorization.

Summary of Request

On April 30, 2020, we received an adequate and complete request from SWFSC for authorization to take marine mammals incidental to fisheries research activities. On May 8, 2020 (85 FR 27388), we published a notice of receipt of SWFSC's application in the **Federal Register**, requesting comments and information related to the SWFSC request for thirty days. We did not receive any comments in response.

These regulations would be the second consecutive five-year incidental take regulations issued in response to a petition from SWFSC. The initial regulations were finalized in 2015 and remain effective through October 30, 2020 (80 FR 58982; September 30, 2015). Three Letters of Authorization (LOA) were issued to SWFSC pursuant to the regulations, related to SWFSC research survey activities in the California Current Ecosystem (CCE), the Eastern Tropical Pacific (ETP), and the Antarctic Marine Living Resources Ecosystem (AMLR). Information related to this rulemaking and required reporting submitted by SWFSC according to the terms of the LOAs may be found online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-swfsc-fisheries-and-ecosystem-research.* SWFSC adhered to all mitigation, monitoring, and reporting requirements and did not exceed authorized numbers of take.

SWFSC proposes to continue conducting fisheries research using pelagic trawl gear used at various levels in the water column, pelagic longlines with multiple hooks, purse seine gear, and other gear. If a marine mammal interacts with gear deployed by SWFSC, the outcome could potentially be Level A harassment, serious injury (*i.e.,* any injury that will likely result in mortality), or mortality. However, there is not sufficient information upon which to base a prediction of what the outcome may be for any particular interaction. Therefore, SWFSC has pooled the estimated number of incidents of take resulting from gear interactions, and we have assessed the potential impacts accordingly. SWFSC 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 on ice may also occur, in the Antarctic only, as a result of visual disturbance from vessels conducting SWFSC research. The proposed regulations would be valid for five years from the date of issuance.

The SWFSC conducts fisheries research surveys in the CCE, ETP, and the AMLR. However, SWFSC does not plan to conduct research over the five-year period in the ETP. Therefore, these proposed regulations address only the CCE and AMLR. In the CCE, SWFSC requests authorization to take individuals of 24 stocks by Level A harassment, serious injury, or mortality (hereafter referred to as M/SI) and of 38 stocks by Level B harassment. In the AMLR, SWFSC requests authorization to take individuals of fifteen species by Level B harassment. No takes by M/SI are anticipated in the AMLR.

Description of the Specified Activity

Overview

The SWFSC collects a wide array of information necessary to evaluate the status of exploited fishery resources and the marine environment. SWFSC scientists conduct fishery-independent research onboard NOAA-owned and operated vessels or on chartered vessels. Some surveys may be conducted onboard commercial fishing vessels or by cooperating scientists on non-NOAA vessels, but the SWFSC designs and executes the studies and funds vessel time. The SWFSC proposes to administer and conduct approximately 18 survey programs over the five-year period, within two separate research areas. Please see Table 1–2 in SWFSC's application for details relating to the planned survey programs. 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, purse seine nets, and other gear. Only use of trawl nets, hook and line gear, 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 SWFSC is the research arm of NMFS in the southwest region of the United States. The SWFSC conducts research and provides scientific advice to manage fisheries and conserve protected species in the geographic research areas listed above 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 proposed regulations. Dates and duration of individual surveys are inherently uncertain, based on congressional funding levels for the SWFSC, 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. SWFSC survey activity does occur during most months of the year; however, trawl surveys typically occur during May through June and September and longline surveys are typically completed during June–July and September.

Specified Geographical Region

The SWFSC plans to conduct research within two research areas considered to be distinct specified geographical regions: the CCE and AMLR. No research activity is planned within the ETP over the next five years. Please see Figures 1–1, 2–1, and 2–2 in the SWFSC application for maps of the research areas. We note here that, while the specified geographical regions within which the SWFSC operates may extend outside of the U.S. Exclusive Economic Zone (EEZ), the MMPA's authority does not extend into foreign territorial waters. Detailed descriptions of the SWFSC's research areas were provided in our notice of proposed rulemaking for SWFSC's previous incidental take regulations (80 FR 8166; February 13, 2015). Those descriptions remain accurate and sufficient, and we refer the reader to that notice rather than reprinting the information here.

Detailed Description of Activities

The Federal government has a trust responsibility to protect living marine resources in waters of the United States. These waters extend to 200 nm from the shoreline and include the EEZ. The U.S. government has also entered into a number of international agreements and treaties related to the management of living marine resources in international waters outside of the EEZ (*i.e.,* the high seas). To carry out its responsibilities over U.S. and international waters, Congress has enacted several statutes authorizing certain Federal agencies to administer programs to manage and protect living marine resources. Among these Federal agencies, NOAA has the primary responsibility for protecting marine finfish and shellfish species and their habitats. Within NOAA, NMFS has been delegated primary responsibility for the science-based management, conservation, and protection of living marine resources under statutes including the MSA, MMPA, Endangered Species Act (ESA), and the Antarctic Marine Living Resources Convention Act.

Within NMFS, six regional fisheries science centers direct and coordinate the collection of scientific information needed to inform fisheries management decisions. Each science center is a distinct entity and is the scientific focal point for a particular region. SWFSC conducts research and provides scientific advice to manage fisheries and conserve protected species along the U.S. West Coast, throughout the eastern tropical Pacific Ocean, and in the Southern Ocean off Antarctica. SWFSC provides scientific information to support the Pacific Fishery Management Council and other domestic and international fisheries management organizations.

The SWFSC collects a wide array of information necessary to evaluate the status of exploited fishery resources and the marine environment. SWFSC scientists conduct fishery-independent research onboard NOAA-owned and operated vessels or on chartered vessels, and some SWFSC-funded research may be conducted by cooperative scientists. The SWFSC proposes to administer and conduct approximately 18 survey programs over the five-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, purse seine nets, and other gear. Only use of trawl nets, hook and line gear, and purse seine nets are likely to result in interaction with marine mammals. Many of these surveys also use active acoustic devices. These surveys may be conducted aboard NOAA-operated research vessels (R/V), aboard vessels owned and operated by cooperating agencies and institutions, or aboard charter vessels.

In the following discussion, we summarily describe various gear types used by SWFSC, with reference to specific fisheries and ecosystem research activities conducted by the SWFSC. This is not an exhaustive list of gear and/or devices that may be utilized by SWFSC but is representative of gear categories and is complete with regard to all gears with potential for interaction with marine mammals. Additionally, relevant active acoustic devices, which are commonly used in SWFSC survey activities, are described separately in a subsequent section. Please see Appendix B of SWFSC's application for further description, pictures, and diagrams of research gear and vessels. Full details regarding planned research activities are provided in Tables 1–2 and 1–3 of SWFSC's application, with specific gear used in association with each research project and full detail regarding gear characteristics and usage provided. Full detail is not repeated here.

Trawl nets—A trawl is a funnel-shaped net towed behind a boat to capture fish. The codend (or bag) is the fine-meshed portion of the net most distant from the towing vessel where fish and other organisms larger than the mesh size are retained. In contrast to commercial fishery operations, which generally use larger mesh to capture marketable fish, research trawls often use smaller mesh to enable estimates of the size and age distributions of fish in a particular area. The body of a trawl net is generally constructed of relatively coarse mesh that functions to gather schooling fish so that they can be collected in the codend. The opening of the net, called the mouth, is extended horizontally by large panels of wide mesh called wings. The mouth of the net is held open by hydrodynamic force exerted on the trawl doors attached to the wings of the net. As the net is towed through the water, the force of the water spreads the trawl doors horizontally apart. The top of a net is called the headrope, and the bottom is called the footrope.

The trawl net is usually deployed over the stern of the vessel and attached with two cables (or warps) to winches

on the deck of the vessel. The cables are played out until the net reaches the fishing depth. Trawl vessels typically travel at speeds of 2–5 kn while towing the net for time periods up to several hours. The duration of the tow depends on the purpose of the trawl, the catch rate, and the target species. At the end of the tow the net is retrieved and the contents of the codend are emptied onto the deck. For research purposes, the speed and duration of the tow and the characteristics of the net are typically standardized to allow meaningful comparisons of data collected at different times and locations. Active acoustic devices (described later) incorporated into the research vessel and the trawl gear monitor the position and status of the net, speed of the tow, and other variables important to the research design. Most SWFSC research trawling activities utilize pelagic (or midwater) trawls, which are designed to operate at various depths within the water column but not to contact the seafloor.

Midwater and surface trawls are used in the juvenile rockfish, juvenile salmon and sardine surveys at fixed stations from southern California to Washington annually from April–July and in August–September. The tows are conducted near the surface down to approximately 15–30 m deep, mainly at night using a charter vessel or a NOAA vessel. These nets are also used in juvenile salmon surveys between southern California and Oregon during daytime trawls that last approximately 45 minutes at the target depth. Compared to the Nordic 264 trawl, takes of marine mammals by Modified-Cobb trawl have been historically small. While the Nordic 264 rope trawl is intended to fish at the surface, the Cobb trawl is typically fishing at 30 m headrope depth, thus it is rarely at the surface aside from the deployment and retrieval stages. Fishing at depth, at slower speeds, and for shorter duration, along with having a smaller opening and mesh size, mitigate marine mammal takes by the modified Cobb. Table 6–3 of the SWFSC application summarizes the number of trawls, fishing depth and average tow time for modified Cobb and Nordic 264 trawl gear over the period 2015–2018. The table shows that while Nordic 264 gear is used more frequently, the total number of trawls using this gear has been reduced while the use of modified Cobb gear has remained at generally the same level. Please see Section 1 and Appendix B of SWFSC's application for additional detail.

Longline—Longline vessels fish with baited hooks attached to a mainline (or groundline). The length of the longline and the number of hooks depend on the species targeted, the size of the vessel, and the purpose of the fishing activity. Hooks are attached to the mainline by another thinner line called a gangion. The length of the gangion and the distance between gangions depends on the purpose of the fishing activity. Depending on the fishery, longline gear can be deployed on the seafloor (bottom longline), in which case weights are attached to the mainline, or near the surface of the water (pelagic longline), in which case buoys are attached to the mainline to provide flotation and keep the baited hooks suspended in the water. Radar reflectors, radio transmitters, and light sources are often used to help fishers determine the location of the longline gear prior to retrieval.

A commercial longline can be miles long and have thousands of hooks attached, although longlines used for research surveys are often shorter. The pelagic longline gear used for SWFSC research surveys typically use 200–400 hooks attached to a steel or monofilament mainline from 2–12 miles long (3–19 km). There are no internationally-recognized standard measurements for hook size, and a given size may be inconsistent between manufacturers. Larger hooks, as are used in longlining, are referenced by increasing whole numbers followed by a slash and a zero as size increases (*e.g.,* 1/0 up to 20/0). The numbers represent relative sizes, normally associated with the gap (the distance from the point tip to the shank). Bottom longlines used for commercial fishing can be up to several miles long, but those used for SWFSC research use shorter lines with approximately 75 hooks per line. SWFSC sablefish and rockfish life history surveys using bottom longline gear are extremely small scale with a low level of effort (approximately 200 hooks per month).

The time period between deployment and retrieval of the longline gear is the soak time. Soak time is an important parameter for calculating fishing effort. For commercial fisheries the goal is to optimize the soak time in order to maximize catch of the target species while minimizing the bycatch rate and minimizing damage to target species that may result from predation by sharks or other predators.

SWFSC also uses deep-set buoy gear. Deep-set buoy gear is a particular type of pelagic longline that includes a buoy flotation system (*i.e.,* a strike-indicator float/flag, a large, non-compressible buoy and a float affixed with a radar reflector). A set of gear consists of 500-lb (227-kg) test mainline monofilament rigged with a 1–2 kg drop sinker to orient the mainline and terminal fishing gear vertically in the water column. Other pelagic longline gear typically uses a long monofilament mainline suspended horizontally near the surface of the water. However, deep-set buoy gear uses a vertically-oriented mainline with two monofilament gangions that branch from the mainline at a target depth below the thermocline (250–400 m for SWFSC). SWFSC also uses hook-and-line, *i.e.,* rod-and-reel, for some survey efforts.

Highly migratory species surveys are conducted June-July from a NOAA vessel or a charter vessel. Table 6–5 of SWFSC's application summarizes hook and line survey efforts over the period 2015–2017; hook and line surveys were not conducted in 2018. Thresher shark surveys are not planned for the 2020–2025 survey period. Please see Section 1 and Appendix B of SWFSC's application for additional detail.

Seine nets—Seine nets typically hang vertically in the water with the bottom edge held down by weights and the top edge buoyed by floats. Commercial fishers use purse seines to capture schooling pelagic species by encircling the fish and then using a line at the bottom that enables the net to be closed like a purse. Commercial purse seines vary in size according to vessel, mesh size, and target species.

The SWFSC proposes to conduct purse seine surveys in nearshore areas. Seining will be based on SWFSC and Washington Department of Fish and Wildlife protocols to allow dip-netting of fish from the seine for sample processing onboard. As an example, a seine net 230 fathoms in length, 2800 meshes deep, with a mesh size of 11/16 may be used for this research. Transects may occur from the northernmost sampling location to the vicinity of Eureka, California in the nearshore area approximately 5 nmi apart, alternating direction (east–west and vice versa) for 3–7 transects each day, ideally coincident with NOAA trawl surveys further offshore, for about 100 total transects. SWFSC may set an average of 3 times/day for 60 minutes for approximately 60 sets total. To conduct day-night comparative surveys, SWFSC may set approximately 4/day in a 24-hour period (each for 60 minutes) over about 5 days (*i.e.,* minimum of 2 sets each during daytime and nighttime for a total of 20 sets). Please see Section 1 and Appendix B of SWFSC's application for additional detail.

Other nets—SWFSC surveys utilize various small, fine-mesh, towed nets designed to sample small fish and pelagic invertebrates. These nets can be

broadly categorized as small trawls (which are separated from large trawl nets due to small trawls' discountable potential for interaction with marine mammals) and plankton nets. Please see Section 1 and Appendix B of SWFSC's application for additional detail.

1. The Tucker trawl is a medium-sized single-warp net used to study pelagic fish and zooplankton. The Tucker trawl consists of a series of nets that can be opened and closed sequentially via stepping motor without retrieving the net from the fishing depth. It is designed for deep oblique tows where up to three replicate nets can be sequentially operated by a double release mechanism and is typically equipped with a full suite of instruments, including inside and outside flow meters; conductivity, temperature, and depth profilers (CTD); and pitch sensor.

2. The Multiple Opening/Closing Net and Environmental Sensing System (MOCNESS) uses a stepping motor to sequentially control the opening and closing of the net. The MOCNESS uses underwater and shipboard electronics to control the device. The electronics system continuously monitors the functioning of the nets, frame angle, horizontal velocity, vertical velocity, volume filtered, and selected environmental parameters, such as salinity and temperature. The MOCNESS is used for specialized zooplankton surveys.

3. The Isaacs-Kidd midwater trawl (IKMT) is used to collect deepwater biological specimens larger than those taken by standard plankton nets. The mouth of the net is approximately 1.5 x 1.8 m, and is attached to a wide, V-shaped, rigid diving vane that keeps the mouth of the net open and maintains the net at depth for extended periods. The IKMT is a long, round net approximately 6.5 m long, with a series of hoops decreasing in size from the mouth of the net to the codend, which maintain the shape of the net during towing. While most trawls must be towed at speeds of 1–2 kn because of the high level of drag exerted by the net in the water, an IKMT can be towed at speeds as high as 5 kn.

4. SWFSC also uses various neuston nets, which are frame trawls towed horizontally at the top of the water column in order to capture neuston (*i.e.,* organisms that inhabit the water's surface), and plankton nets, which usually consist of fine mesh attached to a weighted frame which spreads the mouth of the net to cover a known surface area in order to sample plankton and fish eggs from various parts of the water column. Examples include manta nets, which are towed horizontally at the surface of the water; bongo nets, which are towed through the water at an oblique angle to sample plankton over a range of depths; and the Oozeki net, which is a frame trawl used for quantitative sampling of larval and juvenile pelagic fishes.

Conductivity, temperature, and depth profilers—A CTD profiler is the primary research tool for determining chemical and physical properties of seawater. A shipboard CTD is made up of a set of small probes attached to a large (1–2 m diameter) metal rosette wheel. The rosette is lowered through the water column on a cable, and CTD data are observed in real time via a conducting cable connecting the CTD to a computer on the ship. The rosette also holds a series of sampling bottles that can be triggered to close at different depths in order to collect a suite of water samples that can be used to determine additional properties of the water over the depth of the CTD cast. A standard CTD cast, depending on water depth, requires two to five hours to complete. The data from a suite of samples collected at different depths are often called a depth profile. Depth profiles for different variables can be compared in order to glean information about physical, chemical, and biological processes occurring in the water column. Salinity, temperature, and depth data measured by the CTD instrument are essential for characterization of seawater properties.

Tables 1–2 and 1–3 of the SWFSC's application provide detailed information of all surveys planned by SWFSC; full detail is not repeated here. Many of these surveys also use small trawls, plankton nets, and/or other gear; however, only gear with likely potential for marine mammal interaction is described. Here we provide a summary of projected annual survey effort for those gears that we believe present the potential for marine mammal interaction (Table 1). This summary is intended only to provide a sense of the level of effort, and actual level of effort may vary from year to year. Gear specifications vary; please see Table 1–2 and Appendix B of SWFSC's application. Please note that no trawl surveys are planned within AMLR over the next five years. Take of marine mammals incidental to SWFSC research is expected to occur in the form of Level B harassment only as a result of the use of active acoustic systems or due to visual disturbance of hauled-out pinnipeds.

TABLE 1—PROJECTED ANNUAL SWFSC SURVEY EFFORT BY GEAR TYPE

Survey type	Gear type	Tows/sets	Duration per tow/set
CCE			
Midwater trawl	NETS Nordic 264 (380 m^2 mouth area).	50	30 min.
Midwater trawl	Modified Cobb (80 m^2 mouth area).	150	15 min.
Purse seine	Varies	10–25	Varies.
Pelagic longline	200–400 hooks	Varies	2–4 hr (up to 4–6 hr for certain target species).
Pelagic longline	75 hooks	Varies	2–4 hr.
Hook and line/handline	Various	100–500 casts/cruise	3 hr.
Hook and line	Micro-troll	50	2 hr.

Description of Active Acoustic Sound Sources—This section contains a brief technical background on sound, the characteristics of certain sound types, and on metrics used in this proposal inasmuch as the information is relevant to SWFSC's specified activity and to an understanding of the potential effects of the specified activity on marine mammals. We also describe the active acoustic devices used by SWFSC. For general information on sound and its interaction with the marine environment, please see, *e.g.,* Au and

Hastings (2008); Richardson *et al.* (1995); Urick (1983).

Sound travels in waves, the basic components of which are frequency, wavelength, velocity, and amplitude. Frequency is the number of pressure waves that pass by a reference point per unit of time and is measured in Hz or cycles per second. Wavelength is the distance between two peaks or corresponding points of a sound wave (length of one cycle). Higher frequency sounds have shorter wavelengths than lower frequency sounds, and typically attenuate (decrease) more rapidly, except in certain cases in shallower water. Amplitude is the height of the sound pressure wave or the ''loudness'' of a sound and is typically described using the relative unit of the dB. A sound pressure level (SPL) in dB is described as the ratio between a measured pressure and a reference pressure (for underwater sound, this is 1 microPascal (μPa)) and is a logarithmic unit that accounts for large variations in amplitude; therefore, a relatively small change in dB corresponds to large changes in sound pressure. The source level (SL) represents the SPL referenced at a distance of 1 m from the source (referenced to 1 μPa), while the received level is the SPL at the listener's position (referenced to 1 μPa).

Root mean square (rms) is the quadratic mean sound pressure over the duration of an impulse. Root mean square is calculated by squaring all of the sound amplitudes, averaging the squares, and then taking the square root of the average. Root mean square accounts for both positive and negative values; squaring the pressures makes all values positive so that they may be accounted for in the summation of pressure levels. This measurement is often used in the context of discussing behavioral effects, in part because behavioral effects, which often result from auditory cues, may be better expressed through averaged units than by peak pressures. Peak sound pressure (also referred to as zero-to-peak sound pressure or 0-pk) is the maximum instantaneous sound pressure measurable in the water at a specified distance from the source and is represented in the same units as the rms sound pressure.

Sound exposure level (SEL; represented as dB re 1 μPa^2-s) represents the total energy in a stated frequency band over a stated time interval or event, and considers both intensity and duration of exposure. The per-pulse SEL is calculated over the time window containing the entire pulse (*i.e.,* 100 percent of the acoustic energy). SEL is a cumulative metric; it can be accumulated over a single pulse, or calculated over periods containing multiple pulses. Cumulative SEL represents the total energy accumulated by a receiver over a defined time window or during an event.

When underwater objects vibrate or activity occurs, sound-pressure waves are created. These waves alternately compress and decompress the water as the sound wave travels. Underwater sound waves radiate in a manner similar to ripples on the surface of a pond and may be either directed in a beam or beams (as for the sources considered here) or may radiate in all directions (omnidirectional sources). The compressions and decompressions associated with sound waves are detected as changes in pressure by aquatic life and man-made sound receptors such as hydrophones.

Sounds are often considered to fall into one of two general types: pulsed and non-pulsed (defined in the following). The distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.,* Ward, 1997 in Southall *et al.,* 2007). Please see Southall *et al.* (2007) for an in-depth discussion of these concepts. The distinction between these two sound types is not always obvious, as certain signals share properties of both pulsed and non-pulsed sounds. A signal near a source could be categorized as a pulse; but, due to propagation effects as it moves farther from the source, the signal duration becomes longer (*e.g.,* Greene and Richardson, 1988).

Pulsed sound sources (*e.g.,* airguns, explosions, gunshots, sonic booms, impact pile driving) produce signals that are brief (typically considered to be less than one second), broadband, atonal transients (ANSI, 1986, 2005; Harris, 1998; NIOSH, 1998; ISO, 2003) and occur either as isolated events or repeated in some succession. Pulsed sounds are all characterized by a relatively rapid rise from ambient pressure to a maximal pressure value followed by a rapid decay period that may include a period of diminishing, oscillating maximal and minimal pressures, and generally have an increased capacity to induce physical injury as compared with sounds that lack these features.

Non-pulsed sounds can be tonal, narrowband, or broadband, brief or prolonged, and may be either continuous or intermittent (ANSI, 1995; NIOSH, 1998). Some of these non-pulsed sounds can be transient signals of short duration but without the essential properties of pulses (*e.g.,* rapid rise time). Examples of non-pulsed sounds include those produced by vessels, aircraft, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems. The duration of such sounds, as received at a distance, can be greatly extended in a highly reverberant environment. All active acoustic systems used by SWFSC produce non-pulsed intermittent sound.

A wide range of active acoustic devices are used in SWFSC fisheries surveys for remotely sensing bathymetric, oceanographic, and biological features of the environment. Most of these sources involve relatively high frequency, directional, and brief repeated signals tuned to provide sufficient focus and resolution on specific objects. SWFSC also uses passive listening sensors (*i.e.,* remotely and passively detecting sound rather than producing it), which do not have the potential to impact marine mammals. SWFSC active acoustic sources include various echosounders (*e.g.,* multibeam systems), scientific sonar systems, positional sonars (*e.g.,* net sounders for determining trawl position), and environmental sensors (*e.g.,* current profilers).

Mid- and high-frequency underwater acoustic sources typically used for scientific purposes operate by creating an oscillatory overpressure through rapid vibration of a surface, using either electromagnetic forces or the piezoelectric effect of some materials. A vibratory source based on the piezoelectric effect is commonly referred to as a transducer. Transducers are usually designed to excite an acoustic wave of a specific frequency, often in a highly directive beam, with the directional capability increasing with operating frequency. The main parameter characterizing directivity is the beam width, defined as the angle subtended by diametrically opposite ''half power'' (-3 dB) points of the main lobe. For different transducers at a single operating frequency the beam width can vary from 180° (almost omnidirectional) to only a few degrees. Transducers are usually produced with either circular or rectangular active surfaces. For circular transducers, the beam width in the horizontal plane (assuming a downward pointing main beam) is equal in all directions, whereas rectangular transducers produce more complex beam patterns with variable beam width in the horizontal plane.

The types of active sources employed in fisheries acoustic research and monitoring, based largely on their relatively high operating frequencies

and other output characteristics (*e.g.,* signal duration, directivity), should be considered to have very low potential to cause effects to marine mammals that would rise to the level of a ''take,'' as defined by the MMPA. Acoustic sources operating at high output frequencies (>180 kHz) that are outside the known functional hearing capability of any marine mammal are unlikely to be detected by marine mammals. Although it is possible that these systems may produce subharmonics at lower frequencies, this component of acoustic output would also be at significantly lower SPLs. While the production of subharmonics can occur during actual operations, the phenomenon may be the result of issues with the system or its installation on a vessel rather than an issue that is inherent to the output of the system. Many of these sources also generally have short duration signals and highly directional beam patterns, meaning that any individual marine mammal would be unlikely to even receive a signal that would likely be inaudible.

Acoustic sources present on most SWFSC fishery research vessels include a variety of single, dual, and multi-beam echosounders (many with a variety of modes), sources used to determine the orientation of trawl nets, and several current profilers with lower output frequencies that certain marine mammals may detect (*e.g.,* 10–180 kHz). However, while likely potentially audible to certain species, these sources also have generally short ping durations and are typically focused (highly directional) to serve their intended purpose of mapping specific objects, depths, or environmental features. These characteristics reduce the likelihood of an animal receiving or perceiving the signal. A number of these sources, particularly those with relatively lower output frequencies coupled with higher output levels 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 impact on marine mammals.

We now describe specific acoustic sources used by SWFSC. The acoustic system used during a particular survey is optimized for surveying under specific environmental conditions (*e.g.,* depth and bottom type). Lower frequencies of sound travel further in the water (*i.e.,* good range) but provide lower resolution (*i.e.,* are less precise). Pulse width and power may also be adjusted in the field to accommodate a variety of environmental conditions. Signals with a relatively long pulse width travel further and are received more clearly by the transducer (*i.e.,* good signal-to-noise ratio) but have a lower range resolution. Shorter pulses provide higher range resolution and can detect smaller and more closely spaced objects in the water. Similarly, higher power settings may decrease the utility of collected data. Power level is also adjusted according to bottom type, as some bottom types have a stronger return and require less power to produce data of sufficient quality. Power is typically set to the lowest level possible in order to receive a clear return with the best data. Survey vessels may be equipped with multiple acoustic systems; each system has different advantages that may be utilized depending on the specific survey area or purpose. In addition, many systems may be operated at one of two frequencies or at a range of frequencies. Primary source categories are described below, and characteristics of representative predominant sources are summarized in Table 2. Predominant sources are those that, when operated, would be louder than and/or have a larger acoustic footprint than other concurrently operated sources, at relevant frequencies.

(1) *Multi-Frequency Narrow Beam Scientific Echosounders*—Echosounders and sonars work by transmitting acoustic pulses into the water that travel through the water column, reflect off the seafloor, and return to the receiver. Water depth is measured by multiplying the time elapsed by the speed of sound in water (assuming accurate sound speed measurement for the entire signal path), while the returning signal itself carries information allowing ''visualization'' of the seafloor. Multi-frequency split-beam sensors are deployed from SWFSC survey vessels to acoustically map the distributions and estimate the abundances and biomasses of many types of fish; characterize their biotic and abiotic environments; investigate ecological linkages; and gather information about their schooling behavior, migration patterns, and avoidance reactions to the survey vessel. The use of multiple frequencies allows coverage of a broad range of marine acoustic survey activity, ranging from studies of small plankton to large fish schools in a variety of environments from shallow coastal waters to deep ocean basins. Simultaneous use of several discrete echosounder frequencies facilitates accurate estimates of the size of individual fish, and can also be used for species identification based on differences in frequency-dependent acoustic backscattering between species.

(2) *Multibeam Echosounder and Sonar*—Multibeam echosounders and sonars operate similarly to the devices described above. However, the use of multiple acoustic ''beams'' allows coverage of a greater area compared to single beam sonar. The sensor arrays for multibeam echosounders and sonars are usually mounted on the keel of the vessel and have the ability to look horizontally in the water column as well as straight down. Multibeam echosounders and sonars are used for mapping seafloor bathymetry, estimating fish biomass, characterizing fish schools, and studying fish behavior.

(3) *Single-Frequency Omnidirectional Sonar*—These sources provide omnidirectional imaging around the source with different vertical beamwidths available, which results in differential transmitting beam patterns. The cylindrical multi-element transducer allows the omnidirectional sonar beam to be electronically tilted down to –90°, allowing automatic tracking of schools of fish within the entire water volume around the vessel.

(4) *Acoustic Doppler Current Profiler (ADCP)*—An ADCP is a type of sonar used for measuring water current velocities simultaneously at a range of depths. Whereas current depth profile measurements in the past required the use of long strings of current meters, the ADCP enables measurements of current velocities across an entire water column. The ADCP measures water currents with sound, using the Doppler effect. A sound wave has a higher frequency when it moves towards the sensor (blue shift) than when it moves away (red shift). The ADCP works by transmitting ''pings'' of sound at a constant frequency into the water. As the sound waves travel, they ricochet off particles suspended in the moving water, and reflect back to the instrument. Due to the Doppler effect, sound waves bounced back from a particle moving away from the profiler have a slightly lowered frequency when they return. Particles moving toward the instrument send back higher frequency waves. The difference in frequency between the waves the profiler sends out and the waves it receives is called the Doppler shift. The instrument uses this shift to calculate how fast the particle and the water around it are moving. Sound waves that hit particles far from the profiler take longer to come back than waves that strike close by. By measuring the time it takes for the waves to return to the sensor, and the Doppler shift, the profiler can measure current speed at many different depths with each series of pings.

An ADCP anchored to the seafloor can measure current speed not just at the bottom, but at equal intervals to the surface. An ADCP instrument may be anchored to the seafloor or can be mounted to a mooring or to the bottom of a boat. ADCPs that are moored need an anchor to keep them on the bottom, batteries, and a data logger. Vessel-mounted instruments need a vessel with power, a shipboard computer to receive the data, and a GPS navigation system so the ship's movements can be subtracted from the current velocity data. ADCPs operate at frequencies between 75 and 300 kHz.

(5) *Net Monitoring Systems*—During trawling operations, a range of sensors may be used to assist with controlling and monitoring gear. Net sounders give information about the concentration of fish around the opening to the trawl, as well as the clearances around the opening and the bottom of the trawl; catch sensors give information about the rate at which the codend is filling; symmetry sensors give information about the optimal geometry of the trawls; and tension sensors give information about how much tension is in the warps and sweeps.

TABLE 2—OPERATING CHARACTERISTICS OF REPRESENTATIVE SWFSC ACTIVE ACOUSTIC SOURCES

Active acoustic system	Operating frequencies	Maximum source level	Single ping duration (ms) and repetition rate (Hz)	Orientation/directionality	Nominal beamwidth
Simrad EK60/EK80 narrow beam echosounders.	18, 38, 70, 120, 200, 333 kHz (Primary frequencies are 38, 70, 120, 200 kHz).	226 dB	Variable, commonly 1 ms at 0.5 Hz.	Downward looking	7°
Simrad ME70 multibeam echosounder.	70–120 kHz	205 dB	0.06–5 ms at 1–4 Hz	Primarily downward looking.	130°
Simrad MS70 multibeam sonar.	75–112 kHz	206 dB	2–10 ms at 1–2 Hz	Primarily side looking	60°
Simrad SX90 narrow beam sonar.	20–30 kHz	219 dB	Variable	Omnidirectional	4–5°
Teledyne ADCP, Ocean Surveyor.	75 kHz	224 dB	0.2 Hz	Downward looking	30°
Simrad ITI catch monitoring system.	27–33 kHz	214 dB	0.05–0.5 Hz	Downward looking	40°

Description of Marine Mammals in the Area of the Specified Activity

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

Table 3 lists all species with expected potential for occurrence in the specified geographical regions where SWFSC proposes to continue the specified activities and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2020). PBR, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population, is discussed in greater detail later in this document (see ''Negligible Impact Analysis'').

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. Survey abundance (as compared to stock or species abundance) is the total number of individuals estimated within the survey area, which may or may not align completely with a stock's geographic range as defined in the SARs. These surveys may also extend beyond U.S. waters.

All stocks occurring in the CCE are assessed in either NMFS's U.S. Alaska SARs or U.S. Pacific SARs. All values presented in Table 3 are the most recent available at the time of writing and are available in the 2018 SARs (Carretta *et al.,* 2019; Muto *et al.,* 2019) or draft 2019 SARs (available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*). Antarctic stocks are not generally defined by NMFS, and information relating to species occurring in the AMLR is lacking relative to those occurring in the CCE. For species occurring in AMLR, we provide International Union for the Conservation of Nature (IUCN) status. The IUCN systematically assesses the relative risk of extinction for terrestrial and aquatic plant and animal species via a classification scheme using five designations, including three threatened categories (Critically Endangered, Endangered, and Vulnerable) and two non-threatened categories (Near Threatened and Least Concern) (*www.iucnredlist.org/;* accessed June 22, 2020). These assessments are generally made relative to the species' global status, and therefore may have limited applicability when marine mammal stocks are defined because we analyze the potential population-level effects of the specified activity to the relevant stock. However, where stocks are not defined, IUCN status can provide a useful reference.

California Current

In the CCE, 33 species (with 40 managed stocks) are considered to have the potential to co-occur with SWFSC activities. Species that could potentially occur in the research area but are not expected to have the potential for

interaction with SWFSC research gear or that are not likely to be harassed by SWFSC's use of active acoustic devices are described briefly but omitted from further analysis. These include extralimital species, which are species that do not normally occur in a given area but for which there are one or more occurrence records that are considered beyond the normal range of the species. Species considered to be extralimital here include the North Pacific right whale (*Eubalaena japonica*) and the Bryde's whale (*Balaenoptera edeni brydei*). In addition, the sea otter is found in coastal waters, with the southern sea otter (*Enhydra lutris nereis*) found in California and the northern (or eastern) sea otter (*E. l. kenyoni;* Washington stock only) found in Washington. However, sea otters are managed by the U.S. Fish and Wildlife Service and are not considered further in this document. Most survey activity occurs offshore and is therefore less likely to interact with coastal species such as harbor porpoise, the coastal stock of bottlenose dolphin, or gray whales (during the northbound migration), although these species are considered further in this document. SWFSC does not conduct research activities in the inland waters of Washington. Therefore, stocks occurring solely in those waters (*i.e.,* harbor porpoise and harbor seal) are not addressed herein.

Two populations of gray whales are recognized, eastern and western North Pacific (ENP and WNP). WNP whales are known to feed in the Okhotsk Sea and off Kamchatka before migrating south to poorly known wintering grounds, possibly in the South China Sea. The two populations have historically been considered geographically isolated from each other; however, data from satellite-tracked whales indicate that there is some overlap between the stocks. Two WNP whales were tracked from Russian foraging areas along the Pacific rim to Baja California (Mate *et al.,* 2011), and, in one case where the satellite tag remained attached to the whale for a longer period, a WNP whale was tracked from Russia to Mexico and back again (IWC, 2012). Between 22–24 WNP whales are known to have occurred in the eastern Pacific through comparisons of ENP and WNP photo-identification catalogs (IWC, 2012; Weller *et al.,* 2011; Burdin *et al.,* 2011). Urban *et al.* (2013) compared catalogs of photo-identified individuals from Mexico with photographs of whales off Russia and reported a total of 21 matches. Therefore, a portion of the WNP population is assumed to migrate, at least in some years, to the eastern Pacific during the winter breeding season.

However, the SWFSC does not believe that any gray whale (WNP or ENP) would be likely to interact with its research gear, as it is extremely unlikely that a gray whale in close proximity to SWFSC research activity would be one of the few WNP whales that have been documented in the eastern Pacific. The likelihood that a WNP whale would interact with SWFSC research gear or be exposed to elevated levels of sound due to the use of active acoustic sources is insignificant and discountable, and WNP gray whales are omitted from further analysis.

TABLE 3—MARINE MAMMALS POTENTIALLY PRESENT IN THE VICINITY OF SWFSC RESEARCH ACTIVITIES IN THE CCE

Common name	Scientific name	Stock	ESA/ MMPA status; Strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]
Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae:						
Gray whale	*Eschrichtius robustus*	Eastern North Pacific (ENP)	-; N	26,960 (0.05; 25,849; 2016)	801	139
Family Balaenopteridae (rorquals):						
Humpback whale	*Megaptera novaeangliae kuzira.*	California/Oregon/Washington (CA/OR/WA).	E/D; Y	2,900 (0.03; 2,784; 2014)	[9] 16.7	≥42.1
Minke whale	*Balaenoptera acutorostrata scammoni.*	CA/OR/WA	-; N	636 (0.72; 369; 2014)	3.5	≥1.3
Sei whale	*B. borealis borealis*	ENP	E/D; Y	519 (0.4; 374; 2014)	0.75	≥0.2
Fin whale	*B. physalus physalus*	CA/OR/WA	E/D; Y	9,029 (0.12; 8,127; 2014)	81	≥43.5
Blue whale	*B. musculus musculus*	ENP	E/D; Y	1,496 (0.44; 1,050; 2014)	[9] 1.2	≥19.4
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Physeteridae:						
Sperm whale	*Physeter macrocephalus*	CA/OR/WA	E/D; Y	1,997 (0.57; 1,270; 2014)	2.5	0.4
Family Kogiidae:						
Pygmy sperm whale	*Kogia breviceps*	CA/OR/WA	-; N	4,111 (1.12; 1,924; 2014)	19.2	0
Dwarf sperm whale	*K. sima*	CA/OR/WA [5]	-; N	Unknown	n/a	0
Family Ziphiidae (beaked whales):						
Cuvier's beaked whale	*Ziphius cavirostris*	CA/OR/WA	-; N	3,274 (0.67; 2,059; 2014)	21	<0.1
Baird's beaked whale	*Berardius bairdii*	CA/OR/WA	-; N	2,697 (0.6; 1,633; 2014)	16	0
Hubbs' beaked whale	*Mesoplodon carlhubbsi*	CA/OR/WA [6]	-; N	3,044 (0.54; 1,967; 2014)	20	0.1
Blainville's beaked whale	*M. densirostris.*					
Ginkgo-toothed beaked whale.	*M. ginkgodens.*					
Perrin's beaked whale	*M. perrini.*					
Lesser (pygmy) beaked whale.	*M. peruvianus.*					
Stejneger's beaked whale	*M. stejnegeri.*					
Family Delphinidae:						
Common bottlenose dolphin.	*Tursiops truncatus truncatus*	CA/OR/WA Offshore	-; N	1,924 (0.54; 1,255; 2014)	11	≥1.6
		California Coastal	-; N	453 (0.06; 346; 2011)	2.7	≥2.0
Striped dolphin	*Stenella coeruleoalba*	CA/OR/WA	-; N	29,211 (0.2; 24,782; 2014)	238	≥0.8
ENP long-beaked common dolphin.	*Delphinus delphis bairdii*	California	-; N	101,305 (0.49; 68,432; 2014)	657	≥35.4
Common dolphin	*D. d. delphis*	CA/OR/WA	-; N	969,861 (0.17; 839,325; 2014)	8,393	≥40

TABLE 3—MARINE MAMMALS POTENTIALLY PRESENT IN THE VICINITY OF SWFSC RESEARCH ACTIVITIES IN THE CCE—Continued

Common name	Scientific name	Stock	ESA/ MMPA status; Strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	CA/OR/WA	-; N	26,814 (0.28; 21,195; 2014)	191	7.5
Northern right whale dolphin.	*Lissodelphis borealis*	CA/OR/WA	-; N	26,556 (0.44; 18,608; 2014)	179	3.8
Risso's dolphin	*Grampus griseus*	CA/OR/WA	-; N	6,336 (0.32; 4,817; 2014)	46	≥3.7
Killer whale	*Orcinus orca* [4]	West Coast Transient [7]	-; N	243 (n/a; 2009)	2.4	0
		ENP Offshore	-; N	300 (0.1; 276; 2012)	2.8	0
		ENP Southern Resident	E/D; Y	75 (n/a; 2018)	0.13	0
Short-finned pilot whale	*Globicephala macrorhynchus*	CA/OR/WA	-; N	836 (0.79; 466; 2014)	4.5	1.2
Family Phocoenidae (porpoises):						
Harbor porpoise	*Phocoena phocoena vomerina.*	Morro Bay	-; N	2,917 (0.41; 2,102; 2012)	21	≥0.6
		Monterey Bay	-; N	3,715 (0.51; 2,480; 2011)	25	0
		San Francisco-Russian River	-; N	9,886 (0.51; 6,625; 2011)	66	0
		Northern CA/Southern OR	-; N	35,769 (0.52; 23,749; 2011)	475	≥0.6
		Northern OR/WA Coast	-; N	21,487 (0.44; 15,123; 2011)	151	≥3
Dall's porpoise	*Phocoenoides dalli dalli*	CA/OR/WA	-; 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.*	Mexico to California	T/D; Y	34,187 (n/a; 31,019; 2013)	1,062	[10] ≥3.8
Northern fur seal	*Callorhinus ursinus*	Pribilof Islands/Eastern Pacific	D; Y	620,660 (0.2; 525,333; 2016)	11,295	399
		California	-; N	14,050 (n/a; 7,524; 2013)	451	1.8
California sea lion	*Zalophus californianus*	United States	-; N	257,606 (n/a; 233,515; 2014)	14,011	≥321
Steller sea lion	*Eumetopias jubatus monteriensis.*	Eastern U.S.	-; N	43,201 (n/a; 2017)	2,592	113
Family Phocidae (earless seals):						
Harbor seal	*Phoca vitulina richardii*	California	-; N	30,968 (n/a; 27,348; 2012)	1,641	43
		OR/WA Coast [8]	-; N	24,732 (0.12; 22,380; 1999)	n/a	10.6
Northern elephant seal	*Mirounga angustirostris*	California Breeding	-; 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.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.* CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable. For most stocks of killer whales, the abundance values represent direct counts of individually identifiable animals; therefore there is only a single abundance estimate with no associated CV. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the species' (or similar species') life history to arrive at a best abundance estimate; therefore, there is no associated CV. In these cases, the minimum abundance may represent actual counts of all animals ashore.

[3] These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, subsistence hunting, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value. All M/SI values are as presented in the draft 2019 SARs.

[4] Transient and resident killer whales are considered unnamed subspecies (Committee on Taxonomy, 2020).

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

[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 estimate for this stock is not considered current. PBR is therefore considered undetermined, as there is no current minimum abundance estimate for use in calculation. We nevertheless present the most recent abundance estimates, as it represents 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. The total PBR for blue whales is 2.1 (7/12 allocation for U.S. waters), and the total for CA/OR/WA humpback whales is 33.4 (one half allocation for U.S. waters). Annual M/SI presented for these species is for U.S. waters only.

[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. There is insufficient information to determine whether mortality in Mexico exceeds the PBR for this stock, but given the observed growth of the population over time, this is unlikely (Carretta *et al.,* 2019).

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 3. 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). According to Wade *et al.* (2016), whales off of Washington are most likely to be from the Hawaii DPS (52.9 percent), but are almost equally likely to be from the Mexico DPS (41.9 percent), and could also be from the Central America DPS (14.7 percent). Off of Oregon and California, whales are most likely to be from the Mexico DPS (89.6 percent), with a 19.7 percent probability of an encountered whale being from the Central America DPS. Note that these probabilities reflect the upper limit of the 95 percent confidence interval of the probability of occurrence; therefore, numbers may not sum to 100 percent for a given area.

Take Reduction Planning—Take reduction plans are designed to help recover and prevent the depletion of strategic marine mammal stocks that interact with certain U.S. commercial fisheries, as required by Section 118 of the MMPA. The immediate goal of a take reduction plan is to reduce, within six months of its implementation, the M/SI of marine mammals incidental to commercial fishing to less than the PBR level. The long-term goal is to reduce, within five years of its implementation, the M/SI of marine mammals incidental to commercial fishing to insignificant levels, approaching a zero serious injury and mortality rate, taking into account the economics of the fishery, the availability of existing technology, and existing state or regional fishery management plans. Take reduction teams are convened to develop these plans.

For marine mammals in the CCE, there is currently one take reduction plan in effect (Pacific Offshore Cetacean Take Reduction Plan). The goal of this plan is to reduce M/SI of several marine mammal stocks incidental to the California thresher shark/swordfish drift gillnet fishery (CA DGN). A team was convened in 1996 and a final plan produced in 1997 (62 FR 51805; October 3, 1997). Marine mammal stocks of concern initially included the California, Oregon, and Washington stocks for all CCE beaked whales, short-finned pilot whales, pygmy sperm whales, sperm whales, and humpback whales. The most recent five-year averages of M/SI for all stocks except the humpback whale are below PBR. For humpback whales, the majority of total annual M/SI is attributed to other fisheries—notably pot/trap fisheries—and ship strikes, with no observed M/SI in the DGN fishery from 2013–2017, and estimated mean annual M/SI in the fishery at <0.1 (CV = 1.9) over the same period. The most recent observed take of a sperm whale in the DGN fishery was in 2010, though the mean annual estimated M/SI attributed to the fishery over the period from 2008–2017 is 0.56 (CV = 0.78). Two short-finned pilot whales were observed taken in the DGN fishery in 2014, leading to a mean annual M/SI estimate of 1.2 (CV = 0.39) for the fishery. None of the other species were observed taken in the fishery in the most recent five-year period for which data are available, though some have estimated mean annual M/SI values for the fishery that are > 0. More information is available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/pacific-offshore-cetacean-take-reduction-plan.* Of the stocks of concern, the SWFSC has requested the authorization of incidental M/SI for the short-finned pilot whale only (see ''Estimated Take by Incidental Harassment'' later in this document). The SWFSC does not use drift gillnets in its fisheries research program; therefore, take reduction measures applicable to the CA DGN fisheries are not relevant to the SWFSC.

Unusual Mortality Events (UME)—A UME is defined under the MMPA as a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response. From 1991 to the present, there have been 16 formally recognized UMEs on the U.S. West Coast involving species under NMFS' jurisdiction. The only currently ongoing investigations involve Guadalupe fur seals and gray whales along the west coast.

Increased strandings of Guadalupe fur seals (up to eight times the historical average) have occurred along the entire coast of California and extending into Oregon and Washington. Increased strandings in California were reported beginning in January 2015 and peaked from April through June 2015, but have remained well above average. Strandings in Oregon and Washington became elevated starting in 2019 and are five times higher than the historical average. Findings from the majority of stranded animals include malnutrition with secondary bacterial and parasitic infections, and the UME has been attributed to ecological factors. For more information, please visit: *www.fisheries.noaa.gov/national/marine-life-distress/2015–2020-guadalupe-fur-seal-unusual-mortality-event-california.*

Since January 1, 2019, elevated gray whale strandings have occurred along the west coast of North America from Mexico through Alaska. As of June 5, 2020, there have been a total of 340 whales reported in the event, with approximately 168 dead whales in Mexico, 159 whales in the United States (53 in California; 9 in Oregon; 42 in Washington, 55 in Alaska), and 13 whales in British Columbia, Canada. For the United States, the historical 18-year 5-month average (Jan–May) is 14.8 whales for the four states for this same time-period. Several dead whales have been emaciated with moderate to heavy whale lice (cyamid) loads. Necropsies have been conducted on a subset of whales with additional findings of vessel strike in three whales and entanglement in one whale. In Mexico, 50–55 percent of the free-ranging whales observed in the lagoons in winter have been reported as ''skinny'' compared to the annual average of 10–12 percent ''skinny'' whales normally seen. The cause of the UME is as yet undetermined. For more information, please visit: *www.fisheries.noaa.gov/national/marine-life-distress/2019–2020-gray-whale-unusual-mortality-event-along-west-coast-and.*

Additional UMEs in the past ten years include those involving California sea lions (2013–2016; ecological factors) and large whales in Alaska and British Columbia (2015–2016; undetermined cause with secondary ecological factors). For more information on UMEs, please visit: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-unusual-mortality-events.*

Antarctic

The SWFSC's Antarctic Research Area (ARA) comprises a portion of the AMLR ecosystem. In the ARA, seventeen species are considered to have the potential to co-occur with SWFSC activities. Marine mammals in the AMLR do not constitute stocks under U.S. jurisdiction; therefore, the stocks are not managed by NMFS, there are no SARs, and substantially less information is available for these species in relation to the stocks or populations and their occurrence in the ARA than is available for CCE stocks (*e.g.,* PBR is not calculated for AMLR stocks, and strategic designations are not made). Extralimital species in the ARA include the pygmy right whale (*Caperea marginata*), sei whale, Cuvier's beaked whale, Shepherd's beaked whale (*Tasmacetus shepherdi*), Gray's beaked whale (*Mesoplodon grayi*), and strap-toothed beaked whale (*M. layardii*), which have distributions that only border the northernmost edge of the ARA. The Ross seal (*Ommatophoca rossii*) is also considered extralimital to the ARA due to its preference for dense pack ice, which is not typically present in the ARA.

TABLE 5—MARINE MAMMALS POTENTIALLY PRESENT IN THE VICINITY OF SWFSC RESEARCH ACTIVITIES IN THE AMLR

Common name	Scientific name	Stock [2]	ESA/MMPA/ IUCN status [3]	Abundance (CV) [4]
Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)				
Family Balaenidae (right whales):				
Southern right whale	*Eubalaena australis*		E/D/LC	1,755 (0.62) [5]
Family Balaenopteridae (rorquals):				
Humpback whale	*Megaptera novaeangliae australis.*		E/D/LC	9,484 (0.28) [5]
Antarctic minke whale	*Balaenoptera bonaerensis*		-/NT	18,125 (0.28) [5]
Fin whale	*B. physalus quoyi*		E/D/VU	4,672 (0.42) [5]
Blue whale	*B. musculus intermedia*		E/D/EN	1,700 (95% CI 860–2,900) [6]
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)				
Family Physeteridae:				
Sperm whale	*Physeter macrocephalus*		E/D/VU	12,069 (0.17) [7]
Family Ziphiidae (beaked whales):				
Arnoux' beaked whale	*Berardius arnuxii*		-/DD	Unknown
Southern bottlenose whale	*Hyperoodon planifrons*		-/LC	53,743 (0.12) [8]
Family Delphinidae:				
Hourglass dolphin	*Lagenorhynchus cruciger*		-/LC	144,300 (0.17) [9]
Killer whale	*Orcinus orca* [1]		-/DD	24,790 (0.23) [8]
Long-finned pilot whale	*Globicephala melas edwardii*		-/LC	200,000 (0.35) [9]
Family Phocoenidae (porpoises):				
Spectacled porpoise	*Phocoena dioptrica*		-/LC	Unknown
Order Carnivora—Superfamily Pinnipedia				
Family Otariidae (eared seals and sea lions):				
Antarctic fur seal	*Arctocephalus gazella*	South Georgia	-/LC	2,700,000 [10]
Family Phocidae (earless seals):				
Southern elephant seal	*Mirounga leonina*	South Georgia	-/LC	401,572 [11]
Weddell seal	*Leptonychotes weddellii*		-/LC	500,000–1,000,000 [12]
Crabeater seal	*Lobodon carcinophaga*		-/LC	5,000,000–10,000,000 [12]
Leopard seal	*Hydrurga leptonyx*		-/LC	222,000–440,000 [12]

[1] Three distinct forms of killer whale have been described from Antarctic waters; referred to as types A, B, and C, they are purported prey specialists on Antarctic minke whales, seals, and fish, respectively (Pitman and Ensor, 2003; Pitman *et al.,* 2010).

[2] For most species in the AMLR, stocks are not delineated and entries refer generally to individuals of the species occurring in the research area.

[3] 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. Any species listed under the ESA is automatically designated under the MMPA as depleted. IUCN status: Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD).

[4] CV is coefficient of variation. All abundance estimates, except for those from Reilly *et al.* (2004) (right, humpback, minke, and fin whales), are for entire Southern Ocean (*i.e.,* waters south of 60°S) and not the smaller area comprising the SWFSC research area.

[5] Abundance estimates reported in Reilly *et al.* (2004) for the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) survey area from 2000. Surveys include Antarctic Peninsula (473,300 km^2) and Scotia Sea (1,109,800 km^2) strata, which correspond roughly to ARA, as reported by Hewitt *et al.* (2004).

[6] Southern Ocean abundance estimate (Branch *et al.,* 2007). CI is confidence interval.

[7] Southern Ocean abundance estimate (IWC, 2001 in Whitehead, 2002).

[8] Southern Ocean abundance estimate from circumpolar surveys covering 68 percent of waters south of 60°S from 1991–98 (Branch and Butterworth, 2001).

[9] Southern Ocean abundance estimate derived from surveys conducted from 1976–88 (Kasamatsu and Joyce, 1995).

[10] South Georgia abundance estimate; likely >95 percent of range-wide abundance (Forcada and Staniland, 2009). Genetic evidence shows two distinct population regions, likely descended from surviving post-sealing populations at South Georgia, Bouvetøya, and Kerguelen Islands (Wynen *et al.,* 2000; Forcada and Staniland, 2009). Individuals from the South Georgia population (including breeding populations at the South Orkney and South Shetland Islands, which are within the ARA) are likely to occur in the ARA.

[11] Four genetically distinct populations are recognized: The Peninsula Valdés population in Argentina, the South Georgia population in the South Atlantic Ocean, the Kerguelen population in the South Indian Ocean and the Macquarie population in the South Pacific Ocean (Slade *et al.,* 1998; Hoelzel *et al.,* 2001). Animals occurring in ARA are likely to belong to South Georgia population, which includes subpopulations at South Georgia Island (≤99% of population) and at the South Orkney and South Shetland Islands; South Georgia population abundance estimate from 2001 (McMahon *et al.,* 2005).

[12] Range-wide abundance estimates (Thomas and Terhune, 2009; Bengtson, 2009; Rogers, 2009).

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.,* low-frequency cetaceans).

Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 dB threshold from the normalized composite audiograms, with an exception for lower limits for low-frequency cetaceans where the result was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 5.

TABLE 5—MARINE MAMMAL HEARING GROUPS (NMFS, 2018)

Hearing group	Generalized hearing range *
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz.
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz.
High-frequency (HF) cetaceans (true porpoises, *Kogia,* river dolphins, cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*).	275 Hz to 160 kHz.
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz.
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz.

* Represents the generalized hearing range for the entire group as a composite (*i.e.,* all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.,* 2007) and PW pinniped (approximation).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Within the CCE, 33 marine mammal species (27 cetacean and six pinniped [four otariid and two phocid] species) have the potential to co-occur with SWFSC research activities. Please refer to Table 3. Of the 27 cetacean species that may be present, six are classified as low-frequency cetaceans (*i.e.,* all mysticete species), seventeen are classified as mid-frequency cetaceans (*i.e.,* all delphinid and ziphiid species and the sperm whale), and four are classified as high-frequency cetaceans (*i.e.,* porpoises and *Kogia* spp.). Within the AMLR, seventeen marine mammal species (twelve cetacean and five pinniped [one otariid and four phocid] species) have the potential to co-occur with SWFSC research activities. Please refer to Table 4. Of the twelve cetacean species that may be present, five are classified as low-frequency cetaceans (*i.e.,* all mysticete species), five are classified as mid-frequency cetaceans (*i.e.,* all delphinid and ziphiid species [excluding the hourglass dolphin] and the sperm whale), and two are classified as high-frequency cetaceans (*i.e.,* the hourglass dolphin and spectacled porpoise).

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

Detailed descriptions of the potential effects of the various elements of the SWFSC's specified activity on marine mammals and their habitat were provided in association with the 2015 SWFSC rulemaking (80 FR 8166; February 15, 2015). Additionally, detailed descriptions of the potential effects of similar specified activities have also been provided in other **Federal Register** notices (*e.g.,* 81 FR 38516; 83 FR 37638; 84 FR 6576), and section 7 of SWFSC's application provides a discussion of the potential effects of their specified activity, which we have reviewed for accuracy and completeness. No significant new information is available, and these discussions provide the necessary adequate and relevant information regarding the potential effects of SWFSC's specified activity on marine mammals and their habitat. Therefore, we refer the reader to these documents rather than repeating the information here. The referenced information includes a summary and discussion of the ways that components of the specified activity (*e.g.,* gear deployment, use of active acoustic sources, visual disturbance) may impact marine mammals and their habitat.

As stated previously, the use of certain research gears, including trawl nets, hook and line gear, and purse seine nets, has the potential to result in interaction with marine mammals. In the event of a marine mammal interaction with research gear, injury, serious injury, or mortality may result from entanglement or hooking. Exposure to sound through the use of active acoustic systems for research purposes may result in Level B harassment. However, as detailed in the previously referenced discussions, Level A harassment in the form of permanent threshold shift (PTS) is extremely unlikely to occur, and we consider such effects discountable. Finally, in the Antarctic only, it is expected that hauled pinnipeds may be disturbed by approaching researchers such that Level B harassment could occur. Ship strike is not a reasonably anticipated outcome of SWFSC research activities, given the small amount of distance covered by research vessels and their relatively slow speed in comparison to commercial shipping traffic (*i.e.,* the primary cause of marine mammal vessel strikes).

With specific reference to Level B harassment that may occur as a result of acoustic exposure, we note that the analytical methods from the original 2015 analysis are retained here. However, the state of science with regard to our understanding of the likely potential effects of the use of systems like those used by SWFSC has advanced in the preceding five years, as have readily available approaches to estimating the acoustic footprints of such sources, with the result that we view this analysis as highly conservative. Although more recent literature provides documentation of marine mammal responses to the use of these and similar acoustic systems (*e.g.,* Cholewiak *et al.,* 2017; Quick *et al.,* 2017; Varghese *et al.,* 2020), the described responses do not generally comport with the degree of severity that should be associated with Level B harassment, as defined by the MMPA. We retain the 2015 analytical approach for consistency with existing analyses and for purposes of efficiency here, and consider this acceptable because the approach provides a conservative estimate of potential incidents of Level B harassment. In summary, while we propose to authorize the amount of take by Level B harassment indicated in the ''Estimated Take'' section, and consider these potential takings at face value in our negligible impact analysis, it is uncertain whether use of these acoustic systems are likely to cause take at all, much less at the estimated levels.

The ''Estimated Take'' section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The ''Negligible Impact Analysis and Determination'' section considers the potential effects of the specified activity, the ''Estimated Take'' section, and the ''Proposed Mitigation'' section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

Estimated Take

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

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

Take of marine mammals incidental to SWFSC research activities could occur as a result of (1) injury or mortality due to gear interaction in the CCE (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 in the Antarctic (Level B harassment only). Below we describe how the potential take is estimated.

Estimated Take Due to Gear Interaction

In order to determine the number of incidental takes requested for authorization, SWFSC retained the approach to estimating their requested take numbers that was developed in support of the 2015 rule. That approach was based on historical incidents of gear interaction and on an assessment of which species of marine mammal that have not historically been taken might have similar risk of interaction to those species that have been taken. In particular, records from the year 2008—which remains the year with the highest number of gear interaction incidents—were used as the basis for generating a precautionary, worst-case assessment of potential takes. Reporting from 2015–19 under the current regulations demonstrates that this approach was indeed a precautionary one, as annual numbers of takes have remained well below those recorded in 2008, and only one additional species that had not historically been taken in SWFSC research gear in 2015 has subsequently been taken (common dolphin; see Table 6). SWFSC has elected to carry forward this precautionary approach to their take authorization request in support of this rulemaking, and we incorporate it into our proposed rulemaking, as described in further detail below.

The approach to estimating the number of potential incidents of take that could occur through gear interaction first requires consideration of SWFSC's record of past such incidents. We then consider in addition other species that may have similar vulnerabilities to SWFSC trawl and longline gear as those species for which we have historical interaction records. Historical interactions with research gear are described in Tables 6 and 7, and we anticipate that all species that interacted with SWFSC fisheries research gear historically could potentially be taken in the future. Available records are for the years 2006 through present. All historical SWFSC interactions have taken place in the CCE. The locations of incidental take events from 2015–2019 are shown in Figure 6–1 of SWFSC's application.

TABLE 6—HISTORICAL INTERACTIONS WITH TRAWL GEAR

Gear [1]	Survey	Date	Species	Number killed	Number released alive	Total
Midwater trawl	Coastal Pelagic Species (CPS).	4/24/2006	Northern fur seal (CA stock)	1		1
Midwater trawl	CPS	4/29/2007	Northern fur seal (CA stock)	1		1
Midwater trawl [2]	Juvenile Rockfish	5/30/2007	Northern fur seal (eastern Pacific stock)	1		1
Midwater trawl	CPS	4/18/2008	California sea lion	1		1
Midwater trawl	CPS	4/21/2008	Pacific white-sided dolphin	1		1
Midwater trawl	CPS	4/26/2008	Pacific white-sided dolphin	2		2
Midwater trawl	CPS	4/27/2008	California sea lion	1		1
Midwater trawl	CPS	4/27/2008	Northern fur seal (eastern Pacific stock)	1		1
Midwater trawl [2]	Juvenile Rockfish	6/15/2008	California sea lion	1	2	3
Midwater trawl	CPS	7/19/2008	Pacific white-sided dolphin	1		1
Midwater trawl	CPS	7/28/2008	California sea lion	1		1
Midwater trawl	CPS	7/31/2008	Northern fur seal (CA stock)	1		1
Midwater trawl	CPS	8/3/2008	Northern fur seal (CA stock)	1		1
Midwater trawl	CPS	8/9/2008	Pacific white-sided dolphin	11		11
Midwater trawl	CPS	8/9/2008	Northern right whale dolphin	6		6
Midwater trawl	CPS	8/14/2008	California sea lion	9		9
Midwater trawl	CPS	5/1/2009	Pacific white-sided dolphin		3	3
Midwater trawl [2]	Juvenile Rockfish	5/25/2009	California sea lion		1	1
Midwater trawl	CPS	4/18/2010	Pacific white-sided dolphin		1	1
Midwater trawl	CPS	4/25/2010	Pacific white-sided dolphin	1		1
Midwater trawl [2]	Juvenile Rockfish	9/10/2010	Pacific white-sided dolphin	1		1
Midwater trawl	CPS	4/3/2011	Pacific white-sided dolphin	1		1
Midwater trawl	Juvenile Salmon	9/9/2011	California sea lion	1		1
Midwater trawl	Juvenile Salmon	9/10/2011	Pacific white-sided dolphin	6		6
Midwater trawl	CPS	6/29/2012	Pacific white-sided dolphin		1	1
Midwater trawl	CPS	8/18/2012	Pacific white-sided dolphin	1		1
Midwater trawl	CPS	8/24/2012	Pacific white-sided dolphin	2		2
Midwater trawl	CPS	8/1/2013	Pacific white-sided dolphin	1	2	3
Midwater trawl	Juvenile Salmon	9/14/2013	Pacific white-sided dolphin	3		3
Midwater trawl [2]	Juvenile Rockfish	6/1/2014	Pacific white-sided dolphin	1		1
Surface trawl	Sardine-Hake Acoustic Trawl.	8/26/2015	Pacific white-sided dolphin	1		1
Surface trawl	Juvenile Salmon	9/14/2015	California sea lion		1	1
Midwater trawl [2]	Juvenile Rockfish	5/15/2016	Pacific white-sided dolphin	1		1
Surface trawl	CPS	7/17/2016	Pacific white-sided dolphin	7	1	8
Midwater trawl [2]	Juvenile Rockfish	6/14/2018	Pacific white-sided dolphin	1		1
Midwater trawl [2]	Juvenile Rockfish	6/21/2018	California sea lion	1		1
Midwater trawl	CPS	7/24/2018	Pacific white-sided dolphin	1		1
Midwater trawl	CPS	8/27/2018	Pacific white-sided dolphin	1		1
Surface trawl	CCE Survey (CCES)	6/22/2019	Pacific white-sided dolphin	2		2
Midwater trawl	CCES	8/8/2019	Pacific white-sided dolphin	2		2
Midwater trawl	CCES	8/8/2019	Pacific white-sided dolphin	1		1

TABLE 6—HISTORICAL INTERACTIONS WITH TRAWL GEAR—Continued

Gear [1]	Survey	Date	Species	Number killed	Number released alive	Total
Midwater trawl	CCES	8/26/2019	Common dolphin (long-beaked)	1		1
Total individuals captured (total number of interactions given in parentheses).			Northern fur seal (6)	6		6
			California sea lion (9)	15	4	19
			Pacific white-sided dolphin (25)	49	8	57
			Northern right whale dolphin (1)	6		6
			Common dolphin (1)	1		1

[1] All incidents involved use of the NETS Nordic 264 midwater trawl, except as noted below.
[2] These incidents involved use of the modified-Cobb midwater trawl.

TABLE 7—HISTORICAL INTERACTIONS WITH LONGLINE GEAR

Gear	Survey	Date	Species	Number killed	Number released alive	Total
Pelagic longline	Highly Migratory Species (HMS)	9/6/2008	California sea lion		1	1
Pelagic longline	HMS	9/15/2008	California sea lion		1	1
Pelagic longline	Thresher Shark	9/18/2009	California sea lion		1	1
Pelagic longline	HMS	7/27/2010	California sea lion		1	1
Pelagic longline	HMS	6/23/2012	California sea lion		1	1
Pelagic longline	HMS	7/10/2013	California sea lion		1	1
Pelagic longline	HMS	7/2/2014	California sea lion		1	1
Pelagic longline	HMS	7/8/2015	California sea lion	1		1
Pelagic longline	Thresher Shark	9/20/2015	California sea lion		1	1
Total				1	8	9

In order to use these historical interaction records as the basis for the take estimation process, and because we have no specific information to indicate whether any given future interaction might result in M/SI versus Level A harassment, we conservatively assume that all interactions equate to mortality for these fishing gear interactions. The SWFSC has no recorded interactions with any gear other than midwater trawl and pelagic longline gear, and we do not anticipate any future interactions in any other gears historically used by SWFSC, including the bottom trawl gear periodically employed by the SWFSC in the AMLR. However, SWFSC has not historically used purse seine gear, and we do anticipate that the planned future use of purse seine gear in the CCE could present some risk of marine mammal interaction.

During trawl surveys, SWFSC has recorded interactions with northern fur seals (California and eastern Pacific stocks); California sea lions; Pacific white-sided dolphins; northern right whale dolphins; and common dolphins (long-beaked stock). No northern fur seal has been captured since 2008, and northern right whale dolphins have been involved in only one incident, also in 2008. Common dolphins have been involved in only one incident. Therefore, California sea lions and Pacific white-sided dolphins are the species most likely to interact with SWFSC trawl gear. For longline gear, only California sea lions have been captured.

Take records from 2008 were used as the basis for estimation of potential incidental take in support of the 2015 rule, as this year was the worst on record and therefore was assumed to provide a worst-case basis for predicting potential future take. Take interactions from 2008 remain the historical maximum. Therefore, as noted above, the 2015 analysis is retained here as a potential worst-case scenario for marine mammal take in SWFSC gear over the five years considered in this proposed rulemaking. In the 2015 analysis, the annual average over the most recent five-year period that included 2008 (rounded up to the next whole number) was used to estimate the potential annual take level over the next five years. A five-year time frame provides enough data to adequately capture year-to-year variation in take levels, reflecting environmental conditions that may change over time. In order to incorporate records from the year 2008, we retain 2008–12 as the five-year period over which we consider interaction records. Those annual averages are 7 Pacific white-sided dolphins, 4 California sea lions, 2 northern right whale dolphins, and 1 northern fur seal, and the prior assumption was that this number could be taken in each of the five years (*i.e.,* 35 Pacific white-sided dolphins, 20 California sea lions, 10 northern right whale dolphins, 5 northern fur seals). These take numbers are retained, with the exception of the Pacific white-sided dolphin. Historically, the CPS survey has only surveyed in water depths >50 m and consequently does not sample the nearshore area, potentially under-sampling any nearshore CPS aggregations. The aim of planned collaborative research over the next five years is to quantify this potential sampling bias by using an industry fishing vessel to extend the sampling closer to shore. In order to account for the potential for increased interactions with Pacific white-sided dolphins in nearshore waters, SWFSC added 1 additional take per year. For the species most commonly taken, the maximum number of individuals taken through any one interaction was 11 Pacific white-sided dolphins and 9 California sea lions. Similarly, the annual average of California sea lions taken in longline gear from 2008–12 was 1. Therefore, the assumption is that 5 California sea lions may be taken in hook and line gear over the next five-year period.

In order to evaluate the potential vulnerability of additional species to midwater trawl and pelagic longline gear as part of the take estimation process for the 2015 rule, we consulted NMFS' 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: Category I, frequent incidental M/SI; Category II, occasional incidental M/SI; and Category III,

remote likelihood of or no known incidental M/SI.

Information related to incidental M/SI in relevant commercial fisheries is not, however, the sole determinant of whether it may be appropriate to authorize take incidental to SWFSC survey operations. A number of factors (*e.g.,* species-specific knowledge regarding animal behavior, overall abundance in the geographic region, density relative to SWFSC survey effort, feeding ecology, propensity to travel in groups commonly associated with other species historically taken) were taken into account by the SWFSC 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 SWFSC research gear. Similarly, we have determined that some species groups with documented M/SI are not likely to be vulnerable to capture in SWFSC gear.

This review led to our inference that common dolphin, Risso's dolphin, Dall's porpoise, Steller sea lion, harbor seal, and northern elephant seal could have risk of capture in midwater trawl gear given the demonstrated risk of capture in commercial fishing gear that is similar to the gear used by SWFSC. In addition, as a result of presumed similarities to Pacific white-sided dolphin or California sea lion or to other species for which there are recorded interactions in similar commercial fishing gear, SWFSC determined that there was risk of capture for striped dolphin, bottlenose dolphin, and harbor porpoise despite a lack of relevant LOF records.

The LOF review similarly led to our inference that *Kogia* spp., bottlenose dolphin, common dolphin, striped dolphin, Risso's dolphin, and short-finned pilot whale could have risk of capture in pelagic longline gear given the demonstrated risk of capture in commercial fishing gear that is similar to the gear used by SWFSC. We note that, due to the expected distribution of longline sampling effort in offshore waters, no take of coastal bottlenose dolphins in longline gear is expected. In addition, as a result of presumed similarities to California sea lion or to other species for which there are recorded interactions in similar commercial fishing gear, SWFSC determined that there was risk of capture for Steller sea lion despite a lack of relevant LOF records.

As noted above, the worst-case single interactions with trawl gear for the two most commonly taken species (Pacific white-sided dolphin and California sea lion) involved 11 and 9 individuals, respectively. For species deemed by SWFSC to have a similar risk profile as these two species, these numbers were taken to represent the potential total take over the five-year period. Use of these numbers is sufficient to appropriately analyze either of two scenarios: (1) More frequent interactions with a lesser number of individuals; or (2) a single, worst-case interaction. For trawl gear, species deemed to have a similar risk profile as the Pacific white-sided dolphin include the Risso's dolphin, bottlenose dolphin, striped dolphin, and common dolphins. (Note that the 11 takes proposed for authorization for bottlenose dolphin in trawl gear are split across stocks based on the spatial distribution of SWFSC trawl survey effort; 8 takes are proposed for the offshore stock and 3 takes for the coastal stock.) Species deemed to have a similar risk profile as the California sea lion include the Steller sea lion and harbor seal. The remainder of species determined to be at risk of potential interaction with trawl gear are expected to have a relatively lower risk profile and, therefore, the expected potential take is one per year, or five over the five-year period. Note that a common dolphin has subsequently been captured in SWFSC trawl gear. However, we retain the original approach, which yields a five-year take estimate of 11 animals, versus the approach for historically captured species, which would produce a rounded annual average of 1 and, therefore, a five-year estimate of 5.

For hook and line gear, no species is expected to have a similar risk profile as the California sea lion and, therefore, the expected potential take for all other cetacean species is two over the five-year period, with the exception of bottlenose dolphin, for which only one take over five years is requested. Although take due to use of deep-set buoy gear is generally considered unlikely, SWFSC increased their take request for most cetacean species over the 2015 request (from 1 to 2 over five years) due to the potential that their use of this gear in cetacean habitat could lead to an increased risk of interaction compared with only their use of typical pelagic longline gear.

Regarding potential interactions with purse seine gear, we adopt the analysis that was developed in support of a similar incidental take rulemaking requested by NMFS' Northwest Fisheries Science Center (NWFSC) (83 FR 36370; July 27, 2018). Unlike SWFSC, NWFSC has historically used purse seine gear and similarly operates in the CCE. NWFSC has not had any historical interactions with purse seine gear. Therefore, we followed a similar approach as described above, in which the LOF was consulted and assumptions regarding species that may be vulnerable to interactions with the gear developed. Species with presumed risk of interaction with purse seine gear, based on LOF records, include common dolphins, harbor seal, and California sea lion. In addition, despite a lack of relevant LOF records, NWFSC deemed the following species as having risk of potential interaction with purse seine gear: Dall's porpoise, Pacific white-sided dolphin, Risso's dolphin, northern right whale dolphin, Steller sea lion, and harbor porpoise. SWFSC reviewed the assumptions made by NWFSC and has concurred and adopted the same assumptions in support of their requested take authorization. SWFSC additionally reviews records of marine mammal interactions with commercial purse seines in section 6.2.2 of their application. For most species, the risk of interaction is expected to be relatively low and, therefore, SWFSC has requested authorization of one take per potentially affected stock over the five-year period. However, based on the greater number of recorded interactions with purse seine gear for California sea lions and harbor seals, SWFSC has requested 5 takes for each species over the five-year period.

We have reviewed subsequent LOFs and determined that there are no new records that would change the assumptions regarding potential vulnerability to gear interaction described above. For a summation of the LOF records discussed above for trawl and longline gear, please see Table 13 (80 FR 8166) and Table 6 (81 FR 38516). The final 2020 LOF was published on April 16, 2020 (85 FR 21079), and more information about the LOF is available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-list-fisheries.*

It is also possible that a captured animal may not be able to be identified to species with certainty. Certain pinnipeds and small cetaceans are difficult to differentiate at sea, especially in low-light situations or when a quick release is necessary. For example, a captured delphinid that is struggling in the net may escape or be freed before positive identification is made. Therefore, the SWFSC has requested the authorization of incidental take in trawl gear for one unidentified pinniped and one unidentified small cetacean, and additionally one take of unidentified

pinnipeds in both purse seine and longline gear, over the course of the five-year period of proposed authorization. Table 8 summarizes the total proposed M/SI take authorization due to gear interaction in the CCE.

TABLE 8—TOTAL ESTIMATED TAKE DUE TO GEAR INTERACTION IN THE CCE, 2020–25 [1]

Species	Estimated 5-year total, trawl	Estimated 5-year total, hook and line	Estimated 5-year total, purse seine	Total
Kogia spp. [2]	.....	2	.....	2
Bottlenose dolphin (CA/OR/WA offshore) [3]	8	1	.....	9
Bottlenose dolphin (CA coastal) [3]	3	.....	.....	3
Striped dolphin	11	2	1	14
Common dolphin (short-beaked)	11	2	1	14
Common dolphin (long-beaked)	11	2	1	14
Pacific white-sided dolphin	40	.....	1	41
Northern right whale dolphin	10	.....	1	11
Risso's dolphin	11	2	1	14
Short-finned pilot whale	.....	2	.....	2
Harbor porpoise [4]	5	.....	1	6
Dall's porpoise	5	.....	1	6
Northern fur seal [5]	5	.....	.....	5
California sea lion	20	5	5	30
Steller sea lion	9	1	.....	10
Harbor seal [4]	9	.....	5	14
Northern elephant seal	5	.....	.....	5
Unidentified pinniped	1	1	1	3
Unidentified cetacean	1	.....	.....	1

[1] Please preceding text for derivation of take estimates.
[2] We expect that *Kogia* spp. taken over the five-year timespan could be either a pygmy or dwarf sperm whale.
[3] As a species believed to have similar propensity for capture in trawl gear as that demonstrated by the Pacific white-sided dolphin, we assume that eleven bottlenose dolphins could be captured over the five-year timespan. Total potential take of bottlenose dolphins in trawl gear has been apportioned by stock according to typical occurrence of that stock relative to SWFSC survey locations. We assume that the requested take of a bottlenose dolphin in longline gear would be from the offshore stock due to the typical location of SWFSC longline sampling.
[4] Incidental take may be of animals from any stock, excluding Washington inland waters stocks.
[5] Incidental take may be of animals from either the eastern Pacific or California stocks.

Whales—For large whales (baleen whales and sperm whales), beaked whales, and killer whales, observed M/SI is extremely rare for trawl gear and, for most of these species, only slightly more common in longline gear. Although whale species could become captured or entangled in SWFSC gear, the probability of interaction is extremely low considering the lower level of effort relative to that of commercial fisheries. We believe it extremely unlikely that any large whale, beaked whale, or killer whale would be captured or entangled in SWFSC research gear.

Estimated Take Due to Acoustic Harassment

As described previously, we believe it unlikely that SWFSC use of active acoustic sources is realistically likely to cause Level B harassment of marine mammals. However, per SWFSC request, we conservatively assume that, at worst, Level B harassment may result from exposure to noise from these sources, and we carry forward the analytical approach developed in support of the 2015 rule. At that time, in order to quantify the potential for Level B harassment to occur, NMFS developed an analytical framework considering characteristics of the active acoustic systems, their expected patterns of use, and characteristics of the marine mammal species that may interact with them. The framework incorporated a number of deliberately precautionary, simplifying assumptions, and the resulting exposure estimates, which are presumed here to equate to take by Level B harassment (as defined by the MMPA), may be seen as an overestimate of the potential for such effects to occur as a result of the operation of these systems.

Regarding the potential for Level A harassment in the form of permanent threshold shift to occur, the very short duration sounds emitted by these sources reduces the likely level of accumulated energy an animal is exposed to. An individual would have to remain exceptionally close to a sound source for unrealistic lengths of time, suggesting the likelihood of injury occurring is exceedingly small. Potential Level A harassment is therefore not considered further in this analysis.

The assessment paradigm for active acoustic sources used in SWFSC fisheries research is relatively straightforward and has a number of key simplifying assumptions. Sound produced by these sources is intermittent and, therefore, evaluated against the 160 dB rms criterion for Level B harassment by behavioral disturbance. Estimating the number of exposures at the specified received level requires several determinations:

(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.

We provide a summary of the analytical approach here, but invite the reader interested in additional detail to review the detailed description provided in support of the 2015 rule (80 FR 8166) as well as the detailed description provided in section 6.4.2 of SWFSC's application.

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 events in which sound levels exceed the relevant threshold. The

number of potentially harassing exposures is ultimately estimated as the product of the volume of water ensonified at 160 dB rms or higher (to a maximum depth of 500 m) and the volumetric density of animals determined from simple assumptions about their vertical stratification in the water column. Specifically, reasonable assumptions based on what is known about diving behavior across different marine mammal species were made to segregate those that predominately remain in the upper 200 m of the water column versus those that regularly dive deeper during foraging and transit. Because depths range dramatically along the margin of the continental slope that define the outer edge of the survey areas, but deeper surveyed depths rarely range over 500 m in practice, the depth range for determining volumes was set at 500 m for deep diving species.

An initial characterization of the general source parameters for the primary active acoustic sources operated by the SWFSC was conducted, enabling a full assessment of all sound sources used by the SWFSC (see Table 2). This auditing of the active acoustic sources also enabled a determination of the predominant sources that, when operated, would have sound footprints exceeding those from any other simultaneously used sources. These sources were effectively those used directly in acoustic propagation modeling to estimate the zones within which the 160 dB rms received level would occur.

Many of these sources can be operated in different modes and with different output parameters. In modeling their potential impact areas, those features among those given previously in Table 2 (*e.g.,* lowest operating frequency) that would lead to the most precautionary estimate of maximum received level ranges (*i.e.,* largest ensonified area) were used. The effective beam patterns took into account the normal modes in which these sources are typically operated. While these signals are brief and intermittent, a conservative assumption was taken in ignoring the temporal pattern of transmitted pulses in calculating potential Level B harassment events. Operating characteristics of each of the predominant sound sources were used in the calculation of effective line-kilometers and area of exposure for each source in each survey.

Three predominant sources were identified as having the largest potential impact zones during operations, based on their relatively lower output frequency, higher output power, and their operational pattern of use. These sources are the SX90, EK60/EK80, and ME70 (Table 2). Estimated effective cross-sectional areas of exposure were estimated for each of these sources. In determining the effective line-kilometers for each of these predominant sources, the operational patterns of use relative to one another were further applied to determine which source was the predominant one operating at any point in time for each survey. When multiple sound sources are used simultaneously, the one with the largest potential impact zone in each relevant depth strata is considered for use in estimating exposures.

The cross-sectional area of water ensonified at or above the 160 dB rms threshold was calculated using a simple model of sound propagation loss, which accounts for the loss of sound energy over increasing range. We used a spherical spreading model (where propagation loss = 20 * log [range]; such that there would be a 6-dB reduction in sound level for each doubling of distance from the source), a reasonable approximation over the relatively short ranges involved. Spherical spreading is a reasonable assumption even in relatively shallow waters since, taking into account the beam angle, the reflected energy from the seafloor will be much weaker than the direct source and the volume influenced by the reflected acoustic energy would be much smaller over the relatively short ranges involved. We also accounted for the frequency-dependent absorption coefficient and beam pattern of these sound sources, which is generally highly directional. The lowest frequency was used for systems that are operated over a range of frequencies. The vertical extent of this area is calculated for two depth strata. These results were applied differentially based on the typical vertical stratification of marine mammals.

Following the determination of effective sound exposure area for transmissions considered in two dimensions, the next step was to determine the effective volume of water ensonified at or above 160 dB rms for the entirety of each survey. For each of the three predominant sound sources, the volume of water ensonified is estimated as the athwartship cross-sectional area (in square kilometers) of sound at or above 160 dB rms multiplied by the total distance traveled by the ship. Where different sources operating simultaneously would be predominant in each different depth strata, the resulting cross-sectional area calculated took this into account. Specifically, for shallow-diving species this cross-sectional area was determined for whichever was predominant in the shallow stratum, whereas for deeper-diving species this area was calculated from the combined effects of the predominant source in the shallow stratum and the (sometimes different) source predominating in the deep stratum. This creates an effective total volume characterizing the area ensonified when each predominant source is operated and accounts for the fact that deeper-diving species may encounter a complex sound field in different portions of the water column.

The best available information regarding marine mammal occurrence in the CCE was used to develop volumetric density values for use in calculating estimated exposures. This information was determined through review of available information, as indicated through NOAA's CetMap catalogue, available online at: *cetsound.noaa.gov/cda-index.* More detail, and the density values used, are provided in section 3 and Appendix A of the SWFSC application. For marine mammals occurring in the AMLR, no new information is available, and the density values used in the 2015 rule are carried forward.

Estimates of potential incidents of Level B harassment (*i.e.,* potential exposure to levels of sound at or exceeding the 160 dB rms threshold) are then calculated by using (1) the combined results from output characteristics of each source and identification of the predominant sources in terms of acoustic output; (2) their relative annual usage patterns for each operational area; (3) a source-specific determination made of the area of water associated with received sounds at the extent of a depth boundary; and (4) determination of a biologically-relevant volumetric density of marine mammal species in each area. Estimates of Level B harassment by acoustic sources are the product of the volume of water ensonified at 160 dB rms or higher for the predominant sound source for each relevant survey and the volumetric density of animals for each species. Please see Tables 6–12 and 6–13 in SWFSC's application for relevant information. Take estimates proposed for authorization are summarized in Table 11 below.

Estimated Take Due to Physical Disturbance

Estimated take due to physical disturbance could potentially happen in the AMLR only as a result of the unintentional approach of SWFSC vessels to pinnipeds hauled out on ice, and would result in no greater than Level B harassment. During Antarctic

ecosystem surveys conducted in the austral winter (*i.e.,* June 1 through August 31), it is expected that shipboard activities may result in behavioral disturbance of some pinnipeds. It is likely that some pinnipeds on ice will move or flush from the haul-out into the water in response to the presence or sound of SWFSC survey vessels. Behavioral responses may be considered according to the scale shown in Table 9 and based on the method developed by Mortenson (1996). We consider responses corresponding to Levels 2–3 to constitute Level B harassment.

TABLE 9—PINNIPED RESPONSE TO DISTURBANCE

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

The SWFSC has estimated potential incidents of Level B harassment due to physical disturbance (Table 10) using the vessel distance traveled (20,846 km) during a typical AMLR survey, an effective strip width of 200 m (animals are assumed to react if they are less than 100 m from the vessel; see below), and the estimated population density for each species (see Table 3–2 of SWFSC's application). Although there is likely to be variation between individuals and species in reactions to a passing research vessel—that is, some animals assumed to react in this calculation will not react, and others assumed not to react because they are outside the effective strip width may in fact react—we believe that this approach is a reasonable effort towards accounting for this potential source of disturbance and have no information to indicate that the approach is biased either negatively or positively. SWFSC used an effective strip width of 200 m (*i.e.,* 100 m on either side of a passing vessel) to be consistent with the regional marine mammal viewing guidelines that NMFS has established for Alaska, which restrict approaches to marine mammals to a distance of 100 m or greater in order to reduce the potential to cause inadvertent harm. Alaska is believed to have the most similar environment to the Antarctic of all regions for which NMFS has established viewing guidelines. Each estimate is the product of the species-specific density, annual line-kilometers, and the effective strip-width.

TABLE 10—ESTIMATED LEVEL B HARASSMENT OF PINNIPEDS ASSOCIATED WITH AMLR VESSEL TRANSECTS

Species	Estimated annual Level B harassment	5-year total
Antarctic fur seal	417	2,085
Southern elephant seal	1	5
Weddell seal	225	1,125
Crabeater seal	2,704	13,520
Leopard seal	68	340

Proposed Mitigation

Under Section 101(a)(5)(A) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (''least practicable adverse impact''). NMFS does not have a regulatory definition for ''least practicable adverse impact.'' However, NMFS's implementing regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

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

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

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

The following suite of mitigation measures and procedures, *i.e.,* measures taken to monitor, avoid, or minimize the encounter and potential take of marine mammals, will be employed by the SWFSC during research cruises and activities. For a summary of measures proposed by SWFSC, please see Table 11–1 of the application. These procedures are the same whether the survey is conducted by SWFSC or is a SWFSC-supported survey, which may be conducted onboard a variety of vessels, *e.g.,* on board a NOAA vessel or

charter vessel. The procedures described are based on protocols used during previous research surveys and/or best practices developed for commercial fisheries using similar gear. The SWFSC conducts a large variety of research operations, but only activities using trawl, hook and line, and purse seine gears are expected to present a reasonable likelihood of resulting in incidental take of marine mammals. SWFSC's past survey operations have resulted in marine mammal interactions. These protocols are designed to minimize to the extent practicable the interactions that do happen while providing credible, documented, and safe encounters with observed or captured animals. Mitigation procedures will be focused on those situations where mammals, in the best professional judgement of the vessel operator and Chief Scientist (CS), pose a risk of incidental take. In many instances, the SWFSC will use streamlined protocols and training for protected species developed in support of the 2015 rule and refined during implementation of the rule.

The SWFSC has invested significant time and effort in identifying technologies, practices, and equipment to minimize the impact of the proposed activities on marine mammal species and stocks and their habitat. These efforts have resulted in the consideration of many potential mitigation measures, including those the SWFSC has determined to be feasible and has implemented for 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 and a marine mammal exclusion device (MMED) on surface trawls using the Nordic 264 trawl net.

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

General Measures

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

Vessel Speed—Vessel speed during active sampling rarely exceeds 5 kn, with typical speeds being 2–4 kn. Transit speeds vary from 6–14 kn but average 10 kn. These low vessel speeds minimize the potential for ship strike. At any time during a survey or in transit, if a crew member or designated marine mammal observer standing watch sights marine mammals that may intersect with the vessel course that individual will immediately communicate the presence of marine mammals to the bridge for appropriate course alteration or speed reduction, as possible, to avoid incidental collisions.

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

Handling Procedures—Handling procedures are those taken to return a live animal to the sea or process a dead animal. The SWFSC will continue to

implement handling protocols developed in support of the 2015 rule and refined during implementation of the rule, to minimize potential harm to marine mammals that are incidentally taken during the course of fisheries research activities. These procedures are expected to increase post-release survival and, in general, following a ''common sense'' approach to handling captured or entangled marine mammals will present the best chance of minimizing injury to the animal and of decreasing risks to scientists and vessel crew. Handling or disentangling marine mammals carries inherent safety risks, and using best professional judgment and ensuring human safety is paramount.

Captured live or injured marine mammals are released from research gear and returned to the water as soon as possible with no gear or as little gear remaining on the animal as possible. Animals are released without removing them from the water if possible and data collection is conducted in such a manner as not to delay release of the animal(s) or endanger the crew. SWFSC staff are instructed on how to identify different species; handle and bring marine mammals aboard a vessel; assess the level of consciousness; remove fishing gear; and return marine mammals to water. For further information regarding proposed handling procedures, please see section 11.5 of SWFSC's application.

Trawl Survey Visual Monitoring and Operational Protocols

Visual monitoring protocols, described above, are an integral component of trawl mitigation protocols. Observation of marine mammal presence and behaviors in the vicinity of SWFSC trawl survey operations allows for the application of professional judgment in determining the appropriate course of action to minimize the incidence of marine mammal gear interactions.

The OOD, CS or other designated member of the scientific party, and crew standing watch on the bridge visually scan surrounding waters with the naked eye and rangefinding binoculars (or monocular) for marine mammals prior to, during, and until all trawl operations are completed. Some sets may be made at night or other limited visibility conditions, when visual observation may be conducted using the naked eye and available vessel lighting with limited effectiveness.

Marine mammal watches will be initiated 15 minutes prior to arrival on station (or for the amount of time to travel between stations if less than 15 minutes) to determine if marine mammals are near the planned trawl set location. Either dedicated observers, the OOD, CS, and/or crew standing watch will visually scan for marine mammals during all daytime operations. Marine mammal watches will be conducted using any binocular or monocular sighting instrument, with a means to estimate distance to infringing protected species during daytime, and the best available means of observation during nighttime observations. This typically occurs during transit leading up to arrival at the sampling station because of standard protocol of immediate deployment of trawl gear upon arriving at station (intended to reduce the risk of attracting curious marine mammals). However, in some cases it may be necessary to conduct a plankton tow prior to deploying trawl gear. In these cases, the visual watch will continue until trawl gear is ready to be deployed.

Lookouts immediately alert the OOD and CS as to their best estimate of the species and number of animals observed and any observed animal's distance, bearing, and direction of travel relative to the ship's position. If any marine mammals are sighted around the vessel before setting gear, the vessel may be moved away from the animals to a different section of the sampling area if the animals appear to be at risk of interaction with the gear. This is what is referred to as the ''move-on'' rule.

If marine mammals are sighted within 1 nm of the planned set location in the 15 minutes before setting the gear, the vessel will transit to a different section of the sampling area to maintain a minimum set distance of 1 nm. An exception to this protocol is for baleen whales; baleen whales are commonly observed within the 1 nm distance from SWFSC trawl sampling locations but have never been observed to be attracted to SWFSC research activity and have never interacted with SWFSC research gear. Decision regarding the potential need to move-on in response to baleen whale presence will be made on the basis of professional judgment based on the specific circumstances. If after moving on, protected species remain within the 1 nm exclusion zone, the CS or watch leader may decide to move again or to skip the station. However, SWFSC acknowledges that the effectiveness of visual monitoring may be limited depending on weather and lighting conditions, and it may not always be possible to conduct visual observations out to 1 nm. The CS or watch leader will determine the best strategy to avoid potential takes of marine mammals based on the species encountered, their numbers and behavior, position and vector relative to the vessel, and other factors. For instance, a marine mammal transiting through the area off in the distance might only require a short move from the designated station while a pod of dolphins gathered around the vessel may require a longer move from the station or possibly cancellation if they follow the vessel. In any case, no gear will be deployed if marine mammals other than baleen whales have been sighted within 1 nm of the planned set location during the 15-minute watch period.

In many cases, trawl operations will be the first activity undertaken upon arrival at a new station, in order to reduce the opportunity to attract marine mammals to the vessel. However, in some cases it will be necessary to conduct plankton tows prior to deploying trawl gear in order to avoid trawling through extremely high densities of jellies and similar taxa that are numerous enough to severely damage trawl gear.

Once the trawl net is in the water, the OOD, CS, and/or crew standing watch will continue to monitor the waters around the vessel and 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 incidental take 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 their past experience operating gears around marine mammals and SWFSC training sessions that 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 these events). These judgments take into consideration the species, numbers, and behavior of the animals, the status of the trawl net operation (net opening, depth, and distance from the stern), the time it would take to retrieve the net, and safety considerations for changing speed or course.

The appropriate course of action to minimize the risk of incidental take is determined by the professional judgment of the OOD, vessel operator, and the CS based on all situation variables, even if the choices compromise the value of the data collected at the station. We recognize that it is not possible to dictate in advance the exact course of action that the OOD or CS should take in any given event involving the presence of marine mammals in proximity to an ongoing

trawl tow, given the sheer number of potential variables, combinations of variables that may determine the appropriate course of action, and the need to prioritize human safety in the operation of fishing gear at sea. Nevertheless, we require a full accounting of factors that shape both successful and unsuccessful decisions, and these details will be fed back into SWFSC 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 ''Proposed 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 mammals have not been sighted within 1 nm of the planned set location. This decision is at the discretion of the officer on watch and is dependent on the situation.

Care will be taken when emptying the trawl to avoid damage to any 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, or any other protected species, are present.

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 45 minutes at the target depth have been implemented, excluding deployment and retrieval time (which may require an additional 30 minutes depending on depth), to reduce the likelihood of attracting and incidentally taking marine mammals and other protected species. These short tow durations decrease the opportunity for curious marine mammals to find the vessel and investigate. Trawl tow distances are less than 3 nm, which should reduce the likelihood of attracting and incidentally taking marine mammals. Typical tow distances are 1–2 nm, depending on the survey and trawl speed. In addition, 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 Devices—The NETS Nordic 264 trawl gear will be fitted with MMEDs to allow marine mammals caught during trawling operations an opportunity to escape. These devices enable target species to pass through a grid or mesh barrier and into the codend while preventing the passage of marine mammals, which are ejected out through an escape opening or swim back out of the mouth of the net. Potential for interactions with protected species, such as marine mammals, is often greatest during the deployment and retrieval of the trawl, when the net is at or near the surface of the water. During retrieval of the net, protected species may become entangled in the net while attempting to feed from the codend as it floats near the surface of the water. Considerable effort has been given to developing MMEDs that allow marine mammals to escape from the net while allowing retention of the target species (*e.g.,* Dotson *et al.,* 2010). MMEDs generally consist of a large aluminum grate positioned in the intermediate portion of the net forward of the codend and below an ''escape panel'' constructed into the upper net panel above the grate (Figure A–1 of SWFSC's application). The angled aluminum grate is intended to guide marine mammals through the escape panel and prevent them from being caught in the codend (Dotson *et al.,* 2010). MMEDs are currently deployed on all surveys using Nordic 264 nets.

Acoustic Deterrent Devices—Pingers will be deployed during all trawl operations and on all types of trawl nets. Two to four pingers will be placed along the footrope and/or headrope to discourage marine mammal interactions.

Acoustic pingers are underwater sound emitting devices that are designed to decrease the probability of entanglement or unintended capture of marine mammals (see Appendix B of the SWFSC application). Acoustic pingers have been shown to effectively deter several species of small cetaceans from becoming entangled in gillnets and driftnets (for detailed discussion, please see 80 FR 8166).

The CPS Survey uses the Netguard 70 kHz dolphin pinger manufactured by Future Oceans and the Rockfish Recruitment and Ecosystem Assessment Surveys use the DDD–03H pinger manufactured by STM Products. Pingers remain operational at depths between 10 m and 200 m. Tones range from 100 microseconds to seconds in duration, with variable frequency of 5–500 kHz and maximum sound pressure level of 176 dB rms re 1 μPa at 1 m at 30–80 kHz.

If one assumes that use of a pinger is effective in deterring marine mammals from interacting with fishing gear, one must therefore assume that receipt of the acoustic signal has a disturbance effect on those marine mammals (*i.e.,* potential Level B harassment). However, Level B harassment that may be incurred as a result of SWFSC use of pingers does not constitute take that must be authorized under the MMPA. The MMPA prohibits the taking of marine mammals by U.S. citizens or within the U.S. EEZ unless such taking is appropriately permitted or authorized. However, the MMPA provides several narrowly defined exemptions from this requirement (*e.g.,* for Alaskan natives; for defense of self or others; for Good Samaritans (16 U.S.C. 1371(b)–(d))). Section 109(h) of the MMPA (16 U.S.C. 1379(h)) allows for the taking of marine mammals in a humane manner by Federal, state, or local government officials or employees in the course of their official duties if the taking is necessary for the protection or welfare of the mammal, the protection of the public health and welfare, or the non-lethal removal of nuisance animals. SWFSC use of pingers as a deterrent device, which may cause Level B harassment of marine mammals, is intended solely for the avoidance of potential marine mammal interactions with SWFSC research gear (*i.e.,* avoidance of Level A harassment, serious injury, or mortality). Therefore, use of such deterrent devices, and the taking that may result, is for the protection and welfare of the mammal and is covered explicitly under MMPA section 109(h)(1)(A). Potential taking of marine mammals resulting from SWFSC use of pingers is not discussed further in this document.

Longline Survey Visual Monitoring and Operational Protocols

Visual monitoring requirements for all longline surveys are similar to the general protocols described above for trawl surveys. Please see that section for full details of the visual monitoring protocol and the move-on rule mitigation protocol. In summary, requirements for longline surveys are to: (1) Conduct visual monitoring prior to arrival on station; (2) implement the move-on rule if marine mammals are observed within the area around the vessel and may be at risk of interacting with the vessel or gear; (3) deploy gear as soon as possible upon arrival on station (depending on presence of marine mammals); and (4) maintain visual monitoring effort throughout deployment and retrieval of the longline gear. As was described for trawl gear, the OOD, CS, or watch leader will use best professional judgment to minimize the risk to marine mammals from potential gear interactions during deployment and retrieval of gear. If

marine mammals are detected during setting operations and are considered to be at risk, immediate retrieval or suspension of operations may be warranted. If operations have been suspended because of the presence of marine mammals, the vessel will resume setting (when practicable) only when the animals are believed to have departed the area. If marine mammals are detected during retrieval operations and are considered to be at risk, haul-back may be postponed. These decisions are at the discretion of the OOD/CS and are dependent on the situation.

An exception is when California sea lions are sighted during the watch period prior to setting longline gear. For this species only, longline gear may be set if a group of 5 or fewer animals is sighted within 1 nm of the planned set location; when groups of more than 5 sea lions are sighted within 1 nm of the sampling station, deployment of gear would be suspended. This exception has been defined considering the rarity of past interactions between this gear and California sea lions and in order to make this mitigation measure practicable to implement. Without it, given the density of California sea lions in the areas where longline surveys are conducted, the SWFSC believes implementing the move-on rule for a single animal would preclude sampling in some areas and introduce significant bias into survey results. Groups of five California sea lions or greater is believed to represent a trigger for the move-on rule that would allow sampling in areas where target species can be caught without increasing the number of interactions between marine mammals and research longline gear. This measure was implemented under the 2015 rule, and no increase in sea lion take was observed, nor were multiple sea lions captured during any set.

As for trawl surveys, some standard survey protocols are expected to minimize the potential for marine mammal interactions. SWFSC longline sets are conducted with drifting pelagic or anchored gear marked at both ends with buoys. Typical soak times are 2–4 hours, but may be as long as 8 hours when targeting swordfish (measured from the time the last hook is in the water to when the first hook is brought out of the water).

SWFSC longline protocols specifically prohibit chumming (releasing additional bait to attract target species to the gear). However, spent bait may be discarded during gear retrieval while gear is still in the water. In the experience of SWFSC, this practice increases survey efficiency and has not resulted in interactions with marine mammals. Scientist observations indicate pinnipeds do not gather immediately aft of the survey vessel as a result of discarding spent bait. However, if protected species interactions with longline gear increase, or if SWFSC staff observe that this practice is contributing to protected species interactions, the SWFSC will revisit this practice and consider the need to retain spent bait until no gear remains in the water.

Purse Seine Survey Visual Monitoring and Operational Protocols

Visual monitoring and operational protocols for purse 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. The crew will keep watch for marine mammals before and during a set. If a bird or marine mammal observer is on board, the observer(s) inform the CS and captain of any marine mammals detected at or near a sampling station. Observations focus on avoidance of cetaceans (*e.g.,* dolphins, and porpoises) and aggregations of pinnipeds.

If any killer whales, dolphins, or porpoises are observed within approximately 500 m of the purse seine survey location, the set will be delayed. If any dolphins or porpoises are observed in the net, the net will be immediately opened to let the animals go. Pinnipeds may be attracted to fish caught in purse seine gear but are known to jump in and out of the net without entanglement. If pinnipeds are in the immediate area where the net is to be set, the set is delayed until the animals move out of the area or the station is abandoned. However, if fewer than 5 pinnipeds are seen in the vicinity but do not appear to be in the direct way of the setting operation, the net may be set.

SWFSC also uses unmanned aerial systems (UAS) to conduct research. For pinnipeds, UAS flights will be at 100–200 ft depending on species (*i.e.,* 100 ft for elephant seals and 200 ft for other species); in mixed aggregations, the most conservative altitude is used. UASs will not be flown directly over pinniped haulouts.

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

Proposed Monitoring and Reporting

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

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

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

SWFSC plans to continue its systematic training, operations, data collection, animal handling and sampling protocols, etc., as refined through implementation of the 2015 rule, in order to improve its ability to understand how mitigation measures influence interaction rates and ensure its research operations are conducted in an informed manner and consistent with lessons learned from those with experience operating these gears in close proximity to marine mammals. It is in this spirit that we propose to continue the monitoring requirements described below.

Visual Monitoring

Marine mammal watches are a standard part of conducting fisheries research activities, and are implemented as described previously in ''Proposed 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 SWFSC personnel or other trained crew during the monitoring period. Observers record the species and estimated number of animals present and their behaviors, which may be valuable information towards an understanding of whether certain species may be attracted to vessels or certain survey gears. Separately, marine mammal watches are conducted by watch-standers (those navigating the vessel and other crew; these will typically not be SWFSC 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.

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

Training

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

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

The third topic includes use of professional judgment in any incidents of marine mammal interaction and instructive examples where use of best professional judgment was determined to be successful or unsuccessful. We recognize that many factors come into play regarding decision-making at sea and that it is not practicable to simplify what are inherently variable and complex situational decisions into rules that may be defined on paper. However, it is our intent that use of best professional judgment be an iterative process from year to year, in which any at-sea decision-maker (*i.e.,* responsible for decisions regarding the avoidance of marine mammal interactions with survey gear through the application of best professional judgment) learns from the prior experience of all relevant SWFSC 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 SWFSC to facilitate such exchange.

To reduce marine mammal takes over time, the SWFSC maximizes efficient use of charter and NOAA ship time, and engages in operational planning with the NMFS Northwest and Pacific Islands Fisheries Science Centers to delineate respective research responsibilities and to reduce duplication of effort among the Centers.

Handling Procedures and Data Collection

Improved standardization of handling procedures were discussed previously in ''Proposed Mitigation.'' In addition to the benefits implementing these protocols are believed to have on the animals through increased post-release survival, SWFSC believes adopting these protocols for data collection will also increase the information on which ''serious injury'' determinations are based and improve scientific knowledge about marine mammals that interact with fisheries research gears and the factors that contribute to these interactions. SWFSC personnel are 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.

SWFSC will record interaction information on their own standardized forms. To aid in serious injury determinations and comply with the current NMFS Serious Injury Guidelines (NMFS, 2012a, 2012b), researchers will also answer a series of supplemental questions on the details of marine mammal interactions. Finally, for any marine mammals that are killed during fisheries research activities, scientists will collect data and samples as appropriate.

Reporting

As is normally the case, SWFSC 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. In addition, Chief Scientists (or cruise leader, CS) will provide reports to SWFSC 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 SWFSC 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 SWFSC will submit annual summary reports to OPR including: (1) Annual line-kilometers surveyed during which the predominant acoustic systems were used (see ''Estimated Take by Acoustic Harassment'' for further discussion), specific to each region; (2) summary information regarding use of all hook and line, purse seine, and trawl gear, including number of sets, tows, etc., specific to each research area and gear; (3) accounts of all incidents of marine mammal interactions, including circumstances of the event and descriptions of any mitigation procedures implemented or not implemented and why; (4) summary information related to any disturbance of pinnipeds, including event-specific total counts of animals present, counts of reactions according to the three-point scale shown in Table 9, and distance of closest approach; and (5) a written evaluation of the effectiveness of SWFSC 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, 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 proposed 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.

SWFSC will also collect and report all necessary data, to the extent practicable given the primacy of human safety and the well-being of captured or entangled marine mammals, to facilitate serious injury (SI) determinations for marine mammals that are released alive. SWFSC will require that the CS complete data forms and address supplemental questions, both of which have been developed to aid in SI determinations. SWFSC 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 SWFSC will perform all necessary reporting to ensure that any incidental M/SI is incorporated as appropriate into relevant SARs.

Negligible Impact Analysis and Determination

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

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

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

PBR values are calculated by NMFS as the level of annual removal from a stock that will allow that stock to equilibrate within OSP at least 95 percent of the time, and is the product of factors relating to the minimum population estimate of the stock (N_{min}); the productivity rate of the stock at a small population size; and a recovery factor. Determination of appropriate values for these three elements incorporates significant precaution, such that application of the parameter to the

management of marine mammal stocks may be reasonably certain to achieve the goals of the MMPA. For example, calculation of N_{min} incorporates the precision and variability associated with abundance information and is intended to provide reasonable assurance that the stock size is equal to or greater than the estimate (Barlow *et al.,* 1995). In general, the three factors are developed on a stock-specific basis in consideration of one another in order to produce conservative PBR values that appropriately account for both imprecision that may be estimated as well as potential bias stemming from lack of knowledge (Wade, 1998).

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

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

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

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

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

associated with them until and unless they approach residual PBR.

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

We first consider maximum potential incidental M/SI for each stock (Table 8) 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 SWFSC research activities may affect the species' or stock's annual rates of recruitment or survival. We also consider the interaction of those mortalities with incidental taking of that species or stock by harassment pursuant to the specified activity.

Summary of Estimated Incidental Take

Here we provide a summary of the total incidental take authorization on an annual basis, as well as other information relevant to the negligible impact analysis. Table 11 shows information relevant to our negligible impact analysis concerning the total annual taking that could occur for each stock from NMFS' scientific research activities when considering incidental proposed for authorization for SWFSC, as well as take previously authorized for AFSC (84 FR 46788; September 5, 2019) and NWFSC (83 FR 36370; July 27, 2018). We propose to authorize take by M/SI over the five-year period of validity for these regulations as indicated in Table 11 below. As noted previously, although some gear interactions may result in Level A harassment or the release of an uninjured animal, for the purposes of the negligible impact analysis, we assume that all of these takes could potentially be in the form of M/SI. Table 11 also summarizes annual amounts of take by Level B harassment that are proposed for authorization.

We previously authorized take of marine mammals incidental to fisheries research operations conducted by the AFSC (see 83 FR 37638 and 84 FR 46788), and NWFSC (see 81 FR 38516 and 83 FR 36370). This take would occur to some of the same stocks for which we propose to authorize take incidental to SWFSC fisheries research operations. Therefore, in order to evaluate the likely impact of the take by M/SI in this rule, we consider not only other ongoing sources of human-caused mortality but the potential mortality authorized for AFSC/NWFSC. As used in this document, other ongoing sources of human-caused (anthropogenic) mortality refers to estimates of realized or actual annual mortality reported in the SARs and does not include authorized or unknown mortality. Below, we consider the total taking by M/SI for SWFSC and previously authorized for AFSC/NWFSC together to produce a maximum annual M/SI take level (including take of unidentified marine mammals that could accrue to any relevant stock) and compare that value to the stock's PBR value, considering ongoing sources of anthropogenic mortality. PBR and annual M/SI values considered in Table 11 reflect the most recent information available (*i.e.,* draft 2019 SARs).

TABLE 11—SUMMARY INFORMATION RELATED TO SWFSC PROPOSED ANNUAL TAKE AUTHORIZATION, 2020–25 (CCE)

Species [1]	Stock	Proposed annual Level B harassment authorization	Percent of estimated population abundance [2]	SWFSC total proposed M/SI authorization, 2020–25 [3]	AFSC/NWFSC total M/SI authorization	Estimated maximum annual M/SI [4]	PBR minus annual M/SI (%) [5]
Gray whale	ENP	533	2.0	0	0	0	n/a.
Humpback whale	CA/OR/WA	23	0.8	0	0	0	n/a.
Minke whale	Alaska	19	3.0	0	0	0	n/a.
Sei whale	CA/OR/WA	10	1.9	0	0	0	n/a.
Fin whale	CA/OR/WA	124	1.4	0	0	0	n/a.
Blue whale	ENP	18	1.2	0	0	0	n/a.
Sperm whale	CA/OR/WA	96	4.8	0	0	0	n/a.
Kogia spp.	CA/OR/WA	213	5.2	2	1	0.6	19.2 (3.1).
Cuvier's beaked whale	CA/OR/WA	160	4.9	0	0	0	n/a.
Baird's beaked whale	CA/OR/WA	72	2.7	0	0	0	n/a.
Mesoplodont beaked whales.	CA/OR/WA	84	2.8	0	0	0	n/a.
Bottlenose dolphin	CA/OR/WA Offshore	62	3.2	9	3	2.8	9.4 (29.8).
	CA Coastal	.....	13.7	3	0	0.8	0.7 (114.3).
Striped dolphin	CA/OR/WA	883	3.0	14	7	4.6	237.2 (1.9).
Common dolphin (short-beaked).	CA/OR/WA	14,430	1.4	14	4	4	621.6 (0.6).
Common dolphin (long-beaked).	California	1,425	1.5	14	2	3.6	8,353 (0.0).
Pacific white-sided dolphin.	CA/OR/WA	412	1.5	41	31	14.8	183.5 (8.1).[9]
Northern right whale dolphin.	CA/OR/WA	614	2.3	11	7	4	175.2 (2.3).
Risso's dolphin	CA/OR/WA	209	3.3	14	9	5	42.3 (11.8).
Killer whale	ENP Offshore	13	4.3	0	0	n/a	n/a.
	West Coast Transient	.....	5.3	0	0	n/a	n/a.
	ENP Southern Resident	.....	17.3	0	0	n/a	n/a.
Short-finned pilot whale	CA/OR/WA	30	3.6	2	2	0.8	3.3 (24.2).
Harbor porpoise	Morro Bay	675	23.1	6	[6] 2	2	20.4 (9.8).
	Monterey Bay	.....	18.2	.....	.....	2	25 (8.0).
	San Francisco-Russian River.	.....	6.8	.....	.....	2	66 (3.0).
	Northern CA/Southern OR	.....	1.9	.....	.....	2	474.4 (0.4).
	Northern OR/WA Coast	.....	3.1	.....	[6] 4	2.4	148 (1.6).
Dall's porpoise	CA/OR/WA	916	3.6	6	4	2.4	171.7 (1.4).
Guadalupe fur seal	Mexico-CA	313	0.9	0	0	0	n/a.
Northern fur seal	Pribilof Islands/Eastern Pacific.	12,595	[8] 2.0	5	[7] 18–23	6.2	10,896 (0.1).

TABLE 11—SUMMARY INFORMATION RELATED TO SWFSC PROPOSED ANNUAL TAKE AUTHORIZATION, 2020–25 (CCE)—Continued

Species [1]	Stock	Proposed annual Level B harassment authorization	Percent of estimated population abundance [2]	SWFSC total proposed M/SI authorization, 2020–25 [3]	AFSC/NWFSC total M/SI authorization	Estimated maximum annual M/SI [4]	PBR minus annual M/SI (%) [5]
	California	.....	[8] 2.0	.....	[7] 5–13	4.2	449.2 (0.9).
California sea lion	United States	5,095	2.0	30	11	9.2	13,690 (0.1).[9]
Steller sea lion	Eastern U.S.	914	2.1	10	[7] 16–21	7	2,479 (0.3).
Harbor seal	California	1,114	3.6	14	[6] 6	4.8	1,598 (0.3).
	OR/WA Coast	.....	4.5	.....	[6] 8	5.2	?
Northern elephant seal	California Breeding	4,916	2.7	5	1	1.6	4,873.2 (0.0).

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

[2] For species with multiple potentially affected stocks, value is conservatively calculated as though all estimated annual takes accrue to each potentially affected stock.

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

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

[5] This value represents the calculated PBR less the average annual estimate of ongoing anthropogenic mortalities (*i.e.,* total annual human-caused M/SI, which is presented in the SARs) (see Table 3). In parentheses, we provide the estimated maximum annual M/SI expressed as a percentage of this value.

[6] A total of 4 takes of harbor porpoise by M/SI were authorized incidental to NWFSC research occurring offshore CA/OR/WA. However, two of these were expected to occur in the lower Columbia River. Therefore, a maximum of 4 takes could accrue to the Northern OR/WA Coast stock, while a maximum of only 2 of those takes could potentially accrue to the remaining stocks of harbor porpoise. A total of 7 takes of harbor seal by M/SI were authorized incidental to NWFSC research occurring offshore CA/OR/WA. However, two of these were expected to occur in the lower Columbia River. Therefore, a maximum of 7 takes could accrue to the OR/WA Coast stock, while a maximum of only 5 of those takes could potentially accrue to the California stock of harbor seal. One take of each stock by M/SI was authorized incidental to AFSC research.

[7] These ranges reflect that, as part of the overall take authorization for AFSC, a total of five takes of northern fur seals and Steller sea lions are expected to occur as a result specifically of International Pacific Halibut Commission longline operations. These five takes are considered as potentially accruing to either stock of northern fur seal or to either the eastern or western stocks of Steller sea lion; therefore, we assess the consequences of the take authorization for these stocks as though the maximum could occur for that stock.

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

[9] Calculation of residual PBR for these stocks includes M/SI that occurred incidental to SWFSC. Assumed annual M/SI due to SWFSC is accounted for in this calculation through the proposed take authorization number. Therefore, the assumed effects of SWFSC research on these stocks is overestimated as the take numbers are incorporated to the calculation through both the reduction of ''available'' PBR due to past interactions as well as through the proposed take number that is then evaluated against the residual PBR.

TABLE 12—ANNUAL TAKE AUTHORIZATION IN THE AMLR, 2020–25

Species	Estimated annual Level B harassment (acoustic exposure)	Estimated annual Level B harassment (on-ice disturbance)	Total annual Level B harassment authorization	Percent of estimated population
Southern right whale	0	0	0	n/a
Humpback whale	25	0	25	0.3
Antarctic minke whale	5	0	5	0.0
Fin whale	57	0	57	1.2
Blue whale	0	0	0	n/a
Sperm whale	5	0	5	0.0
Arnoux' beaked whale [1]	2	0	2	?
Southern bottlenose whale	10	0	10	0.0
Hourglass dolphin	10	0	10	0.0
Killer whale	10	0	10	0.0
Long-finned pilot whale	21	0	21	0.0
Spectacled porpoise [1]	10	0	10	?
Antarctic fur seal	136	417	553	0.0
Southern elephant seal	2	2	4	0.0
Weddell seal	74	226	300	[2] 0.1
Crabeater seal	884	2,704	3,588	[2] 0.1
Leopard seal	22	68	90	[2] 0.0

[1] There is no available abundance information for these species. See ''Small Numbers Analyses'' below for further discussion.

[2] A range is provided for these species' abundance. We have used the lower bound of the given range for calculation of these values.

Analysis—To avoid repetition, the majority of our analysis applies to all the species listed in Tables 11–12, given that the anticipated effects of SWFSC's research activities on marine mammals are expected to be relatively similar in nature. Where there are meaningful differences between species or stocks, or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, they are described independently in the analysis below.

The majority of stocks that may potentially be taken by M/SI (18 of 22) fall below the insignificance threshold (*i.e.,* 10 percent of residual PBR), while an additional two 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.,* two stocks of bottlenose dolphin, Risso's dolphin, and short-finned pilot whale) and those without PBR values (the dwarf sperm whale, for which no information is available, and the Oregon and Washington coastal stock of harbor seal).

As stated previously and described in detail in support of the 2015 rule (80 FR 8166), we do not believe that SWFSC use of active acoustic sources has the likely potential to cause any effect exceeding Level B harassment of marine mammals. We have produced what we believe to be precautionary estimates of potential incidents of Level B harassment. There is a general lack of information related to the specific way that these acoustic signals, which are generally highly directional and transient, interact with the physical environment. Additionally, there is a lack of meaningful understanding of marine mammal perception of these signals. The procedure for producing these estimates, described in detail in ''Estimated Take Due to Acoustic Harassment,'' represents a reasonable and precautionary effort towards quantifying the potential for exposure to noise from these sources, which we equate herein with Level B harassment. The sources considered here have moderate to high output frequencies, generally short ping durations, and are typically focused (highly directional) to serve their intended purpose of mapping specific objects, depths, or environmental features. In addition, some of these sources can be operated in different output modes (*e.g.,* energy can be distributed among multiple output beams) that may lessen the likelihood of perception by and potential impacts on marine mammals in comparison with the quantitative estimates that guide our proposed take authorization. We also produced estimates of incidents of potential Level B harassment due to disturbance of hauled-out pinnipeds that may result from the physical presence of researchers in the Antarctic; these estimates are combined with the estimates of Level B harassment that may result from use of active acoustic devices.

Here, we consider authorized Level B harassment take less than five percent of population abundance to be ''de minimis,'' and authorized Level B harassment taking between 5–15 percent as ''low.'' A ''moderate'' amount of authorized taking by Level B harassment would be from 15–25 percent, and ''high'' above 25 percent. Of the 53 stocks that may be subject to Level B harassment, the level of taking proposed for authorization would represent a de minimis impact for 43 stocks and a low impact for an additional four stocks. We do not consider these impacts further for these 47 stocks.

The level of taking by Level B harassment would represent a moderate impact on three additional stocks: The southern resident stock of killer whales and Morro Bay and Monterey Bay stocks of harbor porpoise. However, the values calculated for proportion of population potentially affected assume that all estimated takes species-wide would accrue to each of the potentially affected stocks. In the absence of information to better refine stock-specific values, this worst-case proportion is an appropriate way to evaluate whether an amount of taking is greater than small numbers. For purposes of determining whether the total impacts to a stock represent no greater than a negligible impact, however, these values are overly conservative. We know that a majority of SWFSC use of active acoustic systems will not be concentrated in either of Morro Bay or Monterey Bay and, therefore, we conclude that the actual significance of taking by Level B harassment for these stocks of harbor porpoise will likely be significantly less than ''moderate.'' Similarly, the only potential avenue for effects to southern resident killer whales would be during the time when whales are foraging in coastal waters. Considering that whales are present in coastal waters for relatively brief portions of the year and that SWFSC research has limited overlap with the whales' relatively shallow foraging grounds in coastal waters, we again conclude that actual significance of any potential acoustic exposure for the stock would be less than moderate. Therefore, we do not consider these stocks further. For an additional three stocks (Arnoux' beaked whale and spectacled porpoise in Antarctica and dwarf sperm whales in the CCE whale), there is no abundance estimate upon which to base a comparison. However, we note that the anticipated number of incidents of take by Level B harassment are very low (2 and 10 for the Antarctic species, respectively, and 213 combined for both stocks of *Kogia* spp.) and likely represent a de minimis impact on these stocks.

As described previously, there is some minimal potential for temporary effects to hearing for certain marine mammals, but most effects would likely be limited to temporary behavioral disturbance. Effects on individuals that are taken by Level B harassment will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring), which are all 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 SWFSC 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 proposed 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, including those for which no abundance estimate is available.

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

For Risso's dolphin, short-finned pilot whale, and the offshore stock of bottlenose dolphin, maximum total potential M/SI due to NMFS' fisheries research activity (SWFSC, NWFSC, and AFSC combined) is approximately 12, 24, and 30 percent of residual PBR, respectively. For example, PBR for Risso's dolphin is currently set at 46

and the annual average of known ongoing anthropogenic M/SI is 3.7, yielding a residual PBR value of 42.3. The maximum combined annual average M/SI incidental to NMFS fisheries research activity is 5, or 11.8 percent of residual PBR. The only known source of other anthropogenic mortality for these species is in commercial fisheries. For the Risso's dolphin and offshore stock of bottlenose dolphin, such take is considered to be insignificant and approaching zero mortality and serious injury. This is not the case for the short-finned pilot whale; however, the annual take from fisheries (1.2) and from NMFS's fisheries research (0.8) are both very low. There are no other factors that would lead us to believe that take by M/SI of 24 percent of residual PBR would be problematic for this species.

For the California coastal stock of bottlenose dolphin, maximum total potential M/SI due to NMFS' fisheries research activity (SWFSC, NWFSC, and AFSC combined) is approximately 114 percent of residual PBR. Although the maximum annual take by M/SI is low (0.8), the residual PBR is also low (0.7). (Note that there is no take by M/SI authorized for this stock other than for SWFSC activities.) Here we provide additional detail regarding the available information for the coastal stock of bottlenose dolphin and explain our conclusion that the calculated proportion of residual PBR presents an unrealistically conservative assessment of the potential impacts to the stock due to SWFSC fisheries research activity. First, the available information indicates that the PBR value is biased low. PBR is calculated in consideration of the minimum population size which, for coastal bottlenose dolphins, represents the minimum number of individually identifiable animals documented during mark-recapture surveys in 2009–11 (Carretta *et al.,* 2017). This number (346 animals) represents the minimum abundance, but estimates of population abundance resulting from the 2009–11 study range from 411–564 animals (Carretta *et al.,* 2017). Even these higher abundance estimates represent marked animals only, and exclude the approximately 40 percent of animals that are not individually recognizable (Weller *et al.,* 2016). In addition, the estimates based on the 2009–11 study were the highest ever for the population and included a high proportion (~75 percent) of previously uncatalogued dolphins (Weller *et al.,* 2016). The number of individually identifiable animals from 2009–11 exceeded previous estimates for the abundance of the entire marked population. These facts suggest that the stock may have grown in the ten years since conclusion of the last abundance study. Finally, although the stock is confined to U.S. waters for management purposes, the biological stock is transboundary and an unknown additional number of dolphins are likely found in Mexico. Regarding anthropogenic M/SI that is assumed to be ongoing, current estimates are based on scant data. With 9 percent observer coverage in the coastal halibut/yellowtail gillnet fishery during 2010–14, no entanglements were observed, and none have been observed since 2003 (Carretta *et al.*, 2017). The basis for the assumption that a minimum of 1.6 dolphins are killed annually in fisheries was the discovery of two carcasses with evidence of entanglement from 2010–14. In addition, during this same period, one dolphin was found floating under a U.S. Navy marine mammal program dolphin pen enclosure dock and was assumed to have become entangled in the net curtain, and another dolphin became entrapped and drowned in a sea otter research net. Both of these incidents could rightly be considered as unpredictable occurrences with little likelihood of recurring. However, they add 0.4 animals to the assumed amount of ongoing annual anthropogenic M/SI. None of NMFS' fisheries research activities on the west coast have ever resulted in an interaction with bottlenose dolphins. In summary, the available information leads us to conclude that the PBR value for the stock is likely unrealistically low and that the assumed annual anthropogenic M/SI value may be higher than is actually occurring. Therefore, we preliminarily find that the potential total take of coastal bottlenose dolphin proposed for authorization here represents a negligible impact on the stock.

PBR is unknown for harbor seals on the Oregon and Washington coasts. The Oregon/Washington coast stock of harbor seal was considered to be stable following the most recent abundance estimates (in 1999, stock abundance estimated at 24,732). 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. Therefore, we reasonably assume that the maximum potential annual M/SI incidental to NMFS' fisheries research activities (5.2) is a small fraction of any sustainable take level that might be calculated for the stock.

PBR is also undetermined for the dwarf sperm whale. However, a PBR of 19.2 is calculated for the pygmy sperm whale, and there are no additional known sources of anthropogenic M/SI for *Kogia* spp. Although it is possible that there are fewer dwarf sperm whales than pygmy sperm whales in the CCE, we reasonably assume that the maximum potential annual M/SI incidental to NMFS' fisheries research activities (0.6) is a small fraction of any sustainable take level that might be calculated for the stock.

In summary, our negligible impact analysis is founded on the following factors: (1) The possibility of injury, serious injury, or mortality from the use of active acoustic devices may reasonably be considered discountable; (2) the anticipated incidents of Level B harassment from the use of active acoustic devices and physical disturbance of pinnipeds consist of, at worst, temporary and relatively minor modifications in behavior; (3) the predicted number of incidents of potential mortality are at insignificant levels for a majority of affected stocks; (4) consideration of additional factors for Risso's dolphin, short-finned pilot whale, and the offshore stock of bottlenose dolphin do not reveal cause for concern; (5) total maximum potential M/SI incidental to NMFS fisheries research activity for coastal bottlenose dolphin, considered in conjunction with other sources of ongoing mortality and in context of the available information regarding stock abundance, presents only a minimal incremental additional to total M/SI; (6) available information regarding stocks for which no current PBR estimate is available indicates that total maximum potential M/SI is sustainable; and (7) the presumed efficacy of the planned mitigation measures in reducing the effects of the specified activity to the level of least practicable adverse impact. In combination, we believe that these factors demonstrate that the specified activity will have only short-term effects on individuals (resulting from Level B harassment) and that the total level of taking will not impact rates of recruitment or survival sufficiently to result in population-level impacts.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation

measures, we preliminarily find that the total marine mammal take from the proposed activities will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

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

Please see Tables 11 and 12 for information relating to this small numbers analysis. The total amount of taking proposed for authorization is less than five percent for a majority of stocks, and the total amount of taking proposed for authorization is less than one-third of the stock abundance for all stocks.

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

Impact on Availability of Affected Species for Taking for Subsistence Uses

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.

Adaptive Management

The regulations governing the take of marine mammals incidental to SWFSC fisheries research survey operations would 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 proposed 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 SWFSC 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 SWFSC 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.

Endangered Species Act (ESA)

There are multiple marine mammal species listed under the ESA with confirmed or possible occurrence in the proposed specified geographical regions (see Tables 3 and 4). The proposed authorization of incidental take pursuant to the SWFSC's specified activity would not affect any designated critical habitat. OPR has initiated consultation with NMFS's West Coast Regional Office under section 7 of the ESA on the promulgation of five-year regulations and the subsequent issuance of LOAs to SWFSC under section 101(a)(5)(A) of the MMPA. This consultation will be concluded prior to issuing any final rule.

Request for Information

NMFS requests interested persons to submit comments, information, and suggestions concerning the SWFSC request and the proposed regulations (see **ADDRESSES**). All comments will be reviewed and evaluated as we prepare final rules and make final determinations on whether to issue the requested authorizations. This notice and referenced documents provide all environmental information relating to our proposed action for public review.

Classification

Pursuant to the procedures established to implement Executive Order 12866, the Office of Management and Budget has determined that this proposed 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 has certified to the Chief Counsel for Advocacy of the Small Business Administration that this proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities. NMFS is the sole entity that would be subject to the requirements in these proposed regulations, and NMFS is not a small governmental jurisdiction, small organization, or small business, as defined by the RFA. Because of this certification, a regulatory flexibility analysis is not required and none has been prepared.

This proposed rule does not contain a collection-of-information requirement subject to the provisions of the Paperwork Reduction Act (PRA) because the applicant is a Federal agency. Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB control number. These requirements have been approved by OMB under control number 0648–0151 and include applications for regulations, subsequent LOAs, and reports.

List of Subjects in 50 CFR Part 219

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

Dated: August 10, 2020.

Samuel D. Rauch III,

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

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

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

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

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

■ 2. Revise subpart A to part 219 to read as follows:

Subpart A—Taking Marine Mammals Incidental to Southwest Fisheries Science Center Fisheries Research

Sec.

Subpart A—Taking Marine Mammals Incidental to Southwest Fisheries Science Center Fisheries Research

§ 219.1 Specified activity and specified geographical region.

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

(b) The taking of marine mammals by SWFSC may be authorized in a Letter of Authorization (LOA) only if it occurs within the California Current Ecosystem (CCE) or Antarctic Marine Living Resources Ecosystem (AMLR).

§ 219.2 Effective dates.

Regulations in this subpart are effective from October 31, 2020, through October 31, 2025.

§ 219.3 Permissible methods of taking.

Under LOAs issued pursuant to § 216.106 of this chapter and § 219.7, the Holder of the LOA (hereinafter ''SWFSC'') may incidentally, but not intentionally, take marine mammals within the area described in § 219.1(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 fisheries research gear, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA.

§ 219.4 Prohibitions.

Notwithstanding takings contemplated in § 219.1 and authorized by a LOA issued under §§ 216.106 of this chapter and 219.7, no person in connection with the activities described in § 219.1 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 219.7;

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

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

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

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

§ 219.5 Mitigation requirements.

When conducting the activities identified in § 219.1(a), the mitigation measures contained in any LOA issued under §§ 216.106 of this chapter and 219.7 must be implemented. These mitigation measures shall include but are not limited to:

(a) *General conditions.* (1) SWFSC 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) SWFSC 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) SWFSC 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, SWFSC 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.

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

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

(2) SWFSC shall initiate marine mammal watches (visual observation) at least 15 minutes prior to beginning of net deployment (or for the amount of time to travel between stations if less than 15 minutes) but shall also conduct monitoring during any pre-set activities including CTD casts and plankton or bongo net hauls.

(3) In the CCE, SWFSC shall implement the move-on rule mitigation protocol, as described in this paragraph. If one or more marine mammals, with the exception of baleen whales, are observed within 1 nautical mile (nm) of the planned sampling location during the visual observation period, SWFSC shall move on to another sampling location. If, after moving on, marine mammals remain within 1 nm, the SWFSC shall move again or skip the station. SWFSC may use best professional judgment in making these decisions but may not elect to conduct trawl survey activity when marine mammals other than baleen whales remain within the 1-nm zone.

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

(5) If trawling operations have been suspended because of the presence of marine mammals, SWFSC may resume trawl operations when practicable only when the animals are believed to have departed the 1 nm area. SWFSC may use best professional judgment in making this determination.

(6) SWFSC 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.

(7) SWFSC must install and use a marine mammal excluder device at all times when the Nordic 264 trawl net or any other net is used for which the device is appropriate.

(8) SWFSC must install and use acoustic deterrent devices whenever any midwater trawl net is used, with two to four devices placed along the footrope and/or headrope of the net. SWFSC

must ensure that the devices are operating properly before deploying the net.

(c) *Pelagic longline survey protocols.* (1) SWFSC shall deploy longline gear as soon as is practicable upon arrival at the sampling station.

(2) SWFSC shall initiate marine mammal watches (visual observation) no less than 15 minutes (or for the duration of transit between locations, if shorter than 15 minutes) prior to both deployment and retrieval of longline gear.

(3) SWFSC shall implement the move-on rule mitigation protocol, as described in this paragraph. If one or more marine mammals, with the exception of groups of five or fewer California sea lions, are observed within 1 nm of the planned sampling location during the visual observation period, SWFSC shall move on to another sampling location. If, after moving on, marine mammals remain within 1 nm, the SWFSC shall move again or skip the station. SWFSC may use best professional judgment in making these decisions but may not elect to conduct pelagic longline survey activity when animals remain within the 1-nm zone.

(4) SWFSC 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, SWFSC shall take the most appropriate action to avoid marine mammal interaction. SWFSC 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, SWFSC may resume such operations when practicable only when the animals are believed to have departed the 1 nm area. SWFSC may use best professional judgment in making this decision.

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

(d) *Purse seine survey protocols.* (1) SWFSC shall conduct purse seine operations as soon as is practicable upon arrival at the sampling station.

(2) SWFSC shall conduct marine mammal watches (visual observation) prior to beginning of net deployment.

(3) SWFSC shall implement the move-on rule mitigation protocol, as described in this paragraph for use of purse seine gear. If one or more killer whales or small cetaceans (*i.e.,* dolphin or porpoise) or five or more pinnipeds are observed within 500 m of the planned sampling location before setting the purse seine gear, SWFSC shall either remain onsite or move on to another sampling location. If remaining onsite, the set shall be delayed. If the animals depart or appear to no longer be at risk of interacting with the vessel or gear, a further observation period shall be conducted. If no further observations are made or the animals still do not appear to be at risk of interaction, then the set may be made. If the vessel is moved to a different area, the move-on rule mitigation protocol would begin anew. If, after moving on, marine mammals remain at risk of interaction, the SWFSC 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. SWFSC may use best professional judgment in making these decisions.

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

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

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

§ 219.6 Requirements for monitoring and reporting.

(a) *Compliance coordinator.* SWFSC 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 § 219.7 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, hook and line, and purse seine 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.

(3) SWFSC shall monitor any potential disturbance of pinnipeds on ice, paying particular attention to the distance at which different species of pinniped are disturbed. Disturbance shall be recorded according to a three-point scale representing increasing seal response to disturbance.

(c) *Training.* (1) SWFSC 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. SWFSC may determine the agenda for these trainings.

(2) SWFSC 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.

(3) SWFSC shall coordinate with NMFS' Northwest Fisheries Science Center (NWFSC) regarding surveys conducted in the CCE, such that training and guidance related to handling procedures and data collection is consistent.

(d) *Handling procedures and data collection.* (1) SWFSC must 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, SWFSC shall collect necessary data to facilitate a serious injury determination.

(3) SWFSC 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.

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

details of any marine mammal interaction.

(e) *Reporting.* (1) SWFSC 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) SWFSC shall submit an annual summary report to OPR.

(i) The annual report must be submitted no later than 90 days following the end of a given year. SWFSC 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 predominant active acoustic sources were used;

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

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

(D) Summary information related to any on-ice disturbance of pinnipeds, including event-specific total counts of animals present, counts of reactions according to a three-point scale of response severity, and distance of closest approach;

(E) A written evaluation of the effectiveness of SWFSC 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 SWFSC and any coordination with NWFSC or NMFS' West Coast Regional Office.

(f) *Reporting of injured or dead marine mammals—*

(1) In the event that personnel involved in the survey activities covered by the authorization discover an injured or dead marine mammal, SWFSC shall report the incident to OPR and to the appropriate West Coast Regional Stranding Coordinator as soon as feasible. The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

(ii) Species identification (if known) or description of the animal(s) involved;

(iii) Condition of the animal(s) (including carcass condition if the animal is dead);

(iv) Observed behaviors of the animal(s), if alive;

(v) If available, photographs or video footage of the animal(s); and

(vi) General circumstances under which the animal was discovered.

(2) In the event of a ship strike of a marine mammal by any vessel involved in the activities covered by the authorization, SWFSC shall report the incident to OPR and to the appropriate West Coast Regional Stranding Coordinator as soon as feasible. The report must include the following information:

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

(ii) Species identification (if known) or description of the animal(s) involved;

(iii) Vessel's speed during and leading up to the incident;

(iv) Vessel's course/heading and what operations were being conducted (if applicable);

(v) Status of all sound sources in use;

(vi) Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;

(vii) Environmental conditions (*e.g.,* wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;

(viii) Estimated size and length of animal that was struck;

(ix) Description of the behavior of the marine mammal immediately preceding and following the strike;

(x) If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;

(xi) Estimated fate of the animal (*e.g.,* dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and

(xii) To the extent practicable, photographs or video footage of the animal(s).

§ 219.7 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, SWFSC must apply for and obtain an 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, SWFSC 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, SWFSC must apply for and obtain a modification of the LOA as described in § 219.8.

(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.

§ 219.8 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under §§ 216.106 of this chapter and 219.7 for the activity identified in § 219.1(a) shall be renewed or modified upon request by the applicant, provided that:

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

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

(b) For an LOA modification or renewal requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting (excluding changes made pursuant to the adaptive management provision in paragraph (c)(1) of this section) that do not change the findings made for the regulations or result in no more than a minor change in the total estimated number of takes (or distribution by species or years), OPR may publish a

notice of proposed LOA in the **Federal Register**, including the associated analysis of the change, and solicit public comment before issuing the LOA.

(c) An LOA issued under § 216.106 of this chapter and § 219.7 for the activity identified in § 219.1(a) may be modified by OPR under the following circumstances:

(1) OPR may modify (including augment) the existing mitigation, monitoring, or reporting measures (after consulting with SWFSC 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 SWFSC's monitoring from the previous year(s).

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

(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) 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 219.7, 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.

§§ 219.9–219.10 [Reserved]

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