permit (71 FR 58057; October 2, 2006). These certificate(s) are valid for 3 years. Certificates issued in 2018 will be expiring in 2021. As such, vessel owners who have not already attended a workshop and received a NMFS certificate, or vessel owners whose certificate(s) will expire prior to the next permit renewal, must attend a workshop to fish with, or renew, their swordfish and shark limited-access permits. Additionally, new shark and swordfish limited-access permit applicants who intend to fish with longline or gillnet gear must attend a Safe Handling, Release, and Identification Workshop and submit a copy of their workshop certificate before either of the permits will be issued. Approximately 376 free Safe Handling, Release, and Identification Workshops have been conducted since 2006.

In addition to vessel owners, at least one operator on board vessels issued a limited-access swordfish or shark permit that uses longline or gillnet gear is required to attend a Safe Handling, Release, and Identification Workshop and receive a certificate. Vessels that have been issued a limited-access swordfish or shark permit and that use longline or gillnet gear may not fish unless both the vessel owner and operator have valid workshop certificates onboard at all times. Vessel operators who have not already attended a workshop and received a NMFS certificate, or vessel operators whose certificate(s) will expire prior to their next fishing trip, must attend a workshop to operate a vessel with swordfish and shark limited-access permits on which longline or gillnet gear is used.

Workshop Dates, Times, and Locations

1. July 20, 2021, 9 a.m.–5 p.m., Hilton Hotel, 5400 Seawall Boulevard, Galveston, TX 77551.
2. July 28, 2021, 9 a.m.–5 p.m., Holiday Inn, 151 Route 72, Manahawkin, NJ 08050.
3. August 3, 2021, 9 a.m.–5 p.m., Holiday Inn, 3384 Ocean Drive, Vero Beach, FL 32963.
4. August 31, 2021, 9 a.m.–5 p.m., Hampton Inn, 678 Citadel Haven Drive, Charleston, SC 29414.
5. September 3, 2021, 9 a.m.–5 p.m., Marriott Courtyard, 5000 Express Drive South, Ronkonkoma, NY 11779.
6. September 10, 2021, 9 a.m.–5 p.m., Holiday Inn, 9515 US 49, Gulfport, MS 39503.

Registration

To register for a scheduled Safe Handling, Release, and Identification Workshop, please contact Angler Conservation Education at (386) 682–0158. Pre-registration is highly recommended, but not required.

Registration Materials

To ensure that workshop certificates are linked to the correct permits, participants will need to bring the following specific items with them to the workshop:

- Individual vessel owners must bring a copy of the appropriate swordfish and/or shark permit(s), a copy of the vessel registration or documentation, and proof of identification;
- Representatives of a business-owned or co-owned vessel must bring proof that the individual is an agent of the business (such as articles of incorporation), a copy of the applicable swordfish and/or shark permit(s), and proof of identification; and
- Vessel operators must bring proof of identification.

Workshop Objectives

The Safe Handling, Release, and Identification Workshops are designed to teach longline and gillnet fishermen the required techniques for the safe handling and release of entangled and/or hooked protected species, such as sea turtles, marine mammals, smalltooth sawfish, Atlantic sturgeon, and prohibited sharks. In an effort to improve reporting, the proper identification of protected species and prohibited sharks will also be taught at these workshops. Additionally, individuals attending these workshops will gain a better understanding of the requirements for participating in these fisheries. The overall goal of these workshops is to provide participants with the skills needed to reduce the mortality of protected species and prohibited sharks, which may prevent additional regulations on these fisheries in the future.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: May 28, 2021.

Jennifer M. Wallace,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 2021–11712 Filed 6–3–21; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XB083]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to a Geophysical Survey of the Queen Charlotte Fault

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

ACTION: Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

SUMMARY: NMFS has received a request from the Lamont-Doherty Earth Observatory of Columbia University (L–DEO) for authorization to take marine mammals incidental to a marine geophysical survey of the Queen Charlotte Fault in the Northeast Pacific Ocean. The proposed survey would be funded by the National Science Foundation (NSF). Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-time, one-year renewal that could be issued under certain circumstances and if all requirements are met, as described in Request for Public Comments at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorizations and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than July 6, 2021.

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service. Physical comments should be sent to 1315 East-West Highway, Silver Spring, MD 20910 and electronic comments should be sent to *ITP.Laws@noaa.gov.*

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period. Comments received electronically, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record

and will generally be posted online at *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.,* name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Ben Laws, Office of Protected Resources, NMFS, (301) 427–8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act.* In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

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 review our proposed action (*i.e.,* the issuance of an IHA) with respect to potential impacts on the human environment.

Accordingly, NMFS plans to adopt NSF's Environmental Assessment (EA), as we have preliminarily determined that it includes adequate information analyzing the effects on the human environment of issuing the IHA. NSF's EA is available at *www.nsf.gov/geo/oce/envcomp/.*

We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

Summary of Request

On December 3, 2019, NMFS received a request from L–DEO for an IHA to take marine mammals incidental to a geophysical survey of the Queen Charlotte Fault (QCF) off of Alaska and British Columbia, Canada. L–DEO submitted a revised version of the application on April 2, 2020. On April 10, 2020, L–DEO informed NMFS that the planned survey would be deferred to 2021 as a result of issues related to the COVID–19 pandemic. L–DEO subsequently submitted revised versions of the application on October 22 and December 16, 2020, the latter of which was deemed adequate and complete. A final, revised version was submitted on January 11, 2021. L–DEO's request is for take of 21 species of marine mammals by Level B harassment. In addition, NMFS proposes to authorize take by Level A harassment for seven of these species.

Description of Proposed Activity

Overview

Researchers from L–DEO, the University of New Mexico, and Western Washington University, with funding from NSF, propose to conduct a high-energy seismic survey from the Research Vessel (R/V) *Marcus G. Langseth* (*Langseth*) at the QCF in the northeast Pacific Ocean during late summer 2021. Other research collaborators include Dalhousie University, the Geological Survey of Canada, and the U.S. Geological Survey. The proposed two-dimensional (2–D) seismic survey would occur within the Exclusive Economic Zones (EEZ) of the United States and Canada, including in Canadian territorial waters. The survey would use a 36-airgun towed array with a total discharge volume of ~6,600 cubic inches (in^3) as an acoustic source, acquiring return signals using both a towed streamer as well as ocean bottom seismometers (OBSs).

The proposed study would use 2–D seismic surveying to characterize crustal and uppermost mantle velocity structure, fault zone architecture and rheology, and seismicity of the QCF. The QCF system is an approximately 1,200 kilometer (km)-long onshore-offshore transform system connecting the Cascadia and Alaska-Aleutian subduction zones; the QCF is the approximately 900 km-long offshore component of the transform system. The purpose of the proposed study is to characterize an approximately 450-km segment of the fault that encompasses systematic variations in key parameters in space and time: (1) Changes in fault obliquity relative to Pacific-North American plate motion leading to increased convergence from north to south; (2) Pacific plate age and theoretical mechanical thickness decrease from north to south; and (3) a shift in Pacific plate motion at approximately 12–6 million years ago that may have increased convergence along the entire length of the fault, possibly initiating underthrusting in the southern portion of the study area. Current understanding of how these variations are expressed through seismicity, crustal-scale deformation, and lithospheric structure and dynamics is limited due to lack of instrumentation and modern seismic imaging.

Dates and Duration

The proposed survey is expected to last for approximately 36 days, including approximately 27 days of seismic operations, 3 days of equipment deployment/retrieval, 2 days of transits, and 4 contingency days (accounting for potential delays due to, *e.g.,* weather). R/V *Langseth* would likely leave out of and return to port in Ketchikan, Alaska, during July–August 2021.

Specific Geographic Region

The proposed survey would occur within the area of approximately 52–57° N and approximately 131–137° W. Representative survey tracklines are shown in Figure 1. Some deviation in actual track lines, including the order of survey operations, could be necessary for reasons such as science drivers, poor data quality, inclement weather, or mechanical issues with the research vessel and/or equipment. The survey is proposed to occur within the EEZs of the United States and Canada, including Alaskan state waters and Canadian territorial waters, ranging in depth from

50–2,800 meters (m). Approximately 4,250 km of transect lines would be surveyed, with 13 percent of the transect lines in Canadian territorial waters. Most of the survey (69 percent) would occur in deep water (>1,000 m), 30 percent would occur in intermediate water (100–1,000 m deep), and approximately 1 percent would take place in shallow water <100 m deep.

Note that the MMPA does not apply in Canadian territorial waters. L–DEO is subject only to Canadian law in conducting that portion of the survey. However, NMFS has calculated the expected level of incidental take in the entire activity area (including Canadian territorial waters) as part of the analysis supporting our determination under the MMPA that the activity will have a negligible impact on the affected species (see Estimated Take and Negligible Impact Analysis and Determination).

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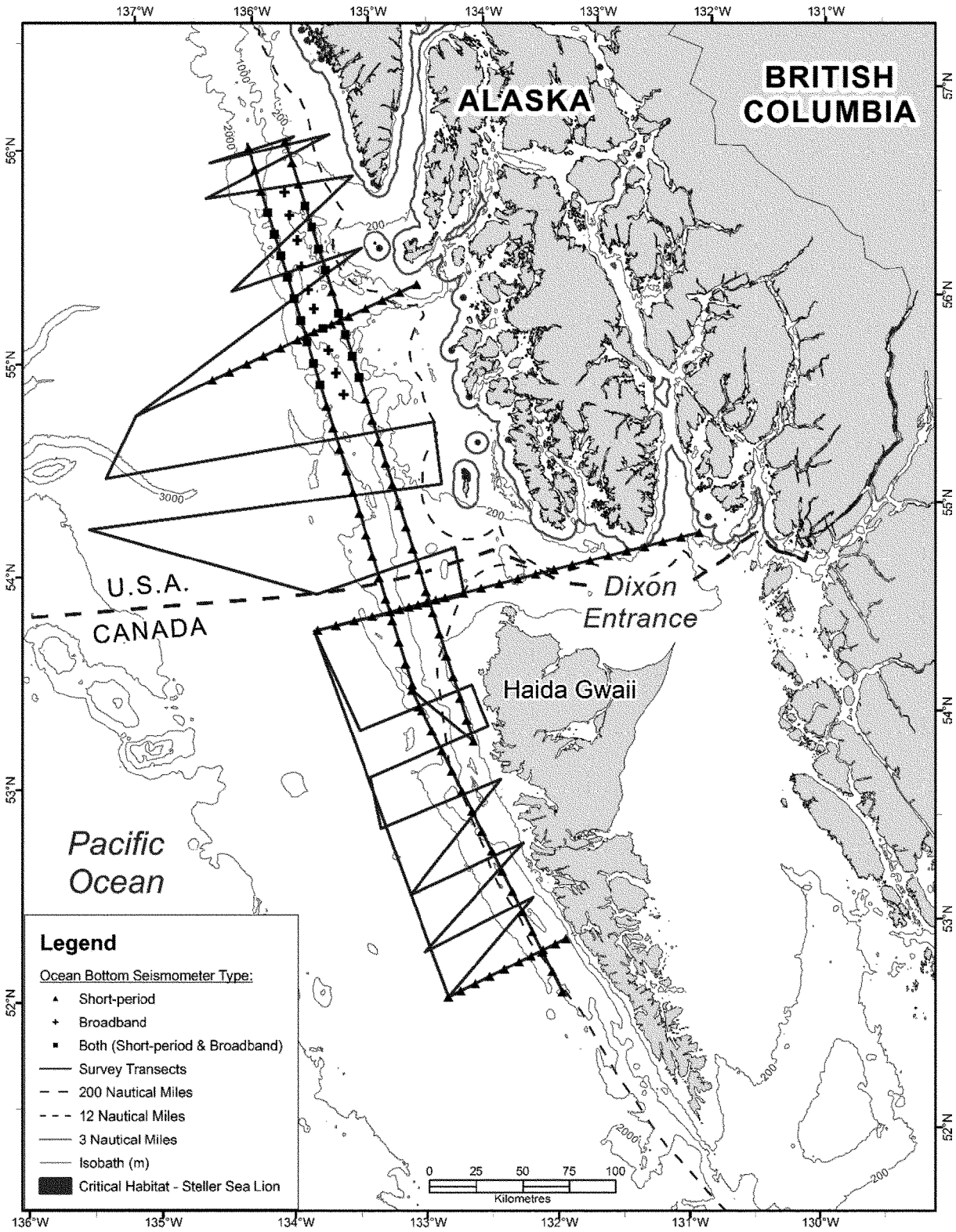

Figure 1. Location of the Proposed Seismic Survey in the Northeast Pacific Ocean

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Detailed Description of Specific Activity

The procedures to be used for the proposed survey would be similar to those used during previous seismic surveys by L–DEO and would use conventional seismic methodology. The surveys would involve one source vessel, the R/V *Langseth.* R/V *Langseth* would deploy an array of 36 airguns as an energy source with a total volume of 6,600 in^3. The array consists of 36 elements, including 20 Bolt 1500LL airguns with volumes of 180 to 360 in^3 and 16 Bolt 1900LLX airguns with volumes of 40 to 120 in^3. The airgun array configuration is illustrated in Figure 2–11 of NSF and USGS's Programmatic Environmental Impact Statement (PEIS; NSF–USGS, 2011). (The PEIS is available online at: *www.nsf.gov/geo/oce/envcomp/usgs-nsf-marine-seismic-research/nsf-usgs-final-eis-oeis-with-appendices.pdf*). The vessel speed during seismic operations would be approximately 4.2 knots (kn) (~7.8 km/hour) during the survey and the airgun array would be towed at a depth of 12 m. The receiving system would consist of OBSs and a towed hydrophone streamer with a nominal length of 15 km (OBS and multi-channel seismic (MCS) shooting). As the airguns are towed along the survey lines, the hydrophone streamer would transfer the data to the on-board processing system, and the OBSs would receive and store the returning acoustic signals internally for later analysis.

Approximately 60 short-period OBSs would be deployed and subsequently retrieved at a total of 123 sites in multiple phases from a second vessel, the Canadian Coast Guard ship *John P. Tully* (CCGS *Tully*). Along OBS refraction lines, OBSs would be deployed by CCGS *Tully* at 10 km intervals, with a spacing of 5 km over the central 40 km of the fault zone for fault-normal crossings. Twenty-eight broadband OBS instruments would also collect data during the survey and would be deployed prior to the active-source seismic survey, depending on logistical constraints. When an OBS is ready to be retrieved, an acoustic release transponder (pinger) interrogates the instrument at a frequency of 8–11 kHz; a response is received at 11.5–13 kHz. The burn-wire release assembly is then activated, and the instrument is released from its 80-kg anchor to float to the surface. Take of marine mammals is not expected to occur incidental to L–DEO's use of OBSs.

The airguns would fire at a shot interval of 50 m (approximately 23 s) during MCS shooting with the hydrophone streamer (approximately 42 percent of survey effort), at a 150-m interval (approximately 69 s) during refraction surveying to OBSs (approximately 29 percent of survey effort), and at a shot interval of every minute (approximately 130 m) during turns (approximately 29 percent of survey effort).

Short-period OBSs would be deployed first along five OBS refraction lines by CCGS *Tully.* Two OBS lines run parallel to the coast, and three are perpendicular to the coast; one perpendicular line is located off Southeast Alaska, one is off Haida Gwaii, British Columbia, and another is located in Dixon Entrance. Please see Figure 1 for all location references. Following refraction shooting of a single line, short-period instruments on that line would be recovered, serviced, and redeployed on a subsequent refraction line while MCS data would be acquired by the *Langseth.* MCS lines would be acquired off Southeast Alaska, Haida Gwaii, and Dixon Entrance. The coast-parallel OBS refraction transect nearest to shore would only be surveyed once at OBS shot spacing. The other coast-parallel OBS refraction transect (on the ocean side) would be acquired twice, once during refraction and once during reflection surveys. In addition, portions of the three coast-perpendicular OBS refraction lines would also be surveyed twice, once for OBS shot spacing and once for MCS shot spacing. The coincident reflection/refraction profiles that run parallel to the coast would be acquired in multiple segments to ensure straight-line geometry. Sawtooth transits during which seismic data would be acquired would take place between transect lines when possible; otherwise, boxcar turns would be performed to save time. Both reflection and refraction surveys would use the same airgun array with the same discharge volume. There could be additional seismic operations associated with turns, airgun testing, and repeat coverage of any areas where initial data quality is sub-standard, and 25 percent has been added to the assumed survey line-kms to account for this potential.

Note that the location of some tracklines has been modified from the original proposal as represented in Figure 1 and reflected in the take estimation analysis (see Estimated Take). However, these minor modifications do not substantively impact the location of survey effort or the proportion of survey effort in different depth bins and, therefore, the original take estimates remain accurate.

In addition to the operations of the airgun array, a multibeam echosounder (MBES), a sub-bottom profiler (SBP), and an Acoustic Doppler Current Profiler (ADCP) would be operated from R/V *Langseth* continuously during the seismic surveys, but not during transit to and from the survey area. Take of marine mammals is not expected to occur incidental to use of the MBES, SBP, or ADCP because they will be operated only during seismic acquisition, and it is assumed that, during simultaneous operations of the airgun array and the other sources, any marine mammals close enough to be affected by the MBES, SBP, and ADCP would already be affected by the airguns. However, whether or not the airguns are operating simultaneously with the other sources, given the other sources' characteristics (*e.g.,* narrow downward-directed beam), marine mammals would experience no more than one or two brief ping exposures from them, if any exposure were to occur. Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see Proposed Mitigation and Proposed Monitoring and Reporting).

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; *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' website (*www.fisheries.noaa.gov/find-species*).

Table 1 lists all species with expected potential for occurrence in the survey area and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2020). PBR is 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 (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here

as gross indicators of the status of the species and other threats.

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' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Pacific and Alaska SARs. All MMPA stock information presented in Table 1 is the most recent available at the time of publication and is available in the 2019 SARs (Caretta *et al.,* 2020; Muto *et al.,* 2020) and draft 2020 SARs (available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*). Where available, abundance and status information is also presented for marine mammals in British Columbia waters.

Twenty-one species (with 28 managed stocks) are considered to have the potential to occur in the proposed survey area. Species that could potentially occur in the proposed research area but are not likely to be harassed due to the rarity of their occurrence (*i.e.,* are considered extralimital or rare visitors to southeast Alaska/northern British Columbia) are described briefly but omitted from further analysis. These generally include species that do not normally occur in the area but for which there are one or more occurrence records that are considered beyond the normal range of the species. These species include pygmy sperm whale (*Kogia breviceps*), dwarf sperm whale (*K. sima*), Blainville's beaked whale (*Mesoplodon densirostris*), Hubbs' beaked whale (*Mesoplodon carlhubbsi*), false killer whale (*Pseudorca crassidens*), short-finned pilot whale (*Globicephala macrorhynchus*), common bottlenose dolphin (*Tursiops truncatus*), common dolphin (*Delphius delphis*), striped dolphin (*Stenella coeruleoalba*), and rough-toothed dolphin (*Steno bredanensis*), which are all typically distributed further south in the California Current ecosystem, and beluga whales (*Delphinapterus leucas*), which are found further north, with a population in Yakutat Bay.

The North Pacific right whale (*Eubalaena japonica*) historically occurred across the North Pacific Ocean in subpolar to temperate waters, including waters off the coast of British Columbia (Scarff, 1986; Clapham *et al.,* 2004). Sightings of this endangered species are now extremely rare, occurring primarily in the Okhotsk Sea and the eastern Bering Sea (Brownell *et al.,* 2001; Shelden *et al.,* 2005; Wade *et al.,* 2006; Zerbini *et al.,* 2010). In 2013, two North Pacific right whale sightings were made off the coast of British Columbia (U.S. Department of the Navy, 2015). There have also been four sightings, each of a single North Pacific right whale, in California waters within approximately the last 30 years (most recently in 2017) (Carretta *et al.,* 1994; Brownell *et al.,* 2001; Price, 2017). There is a very low probability of encountering this species in the action area, and it is not discussed further.

There are eight killer whale stocks recognized in the U.S. Pacific, with Southern Resident killer whales being the only ESA-listed population. Southern Resident killer whales primarily occur in the southern Strait of Georgia, Strait of Juan de Fuca, Puget Sound, and the southern half of the west coast of Vancouver Island (Carretta *et al.,* 2020). However, they have been observed in southeast Alaska. In 2007, whales from L-pod were sighted off Chatham Strait, Alaska, the farthest north they have ever been documented (Carretta *et al.,* 2020). During the summer, Southern Resident killer whales typically spend their time within the inland waters of Washington and southern British Columbia, south of the proposed survey area. There is a very low probability of encountering this stock in the action area, and it is not discussed further.

In addition, the northern sea otter (*Enhydra lutris kenyoni*) is found in coastal waters of Alaska. However, this species is managed by the U.S. Fish and Wildlife Service and is not considered further in this document.

TABLE 1—MARINE MAMMALS THAT COULD OCCUR IN THE SURVEY AREA

Common name	Scientific name	Stock	ESA/MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	British Columbia abundance [3]	PBR	Annual M/SI [4]
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	131
		Western North Pacific (WNP)*.	E/D; Y	290 (n/a; 271; 2016)		0.12	Unk
Family Balaenopteridae (rorquals):							
Humpback whale	*Megaptera novaeangliae kuzira.*	Central North Pacific (CNP)*.	E/D; Y	10,103 (0.3; 7,891; 2006).	1,029	83	26
Minke whale	*Balaenoptera acutorostrata scammoni.*	Alaska*	-; N	Unknown	522	Undet.	0
Sei whale	*B. borealis borealis*	ENP	E/D; Y	519 (0.4; 374; 2014)		0.75	≥0.2
Fin whale	*B. physalus physalus*	Northeast Pacific*	E/D; Y	Unknown	329	Undet.	0.6
Blue whale	*B. musculus musculus*	ENP	E/D; Y	1,496 (0.44; 1,050; 2014).		[7]1.2	≥19.4
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)							
Family Physeteridae: Sperm whale	*Physeter macrocephalus*	North Pacific*	E/D; Y	Unknown		Undet.	3.5
Family Ziphiidae (beaked whales):							
Cuvier's beaked whale	*Ziphius cavirostris*	Alaska*	-; N	Unknown		Undet.	0
Baird's beaked whale	*Berardius bairdii*	Alaska*	-; N	Unknown		Undet.	0
Stejneger's beaked whale.	*Mesoplodon stejnegeri*	Alaska*	-; N	Unknown		Undet.	0
Family Delphinidae:							

TABLE 1—MARINE MAMMALS THAT COULD OCCUR IN THE SURVEY AREA—Continued

Common name	Scientific name	Stock	ESA/MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	British Columbia abundance [3]	PBR	Annual M/SI [4]
Pacific white-sided dolphin.	*Lagenorhynchus obliquidens.*	North Pacific [6]	-; N	26,880 (n/a; 26,880; 1990).	22,160	Undet.	0
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* [5]	ENP Offshore	-; N	300 (0.1; 276; 2012)	371	2.8	0
		ENP Gulf of Alaska, Aleutian Islands, and Bering Sea Transient.	-; N	587 (n/a; 2012)		5.9	0.8
		ENP West Coast Transient	-; N	349 (n/a; 2018)		3.5	0.4
		ENP Alaska Resident	-; N	2,347 (n/a; 2012)		24	1
		Northern Resident	-; N	302 (n/a; 2018)		2.2	0.2
Family Phocoenidae (porpoises):							
Harbor porpoise	*Phocoena phocoena vomerina.*	Southeast Alaska *	-; Y	Unknown	8,091	Undet.	34
Dall's porpoise	*Phocoenoides dalli dalli*	Alaska [6]	-; N	83,400 (0.097; n/a; 1991).	5,303	Undet.	38
Order Carnivora—Superfamily Pinnipedia							
Family Otariidae (eared seals and sea lions):							
Northern fur seal	*Callorhinus ursinus*	Pribilof Islands/Eastern Pacific.	D; Y	608,143 (0.2; 514,738; 2018).		11,067	387
California sea lion	*Zalophus californianus*	United States	-/-; N	257,606 (N/A, 233,515, 2014).		14,011	≥321
Steller sea lion	*Eumetopias jubatus jubatus.*	Western U.S. *	E/D; Y	52,932 (n/a; 2019)	15,348	318	255
	E. j. monteriensis	Eastern U.S. *	-/-; N	43,201 (n/a; 2017)		2,592	112
Family Phocidae (earless seals):							
Harbor seal	*Phoca vitulina richardii*	Sitka/Chatham Strait	-; N	13,289 (n/a; 11,883; 2015).	24,916	356	77
		Dixon/Cape Decision	-; N	23,478 (n/a; 21,453; 2015).		644	69
		Clarence Strait	-; N	27,659 (n/a; 24,854; 2015).		746	40
Northern elephant seal	*Mirounga angustirostris*	California Breeding	-; N	179,000 (n/a; 81,368; 2010).		4,882	8.8

* Stocks marked with an asterisk are addressed in further detail in text below.

[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] Total abundance estimates for animals in British Columbia based on surveys of the Strait of Georgia, Johnstone Strait, Queen Charlotte Sound, Hecate Strait, and Dixon Entrance. This column represents estimated abundance of animals in British Columbia, where available, but does not necessarily represent additional stocks. Please see Best *et al.* (2015) and Pitcher *et al.* (2007) for additional information.

[4] These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, subsistence hunting, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value. All M/SI values are as presented in the draft 2020 SARs.

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

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

[7] This stock is known to spend a portion of 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). Annual M/SI presented for these species is for U.S. waters only.

Table 1 denotes the status of species and stocks under the U.S. MMPA and ESA. We note also that under Canada's Species at Risk Act, the sei whale and blue whale are listed as endangered; the fin whale and northern resident, offshore, and transient populations of killer whales are listed as threatened; and the humpback whale, harbor porpoise, and Steller sea lion are considered species of special concern.

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 of 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). A number of 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). 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. Based on guidance provided through interagency consultation under section 7 of the ESA, approximately 0.1 percent of gray whales occurring in southeast Alaska and northern British Columbia are likely to be from the Western North Pacific stock; the rest would be from the Eastern North Pacific stock.

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 delineated 14 distinct population segments (DPS) with different listing statuses (81 FR 62259; September 8, 2016) pursuant to the ESA. The DPSs that occur in U.S. waters do not necessarily equate to the existing stocks designated under the MMPA and shown in Table 1.

In the eastern North Pacific, three humpback whale DPSs may occur: The Hawaii DPS (not listed), Mexico DPS (threatened), and Central America DPS (endangered). Individuals encountered in the proposed survey area would likely be from the Hawaii DPS, followed by the Mexico DPS; individuals from the Central America DPS are unlikely to feed in northern British Columbia and Southeast Alaska (Ford *et al.,* 2014). According to Wade (2017), in southeast Alaska and northern British Columbia, encountered whales are most likely to be from the Hawaii DPS (96.1 percent), but could be from the Mexico DPS (3.8 percent).

Although no comprehensive abundance estimate is available for the Alaska stock of minke whales, recent surveys provide estimates for portions of the stock's range. A 2010 survey conducted on the eastern Bering Sea shelf produced a provisional abundance estimate of 2,020 (CV = 0.73) whales (Friday *et al.,* 2013). This estimate is considered provisional because it has not been corrected for animals missed on the trackline, animals submerged when the ship passed, or responsive movement. Additionally, line-transect surveys were conducted in shelf and nearshore waters (within 30–45 nautical miles of land) in 2001–2003 between the Kenai Peninsula (150° W) and Amchitka Pass (178° W). Minke whale abundance was estimated to be 1,233 (CV = 0.34) for this area (also not been corrected for animals missed on the trackline) (Zerbini *et al.,* 2006). The majority of the sightings were in the Aleutian Islands, rather than in the Gulf of Alaska, and in water shallower than 200 m. These estimates cannot be used as an estimate of the entire Alaska stock of minke whales because only a portion of the stock's range was surveyed. Similarly, although a comprehensive abundance estimate is not available for the northeast Pacific stock of fin whales, provisional estimates representing portions of the range are available. The same 2010 survey of the eastern Bering Sea shelf provided an estimate of 1,061 (CV = 0.38) fin whales (Friday *et al.,* 2013). The estimate is not corrected for missed animals, but is expected to be robust as previous studies have shown that only small correction factors are needed for fin whales (Barlow, 1995). Zerbini *et al.* (2006) produced an estimate of 1,652 (95 percent CI: 1,142–2,389) fin whales for the area described above.

Current and historical estimates of the abundance of sperm whales in the North Pacific are considered unreliable, and caution should be exercised in interpreting published estimates (Muto *et al.,* 2017). However, Kato and Miyashita (1998) produced an abundance estimate of 102,112 (CV = 0.155) sperm whales in the western North Pacific (believed to be positively biased). The number of sperm whales occurring within Alaska waters is unknown.

Very little information is available regarding beaked whale stocks in Alaska, with no reliable abundance estimates available for any stock. Sightings of all beaked whale species are rare in Alaska, and their presence and distribution have mostly been inferred from stranding data. During long-term passive acoustic monitoring conducted at five sites in the Gulf of Alaska from 2011–15, all three species were detected at three sites located on the continental slope and offshore seamounts (Rice *et al.,* 2021). There was no clear diel or interannual pattern for any species at any site. However, a different species was predominant at each site and, when detected at the same locations, detection peaks were all seasonally offset, demonstrating some degree of habitat partitioning. The authors noted that detections for all three beaked whale species were low throughout the summer. Stranding records exist for all three species of beaked whale in the survey area.

Using 2010–2012 survey data for the inland waters of southeast Alaska, Dahlheim *et al.* (2015) calculated a combined abundance estimate for harbor porpoise in the northern (including Cross Sound, Icy Strait, Glacier Bay, Lynn Canal, Stephens Passage, and Chatham Strait) and southern (including Frederick Sound, Sumner Strait, Wrangell and Zarembo Islands, and Clarence Strait as far south as Ketchikan) regions of the inland waters of 975 (95 percent CI = 857–1,109). This abundance estimate was subsequently corrected for detection biases, which are expected to be high for harbor porpoise (Muto *et al.,* 2020). The resulting abundance estimates are 553 harbor porpoise (CV = 0.13) in the northern inland waters and 801 harbor porpoise (CV = 0.15) in the southern inland waters (Muto *et al.,* 2020).

The Steller sea lion ranges from Japan, through the Okhotsk and Bering Seas, to central California. It consists of two morphologically, ecologically, and behaviorally separate DPSs: The Eastern, which includes sea lions in southeast Alaska, British Columbia, Washington, Oregon, and California; and the Western, which includes sea lions in all other regions of Alaska, as well as Russia and Japan. At the time of their initial listing under the ESA, Steller sea lions were considered a single population listed as threatened. In 1997, following a status review, NMFS established two DPSs of Steller sea lions, and issued a final determination to list the Western DPS as endangered under the ESA. The Eastern DPS of Steller sea lion was delisted in 2013. According to Hastings *et al.* (2020), approximately 2.2 percent of Steller sea lions occurring in the proposed action area are likely to be from the Western DPS; the rest would be from the Eastern DPS.

Important Habitat

Several biologically important areas (BIA) for marine mammals are recognized in southeast Alaska, and critical habitat is designated in southeast Alaska for the Steller sea lion (58 FR 45269; August 27, 1993) and the Mexico DPS of humpback whale (86 FR 21082; April 21, 2021). Note that although the eastern DPS of Steller sea lion was delisted in 2013, the change in listing status does not affect the designated critical habitat. Critical habitat is defined by section 3 of the ESA as (1) the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the

species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species.

Mexico DPS humpback whale critical habitat includes marine waters in Washington, Oregon, California, and Alaska. Only the areas designated in southeast Alaska fall within the survey area. The relevant designated critical habitat (Unit 10) extends from 139°24′ W, southeastward to the U.S. border with Canada. The area also extends offshore to a boundary drawn along the 2,000-m isobath. The essential feature for Mexico DPS humpback whale critical habitat is prey species, primarily euphausiids and small pelagic schooling fishes of sufficient quality, abundance, and accessibility within humpback whale feeding areas to support feeding and population growth. This area was drawn to encompass well-established feeding grounds in southeast Alaska and an identified feeding BIA (86 FR 21082; April 21, 2021). Humpback whales occur year-round in this unit, with highest densities occurring in summer and fall (Baker *et al.,* 1985, 1986).

Critical habitat for humpback whales has been designated under Canadian law in four locations in British Columbia (DFO, 2013), including in the waters of the survey area off Haida Gwaii (Langara Island and Southeast Moresby Island). These areas show persistent aggregations of humpback whales and have features such as prey availability, suitable acoustic environment, water quality, and physical space that allow for feeding, foraging, socializing, and resting (DFO, 2013).

Designated Steller sea lion critical habitat includes terrestrial, aquatic, and air zones that extend 3,000 ft (0.9 km) landward, seaward, and above each major rookery and major haul-out in Alaska. Within the survey area, critical habitat is located on islands off the coast of southeast Alaska (*e.g.,* Sitka, Coronation Island, Noyes Island, and Forrester Island). The physical and biological features identified for the aquatic areas of Steller sea lion designated critical habitat that occur within the survey area are those that support foraging, such as adequate prey resources and available foraging habitat. The proposed survey tracklines do not directly overlap any areas of Steller sea lion critical habitat, though the extent of the estimated ensonified area associated with the survey would overlap with units of Steller sea lion critical habitat. However, the brief duration of ensonification for any critical habitat unit leads us to conclude that any impacts on Steller sea lion habitat would be insignificant and would not affect the conservation value of the critical habitat.

For humpback whales, seasonal feeding BIAs for spring (March–May), summer (June–August), and fall (September–November) are recognized in southeast Alaska (Ferguson *et al.,* 2015). It should be noted that the aforementioned designated critical habitat in the survey area was based in large part on the same information that informed an understanding of the BIAs. Though the BIAs are not synonymous with critical habitat designated under the ESA, they were regarded by the humpback whale critical habitat review team as an important source of information and informative to their review of areas that meet the definition of critical habitat for humpback whales (86 FR 21082; April 21, 2021). The aforementioned southeast Alaska unit of designated critical habitat encompasses the BIAs, with the offshore and nearshore boundaries corresponding with the BIA boundary.

A separate feeding BIA is recognized in southeast Alaska for gray whales. Once considered only a migratory pathway, the Gulf of Alaska is now known to provide foraging and overwintering habitat for ENP gray whales (Ferguson *et al.,* 2015). Based on the regular occurrence of feeding gray whales (including repeat sightings of individuals across years) off southeast Alaska, an area off of Sitka is recognized. The greatest densities of gray whales on the feeding area in southeast Alaska occur from May to November. However, this area is located to the north of the proposed survey area and would not be expected to be meaningfully impacted by the survey activities. A separate migratory BIA is recognized as extending along the continental shelf throughout the Gulf of Alaska. During their annual migration, most gray whales pass through the Gulf of Alaska in the fall (November through January; southbound) and again in the spring (March through May; northbound) (Ferguson *et al.,* 2015). Therefore, the planned survey would not be expected to impact gray whale migratory habitat due to the timing of the survey in late summer. No important behaviors of gray whales in either the feeding or migratory BIAs are expected to be affected. For more information on BIAs, please see Ferguson *et al.* (2015) or visit *https://oceannoise.noaa.gov/biologically-important-areas.*

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.'' For more information on UMEs, please visit: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-unusual-mortality-events.* There is a currently ongoing UME affecting gray whales throughout their migratory range.

Since January 1, 2019, elevated gray whale strandings have occurred along the west coast of North America from Mexico through Alaska. As of May 6, 2021, there have been a total of 454 whales reported in the event, with approximately 218 dead whales in Mexico, 218 whales in the United States (62 in California; 10 in Oregon; 53 in Washington, 93 in Alaska), and 18 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.*

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

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 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound 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 2.

TABLE 2—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).

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.,* 2006; Kastelein *et al.,* 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Twenty-one marine mammal species (16 cetacean and 5 pinniped (3 otariid and 2 phocid) species) are considered herein. Of the cetacean species that may be present, six are classified as low-frequency cetaceans (*i.e.,* all mysticete species), eight are classified as mid-frequency cetaceans (*i.e.,* all delphinid and ziphiid species and the sperm whale), and two are classified as high-frequency cetaceans (*i.e.,* porpoises).

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

This section includes a summary of the ways that L–DEO's specified activity may impact marine mammals and their habitat. Detailed descriptions of the potential effects of similar specified activities have been provided in other recent **Federal Register** notices, including for survey activities using the same methodology and over a similar amount of time, and affecting similar species (*e.g.,* 83 FR 29212, June 22, 2018; 84 FR 14200, April 9, 2019; 85 FR 19580, April 7, 2020). No significant new information is available, and we refer the reader to these documents for additional detail. The Estimated Take section includes a quantitative analysis of the number of individuals that are expected to be taken by L–DEO's 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.

Background on Active Acoustic Sound Sources and Acoustic Terminology

This section contains a brief technical background on sound, on the characteristics of certain sound types, and on metrics used in this proposal inasmuch as the information is relevant to the specified activity and to the discussion of the effects of the specified activity on marine mammals in this document. 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 hertz 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 decibel. 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 (Urick, 1983). 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 (Hastings and Popper, 2005). 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.

Sound exposure level (SEL; represented as dB re 1 μPa2-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. 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.

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 or may radiate in all directions (omnidirectional sources), as is the case for sound produced by the pile driving activity considered here. 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.

Even in the absence of sound from the specified activity, the underwater environment is typically loud due to ambient sound, which is defined as environmental background sound levels lacking a single source or point (Richardson *et al.,* 1995). The sound level of a region is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.,* wind and waves, earthquakes, ice, atmospheric sound), biological (*e.g.,* sounds produced by marine mammals, fish, and invertebrates), and anthropogenic (*e.g.,* vessels, dredging, construction) sound. A number of sources contribute to ambient sound, including wind and waves, which are a main source of naturally occurring ambient sound for frequencies between 200 hertz (Hz) and 50 kilohertz (kHz) (Mitson, 1995). In general, ambient sound levels tend to increase with increasing wind speed and wave height. Precipitation can become an important component of total sound at frequencies above 500 Hz, and possibly down to 100 Hz during quiet times. Marine mammals can contribute significantly to ambient sound levels, as can some fish and snapping shrimp. The frequency band for biological contributions is from approximately 12 Hz to over 100 kHz. Sources of ambient sound related to human activity include transportation (surface vessels), dredging and construction, oil and gas drilling and production, geophysical surveys, sonar, and explosions. Vessel noise typically dominates the total ambient sound for frequencies between 20 and 300 Hz. In general, the frequencies of anthropogenic sounds are below 1 kHz and, if higher frequency sound levels are created, they attenuate rapidly.

The sum of the various natural and anthropogenic sound sources that comprise ambient sound at any given location and time depends not only on the source levels (as determined by current weather conditions and levels of biological and human activity) but also on the ability of sound to propagate through the environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor, and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10–20 dB from day to day (Richardson *et al.,* 1995). The result is that, depending on the source type and its intensity, sound from the specified activity may be a negligible addition to the local environment or could form a distinctive signal that may affect marine mammals. Details of source types are described in the following text.

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.

Airgun arrays produce pulsed signals with energy in a frequency range from about 10–2,000 Hz, with most energy radiated at frequencies below 200 Hz. The amplitude of the acoustic wave emitted from the source is equal in all directions (*i.e.,* omnidirectional), but airgun arrays do possess some directionality due to different phase delays between guns in different directions. Airgun arrays are typically tuned to maximize functionality for data acquisition purposes, meaning that sound transmitted in horizontal directions and at higher frequencies is minimized to the extent possible.

Summary on Specific Potential Effects of Acoustic Sound Sources

Underwater sound from active acoustic sources can include one or more of the following: Temporary or permanent hearing impairment, non-auditory physical or physiological effects, behavioral disturbance, stress, and masking. The degree of effect is intrinsically related to the signal characteristics, received level, distance from the source, and duration of the

sound exposure. Marine mammals exposed to high-intensity sound, or to lower-intensity sound for prolonged periods, can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Finneran, 2015). TS can be permanent (PTS), in which case the loss of hearing sensitivity is not fully recoverable, or temporary (TTS), in which case the animal's hearing threshold would recover over time (Southall *et al.,* 2007).

Due to the characteristics of airgun arrays as a distributed sound source, maximum estimated Level A harassment isopleths for species of certain hearing groups are assumed to fall within the near field of the array. For these species, *i.e.,* mid-frequency cetaceans and all pinnipeds, animals in the vicinity of L–DEO's proposed seismic survey activity are unlikely to incur PTS. For low-frequency cetaceans and high-frequency cetaceans, potential exposures sufficient to cause low-level PTS may occur on the basis of cumulative exposure level and instantaneous exposure to peak pressure levels, respectively. However, when considered in conjunction with the potential for aversive behavior, relative motion of the exposed animal and the sound source, and the anticipated efficacy of the proposed mitigation requirements, a reasonable conclusion may be drawn that PTS is not a likely outcome for any species. However, we propose to authorize take by Level A harassment, where indicated by the quantitative exposure analysis, for species from the low- and high-frequency cetacean hearing groups. Please see Estimated Take and Proposed Mitigation for further discussion.

Behavioral disturbance may include a variety of effects, including subtle changes in behavior (*e.g.,* minor or brief avoidance of an area or changes in vocalizations), more conspicuous changes in similar behavioral activities, and more sustained and/or potentially severe reactions, such as displacement from or abandonment of high-quality habitat. Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.,* species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors. Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal.

In addition, sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.,* those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.,* snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.,* shipping, sonar, seismic exploration) in origin.

Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.,* crustaceans, cephalopods, fish, zooplankton) (*i.e.,* effects to marine mammal habitat). Prey species exposed to sound might move away from the sound source, experience TTS, experience masking of biologically relevant sounds, or show no obvious direct effects. The most likely impacts (if any) for most prey species in a given area would be temporary avoidance of the area. Surveys using active acoustic sound sources move through an area relatively quickly, limiting exposure to multiple pulses. In all cases, sound levels would return to ambient once a survey ends and the noise source is shut down and, when exposure to sound ends, behavioral and/or physiological responses are expected to end relatively quickly. Finally, the survey equipment will not have significant impacts to the seafloor and does not represent a source of pollution.

Vessel Strike

Vessel collisions with marine mammals, or ship strikes, can result in death or serious injury of the animal. These interactions are typically associated with large whales, which are less maneuverable than are smaller cetaceans or pinnipeds in relation to large vessels. The severity of injuries typically depends on the size and speed of the vessel, with the probability of death or serious injury increasing as vessel speed increases (Knowlton and Kraus, 2001; Laist *et al.,* 2001; Vanderlaan and Taggart, 2007; Conn and Silber, 2013). Impact forces increase with speed, as does the probability of a strike at a given distance (Silber *et al.,* 2010; Gende *et al.,* 2011). The chances of a lethal injury decline from approximately 80 percent at 15 kn to approximately 20 percent at 8.6 kn. At speeds below 11.8 kn, the chances of lethal injury drop below 50 percent (Vanderlaan and Taggart, 2007).

Ship strikes generally involve commercial shipping, which is much more common in both space and time than is geophysical survey activity and which typically involves larger vessels moving at faster speeds. Jensen and Silber (2004) summarized ship strikes of large whales worldwide from 1975–2003 and found that most collisions occurred in the open ocean and involved large vessels (*e.g.,* commercial shipping). Commercial fishing vessels were responsible for 3 percent of recorded collisions, while no such incidents were reported for geophysical survey vessels during that time period.

For vessels used in geophysical survey activities, vessel speed while towing gear is typically only 4–5 kn. At these speeds, both the possibility of striking a marine mammal and the possibility of a strike resulting in serious injury or mortality are so low as to be discountable. At average transit speed for geophysical survey vessels (approximately 10 kn), the probability of serious injury or mortality resulting from a strike (if it occurred) is less than 50 percent (Vanderlaan and Taggart, 2007; Conn and Silber, 2013). However, the likelihood of a strike actually happening is again low given the smaller size of these vessels and generally slower speeds. We anticipate that vessel collisions involving seismic data acquisition vessels towing gear, while not impossible, represent unlikely, unpredictable events for which there are no preventive measures. Given the required mitigation measures, the relatively slow speeds of vessels towing gear, the presence of bridge crew watching for obstacles at all times (including marine mammals), the presence of marine mammal observers, and the small number of seismic survey cruises relative to commercial ship traffic, we believe that the possibility of ship strike is discountable and, further, that were a strike of a large whale to occur, it would be unlikely to result in serious injury or mortality. No incidental take resulting from ship strike is anticipated or proposed for authorization, and this potential effect of the specified activity will not be discussed further in the following analysis.

The potential effects of L–DEO's specified survey activity are expected to be limited to Level B harassment consisting of behavioral harassment and/or temporary auditory effects and, for certain species of low- and high-frequency cetaceans only, low-level permanent auditory effects. No permanent auditory effects for any species belonging to other hearing groups, or significant impacts to marine

mammal habitat, including prey, are expected.

Estimated Take

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of ''small numbers'' and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. 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).

Authorized takes would primarily be by Level B harassment, as use of seismic airguns has the potential to result in disruption of behavioral patterns or temporary auditory effects for individual marine mammals. There is also some potential for auditory injury (Level A harassment) for low-frequency (*i.e.,* mysticetes) and high-frequency cetaceans (*i.e.,* porpoises). The proposed mitigation and monitoring measures are expected to minimize the severity of such taking to the extent practicable.

As described previously, no serious injury or mortality is anticipated or proposed to be authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) Acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the proposed take estimate.

Acoustic Thresholds

NMFS uses acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.,* frequency, predictability, duty cycle), the environment (*e.g.,* bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.,* 2012). NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals may be behaviorally harassed (*i.e.,* Level B harassment) when exposed to underwater anthropogenic noise above received levels of 160 dB re 1 μPa (rms) for the impulsive sources (*i.e.,* seismic airguns) evaluated here.

Level A Harassment—NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). L–DEO's proposed seismic survey includes the use of impulsive (seismic airguns) sources.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*.

TABLE 3—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

Hearing group	PTS onset acoustic thresholds * (received level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	*Cell 1:* $L_{pk,flat}$: 219 dB; $L_{,E,LF,24h}$: 183 dB	*Cell 2:* $L_{,E,LF,24h}$: 199 dB.
Mid-Frequency (MF) Cetaceans	*Cell 3:* $L_{pk,flat}$: 230 dB; $L_{,E,MF,24h}$: 185 dB	*Cell 4:* $L_{,E,MF,24h}$: 198 dB.
High-Frequency (HF) Cetaceans	*Cell 5:* $L_{pk,flat}$: 202 dB; $L_{,E,HF,24h}$: 155 dB	*Cell 6:* $L_{,E,HF,24h}$: 173 dB.
Phocid Pinnipeds (PW) (Underwater)	*Cell 7:* $L_{pk,flat}$: 218 dB; $L_{,E,PW,24h}$: 185 dB	*Cell 8:* $L_{,E,PW,24h}$: 201 dB.
Otariid Pinnipeds (OW) (Underwater)	*Cell 9:* $L_{pk,flat}$: 232 dB; $L_{,E,OW,24h}$: 203 dB	*Cell 10:* $L_{,E,OW,24h}$: 219 dB.

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (L_E) has a reference value of 1μPa^{2}s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript ''flat'' is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.,* varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

Here, we describe operational and environmental parameters of the activity and other relevant information that will feed into identifying the area ensonified above the acoustic thresholds.

L–DEO's modeling methodologies are described in greater detail in Appendix A of L–DEO's IHA application. The proposed 2D survey would acquire data using the 36-airgun array with a total discharge volume of 6,600 in^3 at a maximum tow depth of 12 m. L–DEO's modeling approach uses ray tracing for

the direct wave traveling from the array to the receiver and its associated source ghost (reflection at the air-water interface in the vicinity of the array), in a constant-velocity half-space (infinite homogeneous ocean layer, unbounded by a seafloor). To validate the model results, L–DEO measured propagation of pulses from the 36-airgun array at a tow depth of 6 m in the Gulf of Mexico, for deep water (~1,600 m), intermediate water depth on the slope (~600–1,100 m), and shallow water (~50 m) (Tolstoy *et al.,* 2009; Diebold *et al.,* 2010).

L–DEO collected a MCS data set from R/V *Langseth* (array towed at 9 m depth) on an 8-km streamer in 2012 on the shelf of the Cascadia Margin off of Washington in water up to 200 m deep that allowed Crone *et al.* (2014) to analyze the hydrophone streamer data (>1,100 individual shots). These empirical data were then analyzed to determine in situ sound levels for shallow and upper intermediate water depths. These data suggest that modeled radii were 2–3 times larger than the measured radii in shallow water. Similarly, data collected by Crone *et al.* (2017) during a survey off New Jersey in 2014 and 2015 confirmed that in situ measurements collected by the R/V *Langseth* hydrophone streamer were 2–3 times smaller than the predicted radii.

L–DEO model results are used to determine the assumed radial distance to the 160-dB rms threshold for these arrays in deep water (>1,000 m) (down to a maximum water depth of 2,000 m). Water depths in the project area may be up to 2,800 m, but marine mammals in the region are generally not anticipated to dive below 2,000 m (*e.g.,* Costa and Williams, 1999). L–DEO typically derives estimated distances for intermediate water depths by applying a correction factor of 1.5 to the model results for deep water. In this case, the estimated radial distance for intermediate (100–1,000 m) and shallow (<100 m) water depths is taken from Crone *et al.* (2014), as these empirical data were collected in the same region as this proposed survey. A correction factor of 1.15 was applied to account for differences in array tow depth.

The estimated distances to the Level B harassment isopleths for the array are shown in Table 4.

TABLE 4—PREDICTED RADIAL DISTANCES TO ISOPLETHS CORRESPONDING TO LEVEL B HARASSMENT THRESHOLD

Source and volume	Tow depth (m)	Water depth (m)	Level B harassment zone (m)
36 airgun array; 6,600 in^3	12	>1000	[1] 6,733
		100–1000	[2] 9,468
		<100	[2] 12,650

[1] Distance based on L–DEO model results.
[2] Based on empirical data from Crone *et al.* (2014) with scaling.

Predicted distances to Level A harassment isopleths, which vary based on marine mammal hearing groups, were calculated based on modeling performed by L–DEO using the NUCLEUS source modeling software program and the NMFS User Spreadsheet, described below. The acoustic thresholds for impulsive sounds (*e.g.,* airguns) contained in the Technical Guidance were presented as dual metric acoustic thresholds using both SEL_{cum} and peak sound pressure metrics (NMFS 2018). As dual metrics, NMFS considers onset of PTS (Level A harassment) to have occurred when either one of the two metrics is exceeded (*i.e.,* metric resulting in the largest isopleth). The SEL_{cum} metric considers both level and duration of exposure, as well as auditory weighting functions by marine mammal hearing group. In recognition of the fact that the requirement to calculate Level A harassment ensonified areas could be more technically challenging to predict due to the duration component and the use of weighting functions in the new SEL_{cum} thresholds, NMFS developed an optional User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to facilitate the estimation of take numbers.

The values for SEL_{cum} and peak SPL for the *Langseth* airgun arrays were derived from calculating the modified far-field signature. The farfield signature is often used as a theoretical representation of the source level. To compute the farfield signature, the source level is estimated at a large distance below the array (*e.g.,* 9 km), and this level is back projected mathematically to a notional distance of 1 m from the array's geometrical center. However, when the source is an array of multiple airguns separated in space, the source level from the theoretical farfield signature is not necessarily the best measurement of the source level that is physically achieved at the source (Tolstoy *et al.,* 2009). Near the source (at short ranges, distances <1 km), the pulses of sound pressure from each individual airgun in the source array do not stack constructively, as they do for the theoretical farfield signature. The pulses from the different airguns spread out in time such that the source levels observed or modeled are the result of the summation of pulses from a few airguns, not the full array (Tolstoy *et al.,* 2009). At larger distances, away from the source array center, sound pressure of all the airguns in the array stack coherently, but not within one time sample, resulting in smaller source levels (a few dB) than the source level derived from the farfield signature. Because the farfield signature does not take into account the large array effect near the source and is calculated as a point source, the modified farfield signature is a more appropriate measure of the sound source level for distributed sound sources, such as airgun arrays. L–DEO used the acoustic modeling methodology as used for estimating Level B harassment distances with a small grid step of 1 m in both the inline and depth directions. The propagation modeling takes into account all airgun interactions at short distances from the source, including interactions between subarrays, which are modeled using the NUCLEUS software to estimate the notional signature and MATLAB software to calculate the pressure signal at each mesh point of a grid.

In order to more realistically incorporate the Technical Guidance's weighting functions over the seismic array's full acoustic band, unweighted spectrum data for the *Langseth's* airgun array (modeled in 1 Hz bands) was used to make adjustments (dB) to the unweighted spectrum levels, by frequency, according to the weighting functions for each relevant marine mammal hearing group. These adjusted/weighted spectrum levels were then converted to pressures (μPa) in order to integrate them over the entire

broadband spectrum, resulting in broadband weighted source levels by hearing group that could be directly incorporated within the User Spreadsheet (*i.e.,* to override the Spreadsheet's more simple weighting factor adjustment). Using the User Spreadsheet's ''safe distance'' methodology for mobile sources (described by Sivle *et al.,* 2014) with the hearing group-specific weighted source levels, and inputs assuming spherical spreading propagation and information specific to the planned survey (*i.e.,* the 2.2 m/s source velocity and (worst-case) 23-s shot interval), potential radial distances to auditory injury zones were then calculated for SEL_{cum} thresholds.

Inputs to the User Spreadsheets in the form of estimated source levels are shown in Appendix A of L–DEO's application. User Spreadsheets used by L–DEO to estimate distances to Level A harassment isopleths for the airgun arrays are also provided in Appendix A of the application. Outputs from the User Spreadsheets in the form of estimated distances to Level A harassment isopleths for the survey are shown in Table 5. As described above, NMFS considers onset of PTS (Level A harassment) to have occurred when either one of the dual metrics (SEL_{cum} and Peak SPL_{flat}) is exceeded (*i.e.,* metric resulting in the largest isopleth).

TABLE 5—MODELED RADIAL DISTANCES (m) TO ISOPLETHS CORRESPONDING TO LEVEL A HARASSMENT THRESHOLDS

Source (volume)	Threshold	Level A harassment zone (m)				
		LF cetaceans	MF cetaceans	HF cetaceans	Phocids	Otariids
36-airgun array (6,600 in^3)	SEL_{cum}	320	0	1	10	0
	Peak	39	14	268	44	11

Note that because of some of the assumptions included in the methods used (*e.g.,* stationary receiver with no vertical or horizontal movement in response to the acoustic source), isopleths produced may be overestimates to some degree, which will ultimately result in some degree of overestimation of Level A harassment. However, these tools offer the best way to predict appropriate isopleths when more sophisticated modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools and will qualitatively address the output where appropriate. For mobile sources, such as the proposed seismic survey, the User Spreadsheet predicts the closest distance at which a stationary animal would not incur PTS if the sound source traveled by the animal in a straight line at a constant speed.

Auditory injury is unlikely to occur for mid-frequency cetaceans, otariid pinnipeds, and phocid pinnipeds given very small modeled zones of injury for those species (all estimated zones less than 15 m for mid-frequency cetaceans and otariid pinnipeds, up to a maximum of 44 m for phocid pinnipeds), in context of distributed source dynamics. The source level of the array is a theoretical definition assuming a point source and measurement in the far-field of the source (MacGillivray, 2006). As described by Caldwell and Dragoset (2000), an array is not a point source, but one that spans a small area. In the far-field, individual elements in arrays will effectively work as one source because individual pressure peaks will have coalesced into one relatively broad pulse. The array can then be considered a ''point source.'' For distances within the near-field, *i.e.,* approximately 2–3 times the array dimensions, pressure peaks from individual elements do not arrive simultaneously because the observation point is not equidistant from each element. The effect is destructive interference of the outputs of each element, so that peak pressures in the near-field will be significantly lower than the output of the largest individual element. Here, the relevant peak isopleth distances would in all cases be expected to be within the near-field of the array where the definition of source level breaks down. Therefore, actual locations within this distance of the array center where the sound level exceeds the relevant peak SPL thresholds would not necessarily exist. In general, Caldwell and Dragoset (2000) suggest that the near-field for airgun arrays is considered to extend out to approximately 250 m.

In order to provide quantitative support for this theoretical argument, we calculated expected maximum distances at which the near-field would transition to the far-field (Table 5). For a specific array one can estimate the distance at which the near-field transitions to the far-field by:

$$D = \frac{L^2}{4\lambda}$$

with the condition that $D >> \lambda$, and where D is the distance, L is the longest dimension of the array, and λ is the wavelength of the signal (Lurton, 2002). Given that λ can be defined by:

$$\lambda = \frac{v}{f}$$

where f is the frequency of the sound signal and v is the speed of the sound in the medium of interest, one can rewrite the equation for D as:

$$D = \frac{fL^2}{4v}$$

and calculate D directly given a particular frequency and known speed of sound (here assumed to be 1,500 meters per second in water, although this varies with environmental conditions).

To determine the closest distance to the arrays at which the source level predictions in Table 5 are valid (*i.e.,* maximum extent of the near-field), we calculated D based on an assumed frequency of 1 kHz. A frequency of 1 kHz is commonly used in near-field/far-field calculations for airgun arrays (Zykov and Carr, 2014; MacGillivray, 2006; NSF and USGS, 2011), and based on representative airgun spectrum data and field measurements of an airgun array used on the *Langseth,* nearly all (greater than 95 percent) of the energy from airgun arrays is below 1 kHz (Tolstoy *et al.,* 2009). Thus, using 1 kHz as the upper cut-off for calculating the maximum extent of the near-field should reasonably represent the near-field extent in field conditions.

If the largest distance to the peak sound pressure level threshold was equal to or less than the longest dimension of the array (*i.e.,* under the array), or within the near-field, then received levels that meet or exceed the threshold in most cases are not expected to occur. This is because within the near-field and within the dimensions of the array, the source levels specified in Appendix A of L–DEO's application are

overestimated and not applicable. In fact, until one reaches a distance of approximately three or four times the near-field distance the average intensity of sound at any given distance from the array is still less than that based on calculations that assume a directional point source (Lurton, 2002). The 6,600-in^3 airgun array planned for use during the proposed survey has an approximate diagonal of 28.8 m, resulting in a near-field distance of 138.7 m at 1 kHz (NSF and USGS, 2011). Field measurements of this array indicate that the source behaves like multiple discrete sources, rather than a directional point source, beginning at approximately 400 m (deep site) to 1 km (shallow site) from the center of the array (Tolstoy *et al.,* 2009), distances that are actually greater than four times the calculated 140-m near-field distance. Within these distances, the recorded received levels were always lower than would be predicted based on calculations that assume a directional point source, and increasingly so as one moves closer towards the array (Tolstoy *et al.,* 2009). Given this, relying on the calculated distance (138.7 m) as the distance at which we expect to be in the near-field is a conservative approach since even beyond this distance the acoustic modeling still overestimates the actual received level. Within the near-field, in order to explicitly evaluate the likelihood of exceeding any particular acoustic threshold, one would need to consider the exact position of the animal, its relationship to individual array elements, and how the individual acoustic sources propagate and their acoustic fields interact. Given that within the near-field and dimensions of the array source levels would be below those assumed here, we believe exceedance of the peak pressure threshold would only be possible under highly unlikely circumstances.

In consideration of the received sound levels in the near-field as described above, we expect the potential for Level A harassment of mid-frequency cetaceans, otariid pinnipeds, and phocid pinnipeds to be de minimis, even before the likely moderating effects of aversion and/or other compensatory behaviors (*e.g.,* Nachtigall *et al.,* 2018) are considered. We do not believe that Level A harassment is a likely outcome for any mid-frequency cetacean, otariid pinniped, or phocid pinniped and do not propose to authorize any Level A harassment for these species.

Marine Mammal Occurrence

In this section we provide the information about the presence, density, and group dynamics of marine mammals that will inform the take calculations. The Navy's Marine Species Density Database (DoN, 2019, 2021) is currently the most comprehensive compendium for density data available for the Gulf of Alaska (GOA) and is the only source of density data available for southeast Alaska. Habitat-based stratified marine mammal densities developed by the U.S. Navy for assessing potential impacts of training activities in the GOA (DoN, 2021; Rone *et al.,* 2014, 2017) and at Behm Canal in southeast Alaska (DoN, 2019) represent the best available information for estimating potential marine mammal exposures. The Navy's GOA Temporary Marine Activities Area (TMAA) is situated south of Prince William Sound and east of Kodiak Island. The northern boundary of the TMAA is approximately 24 nautical miles south of the Kenai Peninsula. Behm Canal is approximately 45 km east of Ketchikan, AK, inshore of the proposed survey area in the same general part of southeast Alaska. In general, GOA density values were used for offshore (deep water depths) portions of the survey area, and Behm Canal density values were used for inshore (shallow and intermediate water depths) portions. For some species, no Behm Canal density information is available, and the GOA density value was applied to all water depths. Density values are provided in Table 6 and discussed in greater detail below.

TABLE 6—ESTIMATED DENSITY VALUES BY WATER DEPTH

[#/km^2]

Species	Shallow depth (<100 m) [1]	Intermediate depth (100–1,000 m) [1]	Deep depth (>1,000 m) [1]
Gray whale [4]	0.0486	0.0486	0
Humpback whale	[3] 0.0117	[3] 0.0117	[4] 0.0010
Blue whale [4]	0.0001	0.0001	0.0005
Fin whale	[3] 0.0001	[3] 0.0001	[4] 0.0160
Sei whale [4]	0.0004	0.0004	0.0004
Minke whale	[3] 0.0008	[3] 0.0008	[4] 0.0006
Sperm whale [4]	0	0.0020	0.0013
Baird's beaked whale [4]	0	0	0.0005
Stejneger's beaked whale [4]	0	0	0.0021
Cuvier's beaked whale [4]	0	0	0.0020
Pacific white-sided dolphin	[3] 0.0075	[3] 0.0075	[4] 0.0200
Northern right whale dolphin [5]	0.0110	0.0276	0.0367
Risso's dolphin [2]	0.0000	0.0000	0.0000
Killer whale	[3] 0.0057	[3] 0.0057	[4] 0.0020
Dall's porpoise	[3] 0.1210	[3] 0.1210	[4] 0.0370
Harbor porpoise [6]	0.0330	0.0330	0
Northern fur seal [4]	0.0661	0.0661	0.0661
California sea lion [3]	0.0288	0.0288	0.0065
Steller sea lion	[3] 0.3162	[4] 0.0570	0
Northern elephant seal [4]	0.0779	0.0779	0.0779
Harbor seal	[3] 0.7811	[4] 0.1407	0

[1] A zero value indicates the species is not expected to occur in that depth stratum.
[2] Nominal density value of 0.00001 applied to Risso's dolphin.
[3] Source: DoN, 2019; [4] Source DoN, 2021; [5] Source: Becker *et al.* (2016); [6] Hobbs and Waite (2010).

The Navy conducted comprehensive marine mammal surveys in theTMAA in 2009 and 2013. Additional survey effort was conducted in 2015. These surveys used systematic line-transect survey protocols including visual and acoustic detection methods (Rone *et al.,* 2010, 2014, 2017). The data were collected in four strata that were designed to encompass the four distinct habitats within the TMAA and greater GOA: Inshore: All waters <1,000 m deep; Slope: From 1,000 m water depth to the Aleutian trench/subduction zone; Offshore: Waters offshore of the Aleutian trench/subduction zone; Seamount: Waters within defined seamount areas. Density values for the slope and seamount regions of the TMAA are not relevant for the survey area considered herein. There were insufficient sightings data from the 2009, 2013, and 2015 line-transect surveys to calculate reliable density estimates for certain cetacean species in the GOA. In these cases, other available information supported development of density estimates. Additional sources of information include summer 2003 cetacean surveys near the Kenai Peninsula, within Prince William Sound and around Kodiak Island (Waite, 2003 in DoN, 2021), summer 2010–2012 line-transect data collected over a broad area north of 40° N, south of the Aleutian Islands, and between 170° E and 135° W during the International Whaling Commission-Pacific Ocean Whale and Ecosystem Research cruises (Hakamada *et al.,* 2017), and analysis of acoustic data from the 2013 Navy-funded survey effort in the TMAA (Yack *et al.,* 2015). See DoN (2021) for additional detail. When seasonal densities were available, the calculated exposures were based on summer densities, which are most representative of the proposed survey timing.

Pinniped numbers are commonly assessed by counting individuals at haul-outs or the number of pups weaned at rookeries. Translating these numbers to in-water densities presents challenges unique to pinnipeds. No in-water line transect survey data were available for harbor seal, Steller sea lion, or California sea lion in the GOA. Surveys conducted by Rone *et al.* (2014) recorded sightings of northern elephant seal and northern fur seal in the TMAA; however, these data were insufficient to estimate a density for northern elephant seal, and were not used for northern fur seal due to the availability of more recent data. To account for the lack of in-water survey data for pinnipeds, published abundance estimates used in the density calculations were adjusted using a species-specific haul-out factor to estimate an in-water abundance for each species based on haul-out behavior. The calculated in-water abundance and an area of distribution specific to each species was used to estimate a density. See DoN (2021) for additional information. For pinnipeds, where monthly density estimates were available, the highest value from July or August was applied as most representative of the proposed survey timing.

Due to a lack of sighting data specific to the Behm Canal area, the Navy derived density estimates based on data collected from various surveys (cetaceans) and shore counts (pinnipeds) conducted within southeast Alaska and GOA. Pinniped density estimates for the Behm Canal region were additionally derived from publications, NMFS SARs, and consultation with subject matter experts (DoN, 2019). Systematic ship surveys conducted in southeast Alaska waters from 1991 to 2012 provided data to develop stratified line-transect density estimates for harbor porpoise and Dall's porpoise in regions overlapping a portion of the Behm Canal area (Dahlheim *et al.,* 2015). Density information for the Behm Canal area is available for the following species: Minke whale, fin whale, humpback whale, Pacific white-sided dolphin, killer whale, harbor porpoise, Dall's porpoise, and for all potentially affected pinniped species.

The general approach for cetaceans of applying Behm Canal density estimates to survey effort in shallow and intermediate depth strata and GOA offshore density estimates to the deep depth stratum was applied for species for which appropriate estimates were available: Humpback whale, fin whale, minke whale, Pacific white-sided dolphin, killer whale, and Dall's porpoise. Note that, for killer whales, Behm Canal densities are provided specific to transient and resident whales. We apply the higher transient killer whale density value to estimate killer whale exposures in shallow and intermediate water depths. Behm Canal pinniped densities would be expected to overestimate pinniped occurrence off the coast, and so were not used for intermediate-depth waters, but were applied to shallow waters where available.

Certain species are not expected to occur in Behm Canal: Gray whale, blue whale, sei whale, sperm whale, beaked whales, northern fur seal, and northern elephant seal. For these species, we applied appropriate GOA density values to all depth strata (*i.e.,* inshore GOA values to shallow and intermediate water depths and offshore GOA density values to deep water depths). Note that, while DoN (2021) provides an inshore density estimate for sperm whales, that stratum corresponds to water depths <1,000 m. We assume here that sperm whales do not occur in shallow water depths (<100 m).

Gray whale densities are provided for two zones, nearshore (0–2.25 nmi from shore) and offshore (from 2.25–20 nmi from shore), based on density information in Carretta *et al.* (2000) and zones based on data from Shelden and Laake (2002). DoN (2021) assumes that gray whales do not occur in the region >20 nmi from shore. The nearshore density is used here to represent shallow and intermediate water (<1,000 m deep). This approach assumes a higher density of gray whales across a larger area and is used as a precautionary approach.

Harbor porpoise densities in DoN (2021) were derived from survey data collected in summer 1997 in southeast Alaska and 1998 in the Gulf of Alaska and included correction factors for both perception and availability bias (Hobbs and Waite, 2010). L–DEO proposed to use density information from Hobbs and Waite (2010) specific to southeast Alaska, which better represents the survey area than the GOA information presented for harbor porpoise in DoN (2021). Following DoN (2021), we assume harbor porpoise will not occur in deep water (>1,000 m).

No regional density information is available for the northern right whale dolphin. Becker *et al.* (2016) used line-transect survey data collected between 1991 and 2009 to develop predictive habitat-based models of cetacean densities in the California Current Ecosystem (the region from Baja California to southern British Columbia). The modeled density estimates were available on the scale of 7 km by 10 km grid cells off California, Oregon, and Washington, and values were averaged for grid cells across Washington and Oregon corresponding with L–DEO's shallow, intermediate, and deep water survey strata. These density values were applied to the portion of the survey area off Canada to calculate estimated exposures, as northern right whale dolphins do not typically occur beyond the California Current. The Risso's dolphin is only rarely observed in or near the Navy's GOA survey area, and does not occur in Behm Canal, so minimal densities were used to represent their potential presence (DoN, 2021). For California sea lion, density data is available in DoN (2021); however, it is likely that these

values would underestimate presence of California sea lions in the proposed survey area. Therefore, information available in DoN (2019) for the Offshore Northwest Training and Testing (NWTT) Area (off Washington/Oregon) in the month of August was used; densities for 0–40 km from shore were applied to shallow and intermediate water depths, and the density for 0–450 km from shore was used for deep water. The density for 40–70 km from shore was the lowest and was therefore not used.

In British Columbia, several systematic surveys have been conducted in coastal waters (*e.g.,* Williams and Thomas 2007; Ford *et al.,* 2010; Best *et al.,* 2015; Harvey *et al.,* 2017). Surveys in coastal as well as offshore waters were conducted by Fisheries and Oceans Canada (DFO) during 2002 to 2008. However, density estimates for the survey areas outside the U.S. EEZ, *i.e.,* in the Canadian EEZ, were not readily available, so density estimates for U.S. waters were applied to the entire survey area.

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate. In order to estimate the number of marine mammals predicted to be exposed to sound levels that would result in Level A or Level B harassment, radial distances from the airgun array to predicted isopleths corresponding to the Level A harassment and Level B harassment thresholds are calculated, as described above. Those radial distances are then used to calculate the area(s) around the airgun array predicted to be ensonified to sound levels that exceed the Level A and Level B harassment thresholds. The distance for the 160-dB threshold (based on L–DEO model results) was used to draw a buffer around every transect line in GIS to determine the total ensonified area in each depth category. Estimated incidents of exposure above Level A and Level B harassment criteria are presented in Table 7. For additional details regarding calculations of ensonified area, please see Appendix D of L–DEO's application. As noted previously, L–DEO has added 25 percent in the form of operational days, which is equivalent to adding 25 percent to the proposed line-kms to be surveyed. This accounts for the possibility that additional operational days are required, but likely results in an overestimate of actual exposures.

As previously noted, NMFS cannot authorize incidental take under the MMPA that may occur within the territorial seas of foreign nations (from 0–12 nmi (22.2 km) from shore), as the MMPA does not apply in those waters. However, NMFS has still calculated the estimated level of incidental take in the entire activity area (including Canadian territorial waters) as part of the analysis supporting our determination under the MMPA that the activity will have a negligible impact on the affected species. The total estimated take in U.S. and Canadian waters is presented in Table 8 (see Negligible Impact Analysis and Determination).

The estimated marine mammal exposures above harassment thresholds are generally assumed here to equate to take, and the estimates form the basis for our proposed take authorization numbers. For the species for which NMFS does not expect there to be a reasonable potential for take by Level A harassment to occur, *i.e.,* mid-frequency cetaceans and all pinnipeds, the estimated exposures above Level A harassment thresholds have been added to the estimated exposures above the Level B harassment threshold to produce a total number of incidents of take by Level B harassment that is proposed for authorization. Estimated exposures and proposed take numbers for authorization are shown in Table 7. Regarding humpback whale take numbers, we assume that whales encountered will follow Wade (2017), *i.e.,* that 96.1 percent of takes would accrue to the Hawaii DPS and 3.8 percent to the Mexico DPS. Of the estimated take of gray whales, and based on guidance provided through interagency consultation under section 7 of the ESA, we assume that 0.1 percent of encountered whales would be from the WNP stock and propose to authorize take accordingly. For Steller sea lions, 2.2 percent are assumed to belong to the western DPS (Hastings *et al.,* 2020).

TABLE 7—ESTIMATED TAKING BY LEVEL A AND LEVEL B HARASSMENT, AND PERCENTAGE OF POPULATION

Species	Stock [1]	Estimated Level B harassment	Estimated Level A harassment	Proposed Level B harassment	Proposed Level A harassment	Total take	Percent of stock [1]
Gray whale	WNP	1,450	45	2	0	2	0.7
	ENP			1,448	45	1,493	5.5
Humpback whale		403	14	403	14	417	4.1
Blue whale		31	1	31	1	32	2.1
Fin whale [2]		873	44	873	44	917	n/a
Sei whale		34	1	34	1	35	6.7
Minke whale [2]		57	2	57	2	59	n/a
Sperm whale [2]		131	0	131	0	131	n/a
Baird's beaked whale [2]		29	0	29	0	29	n/a
Stejneger's beaked whale [2]		120	0	120	0	120	n/a
Cuvier's beaked whale [2]		114	0	114	0	114	n/a
Pacific white-sided dolphin		1,371	3	1,374	0	1,374	5.1
Northern right whale dolphin		922	5	927	0	927	3.5
Risso's dolphin [3]		1	0	22	0	22	0.3
Killer whale	Offshore	290	0	290	0	290	96.7
	GOA/BSAI Transient						49.4
	WC Transient						83.1
	AK Resident						12.4
	Northern Resident						96.0
Dall's porpoise		5,661	178	5,661	178	5,839	7.0
Harbor porpoise		990	26	990	26	1,016	n/a
Northern fur seal		5,804	8	5,812	0	5,812	1.0
California sea lion		1,256	1	1,258	0	1,258	0.5
Steller sea lion	WDPS	2,433	2	54	0	54	0.1
	EDPS			2,381	0	2,381	5.5
Northern elephant seal		6,811	39	6,850	0	6,850	3.8
Harbor seal	Sitka/Chatham Strait	5,992	21	6,012	0	6,012	45.2
	Dixon/Cape Decision						25.6

TABLE 7—ESTIMATED TAKING BY LEVEL A AND LEVEL B HARASSMENT, AND PERCENTAGE OF POPULATION—Continued

Species	Stock [1]	Estimated Level B harassment	Estimated Level A harassment	Proposed Level B harassment	Proposed Level A harassment	Total take	Percent of stock [1]
	Clarence Strait						21.7

[1] In most cases, where multiple stocks are being affected, for the purposes of calculating the percentage of the stock impacted, the take is being analyzed as if all proposed takes occurred within each stock. Where necessary, additional discussion is provided in the Small Numbers section.
[2] As noted in Table 1, there is no estimate of abundance available for these species.
[3] Estimated exposure of one Risso's dolphin increased to group size of 22 (Barlow, 2016).

Proposed Mitigation

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS 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 the 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, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned); and

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In order to satisfy the MMPA's least practicable adverse impact standard, NMFS has evaluated a suite of basic mitigation protocols for seismic surveys that are required regardless of the status of a stock. Additional or enhanced protections may be required for species whose stocks are in particularly poor health and/or are subject to some significant additional stressor that lessens that stock's ability to weather the effects of the specified activities without worsening its status. We reviewed seismic mitigation protocols required or recommended elsewhere (*e.g.,* HESS, 1999; DOC, 2013; IBAMA, 2018; Kyhn *et al.,* 2011; JNCC, 2017; DEWHA, 2008; BOEM, 2016; DFO, 2008; GHFS, 2015; MMOA, 2016; Nowacek *et al.,* 2013; Nowacek and Southall, 2016), recommendations received during public comment periods for previous actions, and the available scientific literature. We also considered recommendations given in a number of review articles (*e.g.,* Weir and Dolman, 2007; Compton *et al.,* 2008; Parsons *et al.,* 2009; Wright and Cosentino, 2015; Stone, 2015b). This exhaustive review and consideration of public comments regarding previous, similar activities has led to development of the protocols included here.

Vessel-Based Visual Mitigation Monitoring

Visual monitoring requires the use of trained observers (herein referred to as visual protected species observers (PSOs)) to scan the ocean surface for the presence of marine mammals. The area to be scanned visually includes primarily the exclusion zone (EZ), within which observation of certain marine mammals requires shutdown of the acoustic source, but also a buffer zone and, to the extent possible depending on conditions, the surrounding waters. The buffer zone means an area beyond the EZ to be monitored for the presence of marine mammals that may enter the EZ. During pre-start clearance monitoring (*i.e.,* before ramp-up begins), the buffer zone also acts as an extension of the EZ in that observations of marine mammals within the buffer zone would also prevent airgun operations from beginning (*i.e.,* ramp-up). The buffer zone encompasses the area at and below the sea surface from the edge of the 0–500 m EZ, out to a radius of 1,000 m from the edges of the airgun array (500–1,000 m). This 1,000-m zone (EZ plus buffer) represents the pre-start clearance zone. Visual monitoring of the EZ and adjacent waters is intended to establish and, when visual conditions allow, maintain zones around the sound source that are clear of marine mammals, thereby reducing or eliminating the potential for injury and minimizing the potential for more severe behavioral reactions for animals occurring closer to the vessel. Visual monitoring of the buffer zone is intended to (1) provide additional protection to naïve marine mammals that may be in the area during pre-start clearance, and (2) during airgun use, aid in establishing and maintaining the EZ by alerting the visual observer and crew of marine mammals that are outside of, but may approach and enter, the EZ.

L–DEO must use dedicated, trained, NMFS-approved PSOs. The PSOs must have no tasks other than to conduct observational effort, record observational data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements. PSO resumes shall be provided to NMFS for approval.

At least one of the visual and two of the acoustic PSOs (discussed below) aboard the vessel must have a minimum of 90 days at-sea experience working in those roles, respectively, with no more than 18 months elapsed since the conclusion of the at-sea experience. One visual PSO with such experience shall be designated as the lead for the entire protected species observation team. The lead PSO shall serve as primary point of contact for the vessel operator and ensure all PSO requirements per the IHA are met. To the maximum extent practicable, the experienced PSOs should be scheduled to be on duty with those PSOs with appropriate training but who have not yet gained relevant experience.

During survey operations (*e.g.,* any day on which use of the acoustic source is planned to occur, and whenever the

acoustic source is in the water, whether activated or not), a minimum of two visual PSOs must be on duty and conducting visual observations at all times during daylight hours (*i.e.,* from 30 minutes prior to sunrise through 30 minutes following sunset). Visual monitoring of the pre-start clearance zone must begin no less than 30 minutes prior to ramp-up, and monitoring must continue until one hour after use of the acoustic source ceases or until 30 minutes past sunset. Visual PSOs shall coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts, and shall conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

PSOs shall establish and monitor the exclusion and buffer zones. These zones shall be based upon the radial distance from the edges of the acoustic source (rather than being based on the center of the array or around the vessel itself). During use of the acoustic source (*i.e.,* anytime airguns are active, including ramp-up), detections of marine mammals within the buffer zone (but outside the EZ) shall be communicated to the operator to prepare for the potential shutdown of the acoustic source. Visual PSOs will immediately communicate all observations to the on duty acoustic PSO(s), including any determination by the PSO regarding species identification, distance, and bearing and the degree of confidence in the determination. Any observations of marine mammals by crew members shall be relayed to the PSO team. During good conditions (*e.g.,* daylight hours; Beaufort sea state (BSS) 3 or less), visual PSOs shall conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the acoustic source and between acquisition periods, to the maximum extent practicable.

Visual PSOs may be on watch for a maximum of 4 consecutive hours followed by a break of at least one hour between watches and may conduct a maximum of 12 hours of observation per 24-hour period. Combined observational duties (visual and acoustic but not at same time) may not exceed 12 hours per 24-hour period for any individual PSO.

Passive Acoustic Monitoring

Acoustic monitoring means the use of trained personnel (sometimes referred to as passive acoustic monitoring (PAM) operators, herein referred to as acoustic PSOs) to operate PAM equipment to acoustically detect the presence of marine mammals. Acoustic monitoring involves acoustically detecting marine mammals regardless of distance from the source, as localization of animals may not always be possible. Acoustic monitoring is intended to further support visual monitoring (during daylight hours) in maintaining an EZ around the sound source that is clear of marine mammals. In cases where visual monitoring is not effective (*e.g.,* due to weather, nighttime), acoustic monitoring may be used to allow certain activities to occur, as further detailed below.

PAM would take place in addition to the visual monitoring program. Visual monitoring typically is not effective during periods of poor visibility or at night, and even with good visibility, is unable to detect marine mammals when they are below the surface or beyond visual range. Acoustic monitoring can be used in addition to visual observations to improve detection, identification, and localization of cetaceans. The acoustic monitoring would serve to alert visual PSOs (if on duty) when vocalizing cetaceans are detected. It is only useful when marine mammals vocalize, but it can be effective either by day or by night, and does not depend on good visibility. It would be monitored in real time so that the visual observers can be advised when cetaceans are detected.

The R/V *Langseth* will use a towed PAM system, which must be monitored by at a minimum one on duty acoustic PSO beginning at least 30 minutes prior to ramp-up and at all times during use of the acoustic source. Acoustic PSOs may be on watch for a maximum of 4 consecutive hours followed by a break of at least one hour between watches and may conduct a maximum of 12 hours of observation per 24-hour period. Combined observational duties (acoustic and visual but not at same time) may not exceed 12 hours per 24-hour period for any individual PSO.

Survey activity may continue for 30 minutes when the PAM system malfunctions or is damaged, while the PAM operator diagnoses the issue. If the diagnosis indicates that the PAM system must be repaired to solve the problem, operations may continue for an additional 5 hours without acoustic monitoring during daylight hours only under the following conditions:

- Sea state is less than or equal to BSS 4;
- No marine mammals (excluding delphinids) detected solely by PAM in the applicable EZ in the previous 2 hours;
- NMFS is notified via email as soon as practicable with the time and location in which operations began occurring without an active PAM system; and
- Operations with an active acoustic source, but without an operating PAM system, do not exceed a cumulative total of 5 hours in any 24-hour period.

Establishment of Exclusion and Pre-Start Clearance Zones

An EZ is a defined area within which occurrence of a marine mammal triggers mitigation action intended to reduce the potential for certain outcomes, *e.g.,* auditory injury, disruption of critical behaviors. The PSOs would establish a minimum EZ with a 500-m radius. The 500-m EZ would be based on radial distance from the edge of the airgun array (rather than being based on the center of the array or around the vessel itself). With certain exceptions (described below), if a marine mammal appears within or enters this zone, the acoustic source would be shut down.

The pre-start clearance zone is defined as the area that must be clear of marine mammals prior to beginning ramp-up of the acoustic source, and includes the EZ plus the buffer zone. Detections of marine mammals within the pre-start clearance zone would prevent airgun operations from beginning (*i.e.,* ramp-up).

The 500-m EZ is intended to be precautionary in the sense that it would be expected to contain sound exceeding the injury criteria for all cetacean hearing groups, (based on the dual criteria of SEL_{cum} and peak SPL), while also providing a consistent, reasonably observable zone within which PSOs would typically be able to conduct effective observational effort. Additionally, a 500-m EZ is expected to minimize the likelihood that marine mammals will be exposed to levels likely to result in more severe behavioral responses. Although significantly greater distances may be observed from an elevated platform under good conditions, we believe that 500 m is likely regularly attainable for PSOs using the naked eye during typical conditions. The pre-start clearance zone simply represents the addition of a buffer to the EZ, doubling the EZ size during pre-clearance.

An extended EZ of 1,500 m must be enforced for all beaked whales. No buffer of this extended EZ is required.

Pre-Start Clearance and Ramp-Up

Ramp-up (sometimes referred to as ''soft start'') means the gradual and systematic increase of emitted sound levels from an airgun array. Ramp-up begins by first activating a single airgun of the smallest volume, followed by doubling the number of active elements

in stages until the full complement of an array's airguns are active. Each stage should be approximately the same duration, and the total duration should not be less than approximately 20 minutes. The intent of pre-start clearance observation (30 minutes) is to ensure no protected species are observed within the pre-clearance zone (or extended EZ, for beaked whales) prior to the beginning of ramp-up. During pre-start clearance period is the only time observations of marine mammals in the buffer zone would prevent operations (*i.e.,* the beginning of ramp-up). The intent of ramp-up is to warn marine mammals of pending seismic operations and to allow sufficient time for those animals to leave the immediate vicinity. A ramp-up procedure, involving a step-wise increase in the number of airguns firing and total array volume until all operational airguns are activated and the full volume is achieved, is required at all times as part of the activation of the acoustic source. All operators must adhere to the following pre-start clearance and ramp-up requirements:

- The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time should not be less than 60 minutes prior to the planned ramp-up in order to allow the PSOs time to monitor the pre-start clearance zone (and extended EZ) for 30 minutes prior to the initiation of ramp-up (pre-start clearance);
- Ramp-ups shall be scheduled so as to minimize the time spent with the source activated prior to reaching the designated run-in;
- One of the PSOs conducting pre-start clearance observations must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO to proceed;
- Ramp-up may not be initiated if any marine mammal is within the applicable exclusion or buffer zone. If a marine mammal is observed within the pre-start clearance zone (or extended EZ, for beaked whales) during the 30 minute pre-start clearance period, ramp-up may not begin until the animal(s) has been observed exiting the zones or until an additional time period has elapsed with no further sightings (15 minutes for small odontocetes and pinnipeds, and 30 minutes for all mysticetes and all other odontocetes, including sperm whales, beaked whales, and large delphinids, such as killer whales);
- Ramp-up shall begin by activating a single airgun of the smallest volume in the array and shall continue in stages by doubling the number of active elements at the commencement of each stage, with each stage of approximately the same duration. Duration shall not be less than 20 minutes. The operator must provide information to the PSO documenting that appropriate procedures were followed;
- PSOs must monitor the pre-start clearance zone (and extended EZ) during ramp-up, and ramp-up must cease and the source must be shut down upon detection of a marine mammal within the applicable zone. Once ramp-up has begun, detections of marine mammals within the buffer zone do not require shutdown, but such observation shall be communicated to the operator to prepare for the potential shutdown;
- Ramp-up may occur at times of poor visibility, including nighttime, if appropriate acoustic monitoring has occurred with no detections in the 30 minutes prior to beginning ramp-up. Acoustic source activation may only occur at times of poor visibility where operational planning cannot reasonably avoid such circumstances;
- If the acoustic source is shut down for brief periods (*i.e.,* less than 30 minutes) for reasons other than that described for shutdown (*e.g.,* mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual and/or acoustic observation and no visual or acoustic detections of marine mammals have occurred within the applicable EZ. For any longer shutdown, pre-start clearance observation and ramp-up are required. For any shutdown at night or in periods of poor visibility (*e.g.,* BSS 4 or greater), ramp-up is required, but if the shutdown period was brief and constant observation was maintained, pre-start clearance watch of 30 minutes is not required; and
- Testing of the acoustic source involving all elements requires ramp-up. Testing limited to individual source elements or strings does not require ramp-up but does require pre-start clearance of 30 min.

Shutdown

The shutdown of an airgun array requires the immediate de-activation of all individual airgun elements of the array. Any PSO on duty will have the authority to delay the start of survey operations or to call for shutdown of the acoustic source if a marine mammal is detected within the applicable EZ. The operator must also establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch. When both visual and acoustic PSOs are on duty, all detections will be immediately communicated to the remainder of the on-duty PSO team for potential verification of visual observations by the acoustic PSO or of acoustic detections by visual PSOs. When the airgun array is active (*i.e.,* anytime one or more airguns is active, including during ramp-up) and (1) a marine mammal appears within or enters the applicable EZ and/or (2) a marine mammal (other than delphinids, see below) is detected acoustically and localized within the applicable EZ, the acoustic source will be shut down. When shutdown is called for by a PSO, the acoustic source will be immediately deactivated and any dispute resolved only following deactivation. Additionally, shutdown will occur whenever PAM alone (without visual sighting), confirms presence of marine mammal(s) in the EZ. If the acoustic PSO cannot confirm presence within the EZ, visual PSOs will be notified but shutdown is not required.

Following a shutdown, airgun activity would not resume until the marine mammal has cleared the EZ. The animal would be considered to have cleared the EZ if it is visually observed to have departed the EZ (*i.e.,* animal is not required to fully exit the buffer zone where applicable), or it has not been seen within the EZ for 15 minutes for small odontocetes and pinnipeds, or 30 minutes for all mysticetes and all other odontocetes, including sperm whales, beaked whales, and large delphinids, such as killer whales.

The shutdown requirement can be waived for small dolphins if an individual is detected within the EZ. As defined here, the small dolphin group is intended to encompass those members of the Family Delphinidae most likely to voluntarily approach the source vessel for purposes of interacting with the vessel and/or airgun array (*e.g.,* bow riding). This exception to the shutdown requirement applies solely to specific genera of small dolphins (*Lagenorhynchus* and *Lissodelphis*).

We include this small dolphin exception because shutdown requirements for small dolphins under all circumstances represent practicability concerns without likely commensurate benefits for the animals in question. Small dolphins are generally the most commonly observed marine mammals in the specific geographic region and would typically be the only marine mammals likely to intentionally approach the vessel. As described above, auditory injury is extremely unlikely to occur for mid-frequency cetaceans (*e.g.,* delphinids),

as this group is relatively insensitive to sound produced at the predominant frequencies in an airgun pulse while also having a relatively high threshold for the onset of auditory injury (*i.e.,* permanent threshold shift).

A large body of anecdotal evidence indicates that small dolphins commonly approach vessels and/or towed arrays during active sound production for purposes of bow riding, with no apparent effect observed in those delphinoids (*e.g.,* Barkaszi *et al.,* 2012, 2018). The potential for increased shutdowns resulting from such a measure would require the *Langseth* to revisit the missed track line to reacquire data, resulting in an overall increase in the total sound energy input to the marine environment and an increase in the total duration over which the survey is active in a given area. Although other mid-frequency hearing specialists (*e.g.,* large delphinids) are no more likely to incur auditory injury than are small dolphins, they are much less likely to approach vessels. Therefore, retaining a shutdown requirement for large delphinids would not have similar impacts in terms of either practicability for the applicant or corollary increase in sound energy output and time on the water. We do anticipate some benefit for a shutdown requirement for large delphinids in that it simplifies somewhat the total range of decision-making for PSOs and may preclude any potential for physiological effects other than to the auditory system as well as some more severe behavioral reactions for any such animals in close proximity to the source vessel.

Visual PSOs shall use best professional judgment in making the decision to call for a shutdown if there is uncertainty regarding identification (*i.e.,* whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived or one of the species with a larger EZ).

L–DEO must implement shutdown if a marine mammal species for which take was not authorized, or a species for which authorization was granted but the takes have been met, approaches the Level A or Level B harassment zones. L–DEO must also implement shutdown if any of the following are observed at any distance:

- Any large whale (defined as a sperm whale or any mysticete species) with a calf (defined as an animal less than two-thirds the body size of an adult observed to be in close association with an adult);
- An aggregation of six or more large whales; and/or
- A North Pacific right whale.

Vessel Strike Avoidance

1. Vessel operators and crews must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (distances stated below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.,* PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish marine mammals from other phenomena and 2) broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammal.

2. Vessel speeds must also be reduced to 10 kn or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel.

3. All vessels must maintain a minimum separation distance of 500 m from right whales. If a whale is observed but cannot be confirmed as a species other than a right whale, the vessel operator must assume that it is a right whale and take appropriate action.

4. All vessels must maintain a minimum separation distance of 100 m from sperm whales and all other baleen whales.

5. All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.,* for animals that approach the vessel).

6. When marine mammals are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.,* attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area). If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

7. These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

We have carefully evaluated the suite of mitigation measures described here and considered a range of other measures in the context of ensuring that we prescribe 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 the proposed measures, as well as other measures considered by NMFS described above, NMFS has preliminarily determined that the mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Mitigation Measures in Canadian Waters

As stated previously, NMFS cannot authorize the incidental take of marine mammals in the territorial seas of foreign nations, as the MMPA does not apply in those waters. L–DEO is required to adhere to the mitigation measures described above while operating within the U.S. EEZ and Canadian EEZ. The requirements do not apply within Canadian territorial waters. NMFS expects that DFO may prescribe mitigation measures that would apply to L–DEO's survey operations within the Canadian EEZ and Canadian territorial waters but is currently unaware of the specifics of any potential measures. While operating within the Canadian EEZ but outside Canadian territorial waters, if mitigation requirements prescribed by NMFS differ from the requirements established under Canadian law, L–DEO would adhere to the most protective measure. For operations in Canadian territorial waters, L–DEO would implement measures required under Canadian law (if any). If information regarding measures required under Canadian law becomes available prior to NMFS' final decision on this request for IHA, NMFS will consider it as appropriate in making its negligible impact determination.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine

mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

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

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.,* presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) Action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.,* age, calving or feeding areas);
- Individual 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 other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Vessel-Based Visual Monitoring

As described above, PSO observations would take place during daytime airgun operations. During seismic operations, at least five visual PSOs would be based aboard the *Langseth.* Two visual PSOs would be on duty at all time during daytime hours. Monitoring shall be conducted in accordance with the following requirements:

- The operator shall provide PSOs with bigeye binoculars (*e.g.,* 25 x 150; 2.7 view angle; individual ocular focus; height control) of appropriate quality (*i.e.,* Fujinon or equivalent) solely for PSO use. These shall be pedestal-mounted on the deck at the most appropriate vantage point that provides for optimal sea surface observation, PSO safety, and safe operation of the vessel; and
- The operator will work with the selected third-party observer provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals.

PSOs must have the following requirements and qualifications:

- PSOs shall be independent, dedicated, trained visual and acoustic PSOs and must be employed by a third-party observer provider;
- PSOs shall have no tasks other than to conduct observational effort (visual or acoustic), collect data, and communicate with and instruct relevant vessel crew with regard to the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards);
- PSOs shall have successfully completed an approved PSO training course appropriate for their designated task (visual or acoustic). Acoustic PSOs are required to complete specialized training for operating PAM systems and are encouraged to have familiarity with the vessel with which they will be working;
- PSOs can act as acoustic or visual observers (but not at the same time) as long as they demonstrate that their training and experience are sufficient to perform the task at hand;
- NMFS must review and approve PSO resumes accompanied by a relevant training course information packet that includes the name and qualifications (*i.e.,* experience, training completed, or educational background) of the instructor(s), the course outline or syllabus, and course reference material as well as a document stating successful completion of the course;
- NMFS shall have one week to approve PSOs from the time that the necessary information is submitted, after which PSOs meeting the minimum requirements shall automatically be considered approved;
- PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program;
- PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics; and
- The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted to NMFS and must include written justification. Requests shall be granted or denied (with justification) by NMFS within one week of receipt of submitted information. Alternate experience that may be considered includes, but is not limited to (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting academic, commercial, or government-sponsored protected species surveys; or (3) previous work experience as a PSO; the PSO should demonstrate good standing and consistently good performance of PSO duties.

For data collection purposes, PSOs shall use standardized data collection forms, whether hard copy or electronic. PSOs shall record detailed information about any implementation of mitigation requirements, including the distance of animals to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source. If required mitigation was not implemented, PSOs should record a description of the circumstances. At a minimum, the following information must be recorded:

- Vessel names (source vessel and other vessels associated with survey) and call signs;
- PSO names and affiliations;
- Dates of departures and returns to port with port name;
- Date and participants of PSO briefings;
- Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort;
- Vessel location (latitude/longitude) when survey effort began and ended and vessel location at beginning and end of visual PSO duty shifts;
- Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change;
- Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions changed significantly), including BSS and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;
- Factors that may have contributed to impaired observations during each PSO shift change or as needed as environmental conditions changed (*e.g.,* vessel traffic, equipment malfunctions); and

• Survey activity information, such as acoustic source power output while in operation, number and volume of airguns operating in the array, tow depth of the array, and any other notes of significance (*i.e.,* pre-start clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, etc.).

The following information should be recorded upon visual observation of any protected species:

• Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
• PSO who sighted the animal;
• Time of sighting;
• Vessel location at time of sighting;
• Water depth;
• Direction of vessel's travel (compass direction);
• Direction of animal's travel relative to the vessel;
• Pace of the animal;
• Estimated distance to the animal and its heading relative to vessel at initial sighting;
• Identification of the animal (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified) and the composition of the group if there is a mix of species;
• Estimated number of animals (high/low/best);
• Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
• Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
• Detailed behavior observations (*e.g.,* number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
• Animal's closest point of approach (CPA) and/or closest distance from any element of the acoustic source;
• Platform activity at time of sighting (*e.g.,* deploying, recovering, testing, shooting, data acquisition, other); and
• Description of any actions implemented in response to the sighting (*e.g.,* delays, shutdown, ramp-up) and time and location of the action.

If a marine mammal is detected while using the PAM system, the following information should be recorded:

• An acoustic encounter identification number, and whether the detection was linked with a visual sighting;
• Date and time when first and last heard;
• Types and nature of sounds heard (*e.g.,* clicks, whistles, creaks, burst pulses, continuous, sporadic, strength of signal); and
• Any additional information recorded such as water depth of the hydrophone array, bearing of the animal to the vessel (if determinable), species or taxonomic group (if determinable), spectrogram screenshot, and any other notable information.

Reporting

A report would be submitted to NMFS within 90 days after the end of the cruise. The report would summarize the dates and locations of seismic operations, and all marine mammal sightings (dates, times, locations, activities, associated seismic survey activities), and provide full documentation of methods, results, and interpretation pertaining to all monitoring.

The draft report shall also include geo-referenced time-stamped vessel tracklines for all time periods during which airguns were operating. Tracklines should include points recording any change in airgun status (*e.g.,* when the airguns began operating, when they were turned off, or when they changed from full array to single gun or vice versa). GIS files shall be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates shall be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data shall be made available to NMFS. The report must summarize the data collected as described above and in the IHA. A final report must be submitted within 30 days following resolution of any comments on the draft report.

Reporting Injured or Dead Marine Mammals

Discovery of injured or dead marine mammals—In the event that personnel involved in survey activities covered by the authorization discover an injured or dead marine mammal, the L–DEO shall report the incident to the Office of Protected Resources (OPR), NMFS and to the NMFS Alaska Regional Stranding Coordinator as soon as feasible. The report must include the following information:

• Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
• Species identification (if known) or description of the animal(s) involved;
• Condition of the animal(s) (including carcass condition if the animal is dead);
• Observed behaviors of the animal(s), if alive;
• If available, photographs or video footage of the animal(s); and
• General circumstances under which the animal was discovered.

Vessel strike—In the event of a ship strike of a marine mammal by any vessel involved in the activities covered by the authorization, L–DEO shall report the incident to OPR, NMFS and to the NMFS Alaska Regional Stranding Coordinator as soon as feasible. The report must include the following information:

• Time, date, and location (latitude/longitude) of the incident;
• Vessel's speed during and leading up to the incident;
• Vessel's course/heading and what operations were being conducted (if applicable);
• Status of all sound sources in use;
• Description of avoidance measures/requirements that were in place at the time of the strike and what additional measure were taken, if any, to avoid strike;
• Environmental conditions (*e.g.,* wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
• Species identification (if known) or description of the animal(s) involved;
• Estimated size and length of the animal that was struck;
• Description of the behavior of the animal immediately preceding and following the strike;
• If available, description of the presence and behavior of any other marine mammals present immediately preceding the strike;
• 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
• To the extent practicable, photographs or video footage of the animal(s).

Actions To Minimize Additional Harm To Live-Stranded (or Milling) Marine Mammals

In the event of a live stranding (or near-shore atypical milling) event within 50 km of the survey operations, where the NMFS stranding network is engaged in herding or other interventions to return animals to the water, the Director of OPR, NMFS (or designee) will advise L–DEO of the need to implement shutdown for all active acoustic sources operating within 50 km of the stranding. Procedures related to shutdowns for live stranding or milling marine mammals include the following:

• If at any time, the marine mammal(s) die or are euthanized, or if

herding/intervention efforts are stopped, the Director of OPR, NMFS (or designee) will advise L–DEO that the shutdown around the animals' location is no longer needed.

• Otherwise, shutdown procedures will remain in effect until the Director of OPR, NMFS (or designee) determines and advises L–DEO that all live animals involved have left the area (either of their own volition or following an intervention).

• If further observations of the marine mammals indicate the potential for re-stranding, additional coordination with L–DEO will be required to determine what measures are necessary to minimize that likelihood (*e.g.,* extending the shutdown or moving operations farther away) and to implement those measures as appropriate.

Additional Information Requests—If NMFS determines that the circumstances of any marine mammal stranding found in the vicinity of the activity suggest investigation of the association with survey activities is warranted, and an investigation into the stranding is being pursued, NMFS will submit a written request to L–DEO indicating that the following initial available information must be provided as soon as possible, but no later than 7 business days after the request for information:

• Status of all sound source use in the 48 hours preceding the estimated time of stranding and within 50 km of the discovery/notification of the stranding by NMFS; and

• If available, description of the behavior of any marine mammal(s) observed preceding (*i.e.,* within 48 hours and 50 km) and immediately after the discovery of the stranding.

In the event that the investigation is still inconclusive, the investigation of the association of the survey activities is still warranted, and the investigation is still being pursued, NMFS may provide additional information requests, in writing, regarding the nature and location of survey operations prior to the time period above.

Negligible Impact Analysis and Determination

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'' through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.,* intensity, duration), the context of any responses (*e.g.,* critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the 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, or ambient noise levels).

To avoid repetition, our analysis applies to all species listed in Table 1, given that NMFS expects the anticipated effects of the planned geophysical survey to be 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, NMFS has identified species-specific factors to inform the analysis.

As described above, we propose to authorize only the takes estimated to occur outside of Canadian territorial waters (Table 7); however, for the purposes of our negligible impact analysis and determination, we consider the total number of takes that are anticipated to occur as a result of the entire survey (including the portion of the survey that would occur within the Canadian territorial waters (approximately 13 percent of the survey) (Table 8).

TABLE 8—TOTAL ESTIMATED TAKE INCLUDING CANADIAN TERRITORIAL WATERS

Species	Level B harassment (excluding Canadian territorial waters)	Level A harassment (excluding Canadian territorial waters)	Level B harassment (Canadian territorial waters)	Level A harassment (Canadian territorial waters)	Total Level B harassment	Total Level A harassment
Gray whale, WNP	2	0	1	0	3	0
Gray whale, ENP	1,448	45	666	16	2,114	61
Humpback whale	403	14	165	4	568	18
Blue whale	31	1	4	0	35	1
Fin whale	873	44	69	1	942	45
Sei whale	34	1	7	0	41	1
Minke whale	57	2	14	0	71	2
Sperm whale	131	0	22	0	153	0
Baird's beaked whale	29	0	2	0	31	0
Stejneger's beaked whale	120	0	9	0	129	0
Cuvier's beaked whale	114	0	9	0	123	0
Pacific white-sided dolphin	1,374	0	191	0	1,565	0
Northern right whale dolphin	927	0	451	0	1,378	0
Risso's dolphin	22	0	22	0	44	0
Killer whale	290	0	89	0	379	0
Dall's porpoise	5,661	178	1,825	36	7,486	214
Harbor porpoise	990	26	455	9	1,445	35
Northern fur seal	5,812	0	1,213	0	7,025	0
California sea lion	1,258	0	433	0	1,691	0
Steller sea lion, wDPS	54	0	55	0	109	0
Steller sea lion, eDPS	2,381	0	2,467	0	4,848	0
Northern elephant seal	6,850	0	1,429	0	8,279	0
Harbor seal	6,012	0	6,228	0	12,240	0

NMFS does not anticipate that serious injury or mortality would occur as a result of L–DEO's planned survey, even in the absence of mitigation, and none would be authorized. Similarly, non-auditory physical effects, stranding, and vessel strike are not expected to occur.

We are proposing to authorize a limited number of instances of Level A harassment of seven species (low- and high-frequency cetacean hearing groups only) and Level B harassment only of the remaining marine mammal species. However, we believe that any PTS incurred in marine mammals as a result of the planned activity would be in the form of only a small degree of PTS, not total deafness, because of the constant movement of both the R/V *Langseth* and of the marine mammals in the project areas, as well as the fact that the vessel is not expected to remain in any one area in which individual marine mammals would be expected to concentrate for an extended period of time. Since the duration of exposure to loud sounds will be relatively short it would be unlikely to affect the fitness of any individuals. Also, as described above, we expect that marine mammals would likely move away from a sound source that represents an aversive stimulus, especially at levels that would be expected to result in PTS, given sufficient notice of the R/V *Langseth's* approach due to the vessel's relatively low speed when conducting seismic surveys. We expect that the majority of takes would be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area or decreased foraging (if such activity were occurring), reactions that are considered to be of low severity and with no lasting biological consequences (*e.g.,* Southall *et al.,* 2007, Ellison *et al.,* 2012).

Marine mammal habitat may be impacted by elevated sound levels, but these impacts would be temporary. Prey species are mobile and are broadly distributed throughout the project areas; therefore, marine mammals that may be temporarily displaced during survey activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Because of the relatively short duration (27 days) and temporary nature of the disturbance, the availability of similar habitat and resources in the surrounding area, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

The tracklines of this survey either traverse or are proximal to critical habitat for the Mexico DPS of humpback whales and for Steller sea lions, and to feeding BIAs for humpback whales in general (including both the Hawaii and Mexico DPSs/Central North Pacific stock whales that are anticipated to occur in the survey area). As described previously, the survey area is near a feeding BIA for gray whales and covers the gray whale migratory BIA. However, these BIAs would not be affected as they are spatially and temporally separated, respectively, from the survey.

Yazvenko *et al.* (2007) reported no apparent changes in the frequency of feeding activity in Western gray whales exposed to airgun sounds in their feeding grounds near Sakhalin Island. Goldbogen *et al.* (2013) found blue whales feeding on highly concentrated prey in shallow depths (such as the conditions expected within humpback feeding BIAs) were less likely to respond and cease foraging than whales feeding on deep, dispersed prey when exposed to simulated sonar sources, suggesting that the benefits of feeding for humpbacks foraging on high-density prey may outweigh perceived harm from the acoustic stimulus, such as the seismic survey (Southall *et al.,* 2016). Additionally, L–DEO will shut down the airgun array upon observation of an aggregation of six or more large whales, which would reduce impacts to cooperatively foraging animals. For all habitats, no physical impacts to habitat are anticipated from seismic activities. While SPLs of sufficient strength have been known to cause injury to fish and fish and invertebrate mortality, in feeding habitats, the most likely impact to prey species from survey activities would be temporary avoidance of the affected area and any injury or mortality of prey species would be localized around the survey and not of a degree that would adversely impact marine mammal foraging. The duration of fish avoidance of a given area after survey effort stops is unknown, but a rapid return to normal recruitment, distribution and behavior is expected. Given the short operational seismic time near or traversing important habitat areas, as well as the ability of cetaceans and prey species to move away from acoustic sources, NMFS expects that there would be, at worst, minimal impacts to animals and habitat within these areas.

Critical habitat for Steller sea lions has been established at three rookeries in southeast Alaska (Hazy Island, White Sisters Island, and Forrester Island near Dixon Entrance), at several major haul-outs, and including aquatic zones that extend 0.9 km seaward and air zones extending 0.9 km above the rookeries. Steller sea lions occupy rookeries and pup from late-May through early-July (NMFS. 2008), indicating that L–DEO's survey is unlikely to impact important sea lion behaviors in critical habitat. Impacts to Steller sea lions within these areas, and throughout the survey area, as well as impacts to other pinniped species, are expected to be limited to short-term behavioral disturbance, with no lasting biological consequences.

Negligible Impact Conclusions

The proposed survey would be of short duration (27 days of seismic operations), and the acoustic ''footprint'' of the proposed survey would be small relative to the ranges of the marine mammals that would potentially be affected. Sound levels would increase in the marine environment in a relatively small area surrounding the vessel compared to the range of the marine mammals within the proposed survey area. Short term exposures to survey operations are not likely to significantly disrupt marine mammal behavior, and the potential for longer-term avoidance of important areas is limited.

The proposed mitigation measures are expected to reduce the number and/or severity of takes by allowing for detection of marine mammals in the vicinity of the vessel by visual and acoustic observers, and by minimizing the severity of any potential exposures via shutdowns of the airgun array. Based on previous monitoring reports for substantially similar activities that have been previously authorized by NMFS, we expect that the proposed mitigation will be effective in preventing, at least to some extent, potential PTS in marine mammals that may otherwise occur in the absence of the proposed mitigation (although all authorized PTS has been accounted for in this analysis).

NMFS concludes that exposures to marine mammal species and stocks due to L–DEO's proposed survey would result in only short-term (temporary and short in duration) effects to individuals exposed, over relatively small areas of the affected animals' ranges. Animals may temporarily avoid the immediate area, but are not expected to permanently abandon the area. Major shifts in habitat use, distribution, or foraging success are not expected. NMFS does not anticipate the proposed take estimates to impact annual rates of recruitment or survival.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to adversely affect the

species or stock through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or proposed to be authorized;
- The proposed activity is temporary and of relatively short duration (27 days);
- The anticipated impacts of the proposed activity on marine mammals would primarily be temporary behavioral changes due to avoidance of the area around the survey vessel;
- The number of instances of potential PTS that may occur are expected to be very small in number. Instances of potential PTS that are incurred in marine mammals are expected to be of a low level, due to constant movement of the vessel and of the marine mammals in the area, and the nature of the survey design (not concentrated in areas of high marine mammal concentration);
- The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the survey area during the proposed survey to avoid exposure to sounds from the activity;
- The potential adverse effects on fish or invertebrate species that serve as prey species for marine mammals from the proposed survey would be temporary and spatially limited, and impacts to marine mammal foraging would be minimal; and
- The proposed mitigation measures, including visual and acoustic monitoring and shutdowns are expected to minimize potential impacts to marine mammals (both amount and severity).

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

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness 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. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

There are several stocks for which the estimated instances of take appear high when compared to the stock abundance (Table 7), or for which there is no currently accepted stock abundance estimate. These include the fin whale, minke whale, sperm whale, three species of beaked whale, four stocks of killer whales, harbor porpoise, and one stock of harbor seal. However, when other qualitative factors are used to inform an assessment of the likely number of individual marine mammals taken, the resulting numbers are appropriately considered small. We discuss these in further detail below.

For all other stocks (aside from those referenced above and discussed below), the proposed take is less than one-third of the best available stock abundance (recognizing that some of those takes may be repeats of the same individual, thus rendering the actual percentage even lower), and noting that we generally excluded consideration of abundance information for British Columbia in considering the amount of take relative to the best available stock abundance information.

The stock abundance estimates for the fin, minke, beaked, and sperm whale stocks that occur in the survey area are unknown, according to the latest SARs. The same is true for the harbor porpoise. Therefore, we reviewed other scientific information in making our small numbers determinations for these species. As noted previously, partial abundance estimates of 1,233 and 2,020 minke whales are available for shelf and nearshore waters between the Kenai Peninsula and Amchitka Pass and for the eastern Bering Sea shelf, respectively. For the minke whale, these partial abundance estimates alone are sufficient to demonstrate that the proposed take number of 59 is of small numbers. The same surveys produced partial abundance estimates of 1,652 and 1,061 fin whales, for the same areas, respectively. Considering these two partial abundance estimates in conjunction with the British Columbia abundance estimate of 329 whales produces a total partial estimate of 3,042 whales for shelf and nearshore waters between the Kenai Peninsula and Amchitka Pass, the eastern Bering Sea shelf, and British Columbia. Given that the Northeast Pacific stock of fin whale's range is described as covering the entire GOA and Bering Sea, we reasonably assume that a total abundance estimate for the stock would show that the take number proposed for authorization (917) is small. In addition, for these stocks as well as for other stocks discussed below whose range spans the GOA, given that the estimated take will take place in a relatively small portion of the stock's range, it is likely there would be repeat takes of a smaller number of individuals, and therefore, the number of individual animals taken will be lower.

As noted previously, Kato and Miyashita (1998) produced an abundance estimate of 102,112 sperm whales in the western North Pacific. However, this estimate is believed to be positively biased. We therefore refer to Barlow and Taylor (2005)'s estimate of 26,300 sperm whales in the northeast temperate Pacific to demonstrate that the proposed take number of 136 is a small number. There is no abundance information available for any Alaskan stock of beaked whale. However, the take numbers are sufficiently small (ranging from 29–120) that we can safely assume that they are small relative to any reasonable assumption of likely population abundance for these stocks. As an example, we review available abundance information for other stocks of Cuvier's beaked whales, which is widely distributed throughout deep waters of all oceans and is typically the most commonly encountered beaked whale in its range. Where some degree of bias correction, which is critical to an accurate abundance estimate for cryptic species like beaked whales, is incorporated to the estimate, we see typical estimates in the thousands of animals, demonstrating that the take numbers proposed for authorization are reasonably considered small. Current abundance estimates include the Western North Atlantic stock (5,744 animals; CV = 0.36), the Hawaii Pelagic stock (4,431 animals, CV = 0.41), and the California/Oregon/Washington stock (3,274 animals; CV = 0.67).

For the southeast Alaska stock of harbor porpoise, whose range is defined as from Dixon Entrance to Cape Suckling (including inland waters), the SAR describes a partial abundance estimate, covering inland waters but not coastal waters, totaling 1,354 porpoise. This most recent abundance estimate is based on survey effort in inland waters during 2010–12 (Dahlheim *et al.,* 2015). An older abundance estimate, based on survey effort conducted in 1997, covering both coastal and inland waters of the stock's range, provides a more complete abundance estimate of 11,146 animals (Hobbs and Waite, 2010). This

estimate is sufficient to demonstrate that the take number proposed for authorization (1,016) is small.

For the potentially affected stocks of killer whale, it would be unreasonable to assume that all takes would accrue to any one stock. Although the Gulf of Alaska, Aleutian Islands, and Bering Sea (GOA/BSAI) transient stock could occur in southeast Alaska, it is unlikely that any significant proportion of encountered whales would belong to this stock, which is generally considered to occur mainly from Prince William Sound through the Aleutian Islands and Bering Sea. Transient killer whales in Canadian waters are considered part of the West Coast transient stock, further minimizing the potential for encounter with the GOA/BSAI transient stock. We assume that only nominal, if any, take would actually accrue to this stock. Similarly, the offshore stock is encountered only rarely compared with resident and transient stocks. Seasonal sighting data collected in southeast Alaska waters between 1991 and 2007 shows a ratio of offshore and resident killer whale sightings of 0.05 (Dahlheim *et al.,* 2009), and it is unlikely that any amount of take accruing to this stock would exceed small numbers. We anticipate that most killer whales encountered would be transient or resident whales. For the remaining stocks, we assume that take would accrue to each stock in a manner roughly approximate to the stocks' relative abundances, *i.e.,* 78 percent Alaska resident, 12 percent West Coast transient, and 10 percent northern resident. This would equate to approximately 226 takes from the Alaska resident stock (9.6 percent of the stock abundance); 35 takes from the West Coast transient stock (10 percent of the stock abundance), and 29 takes from the northern resident stock (9.6 percent of the stock abundance). Based on the assumptions described in this paragraph, we preliminary find that the taking proposed for authorization is of no greater than small numbers for any stock of killer whale.

If all takes proposed for authorization are allotted to each individual harbor seal stock, the estimated instances of take would be greater than one-third of the best available abundance estimate for the Sitka/Chatham Strait stock of harbor seal. However, similarly to the discussion provided above for killer whale, it would be unreasonable to assume that all takes would accrue to any one stock. Based on the location of the proposed survey relative to the potentially affected stocks' ranges, it is unlikely that a significant proportion of the estimated takes would occur to the Sitka/Chatham Strait stock (whose range just overlaps with the northern extent of the survey area) (Muto *et al.,* 2020). A majority of takes are likely to accrue to the Dixon/Cape Decision stock, which most directly overlaps with the proposed survey area. In the unlikely event that all takes occurred to the Dixon/Cape Decision stock, the amount of take would be of small numbers.

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.

Unmitigable Adverse Impact Analysis and Determination

Marine mammals are legally hunted in Alaskan waters by coastal Alaska Natives. In the GOA, the only marine mammals under NMFS' jurisdiction that are currently hunted are Steller sea lions and harbor seals. These species are an important subsistence resource for Alaska Natives from southeast Alaska to the Aleutian Islands. There are numerous communities along the shores of the GOA that participate in subsistence hunting, including Juneau, Ketchikan, Sitka, and Yakutat in southeast Alaska (Wolfe *et al.,* 2013). According to Muto *et al.* (2019), the annual subsistence take of Steller sea lions from the eastern stock was 11, and 415 northern fur seals are taken annually. In addition, 340 harbor seals are taken annually (Muto *et al.* 2019). The seal harvest throughout Southeast Alaska is generally highest during spring and fall, but can occur any time of the year (Wolfe *et al.,* 2013).

Given the temporary nature of the proposed activities and the fact that most operations would occur further from shore, the proposed activity would not be expected to have any impact on the availability of the species or stocks for subsistence users. L–DEO is conducting outreach to local stakeholders, including subsistence communities, to notify subsistence hunters of the planned survey, to identify the measures that would be taken to minimize any effects on the availability of marine mammals for subsistence uses, and to provide an opportunity for comment on these measures. During operations, radio communications and Notice to Mariners would keep interested parties apprised of vessel activities. NMFS is unaware of any other subsistence uses of the affected marine mammal stocks or species that could be implicated by this action. Therefore, NMFS has preliminarily 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. NMFS requests comments or any information that may help to inform this determination.

Endangered Species Act (ESA)

Section 7(a)(2) of the ESA of 1973 (16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species.

NMFS is proposing to authorize take of blue whales, fin whales, sei whales, sperm whales, Mexico DPS humpback whales, western DPS Steller sea lions, and WNP gray whales, which are listed under the ESA. The NMFS OPR Permits and Conservation Division has requested initiation of Section 7 consultation with the NMFS OPR ESA Interagency Cooperation Division for the issuance of this IHA. NMFS will conclude the ESA consultation prior to reaching a determination regarding the proposed issuance of the authorization.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to L–DEO for conducting a marine geophysical survey in the northeast Pacific beginning in July 2021, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act.*

Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this notice of Proposed IHA for the proposed geophysical survey. We also request at this time comment on the potential Renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent Renewal IHA.

On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing

an additional 15 days for public comments when (1) up to another year of identical, or nearly identical, activities as described in the Description of Proposed Activity section of this notice is planned or (2) the activities as described in the Description of Proposed Activity section of this notice would not be completed by the time the IHA expires and a Renewal would allow for completion of the activities beyond that described in the *Dates and Duration* section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (recognizing that the Renewal IHA expiration date cannot extend beyond one year from expiration of the initial IHA);
- The request for renewal must include the following:

(1) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.,* reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take); and

(2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

- Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Dated: May 28, 2021.

Catherine Marzin,

Acting Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2021–11718 Filed 6–3–21; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Withdrawal of Notice of Intent To Prepare an Environmental Impact Statement for Monterey Bay Regional Water Project Desalination Facility

AGENCY: Office of National Marine Sanctuaries (ONMS), National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC).

ACTION: Withdrawal of notice of intent to prepare an environmental impact statement.

SUMMARY: NOAA's Office of National Marine Sanctuaries is issuing this notice to advise Federal, state, and local government agencies and the public that it is withdrawing its Notice of Intent to prepare a draft environmental impact statement for the proposed action to construct and operate a seawater reverse osmosis desalination facility and co-located seawater-cooled 150-megawatt computer data center campus project at Moss Landing, Monterey County, California. NOAA is terminating the review of this project under the National Environmental Policy Act because the proposed project scope has changed significantly.

FOR FURTHER INFORMATION CONTACT: Karen Grimmer, Resource Protection Coordinator, Monterey Bay National Marine Sanctuary, at *karen.grimmer@noaa.gov*, or by mail at 99 Pacific Street, Suite 455A, Monterey, California 93940.

SUPPLEMENTARY INFORMATION: NOAA published a Notice of Intent (NOI) in the **Federal Register** on June 1, 2015 *(80 FR 31022),* to prepare a joint environmental impact report (EIR)/environmental impact statement (EIS) with the California State Lands Commission (CSLC) in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act. The joint EIR/EIS would have analyzed the impacts on the human environment resulting from DeepWater Desal's construction and operation of a seawater reverse osmosis (SWRO) desalination facility and co-located seawater-cooled 150-megawatt computer data center campus project (Project) at Moss Landing, Monterey County, California.

DeepWater Desal submitted an application for permit approval to Monterey Bay National Marine Sanctuary to construct and operate a SWRO desalination facility capable of producing 25,000 acre-feet per year of potable water and a co-located seawater-cooled computer data center campus on a 110-acre site located approximately 1.5 miles east of Moss Landing. Additional details about the Project are included in the NOI dated June 1, 2015. NOAA solicited public input on the scope of the analysis through a public comment period on the NOI from June 1, 2015, to July 1, 2015. NOAA received six comments in response to the notice, which are publicly available on *http://www.regulations.gov* under docket NOAA–NOS–2015–0069. NOAA and CSLC held a joint public scoping meeting for the project on Tuesday, June 16, 2015, and six commenters provided testimony.

NOAA is terminating the NEPA process and closing the Project's permit application because the permit applicant notified NOAA in May 2020 that the primary scope of the Project changed from desalination to land-based aquaculture. NOAA finds that the scope of the Project has changed significantly since publication of the 2015 NOI and the scoping process completed in 2015 is no longer relevant. Therefore, NOAA is withdrawing the NOI to prepare an EIS for this Project. Should NOAA receive a new permit application, NOAA will determine at that time what level of NEPA review is required for the project.

Authority: 16 U.S.C. 1431 *et seq.;* 40 CFR 1500–1508; Companion Manual for NOAA Administrative Order 216–6A, 82 FR 4306.

John Armor,

Director, Office of National Marine Sanctuaries National Ocean Service, National Oceanic and Atmospheric Administration.

[FR Doc. 2021–11714 Filed 6–3–21; 8:45 am]

BILLING CODE 3510–NK–P

COMMITTEE FOR PURCHASE FROM PEOPLE WHO ARE BLIND OR SEVERELY DISABLED

Procurement List; Deletions

AGENCY: Committee for Purchase From People Who Are Blind or Severely Disabled

ACTION: Deletions from the procurement list.

SUMMARY: This action deletes product(s) from the Procurement List previously furnished by nonprofit agencies employing persons who are blind or have other severe disabilities.

DATES: *Date deleted from the Procurement List:* July 04, 2021.

ADDRESSES: Committee for Purchase From People Who Are Blind or Severely Disabled, 1401 S Clark Street, Suite 715, Arlington, Virginia 22202–4149.