DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 219

[Docket No. 210519–0110]

RIN 0648–BK39

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Northeast Fisheries Science Center Fisheries and Ecosystem Research

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

ACTION: Proposed rule, request for comments.

SUMMARY: NMFS Office of Protected Resources (OPR) has received a request from the NMFS' Northeast Fisheries Science Center (NEFSC) for authorization to take marine mammals incidental to fisheries and ecosystem research conducted in the Atlantic Ocean, over the course of five years. This would be the second set of regulations and 5-year LOA issued to the NEFSC. The proposed regulations would be effective September 10, 2021 through September 9, 2026.

As required by the Marine Mammal Protection Act (MMPA), NMFS is proposing regulations to govern that take, and requests comments on the proposed regulations. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final announcement of our decision.

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

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2021–0053, by the following method:

• *Electronic submission:* Submit all public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov,* enter 0648–BK39 in the ''Search'' box, click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.

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

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

SUPPLEMENTARY INFORMATION:

Availability

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

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 to incidentally take marine mammals must 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.

Purpose and Need for This Regulatory Action

This proposed rule would establish a framework under the authority of the MMPA (16 U.S.C. 1361 *et seq.*) to allow for the authorization of take of marine mammals incidental to the NEFSC's fisheries research activities in the Atlantic Ocean.

We received an application from the NEFSC requesting regulations and a 5-year LOA to take multiple species of marine mammals incidental to fisheries and ecosystem research in the Atlantic Ocean. Take by mortality or serious injury could occur incidental to the use of fisheries research gear. Take by Level B harassment could occur incidental to the use of active acoustic devices in the Atlantic coast region.

Legal Authority for the Regulatory Action

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

Summary of Major Provisions Within the Proposed Regulations

The following provides a summary the major provisions within this proposed rulemaking for the NEFSC fisheries research activities in the Northwest Atlantic Ocean. They include, but are not limited to:

• Training scientists and vessel crew in marine mammal detection and identification, rule compliance, and marine mammal handling.

• Monitoring of the sampling areas to detect the presence of marine mammals before gear deployment and while gear is in the water.

• Implementing standard tow durations to reduce the likelihood of incidental take of marine mammals.
• Implementing the mitigation strategy known as the ''move-on rule,'' which incorporates best professional judgment, when necessary during fisheries research.
• Removing gear from water if marine mammals are at-risk or interact with gear.
• Complying with applicable vessel speed restrictions and separation distances from marine mammals.
• Complying with applicable and relevant take reduction plans for marine mammals.

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.

In July 2016, the NEFSC published a Final Programmatic Environmental Assessment (PEA) for Fisheries Research Conducted and Funded by the NEFSC (NMFS 2016a) to consider the direct, indirect and cumulative effects to the human environment resulting from NEFSC's activities as well as OPR's issuance of the regulations and subsequent incidental take authorization. NMFS made the PEA available to the public for review and comment, in relation specifically to its suitability for assessment of the impacts of our action under the MMPA. OPR signed a Finding of No Significant Impact (FONSI) on August 3, 2016. These documents are available at *https://www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-nefsc-fisheries-and-ecosystem-research.*

On September 18, 2020, NMFS announced the availability of a Draft Supplemental PEA for Fisheries Research Conducted and Funded by the Northeast Fisheries Science Center for review and comment (85 FR 58339). The purpose of the Draft SPEA is to evaluate potential direct, indirect, and cumulative effects of unforeseen changes in research that were not analyzed in the 2016 PEA, or new research activities along the U.S. East Coast. Where necessary, updates to certain information on species, stock status or other components of the affected environment that may result in different conclusions from the 2016 PEA are presented in this analysis. The supplemental PEA is available at *https://www.fisheries.noaa.gov/action/draft-supplemental-programmatic-environmental-assessment-nefsc-research-now-available.*

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

Summary of Request

On September 2, 2020, NMFS received an application from NEFSC requesting promulgation of regulations and issuance of a 5-year LOA to take marine mammals incidental to fisheries and ecosystem research in the Atlantic Ocean. NEFSC subsequently submitted revised applications on October 29, 2020; November 19, 2020; and December 3, 2020. The December application was deemed adequate and complete on December 9, 2020. In accordance with the MMPA, we published a notice of receipt (NOR) of the NEFSC's application in the **Federal Register**, requesting comments and information related to the NEFSC request for thirty days (85 FR 83901, December 23, 2020). We did not receive comments on the NOR.

The NEFSC's request is for take of a small number of 10 species of marine mammals by mortality or serious injury incidental to gear interaction and 32 species or stocks by Level B harassment incidental to use of active acoustic devices during fisheries and ecosystem research. NMFS previously issued a LOA to NEFSC for similar work (81 FR 64442, September 20, 2016); that LOA expires September 9, 2021. To date, NEFSC has complied with all the requirements (*e.g.,* mitigation, monitoring, and reporting) of the current LOA and did not exceed authorized take for a species. NEFSC annual monitoring reports can be found at *www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-nefsc-fisheries-and-ecosystem-research.*

Description of Proposed Activity

Overview

The NEFSC is the research arm of NMFS in the Greater Atlantic Region (Maine to Virginia). The NEFSC plans, develops, and manages a multidisciplinary program of basic and applied research to generate the information necessary for the conservation and management of the region's living marine resources, including the region's marine and anadromous fish and invertebrate populations to ensure they remain at sustainable and healthy levels. The NEFSC collects a wide array of information necessary to evaluate the status of exploited fishery resources and the marine environment from fishery independent (*i.e.,* non-commercial or recreational fishing) platforms. Surveys are conducted from NOAA-owned and operated vessels, NOAA chartered vessels, or research partner-owned or chartered vessels in the state and Federal waters of the Atlantic Ocean from Maine to Florida.

The NEFSC plans to administer, fund, or conduct 59 fisheries and ecosystem research survey programs over the 5-year period the proposed regulations would be effective (Table 1). Of the 59 surveys, only 42 involve gear and equipment with the potential to take marine mammals. Gear types include towed trawl nets fished at various levels in the water column, dredges, gillnets, traps, longline and other hook and line gear. Surveys using any type of seine net (*e.g.,* gillnets), trawl net, or hook and line (*e.g.,* longlines) have the potential for marine mammal interaction (*e.g.,* entanglement, hooking) resulting in M/SI harassment. In addition, the NEFSC conducts hydrographic, oceanographic, and meteorological sampling concurrent with many of these surveys which requires the use of active acoustic devices (*e.g.,* side-scan sonar, echosounders). These active sonars result in elevated sound levels in the water column, potentially causing behavioral disturbance rising to the level of harassment (Level B).

Dates and Duration

NEFSC would conduct research year-round; however, certain surveys would occur seasonally (Table 1). The proposed regulations and associated LOA would be valid September 10, 2021 through September 9, 2026.

Specified Geographical Region

The NEFSC would conduct fisheries research activities off of the U.S. Atlantic coast within the Northeast U.S. Continental Shelf Large Marine Ecosystem (NE LME), an area defined as the 200 miles off the shoreline and reaching from the U.S.-Canada border to Cape Hatteras (Figure 1). The NE LME is divided into four areas: The Gulf of Maine (GOM), Georges Bank (GB), Southern New England (SNE), and the Mid-Atlantic Bight (MAB). A small number of NEFSC surveys into the Southeast U.S. Continental Shelf LME

(SE LME) and, rarely, north into the Scotian Shelf LME.

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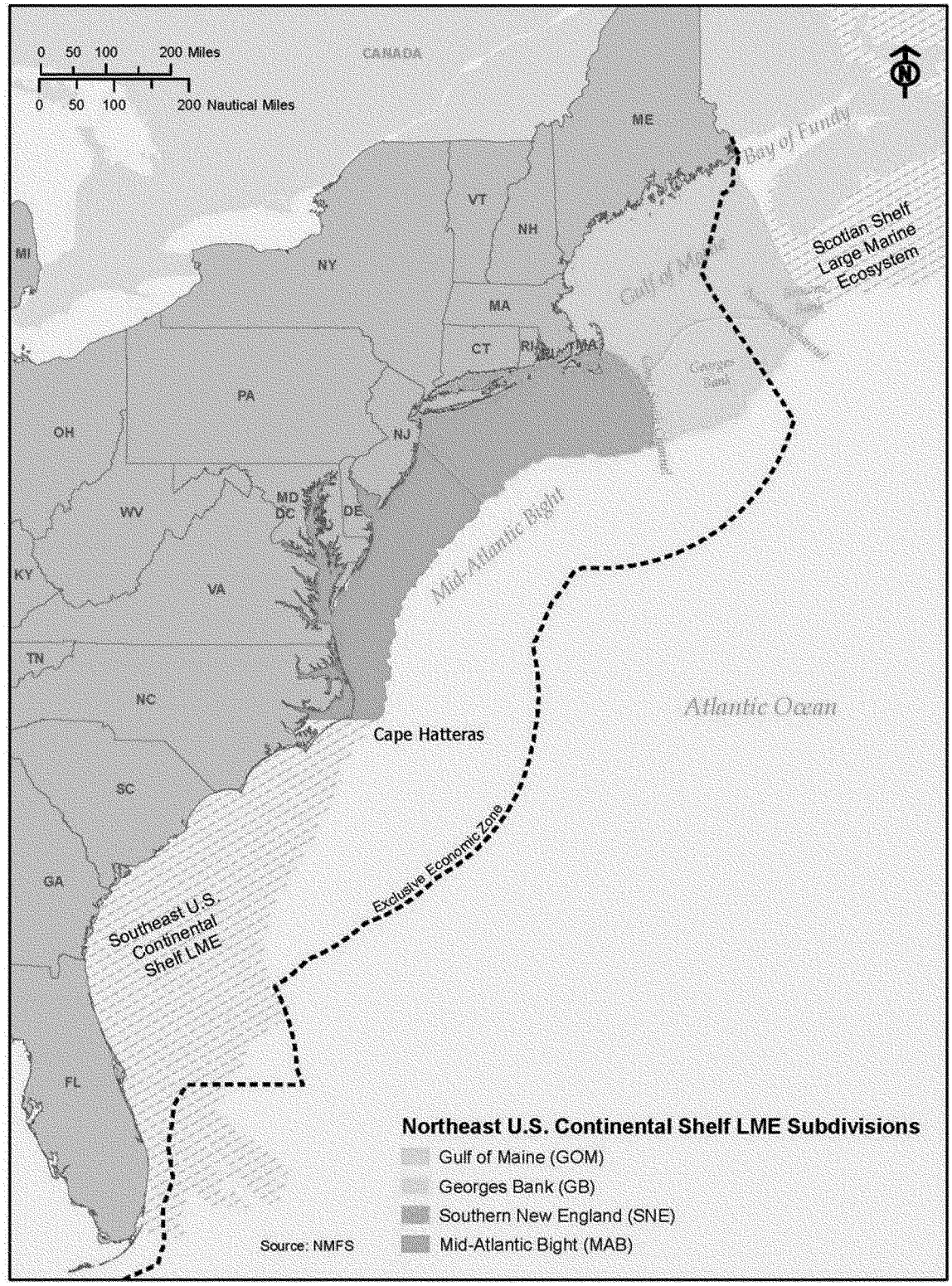
Figure 1. NEFSC Research Area



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The Atlantic coast region extends from the Gulf of Maine (to the U.S. and Canada border) past Cape Hatteras to Florida. The region is characterized by its temperate climate and proximity to the Gulf Stream, and is generally considered to be of moderately high productivity, although the portion of the region from Cape Cod to Cape Hatteras is one of the most productive areas in the world due to upwellings along the shelf break created by the western edge of the Gulf Stream. Sea surface temperatures (SST) exhibit a broad range across this region, with winter temperatures ranging from 2–20 °C in the north and 15–22 °C in the south, while summer temperatures, consistent in the south at approximately 28 °C, range from 15–27 °C in the northern portion.

The northern portion of this region (*i.e.,* north of Cape Hatteras) is more complex, with four major sub-areas: The Gulf of Maine, Georges Bank, southern New England, and the Mid-Atlantic Bight. Cold, low-salinity water transports in the Labrador Current from the Arctic Ocean into the Gulf of Maine and exits through the Great South Channel; upwellings occur around Georges Bank. South of Cape Cod, there is strong stratification along the coast where large estuaries occur (*e.g.,* Chesapeake Bay, Pamlico Sound).

The Gulf Stream is highly influential on both the northern and southern portions of the region, but in different ways. Meanders of the current directly affect the southern portion of the Gulf Stream, where it is closer to shore, while warm-core rings indirectly affect the northern portion (Belkin *et al.,* 2009). In addition, subarctic influences can reach as far south as the Mid-Atlantic Bight, but the convergence of the Gulf Stream with the coast near Cape Hatteras does not allow for significant northern influence into waters of the South Atlantic Bight.

Gulf of Maine—The Gulf of Maine (GOM) is an enclosed coastal sea characterized by relatively cold waters and deep basins. Several geographic features bound the GOM including Brown's Bank on the east, Maine and Nova Scotia to the north, Maine, New Hampshire, and Massachusetts on the west, and Cape Cod and Georges Bank to the south. Retreating glaciers (18,000–14,000 years ago) formed a complex system of deep basins, moraines, and rocky protrusions, leaving behind a variety of sediment types including silt, sand, clay, gravel, and boulders. There exists patchy distribution of sediments on the seafloor throughout the GOM, with occurrence largely related to the bottom topography.

Oceanic circulation in the GOM exhibits a general counterclockwise current, influenced primarily by cold water masses moving in from the Scotian Shelf and offshore. Although large-scale water patterns are generally counterclockwise around the GOM, many small gyres and minor currents do occur. Freshwater runoff from the many rivers along the coast into the GOM influences coastal circulation as well. These water movements feed into and affect the circulation patterns on Georges Bank and in Southern New England.

Georges Bank—Georges Bank (GB) is an elongated extension of the northeastern U.S. continental shelf, characterized by a steep slope on its northern edge and a broad, flat, and gently sloping southern flank. The Gulf of Maine lies to the north of GB, the Northeast Channel (between GB and Browns Bank) is to the east; the continental slope lies to the south, and the Great South Channel separates GB and Southern New England to the west. Although the top of GB is predominantly characterized by sandy sediment, glacial retreat during the late Pleistocene era resulted in deposits of gravel along the northern edge of GB, and some patches of silt and clay can be found on the sea floor. The most dominant oceanographic features of GB include a weak but persistent clockwise gyre that circulates over the whole bank, strong tidal flows (mainly northwest and southeast) and strong but intermittent storm-induced currents. The strong tidal currents result in vertically well-mixed waters over the bank. The southwestern flow of shelf and slope water that forms a countervailing current to the Gulf Stream drives the clockwise GB gyre.

Mid-Atlantic Bight—The Mid-Atlantic Bight (MAB) includes the continental shelf and slope waters from GB to Cape Hatteras, NC. The retreat of the last ice sheet shaped the morphology and sediments of the MAB. The continental shelf south of New England is broad and flat, dominated by fine grained sediments (sand and silt). Patches of gravel exist in places on the sea floor, such as on the western flank of the Great South Channel.

The shelf slopes gently away from the shore out to approximately 100 to 200 kilometers (km) (62 to 124 miles (mi)) offshore, where it transforms into the continental slope at the shelf break (at water depths of 100 to 200 m (328 to 656 ft). Along the shelf break, numerous deep-water canyons incise the slope and shelf. The sediments and topography of the canyons are much more heterogeneous than the predominantly sandy top of the shelf, with steep walls and outcroppings of bedrock and deposits of clay.

The southwestern flow of cold shelf water feeding out of the GOM and off GB dominates the circulatory patterns in this area. The countervailing Gulf Stream provides a source of warmer water along the coast as warm-core rings and meanders break off from the Gulf Stream and move shoreward, mixing with the colder shelf and slope water. As the shelf plain narrows to the south (the extent of the continental shelf is narrowest at Cape Hatteras), the warmer Gulf Stream waters run closer to shore.

Southern New England—The Southern New England (SNE) subarea extends from the Great South Channel in the east to the MAB in the west. The southwestern flow of cold shelf water feeding out of the GOM and off GB dominates the circulatory patterns in this area. The SNE continental shelf is a gently sloping region with smooth topography. The shelf is approximately 100 km (62 mi) wide, and the shelf break occurs at depths of between 100 to 200 m (328 to 656 ft). The continental slope extends from the shelf break to a depth of 2 km (6,562 ft). This zone has a relatively steep gradient, and the relief is moderately smooth. The continental rise (2 to 6 km; 500 to 19,700 ft) is similar to the slope in having only gradual changes in bathymetry. However, the overall gradient of the continental rise is less than that of the continental slope (Theroux and Wigley, 1998). Sediments of the SNE subarea consist of fine-grained sand and silt. Patches of gravel exist in places on the sea floor, such as on the western flank of the Great South Channel. Currents and historic disposal of dredged material may influence water and sediment quality within the SNE.

Southeast U.S. Continental Shelf Large Marine Ecosystem: This area covers the Atlantic Ocean extending approximately 930 miles from Cape Hatteras, NC south to the Straits of Florida (Yoder, 1991). The continental shelf in the region reaches up to approximately 120 miles offshore. The Gulf Stream Current influences the region with minor upwelling occurring along the Gulf Stream front. The area is approximately 115,000 square miles, includes several protected areas and coral reefs (Aquarone, 2008); numerous estuaries and bays, such as the Albemarle-Pamlico Sound, nearshore and barrier islands; and extensive coastal marshes that provide valuable ecosystem services and habitats for numerous marine and estuarine species. A six- to 12-mile wide coastal zone is characterized by high levels of primary

production throughout the year, while offshore, on the middle and outer shelf, upwelling along the Gulf Stream front and intrusions from the Gulf Stream cause seasonal phytoplankton blooms. Because of its high productivity, this sub-region supports active commercial and recreational fisheries (Shertzer *et al.* 2009).

Detailed Description of Specific Activity

The Federal Government has a trust responsibility to protect living marine resources in waters of the U.S., also referred to as Federal waters. These waters generally lie 3 to 200 nautical miles (nmi) from the shoreline. Those waters 3–12 nmi offshore comprise Federal territorial waters and those 12-to-200 nmi offshore comprise the Exclusive Economic Zone (EEZ), except where other nations have adjacent territorial claims. NOAA also conducts research to foster resource protection in state waters (*i.e.,* estuaries and oceanic waters within 3 nmi of shore). The U.S. government has also entered into a number of international agreements and treaties related to the management of living marine resources in international waters outside of the U.S. EEZ (*i.e.,* the high seas). To carry out its responsibilities over Federal and international waters, Congress has enacted several statutes authorizing certain Federal agencies to administer programs to manage and protect living marine resources. Among these Federal agencies, NOAA has the primary responsibility for protecting marine finfish and shellfish species and their habitats. Within NOAA, NMFS has been delegated primary responsibility for the science-based management, conservation, and protection of living marine resources under statutes including the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Atlantic Coastal Fisheries Cooperative Management Act (ACA), and the Atlantic Striped Bass Conservation Act.

Within NMFS, six Regional Fisheries Science Centers direct and coordinate the collection of scientific information needed to inform fisheries management decisions. Each Fisheries Science Center is a distinct entity and is the scientific focal point for a particular region. The NEFSC conducts research and provides scientific advice to manage fisheries and conserve protected species in the Atlantic coast region from Maine to northeast Florida. The NEFSC provides scientific information to support the Mid-Atlantic Fishery Management Council and other domestic fisheries management organizations. Specifically, NEFSC develops the scientific information required for fishery resource conservation, fishery development and utilization, habitat conservation, and protection of marine mammals and endangered marine species. Research is pursued to address specific needs in population dynamics, fishery biology and economics, engineering and gear development, and protected species biology. Specifically, research includes monitoring fish stock recruitment, abundance, survival and biological rates, geographic distribution of species and stocks, ecosystem process changes, and marine ecological research.

The NEFSC collects a wide array of information necessary to evaluate the status of exploited fishery resources and the marine environment. NEFSC scientists conduct fishery-independent research onboard NOAA-owned and operated vessels or on chartered vessels. For other types of surveys, cooperating scientists may conduct research onboard non-NOAA vessels. The NEFSC proposes to administer and conduct 59 survey programs over the 5-year period. Forty-two of the 59 total surveys/projects involve gear and equipment with the potential to take marine mammals (by mortality or serious injury (M/SI) or Level B harassment). We note the need for additional surveys could arise during the time period this proposed rule is effective, or some of the identified surveys could be eliminated or reduced in effort. Research activities associated with the requested LOA are not necessarily limited to the specific surveys shown in Table 1; however, any other surveys conducted by NEFSC would not be significantly different from the research analyzed herein or result in a change in the take request.

The gear types used by NEFSC to conduct fisheries research include: Pelagic trawl gear used at various levels in the water column, pelagic and demersal longlines, bottom-contact trawls, anchored sinking gillnets, and other gear such as dredges and traps. The use of pelagic and bottom trawl nets, gillnets, fyke nets, and longline/hook and line gear have to potential to result in interaction (*e.g.,* entanglement, hooking) with marine mammals. These gears and the methods of fishing are identical or similar to those described in the initial NEFSC proposed rule (80 FR 35942, July 9, 2015). Complete gear descriptions can also be found in Appendix B of the NMFS 2020 Draft Supplemental Programmatic Environmental Assessment available at *https://www.fisheries.noaa.gov/action/draft-supplemental-programmatic-environmental-assessment-nefsc-research-now-available.* Please refer to those documents for more information related to fishing gear.

Additionally, a small set of research activities along the Penobscot River estuary in Maine have the potential to behaviorally disturb marine mammals due to the physical presence of researchers near haulout areas.

Most of the vessel-based surveys use active acoustic devices. The NEFSC may conduct surveys aboard research vessels (R/V), including the NOAA Ship R/V *Henry B. Bigelow,* R/V *Gordon Gunter,* R/V *Pisces,* R/V *Nauvoo,* R/V *Harvey,* R/V *Chemist,* R/V *Resolute,* R/V *Hassler,* R/V *C.E. Stillwell,* and R/V *Gloria Michelle;* aboard R/V and fishing vessels (F/V) owned and operated by cooperating agencies and institutions including the F/V *Robert Michael,* F/V *Darana R,* R/V *Hugh R. Sharp,* and F/V *Eagle Eye II;* or aboard charter vessels.

A complete description of the long-term research surveys conducted by NEFSC can be found in section 1.4 of the LOA application. A complete description of the short-term cooperative research projects can be found in section 1.5 of the LOA application. Below we provide a summary table with information relevant to this proposed rule (Table 1).

TABLE 1—PROPOSED NEFSC FISHERIES RESEARCH SURVEYS

Project name	Survey description	Gear	Specific gear	Area of operation	Season	Annual days at sea (DAS)	Potential for take (Y/N)
Long-Term Research							
Benthic Habitat Survey.	Assess habitat distribution and condition, including disturbance by commercial fishing and changes as the benthic ecosystem recovers from chronic fishing impacts. Also serves to collect data on seasonal migration of benthic species, collect bottom data for mapping, and provide indications of climate change through species shifts.	Bottom Trawl	Conductivity, Temperature, and Depth (CTD), Van Veen, Plankton trap, Beam Trawl, Dredge, Camera, Sonar.	Georges Bank (GB)	Summer or Fall	20	Y
Fish Collection for Laboratory Experiments.	Trawling/hook and line collection operations undertake to capture high quality fish for laboratory experiments.	Bottom Trawl	Net and twine shrimp trawl, fishing poles.	New York Bight, Sandy Hook Bay.	April–November	10	Y
Habitat Mapping Survey.	Map shallow reef habitats of fisheries resource species, including warm season habitats of black sea bass, and locate sensitive habitats (e.g., shallow temperate coral habitats) for habitat conservation.	Bottom Trawl	4-seam, 3 bridle bottom trawl, beam trawl, CTD, Van Veen, Plankton trap, dredge, camera, sonar.	Ocean Shelf off MD	Summer	11	Y
Living Marine Resources Survey.	Determine the distribution, abundance, and recruitment patterns for multiple species.	Bottom Trawl	4-seam, 3 bridle bottom trawl, beam trawl, CTD, Van Veen, sonar.	Cape Hatteras to NJ	Spring	11	Y
Massachusetts Division of Marine Fisheries Bottom Trawl Surveys.	The objective of this project is to track mature animals and determine juvenile abundance.	Bottom Trawl	Otter trawl	Territorial waters from RI to NH borders.	Spring and Fall	60–72	Y
NEAMAP Near Shore Trawl Program—Northern Segment.	This project provides data collection and analysis in support of single and multi-species stock assessments Gulf of Maine. It includes the Maine/New Hampshire inshore trawl program, conducted by Maine Department of Marine Resources (MDMR) in the northern segment.	Bottom Trawl	Modified GoM shrimp otter trawl.	U.S.-Canada to NH–MA border from shore to 300 ft depth.	Spring and Fall	30–50	Y
NEAMAP Near Shore Trawl Program—Southern Segment.	This project provides data collection and analysis in support of single and multi-species stock assessments in the Mid-Atlantic. It includes the inshore trawl program NEAMAP Mid-Atlantic to Southern New England survey, conducted by Virginia Institute of Marine Science, College of William and Mary (VIMS) in the southern segment.	Bottom Trawl	4-seam, 3-bridle net bottom trawl cookie sweep.	Montauk, NY to Cape Hatteras, NC from 20 to 90 ft depth.	Spring and Fall	30–50	Y
NEFOP Observer Bottom Trawl Training Trips.	Certification training for new NEFOP Observers.	Bottom Trawl	Contracted vessels' trawl gear.	Mid-Atlantic Bight (MAB) and GB.	April–November (as needed), day trips.	18	Y
NEFSC Northern Shrimp Survey.	The objective of this project is to determine the distribution and abundance of northern shrimp and collect related data.	Bottom Trawl	4 seam modified commercial shrimp trawl, positional sensors, mini-log, CTD.	GOM	Summer	22	Y
NEFSC Standard Bottom Trawl Surveys (BTS).	This project monitors abundance and distribution of mature and juvenile fish and invertebrates.	Bottom Trawl	4-seam, 3-bridle bottom trawl.	Cape Hatteras to Western Scotian Shelf.	Spring and Fall	120	Y
NEFSC Bottom Trawl Survey Gear Trials.	Testing and efficiency evaluation of the standardized 4-seam, 3-bridle bottom trawl (doors, sweeps, protocols).	Bottom Trawl	4-seam, 3-bridle bottom trawl, twin trawls.	Cape Hatteras to Western Scotian Shelf.	Fall	14–20	Y

TABLE 1—PROPOSED NEFSC FISHERIES RESEARCH SURVEYS—Continued

Project name	Survey description	Gear	Specific gear	Area of operation	Season	Annual days at sea (DAS)	Potential for take (Y/N)
Atlantic Herring Survey.	This operation collects fisheries-independent herring spawning biomass data and also includes survey equipment calibration and performance tests.	Pelagic Trawl	4-seam, 3-bridle net bottom trawl, midwater rope trawl, acoustics.	GOM and Northern GB.	Fall	34	Y
Atlantic Salmon Trawl Survey.	This is a targeted research effort to evaluate the marine ecology of Atlantic salmon.	Pelagic Trawl	Modified mid-water trawl that fishes at the surface via pair trawling.	Inshore and offshore GOM.	Spring	21	Y
Deepwater Biodiversity.	This project collects fish, cephalopod and crustacean specimens from 500 to 2,000 m for tissue samples, specimen photos, and documentation of systematic characterization.	Pelagic Trawl	Deep-Sea acoustic/optic/oceanographic/eDNA system, trawl camera system.	Western North Atlantic.	Summer or Fall	16	Y
Penobscot Estuarine Fish Community and Ecosystem Survey.	The objective of this project is fish and invertebrate sampling for biometric and population analysis of estuarine and coastal species.	Pelagic Trawl	Mamou shrimp trawl modified to fish at surface.	Penobscot Estuary and Bay, ME.	Spring Summer and Fall.	12	Y
Northeast Integrated Pelagic Survey.	The objective of this project is to assess the pelagic components of the ecosystem including water currents, water properties, phytoplankton, microzooplankton, mesozooplankton, pelagic fish and invertebrates, sea turtles, marine mammals, and sea birds.	Pelagic Trawl	Mid-water trawls, bong nets, CTD, Acoustic Doppler Profiler (ADCP), acoustics.	Cape Hatteras to Western Scotian Shelf.	Summer and Fall	80	Y
NEFOP Observer Mid-Water Trawl Training Trip.	This program provides certification training for NEFOP Observers.	Pelagic Trawl	Various commercial nets.	MAB and GB	April–November as needed (day trips).	5	Y
Apex Predators Pelagic Longline Shark Survey.	The objectives of this survey are to: (1) Monitor the species composition, distribution, and abundance of pelagic sharks in the U.S. Atlantic from Maryland to Canada; (2) tag sharks for migration and age validation studies; (3) collect morphological data and biological samples for age and growth, feeding ecology, and reproductive studies; and (4) provide time-series of abundance from this survey for use in Atlantic pelagic shark assessments.	Longline	Yankee and current commercial pelagic longline gear. Configured according to NMFS HMS Regulations.	MD to Canada	Spring	30	Y
Apex Predators Bottom Longline Coastal Shark Survey.	The objectives of this survey are to: (1) Monitor the species composition, distribution, and abundance of sharks in coastal Atlantic waters from Florida to Delaware; (2) tag sharks for migration and age validation studies; (3) collect morphometric data and biological samples for age and growth, feeding ecology, and reproductive studies; and (4) provide time-series of abundance from this survey for use in Atlantic coastal shark assessments.	Longline	Florida style bottom longline.	RI to FL within 40 fathoms.	Spring	47	Y

Apex Predators Pelagic Nursery Grounds Study.	This project uses opportunistic sampling on board a commercial swordfish longline vessel to: (1) Monitor the species composition and distribution of juvenile pelagic sharks on the Grand Banks; (2) tag sharks for migration and age validation studies; and (3) collect morphometric data and biological samples for age and growth, feeding ecology, and reproductive studies. Data from this survey helps determine the location of pelagic shark nurseries for use in updating essential fish habitat designations.	Longline	Standard commercial pelagic longline gear. Configured according to NMFS Highly Migratory Species (HMS) Regulations.	GB to Grand Banks off Newfoundland, Canada.	Fall	21–55	Y
Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) Longline and Gillnet Surveys.	This project determines the location of shark nurseries, species composition, relative abundance, distribution, and migration patterns. It is used to identify and refine essential fish habitat and provides standardized indices of abundance by species used in multiple species specific stock assessments. NEFSC conducts surveys in Delaware, New Jersey, and Rhode Island estuarine and coastal waters. Other areas are surveyed by cooperating institutions and agencies. In the NE Large Marine Ecosystem (LME), the Virginia Institute of Marine Science (VIMS) is a cooperating partner. South of Cape Hatteras the South Carolina Department of Natural Resources (SCDNR), University of North Florida (UNF), and Florida Atlantic University (FAU) are partners.	Longline and Gillnet	Bottom Longline Gear, Anchored Sinking Gillnet.	FL to RI	Summer	25 or 40	Y
Cooperative Research Gulf of Maine Longline Project.	The objective of this project is to conduct commercial cooperative bottom longline sets to characterize demersal species of the Western Gulf of Maine traditionally difficult to capture with traditional or research trawl gear due to the bottom topography.	COOP Western-Central Gulf of Maine hard bottom longline survey.	Longline	Western GOM focused on sea mounts.	Spring and Fall	60 stations/year eastern Maine, 90 stations/year western-central GOM.	Y
NEFOP Observer Bottom Longline Training Trips.	This program provides certification training for NEFOP observers.	Longline	Commercial bottom longline gear.	MAB and GB	April–November as needed (day trips).	5	Y
Annual Assessments of Sea Scallop Abundance and Distribution.	These Atlantic Sea Scallop Research Set-Aside (RSA) rotational area surveys endeavor to monitor scallop biomass and derive estimates of Total Allowable Catch (TAC) for annual scallop catch specifications. Additionally, the surveys monitor recruitment, growth, and other biological parameters such as meat weight, shell height and gonadal somatic indices.	Dredge	Scallop dredges, drop cameras, Other Habitat Camera (HabCam) Versions.	GPM, Georges Bank, Mid-Atlantic.	Dredge surveys Apr–Sept, Camera surveys June–Sept.	50–100	N
NEFOP Observer Scallop Dredge Training Trips.	This program provides certification training for NEFOP observers.	Dredge	Turtle deflector dredge.	MAB and GB	April–November as needed (day trips).	6	N
Annual Standardized Sea Scallop Survey.	The objective of this project is to determine distribution and abundance of sea scallops and collect related data for Ecosystem Management from concurrent stereo-optic images. It is conducted by the NEFSC.	Dredge	New Bedford dredge, HabCam V4.	NC to GB	Summer	36	N
Surfclam and Ocean Quahog Dredge Survey.	The objective of this project is to determine distribution and abundance of Surfclam/ocean quahog and collect related data.	Dredge	Hydraulic-jet dredge	Southern VA to GB	Summer	15	N

TABLE 1—PROPOSED NEFSC FISHERIES RESEARCH SURVEYS—Continued

Project name	Survey description	Gear	Specific gear	Area of operation	Season	Annual days at sea (DAS)	Potential for take (Y/N)
Coastal Maine Telemetry Network.	The objective of this project is to monitor tagged animals entering the Penobscot Bay System and exiting the system into the Gulf of Maine.	Other	Fixed position acoustic telemetry array receivers on moorings spaced 250–400 m apart.	Penobscot River estuary and bay, GOM.	Year round in GOM and Apr.–Nov. in nearshore areas.	10	Y
Deep-sea Coral Survey.	The objective of this program is to determine the species diversity, community composition, distribution and extent of deep sea coral and sponge habitats.	Other	Remotely Operated Vehicles (ROVs), CTD, towed cameras, ADCP, acoustics.	Continental shelf margin, slope, and submarine canyons and deep basins: GOM to Virginia.	Summer	16	Y
Diving Operations	The objective of this project is to collect growth data on hard clams, oysters and bay scallops.	Other	Wire mesh cages, lantern nets.	Long Island Sound	Year round	20	N
Gulf of Maine Ocean Observing System Mooring Cruise.	This project services oceanographic moorings operated by the University of Maine.	Other	ADCP on vessel and moorings.	GOM and Northern GB.	Summer	12	N
Hydroacoustics Surveys.	This project consists of mobile transects conducted throughout the estuary and bay to study fish biomass and distribution.	Acoustic only	Split-beam and DIDSON.	Penobscot Bay and estuary.	Spring	25	Y
Marine Estuaries Diadromous Survey.	This project is a fish community survey at fixed locations.	Other	1 m and 2 m fyke nets.	Penobscot Bay and estuary.	April–November	100	N
NEFOP Observer Gillnet Training Trips.	This program provides certification training for NEFOP Observers.	Other	gill net gear	MAB and GB	April–November as needed (day trips).	10	N
Nutrients and Frontal Boundaries.	The objective of this project is to characterize nutrient patterns associated with distinct water masses and their boundaries off of coastal New Jersey and Long Island in association with biological sampling.	Other	ADP, CTD, Hydroacoustics.	MAB	Feb., May–June, Aug, and Nov.	10	N
Ocean Acidification	The objective of this project is to develop baseline pH measurements in the Hudson River water.	Other	CTD, YSI, multi-nutrient analyzer, Kemmerer bottle.	Hudson River Coastal waters.	Spring	10	N
AUV Pilot Studies	This program provides gear and platform testing.	Other	AUV	MA state waters, GB	June	5	N
Rotary Screw Trap (RSTs) Survey.	This project is designed to collect abundance estimates of Migrating Atlantic salmon smolts and other anadromous species.	Other	RST	Estuaries on coastal Maine rivers.	April 15–June 15	60	N
Trawling to Support Finfish Aquaculture Research.	The objective of this project is to collect broodstock for laboratory spawning and rearing and experimental studies.	Other	Combination bottom trawl, shrimp trawl, gillnet.	Long Island Sound	Summer	30	Y
DelMarVa Habitat Characterization.	The objective of this project is to characterize and determine key hard bottom habitats in coastal ocean off the DelMarVa Peninsula as an adjunct to the DelMarVa Reef Survey.	Other	ADCP, CTD, YSI, Plankton net, video sled, Ponar grab, Kemmerer bottle, sonar.	Coastal waters off DE, MD and VA.	August	5	N
DelMarVa Reefs Survey.	The objective of this project is determination of extent and distribution of rock outcrops and coral habitats and their use by black sea bass and other reef fishes.	Other	HABCAM, CTD	Coastal waters off DE, MD and VA.	August	5	N

Miscellaneous Fish Collections and Experimental Survey Gear Trials.	The James J. Howard Sandy Hook Marine Laboratory occasionally supports short-term research projects requiring small samples of fish for various purposes or to test alterations of survey gear. These small and sometimes opportunistic sampling efforts have used a variety of gear types other than those listed under Status Quo projects. The gears and effort levels listed here are representative of potential requests for future research support.	Other	Bottom trawl, lobster and fish pots, beam trawl, seine net, trammel nets.	New York Bight estuary waters.	Spring and Fall	not stated	Y
Opportunistic Hydrographic Sampling.	This program consists of opportunistic plankton and hydrographic sampling during ship transit.	Other	Plankton net, expendable bathythermograph.	Southeast LME depths <300 m.	Early Summer	not stated	N
Monkfish RSA	Monkfish Research Set-Aside (RSA) surveys endeavor to monitor Monkfish biomass and derive estimates of Total Allowable Catch (TAC) for annual Monkfish catch specifications. Additionally, the surveys monitor recruitment, growth, and other biological parameters.	Other	Commercial gillnets of various sizes, short durations for sets.	Mid-Atlantic and Georges Bank.	April–December (end of fishing year).	100–200 sets/year. Sets left for 2–3 days.	Y
Short-Term Cooperative Projects							
Survey Projects	Cooperative Industry based surveys to enhance data for flatfish utilizing cookie sweep gear on commercial platforms.	Trawl	Bottom Trawl	GOM, GB, SNE, MAB.	Summer and Fall	550 tows/year	Y
Survey Projects	Cooperative Industry based catchability studies for Monkfish, Longfin squid, other.	Trawl	Pelagic Trawl	GOM, GB, SNE, MAB.	Summer and Fall Summer and Fall.	30 tows/year	Y
Trawl Comparison Research.	Twin trawl and paired vessel comparisons of Standardized Bigelow Trawl to test rockhopper and cookie sweeps and varying trawl doors performance on commercial platforms.	Twin Bottom Trawl	Trawl nets with two types of sweeps or doors.	GB, SNE, MAB	Summer and Fall	100 DAS	Y
Survey Projects	Pot and trap catchability studies for Scup and Black Sea bass.	Pot survey	Pots and Traps	SNE, Rhode Island Bight, Nantucket Sound, MAB waters from shore to shelf edge.	Spring and fall for black sea bass. Year round for scup.	2,650 pot sets/year	Y
Conservation Engineering Projects.	Gear and net conservation Cooperative work.	Trawl	Bottom Trawl	GOM, GB, SNE, MAB.	Spring, Summer and Fall.	~500 tows per year total for all bottom trawl conservation projects.	Y
Conservation Engineering Projects.	Varied gear and efficiency testing of fisheries applications.	Trawl	Bottom Trawl	GOM, GB, SNE, MAB.	Spring, Summer and Fall.		Y
Conservation Engineering Projects.	Cooperative Squid Trawls and studies for squid catchability and selectivity.	Trawl	Bottom Trawl & Beam trawl.	GOM, GB, SNE, MAB.	Spring, Summer and Fall.		Y
Conservation Engineering Projects.	Commercial scallop dredge finfish and turtle excluder research. Scallop dredge finfish and turtle excluder research.	Dredge	Dredge	GB, SNE, MAB	April–December (end of fishing year).	> 1,700 dredge tows/year for all dredge conservation projects.	N
Conservation Engineering Projects.	Commercial hydrodynamic turtle deflector dredge testing.	Dredge	Hydrodynamic dredge.	GB, SNE, MAB	April–December (end of fishing year).		N
Tagging Projects	Winter Flounder tagging projects. Winter flounder migration patterns.	Trawl	Bottom Trawl & Otter trawl.	Coastal waters in GOM New Hampshire to Stonington/Mt. Desert Island, ME.	Spring and Summer	up to 650 trawls/year	Y
Tagging Projects	Spiny dogfish tagging projects. Spiny dogfish tagging north and south of Cape Cod, and Cusk & NE multi-species tagging.	Hook & Line; Gillnet	Hook & Line and Gillnet.	GOM and GB waters adjacent to Cape Cod, MA.	Spring, Summer and Fall.	Long line: 5 sets/trip, 15 total. Gillnet: 5 sets/trip, 15 total.	Y

TABLE 1—PROPOSED NEFSC FISHERIES RESEARCH SURVEYS—Continued

Project name	Survey description	Gear	Specific gear	Area of operation	Season	Annual days at sea (DAS)	Potential for take (Y/N)
Tagging Projects	Monkfish tagging projects	Gillnet	Gillnet	GOM, SNE, MAB	September–December.	18–20 DAS, 10 short-duration sets/day, 180–200 sets total.	Y
Ropeless Lobster Trap Research.	Research to develop ropeless gear/devices to mitigate/eliminate interactions with protected species (whales and turtles) by utilizing commercial lobster gear.	Lobster Pots/Traps	Acoustic/mechanical releases for ropeless lobster gear and float lines.	GOM, SNE, MAB (Inshore and Offshore).	Summer and Fall	50–100 DAS, 500 sets, singles and up to 40 pots per set.	N
Rod and Reel Tagging of Atlantic Salmon.	Use of rod and reel to capture, tag, release Atlantic salmon in international and US waters.	Rod and Reel	Acoustic tags	ME, Greenland	Summer and Fall	200–500 tags applied total.	N
Continuous Plankton Recorder (CPR) Transect Surveys: GOM.	A towed continuous plankton recording device is deployed from vessels of opportunity in the Gulf of Maine, monthly.	Towed array	CPR	ME to Nova Scotia	Summer and Fall	24 DAS	N

Description of NEFSC's Active Acoustic Devices

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

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

The types of active sources employed in fisheries acoustic research and monitoring may be considered in two broad categories here, based largely on their respective operating frequency (*e.g.,* within or outside the known audible range of marine species) and other output characteristics (*e.g.,* signal duration, directivity). As described below, these operating characteristics result in differing potential for acoustic impacts on marine mammals.

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

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

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

1. *Multi-Frequency Narrow Beam Scientific Echosounders*—Echosounders and sonars work by transmitting acoustic pulses into the water that travel through the water column, reflect off the seafloor, and return to the receiver. Water depth is measured by multiplying the time elapsed by the speed of sound in water (assuming accurate sound speed measurement for the entire signal path), while the returning signal itself carries information allowing ''visualization'' of the seafloor. Multi-frequency split-beam sensors are deployed from NEFSC survey vessels to acoustically map the distributions and estimate the abundances and biomasses of many types of fish; characterize their biotic and abiotic environments; investigate ecological linkages; and gather information about their schooling behavior, migration patterns, and avoidance reactions to the survey vessel. The use of multiple frequencies allows coverage of a broad range of marine acoustic survey activity, ranging from studies of small plankton to large fish schools in a variety of environments from shallow coastal waters to deep ocean basins. Simultaneous use of several discrete echosounder frequencies facilitates accurate estimates of the size of individual fish, and can also be used for species identification based on differences in frequency-dependent acoustic backscattering between species. The NEFSC operates Simrad EK500 and EK60 systems, which

transmits and receives at six frequencies ranging from 18 to 333 kHz.

2. *Multibeam Echosounder and Sonar*—Multibeam echosounders and sonars operate similarly to the devices described above. However, the use of multiple acoustic ''beams'' allows coverage of a greater area compared to single beam sonar. The sensor arrays for multibeam echosounders and sonars are usually mounted on the keel of the vessel and have the ability to look horizontally in the water column as well as straight down. Multibeam echosounders and sonars are used for mapping seafloor bathymetry, estimating fish biomass, characterizing fish schools, and studying fish behavior. The NEFSC operates the Simrad ME70 system, which is mounted to the hull of the research vessels and emits frequencies in the 70–120 kHz range.

3. *Single-Frequency Omnidirectional Sonar*—Low-frequency, high-resolution, long range fishery sonars operate with user selectable frequencies between 20–30 kHz, which provide longer range and prevent interference from other vessels. These sources provide omnidirectional imaging around the source with three different vertical beamwidths available (single or dual vertical view and 4–5° variable for tilt angles from 0 to 45° from horizontal). At the 30-kHz operating frequency, the vertical beamwidth is less than 7° and can be electronically tilted from +10 to −80°, which results in differential transmitting beam patterns. The cylindrical multi-element transducer allows the omnidirectional sonar beam to be electronically tilted down to –60°, allowing automatic tracking of schools of fish within the entire water volume around the vessel. The NEFSC operates the Simrad SX90 system.

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

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

5. *Net Monitoring Systems*—During trawling operations, a range of sensors may be used to assist with controlling and monitoring gear. Net sounders give information about the concentration of fish around the opening to the trawl, as well as the clearances around the opening and the bottom of the trawl; catch sensors give information about the rate at which the codend is filling; symmetry sensors give information about the optimal geometry of the trawls; and tension sensors give information about how much tension is in the warps and sweeps. The NEFSC uses the NetMind System which measures door spread and monitors the door height off of the bottom and operates at 30 and 200 kHz. The NEFSC also uses a Simrad ITI Catch Monitoring System, which allows monitoring of the exact position of the gear and of what is happening in and around the trawl.

TABLE 2—OPERATING CHARACTERISTICS OF NEFSC ACTIVE ACOUSTIC SOURCES

Active acoustic system	Operating frequencies	Maximum source level	Single ping duration (ms) and repetition rate (Hz)	Orientation/directionality	Nominal beamwidth (degrees)
Simrad EK500 and EK60 narrow beam echosounders.	18, *38, 70, 120, 200,* 333 kHz; primary frequencies italicized.	224 dB	Variable; most common settings are 1 ms and 0.5 Hz.	Downward looking	7° at 38 kHz, 11° at 18 kHz.
Simrad ME70 multibeam echosounder.	70–120 kHz	205 dB	0.06–5 ms; 1–4 Hz	Primarily downward looking	140°.
Simrad SX90 narrow beam sonar.	20–30 kHz	219 dB	Variable	Omnidirectional	4–5° (variable for tilt angles from 0–45° from horizontal).
Teledyne RD Instruments ADCP, Ocean Surveyor.	75 kHz	224 dB	0.2 Hz	Downward looking	30°.
Simrad ITI Catch Monitoring System.	27–33 kHz	214 dB	0.05–0.5 Hz	Downward looking	40°.
Raymarine SS260 transducer for DSM300 (surrogate for FCV–292).	50, 200 kHz	217 dB	Unknown	Downward looking	19° at 50 kHz, 6° at 200 kHz.
Simrad EQ50	50, 200 kHz	210 dB	Variable	Downward looking	16° at 50 kHz, 7° at 200 kHz.
NetMind	30, 200 kHz	190 dB	Unknown	Downward looking	50°.

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 NEFSC's LOA application summarize available

information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Species and stock information is also provided in NMFS' 2015 proposed rule associated with the current LOA (80 FR 39542; July 9, 2015), NMFS's 2016 Final Programmatic EA (available *at https://www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-nefsc-fisheries-and-ecosystem-research*) and, where updates are necessary, NMFS 2019 draft supplemental programmatic EA (available at *https://www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-northeast-fisheries-science-center-fisheries-and*). Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS's website (*https://www.fisheries.noaa.gov/find-species*).

Table 3 lists all species or stocks for which take is expected and proposed to be authorized for this action, 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). 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's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Atlantic and Gulf of Mexico SARs (*e.g.,* Hayes et al., 2020). All values presented in Table 3 are the most recent available at the time of publication and are available in the draft 2020 SARs (available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*).

TABLE 3—MARINE MAMMAL PRESENT WITHIN THE NORTHEAST U.S. CONTINENTAL SHELF LARGE MARINE ECOSYSTEM

Common name	Scientific name	Stock	ESA/MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR [3]	Total annual M/SI [3]
Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)						
Family Balaenidae (right whales):						
North Atlantic right whale	*Eubalaena glacialis*	Western Atlantic	E/D; Y	368 (0, 356, 2020) [4]	0.8	[5] 18.6
Family Balaenopteridae (rorquals):						
Blue whale [5]	*Balaenoptera musculus*	Western North Atlantic	E/D; Y	Unk (n/a, 402, 1980–2008)	0.8	0
Minke whale	*Balaenoptera acutorostrata acutorostrata.*	Canadian East Coast	–; N	21,968 (0.31, 17,002, 2016)	170	[7 8] 10.6
Sei whale	*B. borealis borealis*	Nova Scotia	E/D; Y	6,292 (1.02, 3,098, 2016)	6.2	[9] 1.2
Fin whale	*B. physalus physalus*	Western North Atlantic	E/D; Y	6,802 (0.24, 5,573, 2016)	11	[10] 2.35
Humpback whale	*Megaptera novaeangliae novaeangliae.*	Gulf of Maine	E/D; Y	1,393 (0.15, 1,375, 2016)	22	[11] 58
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Physeteridae:						
Sperm whale	*Physeter macrocephalus*	Western North Atlantic	E/D; Y	4,349 (0.28, 3,451, 2016)	3.9	0
Family Kogiidae:						
Pygmy sperm whale	*Kogia breviceps*	Western North Atlantic	–; N	7,750 (0.38, 5,689, 2016)	46	0
Dwarf sperm whale	*K. sima*	Western North Atlantic	–; N	7,750 (0.38, 5,689, 2016)	46	0
Family Ziphiidae (beaked whales):						
Northern bottlenose whale	*Hyperoodon ampullatus*	Western North Atlantic	–; N	Unk	Unk	0
Blainville's beaked whale	*Mesplodon densirostris*	Western North Atlantic	–; N	10,107 (0.27, 8,085, 2016) [12]	81	0.2
Sowerby's beaked whale	*M. bidens*	Western North Atlantic	–; N	10,107 (0.27, 8,085, 2016) [12]	81	0
Gervais' beaked whale	*M. europaeus.*					
True's beaked whale	*M. mirus.*					
Cuvier's beaked whale	*Ziphius cavirostris*	Western North Atlantic	–; N	5,744 (0.36, 4,282, 2016)	43	0.2
Family Delphinidae:						
Short-beaked common dolphin.	*Delphinus delphis delphis*	Western North Atlantic	–; N	172,825 (0.55, 112,531, 2007)	1,125	[8] 289
Pygmy killer whale	*Feresa attenuata*	Western North Atlantic	–; N	Unk	Unk	Unk
Short-finned pilot whale	*Globicephala macrorhynchus.*	Western North Atlantic	–; N	28,924 (0.24, 23,637, 2016)	236	160
Long-finned pilot whale	*G. melas*	Western North Atlantic	–; N	39,215 (0.30, 30,627, 2016)	306	21
Risso's dolphin	*Grampus griseus*	Western North Atlantic	–; N	35,493 (0.19, 30,289, 2016)	303	54.3
Fraser's dolphin	*Lagenodelphis hosei*	Western North Atlantic	–; N	Unk	Unk	0
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Western North Atlantic	–; N	93,233 (0.71, 54,443, 2016)	544	26
White-beaked dolphin	*L. albirostris*	Western North Atlantic	–; N	536,016 (0.31, 415,344, 2016)	4,153	0
Killer whale	*Orcinus orca*	Western North Atlantic	–; N	Unk	Unk	0
Melon-headed whale	*Peponocephala electra*	Western North Atlantic	–; N	Unk	Unk	0
Pantropical spotted dolphin	*Stenella attenuata*	Western North Atlantic	–; N	6,593 (0.52, 4,367, 2016)	44	0
Clymene dolphin	*S. clymene*	Western North Atlantic	–; N	4,237 (1.03, 2,071, 2016	21	0
Striped dolphin	*S. coeruleoalba*	Western North Atlantic	–; N	67,036 (0.29, 52,939, 2016)	529	0
Atlantic spotted dolphin	*S. frontalis*	Western North Atlantic	–; N	39,921 (0.27, 32,032, 2016)	320	0

TABLE 3—MARINE MAMMAL PRESENT WITHIN THE NORTHEAST U.S. CONTINENTAL SHELF LARGE MARINE ECOSYSTEM—Continued

Common name	Scientific name	Stock	ESA/MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR [3]	Total annual M/SI [3]
Spinner dolphin	*S. longirostris*	Western North Atlantic	–; N	4,102 (0.99, 2,045, 2016)	20	0
Rough-toothed dolphin	*Steno bredanensis*	Western North Atlantic	–; N	136 (1.0, 67, 2016)	0.7	0
Bottlenose dolphin	*Tursiops truncatus truncatus.*	Western North Atlantic (WNA) Offshore.	–; N	62,851 (0.23, 51,914, 2016)	519	28
		WNA Northern Migratory Coastal.	–/D; Y	6,639 (0.41, 4,759, 2016)	48	[13] 1.2–21.5
Family Phocoenidae (porpoises):						
Harbor porpoise	*Phocoena phocoena phocoena.*	Gulf of Maine/Bay of Fundy Stock.	–; N	95,543 (0.31, 74,034, 2016)	851	[8] 217
Order Carnivora—Superfamily Pinnipedia						
Family Phocidae (earless seals):						
Gray seal	*Halichoerus grypus grypus*	Western North Atlantic	–; N	27,131 (0.19, 23,158, 2016)	1,389	[8] 4,729
Harbor seal	*Phoca vitulina vitulina*	Western North Atlantic	–; N	75,834 (0.15, 66,884, 2012)	2,006	[8] 350

[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. NMFS automatically designates any species or stock listed under the ESA as depleted and as a strategic stock under the MMPA.

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

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

[4] Abundance estimate taken from Pace et al., 2021.

[5] Total M/SI of 18.6 for this species is model-derived and not broken down by cause. The fishery contribution of 6.85 is observed interactions only.

[6] Given the small proportion of the distribution range that has been sampled and considering the low number of blue whales encountered and photographed, the current data, based on photo-identification, do not allow for an estimate of abundance of this species in the Northwest Atlantic with a minimum degree of certainty (Sears *et al.* 1987; Hammond et al. 1990; Sears *et al.* 1990; Sears and Calambokidis 2002; Fisheries and Oceans Canada 2009).

[7] The total estimated human-caused mortality and serious injury to the Canadian East Coast minke whale stock is estimated as 10.6 per year (9.15 attributable to fisheries).

[8] The NEFSC has historically taken this species in NEFSC research surveys (2004–2015) (see Tables 6–8).

[9] The total estimated human-caused mortality and serious injury to the Nova Scotia sei whale stock is estimated as 1.2 per year (0.4 attributable to fisheries).

[10] The total estimated human-caused mortality and serious injury to the Western North Atlantic fin whale stock is estimated as 2.35 per year (1.55 attributable to fisheiries).

[11] Total M/SI of 58 for this species is model-derived and not broken down by cause. The fishery contribution of 9.5 is observed interactions obly.

[12] The total number of this species of beaked whale off the eastern U.S. and Canadian Atlantic coast is unknown, and seasonal abundance estimates are not available for this stock. However, several estimates of the undifferentiated complex of beaked whales (*Ziphius* and *Mesoplodon spp.*) from selected regions are available for select time periods (Barlow *et al.* 2006) as well as two estimates of *Mesoplodon spp.* beaked whales alone (Waring *et al.,* 2015).

[13] The Northern migratory stock of common bottlenose dolphins may interact with unobserved fisheries. Therefore, a range of human-caused mortality and serious injury for this stock is presented.

As indicated above, all 35 number species (comprising 37 managed stocks) in Table 3 temporally and spatially co-occur with the surveys provided in Table 1 to the degree that take is reasonably likely to occur, and we have proposed authorizing it. While beluga (*Delphinapterus leucas*), Bryde's (*Balaenoptera edeni*), false killer (*Pseudorca crassidens*) whales, harp seals (*Pagophilus groenlandica*) and hooded seals (*Cystophora cristata*) have been documented in the area, these occurrence records are rare and are considered beyond the normal range of the species.

In addition, the manatee (*Trichechus manatus latirostris*) may be found in the MAB and SE LME. However, manatee are managed by the U.S. Fish and Wildlife Service and are not considered further in this document.

A full description of the biology, ecology, and threats to marine mammals listed in Table 3 can be found in NMFS proposed rule for the initial LOA (80 FR 39542; July 9, 2015), NEFSC's application, and NMFS' Programmatic Environmental Assessment (NMFS, 2016). Please refer to those documents for those descriptions. Table 3 updates information regarding abundance and human interaction and below we update on take reduction planning, unusual mortality events, and biologically important areas.

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

For marine mammals in specified geographic region of NEFSC research programs, there are currently four take reduction plans in effect (the Atlantic Large Whale Take Reduction Plan, the Bottlenose Dolphin Take Reduction Plan, the Harbor Porpoise Take Reduction Plan, and the Pelagic Longline Take Reduction Plan). As discussed earlier in the ''Proposed Mitigation'' section, the NEFSC and NEFSC cooperative research projects comply with applicable TRP mitigation measures and gear requirements specified for their respective fisheries and areas.

The Atlantic Large Whale Take Reduction Plan (ALWTRP)—The goal of this plan is to reduce mortality/serious injury (M/SI) of North Atlantic right, humpback, fin, and minke whales in several northeast fisheries that use lobster trap/pots and gillnets. Gear modification requirements and restrictions vary by location, date, and

gear type but may include the use of weak links, and gear marking and configuration specifications. Detailed requirements may be found in the regional guides to gillnet and pot/trap gear fisheries available at: *http://www.greateratlantic.fisheries.noaa.gov/Protected/whaletrp/.*

Of the species/stocks of concern in the ALWTRP, the NEFSC has requested the authorization of incidental M/SI harassment for the minke whale only (see ''Estimated Take by Incidental Harassment'' later in this document).

The Bottlenose Dolphin Take Reduction Plan—The goal of this plan is to reduce M/SI of coastal bottlenose dolphins incidental to the North Carolina inshore gillnet, Southeast Atlantic gillnet, Southeastern U.S. shark gillnet, U.S. Mid-Atlantic coastal gillnet, Atlantic blue crab trap/pot, Mid-Atlantic haul/beach seine, North Carolina long haul seine, North Carolina roe mullet stop net, and Virginia pound net fisheries (71 FR 24776, April 26, 2006). The following general requirements were implemented: Spatial/temporal gillnet restrictions, gear proximity (fishermen must stay within a set distance of gear), gear modifications, non-regulatory conservation measures, and a revision to the large mesh gillnet size restriction. Detailed requirements may be found at: *http://www.nmfs.noaa.gov/pr/interactions/trt/bdtrp.htm.*

Of the species/stocks of concern in the take reduction plan, the NEFSC has requested the authorization of incidental M/SI for two stocks of bottlenose dolphins, one of which belongs to a coastal stock covered in the take reduction plan (see ''Estimated Take by Incidental Harassment'' later in this document).

The Harbor Porpoise Take Reduction Plan—The goal of this plan is to reduce interactions between harbor porpoises and commercial gillnet gear fisheries in the New England and the Mid-Atlantic areas. Management includes seasonal time and area closures that correspond with peak seasonal abundances of harbor porpoises and gear modification requirements such as the use of pingers, floatline length, twine size, tie downs, net size, net number, and numbers of nets per string. Detailed requirements may be found at: *http://www.greateratlantic.fisheries.noaa.gov/protected/porptrp/.*

The NEFSC has requested the authorization of incidental M/SI harassment for harbor porpoises (see ''Estimated Take by Incidental Harassment'' later in this document).

The Pelagic Longline Take Reduction Plan—The plan addresses M/SI of long-finned and short-finned pilot whales as well as Risso's, common, and Atlantic white-sided dolphins in commercial pelagic longline fishing gear in the Atlantic. Regulatory measures include limiting mainline length to 20 nautical miles or less within the Mid-Atlantic Bight and posting an informational placard on careful handling and release of marine mammals in the wheelhouse and on working decks of the vessel. Detailed requirements are on the internet at: *http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/atgtrp/.*

Of the species/stocks of concern in the take reduction plan, the NEFSC has requested the authorization of incidental M/SI harassment for Risso's, common, Atlantic spotted dolphin, and Atlantic white-sided dolphins (see ''Estimated Take by Incidental Harassment'' later in this document).

Unusual Mortality Events (UME)—The MMPA defines a UME as ''a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response.'' From 1991 to the present, there have been 22 formally recognized UMEs in the Atlantic coast region involving species under NMFS' jurisdiction. Four of those 22 UME are currently open and involve the following species: North Atlantic right whales (NARWs), humpback whales, minke whales, and harbor and gray seals.

NARW UME—Beginning in 2017, elevated mortalities in NARWs have been documented, primarily in Canada but some in the U.S. and were collectively declared an Unusual Mortality Event (UME). In 2017, there were a total of 17 confirmed dead stranded whales (12 in Canada; 5 in the United States) and in 2018, three confirmed dead stranded whales in the United States. In 2019, nine dead whales stranded in Canada, and one dead whale stranded in the United States. In 2020, two mortalities were documented. To date in 2021, two mortalities has been documented. The current total confirmed mortalities for the UME are 34 dead stranded whales (21 in Canada; 13 in the United States), and the leading category for the cause of death for this UME is ''human interaction,'' specifically from entanglements or vessel strikes. Additionally, since 2017, 15 live free-swimming non-stranded whales have been documented with serious injuries from entanglements or vessel strikes. More information on this UME can be found at *https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2021-north-atlantic-right-whale-unusual-mortality-event.*

Atlantic Humpback Whale UME—Since January 2016, elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida. In total, 147 whales have stranded along the eastern seaboard. The majority of strandings have occurred from the Outer Banks, NC to Massachusetts. Partial or full necropsy examinations were conducted on approximately half of the whales. Of the whales examined, about 50 percent had evidence of human interaction, either ship strike or entanglement. More information on this UME can be found at *https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2021-humpback-whale-unusual-mortality-event-along-atlantic-coast.*

Atlantic Minke Whale UME—Since January 2017, elevated minke whale mortalities have occurred along the Atlantic coast from Maine through South Carolina. In total 105 whales have stranded, the majority along the New England coast. More information on this UME can be found at *https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2021-minke-whale-unusual-mortality-event-along-atlantic-coast.*

Northeast Pinniped UME—Since July 2018, elevated numbers of harbor seal and gray seal mortalities have occurred across Maine, New Hampshire and Massachusetts. Additionally, seals showing clinical signs have stranded as far south as Virginia, although not in elevated numbers, therefore the UME investigation now encompasses all seal strandings from Maine to Virginia. In total, 3,152 seals have stranded along the mid-Atlantic and New England coast. Full or partial necropsy examinations have been conducted on some of the seals and samples have been collected for testing. Based on tests conducted so far, the main pathogen found in the seals is phocine distemper virus. More information about this UME can be found at *https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/2018-2020-pinniped-unusual-mortality-event-along.*

Of these species involved in active UMEs, the NEFSC has requested, and we propose to authorize, the incidental take, by mortality or serious injury, of minke whales, and harbor and gray seals. The NEFSC has also requested, and we are proposing to authorize, take by Level B harassment for each of these species incidental to the use of active acoustic equipment during fisheries and ecosystem research. See ''Estimated Take'' later in this document for more

information regarding the proposed take.

Biologically Important Areas

In 2015, NOAA's Cetacean Density and Distribution Mapping Working Group identified Biologically Important Areas (BIAs) for 24 cetacean species, stocks, or populations in seven regions (US East Coast, Gulf of Mexico, West Coast, Hawaiian Islands, Gulf of Alaska, Aleutian Islands and Bering Sea, and Arctic) within U.S. waters through an expert elicitation process. BIAs are reproductive areas, feeding areas, migratory corridors, and areas in which small and resident populations are concentrated. BIAs are region-, species-, and time-specific. A description of the types of BIAs found within NEFSC fishery research areas follows:

Reproductive Areas: Areas and months within which a particular species or population selectively mates, gives birth, or is found with neonates or other sensitive age classes.

Feeding Areas: Areas and months within which a particular species or population selectively feeds. These may either be found consistently in space and time, or may be associated with ephemeral features that are less predictable but can be delineated and are generally located within a larger identifiable area.

Migratory Corridors: Areas and months within which a substantial portion of a species or population is known to migrate; the corridor is typically delimited on one or both sides by land or ice.

Small and Resident Population: Areas and months within which small and resident populations occupying a limited geographic extent exist.

The delineation of BIAs does not have direct or immediate regulatory consequences. Rather, the BIA assessment is intended to provide the best available science to help inform analyses and planning for applicants, and to support regulatory and management decisions under existing authorities, and to support the reduction of anthropogenic impacts on cetaceans and to achieve conservation and protection goals. In addition, the BIAs and associated information may be used to identify information gaps and prioritize future research and modeling efforts to better understand cetaceans, their habitat, and ecosystems. Table 4 provides a list of BIAs found within NEFSC fisheries research areas.

TABLE 4—BIOLOGICALLY IMPORTANT AREAS WITHIN NEFSC RESEARCH AREAS

BIA name	Species	BIA type	Time of year	Size (km^2)
Southwestern Gulf of Maine and George's Bank.	Minke whale	Feeding	March–Nov	54,341
Eastern Atlantic	NARW	Migration	North: March–April; South: Nov–Dec	269,448
East of Montauk Point	Fin whale	Feeding	March–Oct	2,933
Great South Channel and George's Bank Shelf.	NARW	Feeding	April–June	12,247
Cape Cod Bay and MA Bay	NARW	Feeding	Feb–April	3,149
Southern Gulf of Maine	Fin whale	Feeding	Year-round	18,015
Jeffreys Ledge	NARW	Feeding	June–July; Oct–Dec	702
Gulf of Maine/Stellwagon Bank/Great South Channel.	Humpback whale	Feeding	March–Dec	47,701
Gulf of Maine	NARW	Reproduction	Nov–Jan	8,214
Central Gulf of Main—Parker Ridge and Cashes Ledge.	Minke whale	Feeding	March–Nov	2,256
Gulf of Maine	Harbor porpoise	Small and resident	July–Sept	12,211
Gulf of Maine	Sei whale	Feeding	May–Nov	56,609
Northern Gulf of Maine	Fin whale	Feeding	June–Oct	6,146

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. Generalized hearing ranges were chosen based on the approximately 65 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 5.

TABLE 5—MARINE MAMMAL HEARING GROUPS

[NMFS, 2018]

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

TABLE 5—MARINE MAMMAL HEARING GROUPS—Continued

[NMFS, 2018]

Hearing group	Generalized hearing range *
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. Thirty-eight marine mammal species (33 cetacean and 2 pinniped (2 phocid) species) have the reasonable potential to co-occur with the proposed survey activities. Please refer to Table 3. Of the cetacean species that may be present, 6 are classified as low-frequency cetaceans (*i.e.,* all mysticete species), 25 are classified as mid-frequency cetaceans (*i.e.,* all delphinid and ziphiid species and the sperm whale), and 3 are classified as high-frequency cetaceans (*i.e.,* harbor porpoise and *Kogia spp.*).

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The Estimated Take section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The Negligible Impact Analysis and Determination section considers the content of this section, 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.

We note that the potential effects from NEFSC fisheries and ecosystem research (*i.e.,* gear interaction and acoustic impacts) remain the same as those described in the **Federal Register** notices associated with the issuance of the NEFSC's current LOA. Effects to marine mammals are also described in NMFS' 2020 Draft Supplemental EA. We reiterate that information here and, where appropriate, we updated the information to reflect data contained within the NEFSC's annual monitoring reports received pursuant to the 2016–2021 LOA.

Ship Strike

Vessel collisions with marine mammals, or ship strikes, can result in death or serious injury of the animal. Wounds resulting from ship strike may include massive trauma, hemorrhaging, broken bones, or propeller lacerations (Knowlton and Kraus, 2001). An animal at the surface may be struck directly by a vessel, a surfacing animal may hit the bottom of a vessel, or an animal just below the surface may be cut by a vessel's propeller. More superficial strikes may not kill or result in the death of the animal. These interactions are typically associated with large whales (*e.g.,* fin whales), which are occasionally found draped across the bulbous bow of large commercial ships upon arrival in port. Although smaller cetaceans or pinnipeds are more maneuverable in relation to large vessels than are large whales, they may also be susceptible to strike. 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).

Pace and Silber (2005) found that the probability of death or serious injury increased rapidly with increasing vessel speed. Specifically, the predicted probability of serious injury or death increased from 45 to 75 percent as vessel speed increased from 10 to 14 nautical mile per hour (kts), and exceeded ninety percent at 17 kts. Higher speeds during collisions result in greater force of impact, but higher speeds also appear to increase the chance of severe injuries or death through increased likelihood of collision by pulling whales toward the vessel (Clyne, 1999; Knowlton *et al.,* 1995). In a separate study, Vanderlaan and Taggart (2007) analyzed the probability of lethal mortality of large whales at a given speed, showing that the greatest rate of change in the probability of a lethal injury to a large whale as a function of vessel speed occurs between 8.6 and 15 kt. The chances of a lethal injury decline from approximately eighty percent at 15 kts to approximately twenty percent at 8.6 kts. At speeds below 11.8 kts, the chances of lethal injury drop below fifty percent, while the probability asymptotically increases toward one hundred percent above 15 kt.

In an effort to reduce the number and severity of strikes of the endangered NARW, NMFS implemented speed restrictions in 2008 (73 FR 60173; October 10, 2008). These restrictions require that vessels greater than or equal to 65 ft (19.8 m) in length travel at less than or equal to 10 kn near key port entrances and in certain areas of right whale aggregation along the U.S. eastern seaboard. Conn and Silber (2013) estimated that these restrictions reduced total ship strike mortality risk levels by eighty to ninety percent.

For vessels used in NEFSC research activities, transit speeds average 10 kt (but vary from 6–14 kt), while vessel speed during active sampling is typically only 2 to 4 kt. At sampling speeds, both the possibility of striking a marine mammal and the possibility of a strike resulting in serious injury or mortality are discountable. At average transit speed, the probability of serious injury or mortality resulting from a strike, if one occurred, is less than fifty percent. However, the likelihood of a strike actually happening is again discountable. Ship strikes, as analyzed in the studies cited above, generally involve commercial shipping, which is much more common in both space and time than is research activity. 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 three percent of recorded collisions,

while only one such incident (0.75 percent) was reported for a research vessel during that time period.

It is possible for ship strikes to occur while traveling at slow speeds. For example, a NOAA-chartered survey vessel traveling at low speed (5.5 kt) while conducting multi-beam mapping surveys off the central California coast struck and killed a blue whale in 2009. The State of California determined that the whale had suddenly and unexpectedly surfaced beneath the hull, with the result that the propeller severed the whale's vertebrae, and that this was an unavoidable event. This strike represents the only such incident in approximately 540,000 hours of similar coastal mapping activity ($p = 1.9 \times 10^{-6}$; 95% CI = 0–5.5×10^{-6}; NMFS, 2013). In addition, a non-NEFSC research vessel reported a fatal strike in 2011 of a dolphin in the Atlantic, demonstrating that it is possible for strikes involving smaller cetaceans or pinnipeds to occur. In that case, the incident report indicated that an animal apparently was struck by the vessel's propeller as it was intentionally swimming near the vessel. While indicative of the type of unusual events that cannot be ruled out, neither of these instances represents a circumstance that would be considered reasonably foreseeable or that would be considered preventable.

In summary, we anticipate that vessel collisions involving NEFSC research vessels, while not impossible, represent unlikely, unpredictable events. NEFSC has not documented any ship strikes or near-misses in their monitoring reports pursuant to the current LOA. In addition, there are several preventive measures to minimize the risk of vessel collisions with right whales and other species of marine mammals. The compliance guide for the right whale ship strike reduction rule states that all vessels 19.8 m in overall length or greater must slow to speeds of 10 kts or less in seasonal management areas. Northeast U.S. Seasonal Management Areas include: Cape Cod Bay (1 Jan–15 May), off Race Point (1 Mar–30 Apr) and GSC (1 Apr–31 July). Mid-Atlantic Seasonal Management Areas include several port or bay entrances from 1 November to 30 April. When operating in these Seasonal Management Areas, Dynamic Management Areas, or in the vicinity of right whales or surface active groups of large baleen whales the vessel's speed will not exceed 10 kts. The purpose of this mandatory regulation is to reduce the likelihood of deaths and serious injuries to these endangered whales that result from collisions with a vessel (78 FR 73726, December 9, 2013). Further, because vessels of all sizes can strike a whale, NEFSC research vessels will also reduce speed and change course in the vicinity of resting groups of large whales. When transiting between sampling stations, research vessels can travel at speeds of up to 14 knots. However, when NEFSC vessels are operating in right whale Seasonal Management Areas, Dynamic Management Areas, or at times and locations when whales are otherwise known to be present, they operate at speeds no greater than 10 knots.

NEFSC research vessel captains and crew watch for marine mammals while underway during daylight hours and take necessary actions to avoid them. NEFSC surveys using large NOAA vessels (*e.g.,* R/V *Henry B. Bigelow*) include one bridge crew dedicated to watching for obstacles at all times, including marine mammals. At any time during a survey or in transit, any bridge personnel that sights protected species that may intersect with the vessel course immediately communicates their presence to the helm for appropriate course alteration or speed reduction as possible to avoid incidental collisions, particularly with large whales (*e.g.,* NARWs).

Finally, the Right Whale Sighting Advisory System (RWSAS) is a NMFS program designed to reduce collisions between ships and the critically endangered NARW by alerting mariners to the presence of the right whales. All NOAA research vessels operating in NARW habitat participate in the RWSAS.

No ship strikes have been reported from any fisheries research activities conducted or funded by the NEFSC in the Atlantic coast region. Given the relatively slow speeds of research vessels, the presence of bridge crew watching for obstacles at all times (including marine mammals), the presence of marine mammal observers on some surveys, and the small number of research cruises, 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, and this potential effect of research will not be discussed further in the following analysis.

Fishing Gear Interactions

Marine mammals are known to regularly remove catch or bait (*i.e.,* depredate) from commercial fisheries' lines or nets, and some species (primarily pinnipeds) take fish from mariculture pens. Depredation has been documented in over 30 species of marine mammals and from various types of gear (*e.g.,* Read 2008; Reeves et al., 2013; Werner et al., 2015). For example, some individuals in populations of sperm, killer, false killer, and pilot whales around the world have become adept at removing a variety of fish species from longline hooks, a behavior also exhibited by other toothed whales and dolphins in a wide range of fisheries. Other species have learned to take catch from trawl or gill nets (*e.g.,* Kovaks et al., 2017).

Marine mammals are widely regarded as being quite intelligent and inquisitive, and when their pursuit of prey coincides with human pursuit of the same resources, it should be expected that physical interaction with fishing gear may occur (*e.g.,* Beverton, 1985). Fishermen and marine mammals are both drawn to areas of high prey density, and certain fishing activities may further attract marine mammals by providing food (*e.g.,* bait, captured fish, bycatch discards) or by otherwise making it easier for animals to feed on a concentrated food source. Provision of foraging opportunities near the surface may present an advantage by negating the need for energetically expensive deep foraging dives (Hamer and Goldsworthy, 2006). Trawling, for example, can make available previously unexploited food resources by gathering prey that may otherwise be too fast or deep for normal predation, or may concentrate calories in an otherwise patchy landscape (Fertl and Leatherwood, 1997). Pilot whales, which are generally considered to be teuthophagous (*i.e.,* feeding primarily on squid), were commonly observed in association with Atlantic mackerel (*Scomber scombrus*) trawl fisheries from 1977–88 in the northeast U.S. EEZ (Waring *et al.,* 1990). Not surprisingly, stomach contents of captured whales were observed to have high proportions of mackerel (68 percent of non-trace food items), indicating that the ready availability of a novel, concentrated, high-calorie prey item resulted in changed dietary composition (Read, 1994).

These interactions can result in injury or death for the animal(s) involved and/or damage to fishing gear. Coastal animals, including various pinnipeds, bottlenose dolphins, and harbor porpoises, are perhaps the most vulnerable to these interactions. They are most likely to interact with set or passive fishing gear such as gillnets, traps (Beverton, 1985; Barlow *et al.,* 1994; Read *et al.,* 2006; Byrd *et al.,* 2014; Lewison et al., 2014). Although interactions are less common for use of trawl nets and longlines, they do occur

with sufficient frequency to necessitate the establishment of required mitigation measures for multiple U.S. fisheries using both types of gear (NMFS, 2014). It is likely that no species of marine mammal can be definitively excluded from the potential for interaction with fishing gear (*e.g.,* Northridge, 1984); however, the extent of interactions is likely dependent on the biology, ecology, and behavior of the species involved and the type, location, and nature of the fishery.

Trawl Nets

As described previously, trawl nets are towed nets (*i.e.,* active fishing) consisting of a cone-shaped net with a codend or bag for collecting the fish and can be designed to fish at the bottom, surface, or any other depth in the water column. Here we refer to bottom trawls and midwater trawls (*i.e.,* any net not designed to tend the bottom while fishing). Trawl nets in general have the potential to capture or entangle marine mammals, which have been known to be caught in bottom trawls, presumably when feeding on fish caught therein, and in midwater trawls, which may or may not be coincident with their feeding (Northridge, 1984).

Capture or entanglement may occur whenever marine mammals are swimming near the gear, intentionally (*e.g.,* foraging) or unintentionally (*e.g.,* migrating), and any animal captured in a net is at significant risk of drowning unless quickly freed. Animals can also be captured or entangled in netting or tow lines (also called lazy lines) other than the main body of the net; animals may become entangled around the head, body, flukes, pectoral fins, or dorsal fin. Interaction that does not result in the immediate death of the animal by drowning can cause injury (*i.e.,* Level A harassment) or serious injury. Constricting lines wrapped around the animal can immobilize the animal or injure it by cutting into or through blubber, muscles and bone (*i.e.,* penetrating injuries) or constricting blood flow to or severing appendages. Immobilization of the animal, if it does not result in immediate drowning, can cause internal injuries from prolonged stress and/or severe struggling and/or impede the animal's ability to feed (resulting in starvation or reduced fitness) (Andersen *et al.,* 2008).

Marine mammal interactions with trawl nets, through capture or entanglement, are well-documented. Dolphins are known to attend operating nets to either benefit from disturbance of the bottom or to prey on discards or fish within the net. For example, Leatherwood (1975) reported that the most frequently observed feeding pattern for bottlenose dolphins in the Gulf of Mexico involved herds following working shrimp trawlers, apparently feeding on organisms stirred up from the benthos. Bearzi and di Sciara (1997) opportunistically investigated working trawlers in the Adriatic Sea from 1990–94 and found that ten percent were accompanied by foraging bottlenose dolphins. However, midwater trawls have greater potential to capture cetaceans, because the nets may be towed at faster speeds, these trawls are more likely to target species that are important prey for marine mammals (*e.g.,* squid, mackerel), and the likelihood of working in deeper waters means that a more diverse assemblage of species could potentially be present (Hall *et al.,* 2000).

Globally, at least seventeen cetacean species are known to feed in association with trawlers and individuals of at least 25 species are documented to have been killed by trawl nets, including several large whales, porpoises, and a variety of delphinids (Karpouzli and Leaper, 2004; Hall *et al.,* 2000; Fertl and Leatherwood, 1997; Northridge, 1991). At least eighteen species of seals and sea lions are known to have been killed in trawl nets (Wickens, 1995). Generally, direct interaction between trawl nets and marine mammals (both cetaceans and pinnipeds) has been recorded wherever trawling and animals co-occur. Tables 8, 9, and 10 (later in this document) display more recent information regarding interactions specifically in U.S. fisheries and are more relevant to the development of take estimates for this proposed rule. In evaluating risk relative to a specific fishery (or comparable research survey), one must consider the size of the net as well as frequency, timing, and location of deployment. These considerations inform determinations of whether interaction with marine mammals is likely. For example, in most cases, research gear employs smaller nets and shorter longlines than commercial gear. Similarly, net soak times for research are often shorter than commercial fisheries and, in many cases, are monitored.

Longlines—Longlines are basically strings of baited hooks that are either anchored to the bottom, for targeting groundfish, or are free-floating, for targeting pelagic species and represent a passive fishing technique. Pelagic longlines, which notionally fish near the surface with the use of floats, may be deployed in such a way as to fish at different depths in the water column. For example, deep-set longlines targeting tuna may have a target depth of 400 m, while a shallow-set longline targeting swordfish is set at 30–90 m depth. We refer here to bottom and pelagic longlines. Any longline generally consists of a mainline from which leader lines (gangions) with baited hooks branch off at a specified interval, and is left to passively fish, or soak, for a set period of time before the vessel returns to retrieve the gear. Longlines are marked by two or more floats that act as visual markers and may also carry radio beacons; aids to detection are of particular importance for pelagic longlines, which may drift a significant distance from the deployment location. Pelagic longlines are generally composed of various diameter monofilament line and are generally much longer, and with more hooks, than are bottom longlines. Bottom longlines may be of monofilament or multifilament natural or synthetic lines.

Marine mammals may be hooked or entangled in longline gear, with interactions potentially resulting in death due to drowning, strangulation, severing of carotid arteries or the esophagus, infection, an inability to evade predators, or starvation due to an inability to catch prey (Hofmeyr *et al.,* 2002), although it is more likely that animals will survive being hooked if they are able to reach the surface to breathe. Injuries, which may include serious injury, include lacerations and puncture wounds. Animals may attempt to depredate either bait or catch, with subsequent hooking, or may become accidentally entangled. As described for trawls, entanglement can lead to constricting lines wrapped around the animals and/or immobilization, and even if entangling materials are removed the wounds caused may continue to weaken the animal or allow further infection (Hofmeyr *et al.,* 2002). Large whales may become entangled in a longline and then break free with a portion of gear trailing, resulting in alteration of swimming energetics due to drag and ultimate loss of fitness and potential mortality (Andersen *et al.,* 2008). Weight of the gear can cause entangling lines to further constrict and further injure the animal. Hooking injuries and ingested gear are most common in small cetaceans and pinnipeds but have been observed in large cetaceans (*e.g.,* sperm whales). The severity of the injury depends on the species, whether ingested gear includes hooks, whether the gear works its way into the gastrointestinal (GI) tract, whether the gear penetrates the GI lining, and the location of the hooking (*e.g.,* embedded in the animal's stomach

or other internal body parts) (Andersen *et al.,* 2008). Bottom longlines pose less of a threat to marine mammals due to their deployment on the ocean bottom, but can still result in entanglement in buoy lines or hooking as the line is either deployed or retrieved. The rate of interaction between longline fisheries and marine mammals depends on the degree of overlap between longline effort and species distribution, hook style and size, type of bait and target catch, and fishing practices (such as setting/hauling during the day or at night).

The NEFSC plans to use pelagic and bottom longline gear in four programs: The Apex Predators Bottom Longline Coastal Shark, Apex Predators Pelagic Nursery Grounds Shark, Apex Predator Pelagic Longline Shark, and Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) Longline surveys. The NEFSC has no recorded marine mammal interactions during the conduct of its pelagic and bottom longline surveys in the Atlantic coast region. While the NEFSC has not historically interacted with large whales or other cetaceans in its longline gear, documentation exists that some of these species are taken in commercial longline fisheries. NEFSC uses a shorter mainline length and lower number of hooks relative to that of commercial fisheries.

Gillnets—Marine mammal interactions with gillnets, through entanglement, are well-documented (Reeves *et al.,* 2013). At least 75 percent of odontocete species, 64 percent of mysticetes, 66 percent of pinnipeds, all sirenians, and marine mustelids have been recorded as gillnet bycatch over the past 20-plus years (Reeves *et al.,* 2013). Reeves et al. (2013) note that numbers of marine mammals killed in gillnets tend to be greatest for species that are widely distributed in coastal and shelf waters. Common dolphins and striped dolphins, for example, have continued to be taken in large numbers globally despite the fact that large-scale driftnet fishing on the high seas has been illegal since 1993, eliminating one source of very large bycatches of northern right whale dolphins and common dolphins (Reeves *et al.,* 2013).

Minke whales are probably especially vulnerable to gillnet entanglement for several reasons, including their near-shore and shelf occurrence, their proclivity for preying on fish species that are also targeted by net fisheries, and their small size and consequently greater difficulty (compared to the larger mysticetes) of extricating themselves once caught (Reeves *et al.,* 2013).

Entanglement in fishing gear and bycatch in commercial fisheries occur with regularity in the Northeast and Mid-Atlantic regions and are the primary known causes of mortality and serious injury for pinnipeds in these areas. Gillnets are responsible for most observed and reported bycatch for marine mammals (Lewison *et al.,* 2014; Zollett, 2009). From 2013–2017, the total human caused mortality and serious injury to harbor seals is estimated to be 350 per year (338 from fisheries and 12 from non-fishery-related interaction stranding mortalities) (Hayes, Josephson et al. 2020). The average annual estimated human-caused mortality and serious injury to gray seals in the U.S. and Canada was 5,410 per year for the period 2013–2017 (946 U.S./4,464 Canada). This average is based on: 940 from U.S. observed fisheries; 5.6 from non-fishery human interaction stranding and shooting mortalities in the U.S.; 0.8 from U.S. research mortalities; 672 Canadian commercial harvest; 55 from the DFO scientific collections; and 3,737 removals of nuisance animals in Canada (DFO 2017, Mike Hammill pers. comm; as cited in Hayes, Josephson et al. 2020).

Fyke Nets

Fyke nets are bag-shaped nets which are held open by frames or hoops. The fyke nets used in NEFSC survey activities are constructed of successively smaller plastic coated square metal tube frames that are covered with mesh net (0.6 centimeters for small, 1.9 centimeters for large). Each net has two throats tapering to a semi-rigid opening. The final compartment of the net is configured with a rigid framed live box (2 x 2 x 3 meters) at the surface for removal of catch directly from above without having to retrieve the entire net. Fyke nets are normally set inshore by small boat crews. It is unknown whether fyke nets have been responsible for marine mammal mortality or serious injury (NMFS 2021).

In commercial fisheries, fyke nets fall into Category III on the List of Fisheries. Although bycatch is well known and well studied in marine fisheries, there are few studies on bycatch in freshwater fisheries using fyke nets (Larocque *et al.,* 2011). Fyke nets are passive fishing gear that have limited species selectivity and are set for long durations (Hubert, 1996; Larocque *et al.,* 2011). Thus, this gear has the potential to capture non-targeted fauna that use the same habitat as targeted species, even without the use of bait (Larocque *et al.,* 2011). Mortality in fyke nets can arise from stress and injury associated with anoxia, abrasion, confinement, and starvation (Larocque *et al.,* 2011); however, it is unknown whether fyke nets have been responsible for marine mammal mortality or serious injury (NMFS 2021).

Other Research Gear—All other gears used in NEFSC fisheries research (*e.g.,* a variety of plankton nets, CTDs, ROVs) do not have the expected potential for marine mammal interactions, and are not known to have been involved in any marine mammal interaction. Specifically, these include CTDs, XBTs, CUFES, ROVs, small trawls (Oozeki, IKMT, MOCNESS, and Tucker trawls), plankton nets (Bongo, Pairovet, and Manta nets), and vertically deployed or towed imaging systems to be no-impact gear types.

Unlike trawl nets and longline gear, which are used in both scientific research and commercial fishing applications, these other gears are not considered similar or analogous to any commercial fishing gear and are not designed to capture any commercially-salable species, or to collect any sort of sample in large quantities. They are not considered to have the potential to take marine mammals primarily because of their design and how they are deployed. For example, CTDs are typically deployed in a vertical cast on a cable and have no loose lines or other entanglement hazards. A Bongo net is typically deployed on a cable, whereas neuston nets (these may be plankton nets or small trawls) are often deployed in the upper one meter of the water column; either net type has very small size (*e.g.,* two bongo nets of 0.5 m^2 each or a neuston net of approximately 2 m^2) and no trailing lines to present an entanglement risk. These other gear types are not considered further in this document.

NEFSC Gear Interactions

From 2004 through 2015, NEFSC documented ten individual marine mammals that were killed from interactions with NEFSC's gear: Six were killed due to capture in gillnets, a harbor seal suffered mortality in fyke nets, and one minke whale was caught in trawl gear and released alive. No interactions with NEFSC survey gear were observed in 2016, 2017 or 2018.

On September 24, 2019, during a Cooperative Research NTAP cruise sponsored by the NEFSC, a small common dolphin (Length = 231 cm approx. 150 lbs) was found dead from entanglement in fishing gear upon inspection of the catch. The gear was a 4 seam 3 bridle Bigelow trawl net with a spread restrictor cable. The take occurred during reduced visibility (at night/early morning conditions), so visually scanning for marine mammals

was difficult. Deployment of the net took place within fifteen minutes of arrival on station during which time no marine mammals were present or sighted during the approach or at the sampling site. Vessel personnel maintained watch for marine mammals during trawling operations. None were sighted, so the station was completed. The tows were short in duration (20 minutes) and the vessel maintained a consistent tow speed of 3 knots. During fishing, there was no indication there was a marine mammal in the net nor were any marine mammals observed. Upon completion of the trawl, the nets (twin trawl) were recovered and each catch was dumped immediately into a checker. It was at this time, the marine mammal was detected (fresh dead). No other marine mammals were observed in the net or in the water. More details on this interaction can be found the NEFSC 2019 Annual Monitoring available at *https://www.fisheries.noaa.gov/action/incidental-take-authorization-noaa-fisheries-nefsc-fisheries-and-ecosystem-research.* In 2020, no interactions with marine mammals occurred.

Acoustic Effects

Detailed descriptions of the potential effects of NEFSC's use of acoustic sources are provided in other **Federal Register** notice for the original incidental take regulations issued to the NEFSC (80 FR 39542; January 9, 2015) and, more recently, other NMFS Science Centers (*e.g.,* the ''Acoustic Effects'' section of the proposed rule for the taking of marine mammals incidental to NMFS Alaska Fisheries Science Center fisheries research (83 FR 37660; August 1, 2018), and the ''Potential Effects of Underwater Sound'' section of the proposed rule for the taking of marine mammals incidental to NMFS Southeast Fisheries Science Center research (84 FR 6603; February 27, 2019). No significant new information is available, and those discussions provide the necessary adequate and relevant information regarding the potential effects of NEFSC's specified activity on marine mammals and their habitat. Therefore, we refer the reader to those documents rather than repeating the information here.

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

Potential Effects of Visual Disturbance

The NEFSC anticipates that some trawl and fyke net surveys may disturb a small number of pinnipeds during the conduct of these activities in upper Penobscot Bay above Fort Point Ledge, ME. Specifically, two surveys have the potential to harass pinnipeds from visual disturbance: The Penobscot Estuarine Fish Community and Ecosystem Survey (trawls) and the Marine Estuaries Diadromous Survey (fyke nets). Pinnipeds are expected to be hauled out on tidal ledges and at times may experience incidental close approaches by the survey vessel and/or researchers during the course of its fisheries research activities. The NEFSC expects that some of these animals will exhibit a behavioral response to the visual stimuli (*e.g.,* including alert behavior, movement, vocalizing, or flushing). NMFS does not consider the lesser reactions (*e.g.,* alert behavior) to constitute harassment. These events are expected to be infrequent and cause only a temporary disturbance on the order of minutes.

In areas where disturbance of haulouts due to periodic human activity (*e.g.,* researchers approaching on foot, passage of small vessels, maintenance activity) occurs, monitoring results have generally indicated that pinnipeds typically move or flush from the haulout in response to human presence or visual disturbance, although some individuals typically remain hauled out (*e.g.,* SCWA, 2012). The nature of response is generally dependent on species. For example, California sea lions and northern elephant seals have been observed as less sensitive to stimulus than harbor seals during monitoring at numerous sites. Monitoring of pinniped disturbance as a result of abalone research in the Channel Islands showed that while harbor seals flushed at a rate of 69 percent, California sea lions flushed at a rate of only 21 percent. The rate for elephant seals declined to 0.1 percent (VanBlaricom, 2010).

Upon the occurrence of low-severity disturbance (*i.e.,* the approach of a vessel or person as opposed to an explosion or sonic boom), pinnipeds typically exhibit a continuum of responses, beginning with alert movements (*e.g.,* raising the head), which may then escalate to movement away from the stimulus and possible flushing into the water. Flushed pinnipeds typically re-occupy the haulout within minutes to hours of the stimulus.

In a popular tourism area of the Pacific Northwest where human disturbances occurred frequently, past studies observed stable populations of seals over a twenty-year period (Calambokidis *et al.,* 1991). Despite high levels of seasonal disturbance by tourists using both motorized and non-motorized vessels, Calambokidis *et al.* (1991) observed an increase in site use (pup rearing) and classified this area as one of the most important pupping sites for seals in the region. Another study observed an increase in seal vigilance when vessels passed the haulout site, but then vigilance relaxed within ten minutes of the vessels' passing (Fox, 2008). If vessels passed frequently within a short time period (*e.g.,* 24 hours), a reduction in the total number of seals present was also observed (Fox, 2008).

Level A harassment, serious injury, or mortality could likely only occur as a result of trampling in a stampede (a potentially dangerous occurrence in which large numbers of animals succumb to mass panic and rush away from a stimulus) or abandonment of pups. However, given the nature of

potential disturbance—which would entail the gradual and highly visible approach of a small vessel and small research crew—we would expect that pinnipeds would exhibit a gradual response escalation, and that stampeding or abandonment of pups would likely not be an issue. Further, neither survey with potential for harassment from visual disturbance overlaps with the gray seal pupping period.

Disturbance of pinnipeds caused by NEFSC survey activities—which are sparsely distributed in space and time—would be expected to last for only short periods of time, separated by significant amounts of time in which no disturbance occurred. The Penobscot Estuarine Fish Community and Ecosystem Survey uses shrimp trawls and occurs over 12 days per year split between spring, summer and fall seasons. The Marine Estuaries Diadromous Survey uses fyke nets and takes place over 100 days from April to November. Because such disturbance is sporadic, rather than chronic, and of low intensity, individual marine mammals are unlikely to incur any detrimental impacts to vital rates or ability to forage and, thus, loss of fitness. Correspondingly, even local populations, much less the overall stocks of animals, are extremely unlikely to accrue any significantly detrimental impacts.

Anticipated Effects on Marine Mammal Habitat

Effects to Prey—In addition to direct, or operational, interactions between fishing gear and marine mammals, indirect (*i.e.,* biological or ecological) interactions occur as well, in which marine mammals and fisheries both utilize the same resource, potentially resulting in competition that may be mutually disadvantageous (*e.g.,* Northridge, 1984; Beddington *et al.,* 1985; Wickens, 1995). Marine mammal prey varies by species, season, and location and, for some marine mammals, is not well documented. NEFSC fisheries research removals of species commonly utilized by marine mammals are relatively low. Prey of sei whales and blue whales are primarily zooplankton, which are targeted by NEFSC fisheries research with collection only on the order of liters, so the likelihood of research activities changing prey availability is low and impact negligible to none. Prey species biomass removed during NEFSC surveys is very small relative to their overall biomass in the area and is a very small percentage of the Allowable Biological Catch (ABC). For example, NEFSC fisheries research activities may affect sperm whale prey (squid), but this is expected to be minor due to the insignificant amount of squid removed through fisheries research (*i.e.,* 4 tons in 2017). However, here the removal by NEFSC fisheries research, regardless of season and location is minor relative to that taken through commercial fisheries. For example, commercial fisheries catches for most pelagic species typically range from the hundreds to thousands of metric tons, whereas the catch in similar fisheries research activities would only occasionally range as high as hundreds to thousands of pounds in any particular year (see Table 9–1 of the NEFSC Application for more information on fish catch during research surveys and commercial harvest). In addition to the small amount of biomass removed, the size classes of fish targeted in research surveys are juvenile individuals, some of which are only centimeters long; these small size classes are not known to be prey of marine mammals.

Research catches are also distributed over a wide area because of the random sampling design covering large sample areas. Fish removals by research are therefore highly localized and unlikely to affect the spatial concentrations and availability of prey for any marine mammal species. The overall effect of research catches on marine mammals through competition for prey may therefore be considered insignificant for all species.

Physical Habitat—NEFSC conducts some bottom trawling, which may physically damage seafloor habitat. In addition, NEFSC fishery research activities use bottom contact fishing gear, including otter trawls, sea scallop dredges, and hydraulic surfclam dredges. Other fishing gear that contacts the seafloor, such as pots and traps, can cause physical damage but the impacts are localized and minimal as this type of gear is fixed in position. The ropeless lobster traps planned for ongoing use would have minimal effect of seafloor habitat. Physical damage may include furrowing and smoothing of the seafloor as well as the displacement of rocks and boulders, and such damage can increase with multiple contacts in the same area (Schwinghamer *et al.,* 1998; Kaiser *et al.,* 2002; Malik and Mayer, 2007; NRC, 2002). The effects of bottom contact gear differ in each type of benthic environment. In sandy habitats with strong currents, the furrows created by mobile bottom contact gear quickly begin to erode because lighter weight sand at the edges of furrows can be easily moved by water back towards the center of the furrow (NRC, 2002). Duration of effects in these environments therefore tend to be very short because the terrain and associated organisms are accustomed to natural disturbance. By contrast, the physical features of more stable hard bottom habitats are less susceptible to disturbance, but once damaged or removed by fishing gear, the organisms that grow on gravel, cobbles, and boulders can take years to recover, especially in deeper water where there is less natural disturbance (NRC, 2002). However, the area of benthic habitat affected by NEFSC research each year would be a very small fraction of total area of benthic habitat in the research areas.

Damage to seafloor habitat may also harm infauna and epifauna (*i.e.,* animals that live in or on the seafloor or on structures on the seafloor), including corals (Schwinghamer *et al.,* 1998; Collie *et al.,* 2000; Stevenson *et al.,* 2004). In general, recovery from biological damage varies based on the type of fishing gear used, the type of seafloor surface (*i.e.,* mud, sand, gravel, mixed substrate), and the level of repeated disturbances. Recovery timelines of 1–18 months are expected. However, repeated disturbance of an area can prolong the recovery time (Stevenson *et al.,* 2004), and recovery of corals may take significantly longer than 18 months.

Organisms such as cold water corals create structure on the seafloor that not only contain a high diversity of corals but also provide an important habitat for other infauna (Stevenson, Chiarella et al. 2004). Cold water corals are generally slow growing, fragile and long lived that makes them particularly vulnerable to damage. Fishing gear that contacts coral can break or disrupt corals reducing structural complexity and reducing species diversity of the corals and other animals that utilize this habitat (Freiwald, Fossa et al. 2004). The extent of overlap between cold water corals and NEFSC survey vessels is expected to be limited given the small number and small areal extent of NEFSC surveys and funded fishery research using bottom trawl and dredging equipment. In addition, only two surveys occur outside of the LME, the Deepwater Biodiversity Survey and the Deep-sea Corals Survey. Neither of these surveys use bottom contacting gear. Although fisheries research effects on corals may be long-term, the magnitude of this potential effect is negligible.

Fishing gear that contacts the seafloor can increase the turbidity of the water by suspending fine sediments and benthic algae. Suspension of fine sediments and turnover of sediment can

also alter the geochemistry of the seafloor and the water column, but impacts of alteration of turbidity and geochemistry in the water column are not very well understood (Stevenson, Chiarella et al. 2004). These types of effects from fisheries research activities would be periodic, temporary, and localized and are considered negligible.

As described in the preceding, the potential for NEFSC research to affect the availability of prey to marine mammals or to meaningfully impact the quality of physical or acoustic habitat is considered to be insignificant for all species. Effects to marine mammal habitat will not be discussed further in this document.

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.

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

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

Estimated Take Due to Gear Interaction

To estimate the number of potential takes that could occur by M/SI and Level A through gear interaction, consideration of past interactions between gear (*i.e.,* trawl, gillnet, and fyke gear) used by NEFSC and specific marine mammal species provides important context. We also considered other species that have not been taken by NEFSC but are similar enough in nature and behavioral patterns as to consider them having the potential to be entangled. As described in the ''Potential Effects of Marine Mammals and their Habitat'' section, NEFSC has a history of taking marine mammals in fishing gear, albeit a very small amount compared to the amount of fishing effort. From 2004–2015, eight marine mammals were killed in interactions with trawl gear (common dolphin, gray seal), six were killed due to capture in gillnets (Common bottlenose, Northern South Carolina estuarine stock, gray seal, harbor porpoise and bottlenose dolphin), and one suffered mortality in a fyke net (harbor seal). Also over that time period, one minke whale was caught in trawl gear and released alive. We note these interactions occurred prior to implementation of the existing regulations which heightened mitigation and monitoring efforts. From 2016–2018, no marine mammals were taken incidental to fishing. A lethal take of a common dolphin during a Cooperative Research NTAP cruise sponsored by the Center occurred in late September 2019. The gear was a 4 seam 3 bridle Bigelow net with a spread restrictor cable. In 2020, no takes occurred.

Historical Interactions—In order to estimate the number of potential incidents of take that could occur by M/SI through gear interaction, we first consider the NEFSC's past record of such incidents, and then consider in addition other species that may have similar vulnerabilities to the NEFSC's trawl, gillnet, and fyke net gear for which we have historical interaction records. We describe historical interactions with NEFSC research gear in Tables 6, 7, and 8. Available records are for the years 2004 through the present. Please see Figure 4.2–2 in the NEFSC EA for specific locations of these incidents up through 2020.

TABLE 6—HISTORICAL INTERACTIONS WITH TRAWL GEAR

Gear	Survey	Date	Species	Number killed	Number released alive	Total
Gourock high speed midwater rope trawl.	Atlantic Herring Survey	10/8/2004	Short-beaked common dolphin (Western NA stock).	2	0	2
Bottom trawl (4-seam, 3 bridle).	NEFSC Standard Bottom Trawl Survey.	11/11/2007	Short-beaked common dolphin (Western NA stock).	1	0	1
Gourock high speed midwater rope trawl.	Atlantic Herring Survey	10/11/2009	Minke whale	0	[1] 1	1
Bottom trawl (4-seam, 3 bridle).	Spring Bottom Trawl Survey	4/4/15	Gray seal	[2] 1	0	1
Bottom trawl (4-seam, 3 bridle).	Cooperative NTAP	9/24/19	Short-beaked common dolphin (Western NA stock).	1	0	1
Total individuals captured (total number of interactions given in parentheses).			Short-beaked common dolphin (4).	4	0	4
			Minke whale (1)	0	1	1
			Gray seal (1)	1	0	1

[1] According to the incident report, ''The net's cod end and whale were brought aboard just enough to undo the cod end and free the whale. It was on deck for about five minutes. While on deck, it was vocalizing and moving its tail up and down. The whale swam away upon release and appeared to be fine. Estimated length was 19 feet.'' The NEFSC later classified this incidental take as a serious injury using NMFS criteria for such determinations published in January 2012 (Cole and Henry, 2013).

[2] The NEFSC filed an incident report for this incidental take on April 4, 2015.

TABLE 7—HISTORICAL INTERACTIONS WITH GILLNET GEAR

Gear	Survey	Date	Species	Number killed	Number released alive	Total
Gillnet	COASTSPAN	11/29/2008	Common Bottlenose dolphin (Northern South Carolina Estuarine System stock) [1].	1	0	1
Gillnet	NEFOP Observer Gillnet Training Trips.	5/4/2009	Gray seal	1	0	1
Gillnet	NEFOP Observer Gillnet Training Trips.	5/4/2009	Harbor porpoise	1	0	1
Total individuals captured (total number of interactions given in parentheses).			Bottlenose dolphin (1)	1	0	1
			Gray seal (1)	1	0	1
			Harbor porpoise (1)	1	0	1

[1] In 2008, the COASTSPAN gillnet survey caught and killed one common bottlenose dolphin in 2008 while a cooperating institution was conducting the survey in South Carolina. This was the only occurrence of incidental take in these surveys. Although no genetic information is available from this dolphin, based on the location of the event, NMFS retrospectively assigned this mortality to the Northern South Carolina Estuarine System stock in 2015 from the previous classification as the western North Atlantic stock (Waring *et al.,* 2014).

TABLE 8—HISTORICAL INTERACTIONS WITH FYKE NET GEAR

Gear	Survey	Date	Species	Number killed	Number released alive	Total
Fyke Net	Maine Estuaries Diadromous Survey.	10/25/2010	Harbor seal	1	0	1
Total			1	0	1	

The NEFSC has no recorded interactions with any gear other than midwater and bottom trawl, gillnet, and fyke net gears. As noted previously in ''Potential Effects of the Specified Activity on Marine Mammals,'' we anticipate future interactions with the same gear types.

In order to use these historical interaction records in a precautionary manner as the basis for the take estimation process, and because we have no specific information to indicate whether any given future interaction might result in M/SI versus Level A harassment, we conservatively assume that all interactions equate to mortality.

In order to estimate the potential number of incidents of M/SI take that could occur incidental to the NEFSC's use of midwater and bottom trawl, gillnet, fyke net, and longline gear in the Atlantic coast region over the five-year period the rule would be effective (2021–2026), we first look at the six species described that have been taken historically and then evaluate the potential vulnerability of additional species to these gears.

Table 9 shows the average annual captures rate of these six species and the projected five-year totals for this proposed rule, for trawl, gillnet, and fyke net gear. Below we describe how these data were used to estimate future take for these and proxy species which also have the potential to be taken.

TABLE 9—AVERAGE RATE OF ANIMAL GEAR INTERACTION FROM 2004–2020

Gear	Species	Average rate per year (2004–2020)
Trawl	Short-beaked common dolphin	0.27
	Minke whale	0.06
	Gray seal	0.06
Gillnet	Common bottlenose dolphin	0.06
	Harbor porpoise	0.06
	Gray seal	0.06
Fyke net	Harbor seal	0.06

The NEFSC only estimated takes for NEFSC gear that: (1) Had a prior take in the historical record, or (2) by analogy to commercial fishing gear. Further, given the rare events of M/SI in NEFSC fishery research, the NEFSC binned gear into categories (*e.g.,* trawls) rather than partitioning take by gear, as it would result in estimated takes that far exceed the recorded take history.

Vulnerability of analogous species to different gear types is informed by the record of interactions by the analogous and reference species with commercial fisheries using gear types similar to those used in research. Furthermore, when determining the amount of take requested, we make a distinction between analogous species thought to have the same vulnerability for incidental take as the reference species and those analogous species that may have a similar vulnerability. In those cases thought to have the same

vulnerability, the request is for the same number per year as the reference species. In those cases thought to have similar vulnerability, the request is less than the reference species. For example, the NEFSC believes the vulnerability of harbor seals to be taken in gillnets is the same as for gray seals (one per year) and thus requests one harbor seal per year (total of 5 over the authorization period). Alternatively, the potential for take of Atlantic white-sided dolphins in gillnets is expected to be similar to harbor porpoise (one per year), and the reduced request relative to this reference species is one Atlantic white sided dolphin over the entire five-year authorization period.

The approach outlined here reflects: (1) Concern that some species with which we have not had historical interactions may interact with these gears, (2) acknowledgment of variation between sets, and (3) understanding that many marine mammals are not solitary so if a set results in take, the take could be greater than one animal. In these particular instances, the NEFSC estimates the take of these species to be equal to the maximum interactions per any given set of a reference species historically taken during 2004–2019.

Trawls—To estimate the requested taking of analogous species, the NEFSC identified several species in the western North Atlantic Ocean which may have similar vulnerability to research-based trawls as the short-beaked common dolphin. Short-beaked common dolphins were taken in 2004 (two individuals in one trawl set) and in 2019 (one dolphin during a bottom trawl). The NEFSC therefore estimates one take of a short-beaked common dolphin per year over the 5-year period to be precautionary (*i.e.,* five total). On the basis of similar vulnerability of other dolphin species, the NEFSC estimates two potential takes over the five-year authorization period for each of the following species in trawls: Risso's dolphin, common bottlenose dolphin (offshore and northern coastal migratory stock), Atlantic-white-sided dolphin, white-beaked dolphin, Atlantic spotted dolphin, and harbor porpoise. For these species, we propose to authorize a total taking by M/SI of two individuals over the five-year timespan (Table 10).

In light of the low level of interaction and the mitigation measures to specifically reduce interactions with dolphins during COASTSPAN surveys such as hand-checking the gill net every 20 minutes, no takes are requested from the Southern Migratory, Coastal or Estuarine stocks of common bottlenose dolphin. Other dolphin species may have similar vulnerabilities as those listed above but because of the timing and location of NEFSC research activities, the NEFSC concluded that the likelihood for take of these species was low and therefore is not requesting, nor it NMFS proposing to authorize, take for the following species: Pantropical spotted dolphin, striped dolphin, Fraser's dolphin, rough-toothed dolphin, Clymene dolphin, and spinner dolphin.

In 2015, one gray seal was killed during a trawl survey. Similar to other gear, the NEFSC believes that harbor seals have a similar vulnerability for incidental take as gray seals in this type of gear. To be conservative, for the period of this authorization, the NEFSC has requested one take by trawl for harbor seals each year over the five-year authorization period. Thus, for harbor and gray seals, we propose to authorize a total taking by M/SI of five individuals over the five-year timespan for trawl gear (Table 10).

Gillnets—To estimate the requested take of analogous species for gillnets, the NEFSC identified several species in the western North Atlantic Ocean which may have similar vulnerability to research-based gillnet surveys as the short-beaked common dolphin—due to similar behaviors and distributions in the survey areas.

Gillnet surveys typically occur nearshore in bays and estuaries. One gray seal and one harbor porpoise were caught during a Northeast Fisheries Observer Program training gillnet survey. The NEFSC believes that harbor seals have the same vulnerability to be taken in gillnets as gray seals and therefore estimates five takes of harbor seals in gillnets over the five-year authorization period. For this species, we propose to authorize a total taking by M/SI of five individuals over the five-year timespan (see Table 10).

Likewise, the NEFSC believes that Atlantic white-sided dolphins and short-beaked common dolphins have a similar vulnerability to be taken in gillnets as harbor porpoise and bottlenose dolphins (Waring *et al.,* 2014) and estimates one take each of Atlantic white-sided dolphin and short-beaked common dolphin in gillnet gear over the five-year authorization period. For these species, we propose to authorize a total taking by M/SI of one individual (per species) over the five-year timespan (Table 10).

In 2008, a cooperating institution conducting the COASTSPAN gillnet survey in South Carolina caught and killed one bottlenose dolphin. Despite years of effort since that time, this was the only occurrence of incidental take in these surveys. The survey now imposes strict monitoring and mitigation measures (see sections below on Proposed Mitigation and Proposed Monitoring and Reporting). With regard to common bottlenose dolphins, M/SI takes are only requested for offshore and Northern migratory stocks (10 total over the 5-year period). Given the lack of recent take and the implementation of additional monitoring and mitigation measures, the NEFSC is not requesting, and NMFS is not proposing to authorize, take of bottlenose dolphins belonging to the Southern Coastal Migratory or Estuarine stocks as the NEFSC considers there to be a remote chance of incidentally taking a bottlenose dolphin from the estuarine stocks. However, in the future, if there is a bottlenose dolphin take from the estuarine stocks as confirmed by genetic sampling, the NEFSC will reconsider its take request in consultation and coordination with OPR and the Atlantic Bottlenose Dolphin Take Reduction Team.

In 2009, one gray seal was killed during a gillnet survey. Similar to other gear, the NEFSC believes that harbor seals have a similar vulnerability for incidental take as gray seals in this type of gear. To be conservative, for the period of this authorization, the NEFSC has requested one take by gillnet for harbor seals each year over the five-year authorization period. Thus, for harbor and gray seals, we propose to authorize a total taking by M/SI of five individual over the five-year timespan (Table 10).

Fyke nets—For fyke nets, the NEFSC believes that gray seals have a similar vulnerability for incidental take as harbor seals which interacted once in a single fyke net set during the past 11 years. However, to be conservative, for the period of this authorization, the NEFSC has requested one take by fyke net for gray seals each year over the five-year authorization period. Thus, for gray seals, we propose to authorize a total taking by M/SI of five individual over the five-year timespan (Table 10).

Longlines—While the NEFSC has not historically interacted with large whales or other cetaceans in its longline gear, it is well documented that some of these species are taken in commercial longline fisheries. The 2020 List of Fisheries classifies commercial fisheries based on prior interactions with marine mammals. Although the NEFSC used this information to help make an informed decision on the probability of specific cetacean and large whale interactions with longline gear, many other factors were also taken into account (*e.g.,* relative survey effort, survey location, similarity in gear type,

animal behavior, prior history of NEFSC interactions with longline gear, *etc.*). Therefore, there are several species that have been shown to interact with commercial longline fisheries but for which the NEFSC is not requesting take. For example, the NEFSC is not requesting take of large whales, long-finned pilot whales, and short-finned pilot whales in longline gear. Although these species could become entangled in longline gear, the probability of interaction with NEFSC longline gear is extremely low considering a low level of survey effort relative to that of commercial fisheries, the short length of the mainline, and low numbers of hooks used. Based on the amount of fish caught by commercial fisheries versus NEFSC fisheries research, the ''footprint'' of research effort compared to commercial fisheries is very small. For example, NEFSC uses a shorter mainline length and lower number of hooks relative to that of commercial fisheries. The NEFSC considered previously caught species in analogous commercial fisheries to have a higher probability of take; however, all were not included for potential take by the NEFSC. Additionally, marine mammals have never been caught or entangled in NEFSC longline gear; if interactions occur marine mammals depredate caught fish from the gear but leave the hooks attached and unaltered. They have never been hooked nor had hooks taken off gear during depredation. However, such gear could be considered analogous to potential commercial longline surveys that may be conducted elsewhere (*e.g.,* Garrison, 2007; Roche *et al.* 2007; Straley *et al.,* 2014). Given that the NEFSC experienced a single interaction of a common dolphin during the effective period of the current LOA to date, the proposed issuance of this amount of take, by species, is reasonably conservative.

The estimated take, by M/SI, is identical to that proposed and authorized to the NEFSC for the 2016–2020 LOA except for take pertaining to the southern migratory coastal stock of bottlenose dolphins. The 2016–2021 LOA authorizes 8 takes from this stock. According to the SAR, during the warm water months of July–August, the stock is presumed to occupy coastal waters north of Cape Lookout, North Carolina, to Assateague, Virginia. North of Cape Hatteras during summer months, there is strong separation between the coastal and offshore morphotypes (Kenney 1990; Garrison et al. 2017a), and the coastal morphotype is nearly completely absent in waters >20 m. However, the NEFSC has determined that because research effort is low in the habitat range of this stock and NEFSC has no documented takes of dolphins belonging to the southern migratory coastal stock, they are not requesting, and NMFS is not proposing to authorize, take.

TABLE 10—TOTAL ESTIMATED M/SI DUE TO GEAR INTERACTION IN THE ATLANTIC COAST REGION

Species	5-Year total, trawl [1]	5-Year total, gillnet [1]	5-Year total, longline [1]	5-Year total, fyke net [1]	5-Yr total, all gears
Minke whale	5	0	0	0	5
Risso's dolphin	2	0	1	0	3
Atlantic white-sided dolphin	2	1	0	0	3
White-beaked dolphin	2	0	0	0	2
Short-beaked common dolphin	5	1	1	0	7
Atlantic spotted dolphin	2	0	0	0	2
Common bottlenose dolphin (WNA offshore stock) [1]	2	5	1	0	8
Common bottlenose dolphin (WNA N. Migratory stock) [1]	2	5	1	0	8
Harbor porpoise	2	5	0	0	7
Harbor seal	5	5	0	5	15
Gray seal	5	5	0	5	15

[1] The NEFSC re-evaluated sampling locations and effort after submission of their LOA application and is not requesting takes for the southern migratory stock of bottlenose dolphins as fishing effort is very low.

Estimated Take From Scientific Sonar

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

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

Authorized takes from the use of active acoustic scientific sonar sources (*e.g.,* echosounders) would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to the use of active acoustic sources. Based on the nature of the activity, Level A harassment is neither anticipated nor proposed to be authorized.

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 recommends the use of 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). As described in detail for NEFSC and other science centers in previously issued **Federal Register** notices (*e.g.,* 85 FR 53606, August 28, 2020; 88 FR 27028, May 6, 2020), the use of the sources used by NMFS Science Centers, including NEFSC, do not have the potential to cause Level A harassment; therefore, our discussion is limited to behavioral harassment (Level B harassment).

Level B Harassment for non-explosive sources—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). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 μPa (rms) for continuous (*e.g.,* vibratory pile-driving, drilling) and above 160 dB re 1 μPa (rms) for intermittent (*e.g.,* scientific sonar) sources. NEFSC surveys include the use of non-impulsive, intermittent sources and therefore the 160 dB re 1 μPa (rms) threshold is applicable.

The operating frequencies of active acoustic systems used by the NEFSC range from 30–333 kHz (see Table 2). Examination of these sources considers operational patterns of use relative to each other, and which sources would have the largest potential impact zone when used simultaneously. NEFSC determined that the EK60, ME70, and DSM 300 sources comprise the total effective exposures relative to line-kilometers surveyed (see Section 6.5 of the Application). Acoustic disturbance takes are calculated for these three dominant sources. Of these dominant acoustic sources, only the EK60 can use a frequency within the hearing range of baleen whales (18k Hz). Therefore, for North Atlantic right whales and all other baleen whales, Level B harassment is only expected for exposure to the EK60. The other two dominant sources are outside of their hearing range. The ADCP Ocean Surveyor operates at 75 kHz, which is outside of baleen whale hearing capabilities. Therefore, we would not expect any exposures to these signals to result in behavioral harassment in baleen whales.

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

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

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

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

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

Quantifying the spatial and temporal dimension of the sound exposure footprint (or ''swath width'') of the active acoustic devices in operation on moving vessels and their relationship to the average density of marine mammals enables a quantitative estimate of the number of individuals for which sound levels exceed the relevant threshold for each area. The number of potential incidents of Level B harassment is ultimately estimated as the product of the volume of water ensonified at 160 dB rms or higher and the volumetric density of animals determined from simple assumptions about their vertical stratification in the water column. Specifically, reasonable assumptions based on what is known about diving behavior across different marine mammal species were made to segregate those that predominately remain in the upper 200 m of the water column versus those that regularly dive deeper during foraging and transit. Methods for estimating each of these calculations are described in greater detail in the following sections, along with the simplifying assumptions made, and followed by the take estimates.

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

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

Calculating effective line-kilometers—As described below, based on the operating parameters for each source type, an estimated volume of water ensonified at or above the 160 dB rms threshold was calculated. In all cases where multiple sources are operated simultaneously, the one with the largest estimated acoustic footprint was considered to be the effective source. Two depth zones were defined for each of the four research areas: 0–200 m and >200 m. Effective line distance and volume ensonified was calculated for each depth strata (0–200 m and >200 m), where appropriate. In some cases, this resulted in different sources being predominant in each depth stratum for all line km (*i.e.,* the total linear distance traveled during acoustic survey operations) when multiple sources were in operation. This was accounted for in estimating overall exposures for species

that utilize both depth strata (deep divers). For each ecosystem area, the total number of line km that would be surveyed was determined, as was the relative percentage of surveyed line km associated with each source. The total line-kilometers for each survey, the dominant source, the effective percentages associated with each depth, and the effective total volume ensonified are given below (Table 12).

From the sources identified in Table 2, the NEFSC identified six of the eight as having the largest potential impact zones during operations based on their relatively lower output frequency, higher output power, and operational pattern of use: EK60, ME70, DSM 300, ADCP Ocean Surveyor, Simrad EQ50, and Netmind (80 FR 39542). Further examination of these six sources considers operational patterns of use relative to each other, and which sources would have the largest potential impact zone when used simultaneously. NEFSC determined that the EK60, ME 70, and DSM 300 sources comprise the total effective exposures relative to line-kilometers surveyed acoustic disturbance takes are calculated for these three dominant sources. Of these dominant acoustic sources, only the EK 60 can use a frequency within the hearing range of baleen whales (18k Hz). Therefore, for NARW and all other baleen whales, Level B harassment is only expected for exposure to the EK60. The other two dominant sources are outside of their hearing range.

Calculating volume of water ensonified—The cross-sectional area of water ensonified to a 160 dB rms received level was calculated using a simple spherical spreading model of sound propagation loss (20 log R) such that there would be 60 dB of attenuation over 1,000 m. Spherical spreading is a reasonable assumption even in relatively shallow waters since, taking into account the beam angle, the reflected energy from the seafloor will be much weaker than the direct source and the volume influenced by the reflected acoustic energy would be much smaller over the relatively short ranges involved. We also accounted for the frequency-dependent absorption coefficient and beam pattern of these sound sources, which is generally highly directional. The lowest frequency was used for systems that are operated over a range of frequencies. The vertical extent of this area is calculated for two depth strata.

Following the determination of effective sound exposure area for transmissions considered in two dimensions (Table 11), the next step was to determine the effective volume of water ensonified at or above 160 dB rms for the entirety of each survey. For each of the three predominant sound sources, the volume of water ensonified is estimated as the athwartship cross-sectional area (in square kilometers) of sound at or above 160 dB rms multiplied by the total distance traveled by the ship. Where different sources operating simultaneously would be predominant in each different depth strata, the resulting cross-sectional area calculated took this into account. Specifically, for shallow-diving species this cross-sectional area was determined for whichever was predominant in the shallow stratum, whereas for deeper-diving species this area was calculated from the combined effects of the predominant source in the shallow stratum and the (sometimes different) source predominating in the deep stratum. This creates an effective total volume characterizing the area ensonified when each predominant source is operated and accounts for the fact that deeper-diving species may encounter a complex sound field in different portions of the water column. Volumetric densities are presented in Table 12.

TABLE 11—EFFECTIVE EXPOSURE AREAS FOR PREDOMINANT ACOUSTIC SOURCES ACROSS TWO DEPTH STRATA

Active acoustic system	Effective exposure area: Sea surface to 200 m depth (km^2)	Effective exposure area: Sea surface to depth >200 m (km^2)
EK60	0.0142	0.1411
ME70	0.0201	0.0201
DSM300	0.0004	0.0004

Marine Mammal Density

As described in the 2015 proposed rule (80 FR 39542), marine mammals were categorized into two generalized depth strata: Surface-associated (0–200 m) or deep-diving (0 to >200 m). These depth strata are based on reasonable assumptions of behavior (Reynolds III and Rommell 1999). Animals in the shallow-diving strata were assumed to spend a majority of their lives (>75 percent) at depths of 200 m or shallower. For shallow-diving species, the volumetric density is the area density divided by 0.2 km (*i.e.,* 200 m). The animal's volumetric density and exposure to sound is limited by this depth boundary.

Species in the deeper diving strata were assumed to regularly dive deeper than 200 m and spend significant time at depth. For deeper diving species, the volumetric density is calculated as the area density divided by a nominal value of 0.5 km (*i.e.,* 500 m), consistent with the approach used in the 2016 Final Rule (81 FR 53061). Where applicable, both LME and offshore volumetric densities are provided. As described in Section 6.5 of NEFSC's application, level of effort and acoustic gear types used by NEFSC differ in these areas and takes are calculated for each area (LME and offshore).

TABLE 12—MARINE MAMMAL AND VOLUMETRIC DENSITY IN THE ENSONFIED AREAS

Common name	Dive profile/vertical habitat		LME area density (per km^2) [1 2]	LME volumetric density (per km^3) [3]	Offshore ensity (per km^2) [2 4]	Offshore volumetric density (per km^3) [5]
	0–200 m	>200 m				
Cetaceans						
NARW [6]	X	.....	0.0030	0.0150	0	0
Humpback whale	X	.....	0.0016	0.00800	0	0
Fin whale	X	.....	0.0048	0.02400	0.00005	0.00025

TABLE 12—MARINE MAMMAL AND VOLUMETRIC DENSITY IN THE ENSONFIED AREAS—Continued

Common name	Dive profile/vertical habitat		LME area density (per km^2) [1 2]	LME volumetric density (per km^3) [3]	Offshore ensity (per km^2) [2 4]	Offshore volumetric density (per km^3) [5]
	0–200 m	>200 m				
Sei whale	X	.....	0.0008	0.00400	0	0
Minke whale	X	.....	0.002	0.01000	0	0
Blue whale	X	.....	0.000009	0.00005	0.000009	0.00005
Sperm whale	.....	X	0	0	0.0056	0.01120
Dwarf sperm whale	.....	X	0	0	0.005	0.01000
Pygmy sperm whale	.....	X	0	0	0.005	0.01000
Killer Whale	X	.....	0.000009	0.00005	0.000009	0.00005
Pygmy killer whale	X	.....	0.000009	0.00005	0.000009	0.00005
Northern bottlenose whale	.....	X	0	0	0.00009	0.00018
Cuvier's beaked whale	.....	X	0	0	0.0062	0.01240
Mesoplodon beaked whales	.....	X	0	0	0.0046	0.00920
Melon-headed whale	X	.....	0	0	0.0010	0.00500
Risso's dolphin	X	.....	0.0020	0.01000	0.0128	0.06400
Long-finned pilot whale	.....	X	0.0220	0.11000	0.0220	0.04400
Short-finned pilot whale	.....	X	0.0220	0.11000	0.0220	0.04400
Atlantic white-sided dolphin	X	.....	0.0453	0.22650	0	0
White-beaked dolphin	X	.....	0.00003	0.00015	0	0
Short-beaked common dolphin	X	.....	0.0891	0.44550	0	0
Atlantic spotted dolphin	X	.....	0.0013	0.00650	0.0241	0.12050
Pantropical spotted dolphin	X	.....	0	0	0.0015	0.00750
Striped dolphin	X	.....	0	0	0.0614	0.30700
Fraser's dolphin	X	.....	0	0	0.0004	0.000200
Rough toothed dolphin	X	.....	0.0005	0.00250	0.0010	0.000200
Clymene dolphin	X	.....	0.0032	0.01600	0	0
Spinner dolphin	X	.....	0	0	0.0002	0.00100
Common bottlenose dolphin offshore stock	X	.....	0	0	0.1615	0.3230
Common bottlenose dolphin coastal stocks	X	.....	0.1359	0.6795	0	0
Harbor porpoise	X	.....	0.0403	0.20150	0	0
Pinnipeds						
Harbor Seal	X	.....	0.2844	1.4220	0	0
Gray Seal	X	.....	0.0939	0.4695	0	0

[1] LME is the area in shore of the 200 m depth contour.
[2] Source: Unless otherwise stated Roberts, Best et al. (2016).
[3] LME volumetric density is the LME area density divided by 0.2 km.
[4] Offshore is the area offshore of the 200 m depth contour.
[5] Offshore volumetric density is the offshore area density divided by 0.2 km or 0.5 km for shallow or deep diving species or 0.5 km for deep diving species.
[6] Density from Roberts, Schick et al. (2020).

Using Area of Ensonification and Volumetric Density To Estimate Exposures

Estimates of potential incidents of Level B harassment (*i.e.,* potential exposure to levels of sound at or exceeding the 160 dB rms threshold) are then calculated by using (1) the combined results from output characteristics of each source and identification of the predominant sources in terms of acoustic output; (2) their relative annual usage patterns for each operational area; (3) a source-specific determination made of the area of water associated with received sounds at the extent of a depth boundary; and (4) determination of a biologically-relevant volumetric density of marine mammal species in each area. Estimates of Level B harassment by acoustic sources are the product of the volume of water ensonified at 160 dB rms or higher for the predominant sound source for each relevant survey and the volumetric density of animals for each species. Source- and stratum-specific exposure estimates are the product of these ensonified volumes and the species-specific volumetric densities (Table 12). The general take estimate equation for each source in each depth statrum is density * (ensonified volume * line kms). The humpback whale and exposure to sound from the EK 60 can be used to demonstrate the calculation:

1. EK60 ensonified volume; 0–200 m: 0.0142 km^2 * 16058.8 km = 228.03 km^3

2. Estimated exposures to sound ≥160 dB rms; humpback whale; EK60, LME region: (0.008 humpback whales/km^3 * 228.03 km^3 = 1.8 estimated humpback exposures to SPLs ≥160 dB rms resulting from use of the EK60 in the 0–200 m depth stratum.

Similar calculations were conducted for the ME 70 and DSM300 for each animal in the LME region, with the exception of baleen whales, as these sound sources are outside of their hearing range. Totals in Tables 13 and 14 represent the total take of marine mammals, by species, across all relevant surveys and sources rounded up to the nearest whole number.

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Table 13. Marine Mammal Level B Harassment Take Estimates – LME.

Common Name	Volumetric density (#/km^3)	Vertical Habitat (shallow vs. deep divers)		Estimated Acoustic Takes in 0-200 m depth stratum				Total Takes per species per year in LME	Total takes requested over the 5-year period
		0-200 m	>200 m	EK60	ME70	DSM300	Total		
Cetaceans									
NARW	0.015	X		3.4	0	0	3.4	4	**20**
Humpback whale	0.008	X		1.8	0	0	1.8	2	**10**
Fin whale	0.024	X		5.5	0	0	5.5	6	**30**
Sei whale	0.004	X		0.9	0	0	0.9	1	**5**
Minke whale	0.010	X		2.3	0	0	2.3	3	**15**
Blue whale	0.00005	X		0.01	0	0	0.01	1	**5**
Killer Whale	0.00005	X		0.01	0.033	0.009	0.053	1	**5**
Pygmy killer whale	0.00005	X		0.01	0.033	0.009	0.053	1	**5**
Risso's dolphin	0.010	X		2.3	7.4	2.0	11.7	12	**60**
Long-finned pilot whale	0.110	X	X	25.1	81.1	22.2	128.4	129	**645**
Short-finned pilot whale	0.110	X	X	25.1	81.1	22.2	128.4	129	**645**
Atlantic white-sided dolphin	0.227	X		51.6	167.1	45.7	264.4	265	**1,325**
White-beaked dolphin[1]	0.00015	X		0.034	0.111	0.030	0.175	58	**290**
Short-beaked common dolphin	0.446	X		101.6	328.6	89.8	520	520	**2,600**
Atlantic spotted dolphin	0.007	X		1.5	4.8	1.3	7.6	8	**40**
Rough toothed dolphin	0.003	X		0.6	1.8	0.5	2.9	**3**	**15**
Clymene dolphin	0.016	X		3.6	11.8	3.2	18.7	**19**	**95**
Common bottlenose dolphin[2]	0.679	X		154.9	501.2	137	793.1	**794**	**3,970**
Harbor Porpoise	0.2015	X		45.9	148.6	40.6	235.2	**236**	**1,180**
Pinnipeds									
Harbor Seal	1.422	X		324.3	1048.9	286.7	1659.8	**1660**	**8,300**
Gray Seal	0.469	X		107.1	346.3	94.7	548.02	**549**	**2,745**

[1] For the period 2016 – 2019, Level B takes for this species were reported as 29, 23, and 37 for each year, respectively. Therefore, the take request has been adjusted to account for potential groups that may occur.

[2] The NEFSC re-evaluated active acoustic survey effort after submission of their LOA application and is not requesting takes for the southern migratory stock of bottlenose dolphins as no active acoustic sources would be used in habitat overlapping with this stock.

Table 14. Marine Mammal Level B Harassment Take Estimates – Offshore.

Common Name	Volumetric density (#/km^3)	Vertical Habitat (shallow vs. deep divers)		Estimated Acoustic Takes in 0-200m depth stratum[1]			Estimated Acoustic Takes >200m depth stratum[2]	Total Takes per species Offshore	Total Takes Requested over the 5-year period
		>200 m	>200 m	EK60	ME70	Total	EK60		
Fin whale	0.00025	X		0	0.026	0.026	0	1	**5**
Blue whale	0.00005	X		0	0.005	0.005	0	1	**5**
Sperm whale	0.0112		X	0.3	1.2	1.5	2.8	5	**25**
Dwarf sperm whale	0.01		X	0.3	1.0	1.3	2.5	4	**20**
Pygmy sperm whale	0.01		X	0.3	1.0	1.3	2.5	4	**20**
Killer Whale	0.00005	X		0.001	0.005	0.006	0	1	**5**
Pygmy killer whale	0.00005	X		0.001	0.005	0.006	0	1	**5**
Northern bottlenose whale	0.00018		X	0.01	0.02	0.02	0.05	1	**5**
Cuvier's beaked whale	0.0124		X	0.3	1.3	1.6	3.1	5	**25**
Mesoplodon beaked whales	0.0092		X	0.3	1.0	1.2	2.3	4	**20**
Melon-headed whale	0.005	X		0.1	0.5	0.7	0	1	**5**
Risso's dolphin	0.064	X		1.8	6.6	8.4	0	9	**45**
Long-finned pilot whale	0.044		X	1.2	4.6	5.8	11.1	17	**85**
Short-finned pilot whale	0.044		X	1.2	4.6	5.8	11.1	17	**85**
Atlantic spotted dolphin	0.1205	X		3.4	12.5	15.9	0	16	**80**
Pantropical spotted dolphin	0.0075	X		0.2	0.8	1.0	0	1	**5**
Striped dolphin	0.307	X		8.7	31.8	40.4	0	41	**205**
Fraser's dolphin	0.002	X		0.1	0.2	0.3	0	1	**5**
Rough toothed dolphin	0.005	X		0.14	0.52	0.66	0	1	**5**
Spinner dolphin	0.001	X		0.0	0.1	0.1	0	1	**5**
Common bottlenose dolphin[3]	0.3230	X		9.1	33.4	42.5	0	43	**215**

[1]DSM300 not used in offshore surveys.
[2]Only EK60 used for the >200 m depth stratum.
[3]Offshore stock.

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Estimated Take Due to Physical Disturbance

Estimated take due to physical disturbance could potentially occur in the Penobscot River Estuary as a result of the unintentional approach of NEFSC vessels to pinnipeds hauled out on ledges.

The NEFSC uses three gear types (fyke nets, rotary screw traps, and Mamou shrimp trawl) to monitor fish communities in the Penobscot River Estuary. The NEFSC conducts the annual surveys over specific sampling periods which could use any gear type: Mamou trawling is conducted year-round; fyke net surveys are conducted

April–November; and rotary screw trap surveys from April–June.

We anticipate that trawl and fyke net surveys may disturb harbor seals and gray seals hauled out on tidal ledges through physical presence of researchers. The NEFSC conducts these surveys in upper Penobscot Bay above Fort Point Ledge where there is only one minor seal ledge (Odum Ledge) used by approximately 50 harbor seals (*i.e.,* based on a June 2001 survey). In 2017, only 20 seals were observed in the water during the Penobscot Bay surveys (NEFSC 2018) as described below. Although one cannot assume that the number of seals using this region is stable over the April–November survey period; use of this area by seals likely lower in spring and autumn.

There were no observations of gray seals in the 2001 survey, but recent anecdotal information suggests that a few gray seals may share the haulout site. These fisheries research activities do not entail intentional approaches to seals on ledges (*i.e.,* boats avoid close approach to tidal ledges and no gear is deployed near the tidal ledges); only behavioral disturbance incidental to small boat activities is anticipated. It is likely that some pinnipeds on the ledges would move or flush from the haulout into the water in response to the presence or sound of NEFSC survey vessels. Behavioral responses may be considered according to the scale shown in Table 15. We consider responses corresponding to Levels 2–3 to constitute Level B harassment.

TABLE 15—SEAL RESPONSE TO DISTURBANCE

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

Only two research projects would involve the physical presence of researchers that may result in Level B incidental harassment of pinnipeds on haulouts. These surveys would occur in Penobscot Bay. Seals observed by NEFSC researchers on haulouts and in adjacent waters from 2017 through 2020 are presented in Table 16. The 2016 final rule (81 FR 53061) estimated that all hauled out seals could be disturbed by passing research skiffs. This was a conservative assumption given that only 20 seals were observed in the water during the actual 2017 Penobscot Bay surveys (NEFSC 2018b), and researchers have estimated that only about 10 percent of hauled out seals had been visibly disturbed in the past (NMFS 2016). Thus, for this proposed rule, it is assumed that 10 percent of the animals hauled out could be flushed into the water and taken. The resulting requested take is estimated based on the number of days per year the activity might take place, times the number of seals potentially affected (10 percent of the number hauled). Table 17 provides the estimated annual and 5-year takes of harbor and gray seals due to behavioral harassment during surveys in the lower estuary of the Penobscot River.

TABLE 16—SEALS OBSERVED IN PENOBSCOT BAY DURING HYDROACOUSTIC SURVEYS FROM 2017–2020

Species	2017		2018		2019	
	Count on haulout	Count in water	Count on haulout	Count in water	Count on haulout	Count in water
Harbor seals	242	65	401	52	330	50
Gray seals	2	17	11	2	33	29

TABLE 17—ESTIMATED TAKE, BY LEVEL B HARASSMENT, OF PINNIPEDS DURING PENOBSCOT RIVER SURVEYS

Common name	Estimated number of seals hauled out1	Estimated number of seals potentially disturbed per day2	Estimated annual instances of harassment			5-Year total harassment takes requested all gears
			Fyke net 100 DAS	Mamou shrimp trawl 12 DAS	Total	
Harbor seals	400	40	4,000	480	4,480	22,400
Gray seals	30	3	300	36	336	1,680

Summary of Estimated Incidental Take

Here we provide summary tables detailing the total proposed incidental take authorization on an annual basis for the NEFSC in the Atlantic coast region, as well as other information relevant to the negligible impact analyses.

TABLE 18—TOTAL PROPOSED M/SI AND LEVEL B HARASSMENT OVER 5 YEARS
[2021–2026]

Common name	5-Year total M/SI proposed take authorization	Annual Level B take			Total 5-yr Level B take 2021–2026
		LME	Offshore	Total (% of population)	
NARW	0	4	0	4 (<1)	20
Humpback whale	0	2	0	2 (<1)	10
Fin whale	0	6	1	7 (<1)	35
Sei whale	0	1	0	1 (<1)	5
Minke whale	5	3	0	3 (<1)	15
Blue whale	0	1	1	2 (<1)	10
Sperm whale	0	0	5	5 (<1)	25
Dwarf sperm whale	0	0	4	4 (<1)	20
Pygmy sperm whale	0	0	4	4 (<1)	20
Killer Whale	0	1	1	2 (<1)	10
Pygmy killer whale	0	1	1	2 (<1)	10
Northern bottlenose whale	0	0	1	1 (<1)	5
Cuvier's beaked whale	0	0	5	5 (<1)	25
Mesoplodon beaked whale	0	0	4	4 (<1)	20
Melon-headed whale	0	0	1	1 (<1)	5
Risso's dolphin	3	12	9	21 (<1)	105
Long-finned pilot whale	0	129	17	146 (<1)	730
Short-finned pilot whale	0	129	17	146 (<1)	730
Atlantic white-sided dolphin	3	265	0	281 (<1)	1,325
White-beaked common dolphin	2	1	0	1 (<1)	5
Short-beaked common dolphin	7	520	0	520 (<1)	2,600
Atlantic spotted dolphin	2	8	16	24 (<1)	120
Pantropical spotted dolphin	0	0	1	1 (<1)	5
Striped dolphin	0	0	41	41 (<1)	205
Fraser's dolphin	0	0	1	1 (<1)	5
Rough toothed dolphin	0	3	1	4 (3)	20
Clymene dolphin	0	19	0	19 (<1)	95
Spinner dolphin	0	0	5	5 (<1)	25
Bottlenose dolphin[1]	[1] 16	794	43	837 (12)	4,185
Harbor Porpoise	7	236	0	236 (<1)	1,180
Harbor seals[2]	15	1,660 4,480	0	6,140 (8.1)	30,700
Gray seals[2]	15	549 336	0	885 (3.2)	4,425

[1] Eight M/SI takes each from the offshore and northern migratory coastal stocks, over the 5-year period.
[2] For Level B takes, the first number is disturbance due to acoustic sources, the second is physical disturbance due to surveys in Penobscot Bay.

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.

Mitigation for Marine Mammals and Their Habitat

The NEFSC has invested significant time and effort in identifying technologies, practices, and equipment to minimize the impact of the proposed activities on marine mammal species and stocks and their habitat. The mitigation measures discussed here have been determined to be both effective and practicable and, in some cases, have already been implemented by the NEFSC. In addition, while not currently being investigated, any future

potentially effective and practicable gear modification mitigation measures are part of the adaptive management strategy included in this rule.

General Measures

Visual Monitoring—Effective monitoring is a key step in implementing mitigation measures and is achieved through regular marine mammal watches. Marine mammal watches are a standard part of conducting NEFSC fisheries research activities, particularly those activities that use gears that are known to or potentially interact with marine mammals. Marine mammal watches and monitoring occur during daylight hours prior to deployment of gear (*e.g.,* trawls, longline gear), and they continue until gear is brought back on board. If marine mammals are sighted in the area within 15 minutes prior to deployment of gear and are considered to be at risk of interaction with the research gear, then the sampling station is either moved or canceled or the activity is suspended until there are no sightings for 15 minutes within 1nm of sampling location. On smaller vessels, the Chief Scientist (CS) and the vessel operator are typically those looking for marine mammals and other protected species. When marine mammal researchers are on board (distinct from marine mammal observers dedicated to monitoring for potential gear interactions), they will record the estimated species and numbers of animals present and their behavior. If marine mammal researchers are not on board or available, then the CS in cooperation with the vessel operator will monitor for marine mammals and provide training as practical to bridge crew and other crew to observe and record such information.

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

The NEFSC will coordinate with the local Northeast Regional Stranding Coordinator and the NMFS Stranding Coordinator for any unusual protected species behavior and any stranding, beached live/dead, or floating protected species that are encountered during field research activities. If a large whale is alive and entangled in fishing gear, the vessel will immediately call the U.S. Coast Guard at VHF Ch. 16 and/or the appropriate Marine Mammal Health and Stranding Response Network for instructions. All entanglements (live or dead) and vessel strikes must be reported immediately to the NOAA Fisheries Marine Mammal Stranding Hotline at 888–755–6622. In addition, any entanglement or vessel strike must be reported to the NMFS Protected Species Incidental Take database (PSIT) within 48 hours of the event happening (see Proposed Monitoring and Reporting).

Vessel Speed Limits and Course Alteration

When NEFSC research vessels are actively sampling, cruise speeds are less than 5 kts, typically 2–4 kts, a speed at which the probability of collision and serious injury of large whales is *de minimus.* However, transit speed between active sampling stations will range from 10–12 kts, except in areas where vessel speeds are regulated to lower speeds.

On 9 December 2013, NMFS published a ''Final rule to remove sunset provision of the Final Rule Implementing Vessel Speed Restrictions to Reduce the Threat of Ship Collisions with NARWs'' (78 FR 73726). The 2013 final rule continued the vessel speed restrictions to reduce the threat of ship collisions with NARWs that were originally published in a final rule on 10 October 2008 (73 FR 60173). The rule requires that vessels 65 feet and greater in length travel at 10 knots or less near key port entrances and in certain areas of right whale aggregation along the U.S. eastern seaboard, known as ''Seasonal Management Areas''. The spatial and temporal locations of SMAs from Maine to Florida can be found at: *https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales#vessel-speed-restrictions.* In addition, Right Whale Slow Zones is a program that notifies vessel operators of areas where maintaining speeds of 10 knots or less can help protect right whales from vessel collisions. Under this program, NOAA Fisheries provides maps and coordinates to vessel operators indicating areas where right whales have been detected. Mariners are encouraged to avoid these areas or reduce speeds to 10 knots or less while transiting through these areas for 15 days. Right Whale Slow Zones are established around areas where right whales have been recently seen or heard. These areas are identical to Dynamic Management Areas (DMA) when triggered by right whale visual sightings, but they will also be established when right whale detections are confirmed from acoustic receivers. All NEFSC vessels over 65 ft will abide

by all speed and course restrictions in SMAs and DMAs. Prior to and during research surveys, NEFSC will maintain awareness if right whales have been detected in transit or fishing areas.

Handling Procedures

Handling procedures are those taken to return a live animal to the sea or process a dead animal. The NEFSC will implement a number of handling protocols to minimize potential harm to marine mammals that are incidentally taken during the course of fisheries research activities. In general, protocols have already been prepared for use on commercial fishing vessels. Although commercial fisheries take larger quantities of marine mammals than fisheries research, the nature of such takes by entanglement or capture are similar. Therefore, the NEFSC would adopt commercial fishery disentanglement and release protocols (summarized below), which should increase post-release survival. Handling or disentangling marine mammals carries inherent safety risks, and using best professional judgment and ensuring human safety is paramount.

Captured or entangled live or injured marine mammals are released from research gear and returned to the water as soon as possible with no gear or as little gear remaining on the animal as possible. Animals are released without removing them from the water if possible, and data collection is conducted in such a manner as not to delay release of the animal(s) or endanger the crew. NEFSC is responsible for training NEFSC and partner affiliates on how to identify different species; handle and bring marine mammals aboard a vessel; assess the level of consciousness; remove fishing gear; and return marine mammals to water. Human safety is always the paramount concern.

Move-On Rule

For all research surveys using gear that has the potential to hook or entangle a marine mammal, the NEFSC must implement move-on rule mitigation protocol upon observation of any marine mammal other than dolphins and porpoises attracted to the vessel (see specific gear types below for marine mammal monitoring details). Specifically, if one or more marine mammals (other than dolphins and porpoises) are observed near the sampling area 15 minutes prior to setting gear and are considered at risk of interacting with the vessel or research gear, or appear to be approaching the vessel and are considered at risk of interaction, NEFSC must either remain onsite or move on to another sampling location. If remaining onsite, the set must be delayed until the animal(s) depart or appear to no longer be at risk of interacting with the vessel or gear. If gear deployment or retrieval is suspended due to protected species presence, resume only after there are no sightings for 15 minutes within 1nm of sampling location. At such time, the NEFSC may deploy gear. The NEFSC must use best professional judgment, in making decisions related to deploying gear.

Trawl Surveys (Beam, Mid-Water, and Bottom Trawls)

The NEFSC deploys trawl nets in all layers of the water column. For all beam, mid-water, and bottom trawl, the NEFSC will initiate visual observation for protected species no less than 15 minutes prior to gear deployment. NEFSC will scan the surrounding waters with the naked eye and rangefinding binoculars and will continue visual monitoring while gear is deployed. During nighttime operations, NEFSC will observe with the naked eye and any available vessel lighting. If protected species are sighted within 15 minutes before setting gear, the OOD may determine whether to implement the ''move-on'' rule and transit to a different section of the sampling area. Trawl gear will not be deployed if protected species are sighted near the ship unless there is no risk of interaction as determined by the OOD or CS. If, after moving on, protected species are still visible from the vessel and appear at risk, the OOD may decide to move again, skip the station, or wait until the marine mammal(s) leave the area and/or are considered no longer at risk. If gear deployment or retrieval is suspended due to protected species presence, fishing may commence after there are no sightings for 15 minutes within 1nm of sampling location. If deploying bongo plankton or other small net prior to trawl gear, NEFSC will continue visual observations until trawl gear is ready to be deployed.

NEFSC trawl surveys will follow the standard tow durations of no more than 30 minutes at target depth for distances less than 3 nautical miles (nm). The exceptions to the 30-minute tow duration are the Atlantic Herring Acoustic Pelagic Trawl Survey and the Deepwater Biodiversity Survey where total time in the water (deployment, fishing, and haul-back) is 40 to 60 minutes and 180 minutes, respectively. Trawl tow distances will be not more than 3 nmi to reduce the likelihood of incidentally taking marine mammals. Typical tow distances are 1–2 nmi, depending on the survey and trawl speed. Bottom trawl tows will be made in either straight lines or following depth contours, whereas other tows targeting fish aggregations and deep-water biodiversity tows may be made along oceanographic or bathymetric features. In all cases, sharp course changes will be avoided in all surveys.

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

Once the trawl net is in the water, observations will continue around the vessel to maintain a lookout for the presence of marine mammals. If marine mammals are sighted before the gear is fully retrieved, resume only after there are no sightings for 15 minutes within 1 nmi of the sampling location. The OOD may also use the most appropriate response to avoid incidental take in consultation with the CS and other experienced crew as necessary. This judgment will be based on his/her past experience operating gears around marine mammals and NEFSC training sessions that will facilitate dissemination of Chief Scientist. Captain expertise operating in these situations (*e.g.,* factors that contribute to marine mammal gear interactions and those that aid in successfully avoiding these events). These judgments take into consideration the species, numbers, and behavior of the animals, the status of the trawl net operation (net opening, depth, and distance from the stern), the time it would take to retrieve the net, and safety considerations for changing speed or course. For instance, a whale transiting through the area off in the distance might only require a short move from the designated station while a pod of dolphins gathered around the vessel may require a longer move from the station or possibly cancellation if they follow the vessel. It may sometimes be safer to continue trawling until the marine mammals have lost interest or transited through the area before beginning haulback operations. In other situations, swift retrieval of the net may be the best course of action. If trawling is delayed because of protected species presence, trawl operations only resume when the animals have no longer been sighted or are no longer at risk. In any case, no gear will be deployed if marine mammals or other protected species

have been sighted that may be a risk of interaction with gear. Gear will be retrieved immediately if marine mammals are believed to be at risk of entanglement or observed as being entangled.

The acoustical cues generated during haulback may attract marine mammals. The NEFSC will continue monitoring for the presence of marine mammals during haulback. Care will be taken when emptying the trawl to avoid damage to any marine mammals that may be caught in the gear but are not visible upon retrieval. NEFSC will open the codend of the net close to the deck/sorting area to avoid damage to animals that may be caught in gear. The gear will be emptied as quickly as possible after retrieval in order to determine whether or not marine mammals, or any other protected species, are present.

Gillnet Surveys

The NEFSC will limit gillnet soak times to the least amount of time required to conduct sampling. Gillnet research will only be conducted during daylight hours. NEFSC will conduct marine mammal monitoring beginning 15 minutes prior to deploying the gear and continue until gear is back on deck. For the COASTSPAN gillnet surveys, NEFSC must actively monitor for potential bottlenose dolphin entanglements by hand-checking the gillnet every 30 minutes or if a disturbance in the net is observed (even if marine mammals are not observed).

NEFSC will pull gear immediately if disturbance in the nets is observed. All gillnets will be designed with minimal net slack and excess floating and trailing lines will be removed. NEFSC will set only new of fully repaired gill nets thereby eliminating holes, and modify nets to avoid large vertical gaps between float line and net as well as lead line and net when set. If a marine mammal is sighted during approach to a station or prior to deploying gear, nets would not be deployed until the animal has left the area, is on a path away from where the net would be set, or has not been re-sighted within 15 minutes. Alternatively, the research team may move the vessel to an area clear of marine mammals. If the vessel moves, the 15 minute observation period is repeated. Monitoring by all available crew would continue while the net is being deployed, during the soak, and during haulback.

If protected species are not sighted during the 15 minute observation period, the gear may be set. Waters surrounding the net and the net itself would be continuously monitored during the soak. If protected species are sighted during the soak and appear to be at risk of interaction with the gear, then the gear is pulled immediately. If fishing operations are halted, operations resume when animal(s) have not been sighted within 15 minutes or are determined to no longer be at risk. In other instances, the station is moved or cancelled. If any disturbance in the gear is observed in the gear, the net will be immediately checked or pulled.

The NEFSC will clean gear prior and during deployment. The catch will be emptied as quickly as possible. On Observer Training cruises, acoustic pingers and weak links are used on all gillnets consistent with the regulations and TRPs for commercial fisheries. All NEFOP protocols are followed as per current NEFOP Observer Manual.

Longline Surveys

Similar to other surveys, NEFSC will deploy longline gear as soon as practicable upon arrival on station. They will initiate visual observations for marine mammals no less than 15 minutes prior to deployment and continue until gear is back on deck. Observers will scan surrounding waters with the naked eye and binoculars (or monocular). Monitoring, albeit limited visibility, will occur during nighttime surveys using the naked eye and available vessel lighting. If marine mammals are sighted within 1nmi of the station within 15 minutes before setting gear, NEFSC will suspend gear deployment until the animals have moved on a path away from the station or implement the move-on rule. If gear deployment or retrieval is suspended due to presence of marine mammals, resume operations only after there are no sightings for at least 15 minutes within 1nmi of sampling location. In no case will longlines be deployed if animals are considered at-risk of interaction. When visibility allows, the OOD, CS, and crew standing watch will conduct set checks every 15 minutes to look for hooked, trapped, or entangled marine mammals. In addition, chumming is prohibited.

Fyke Net Surveys

NEFSC will conduct monitoring of marine mammals 15 minutes prior to setting gear and continue until gear is back on deck. If marine mammals are observed within 100 m of the station, NEFSC will delay setting the gear until the marine mammal(s) has moved past and on a path away from the station or implement the move-on rule. Similar to other gear measures, fyke nets will not be deployed in the animal(s) is deemed at-risk of interaction. If marine mammals are observed during sampling, gear will be pulled if the marine mammals is deemed at-risk of interacting with the gear. NEFSC will conduct monitoring and retrieval of gear every 12 to 24 hour soak period.

Fyke nets equal or greater to 2 m will be fitted with a marine mammal excluder device. The exclusion device consists of a grate the dimensions of which were based on exclusion devices on Penobscot Hydroelectric fishway facilities that are four to six inches and allow for passage of numerous target species including river herring, eels, striped bass, and adult salmon. The 1-m fyke net does not require an excluder device as the opening is 12 cm. These small openings will prevent marine mammals from entering the nets.

Pot/Trap Surveys

All pot/trap surveys will implement that same mitigation as described for longline surveys.

Dredge Surveys

For all scallop and hydraulic clam dredges, the OOD, CS or others will scan for marine mammals for 15 minutes prior to deploying gear. If marine mammals are observed within 1 km of the station, NEFSC will delay setting the gear until the marine mammal(s) has moved past and on a path away from the station or implement the move-on rule or the OOD or CS may implement the move-on rule. Dredge gear will not be deployed in the marine mammal is considered at-risk of interaction.

Sampling will be conducted upon arrival at the station and continue until gear is back on deck. Similar to trawl gear, care will be taken when emptying the nets to avoid damage to any marine mammals that may be caught in the gear but are not visible upon retrieval. NEFSC will empty the net close to the deck/sorting area to avoid damage to marine mammals that may be caught in gear. The gear will be emptied as quickly as possible after retrieval in order to determine whether or not marine mammals are present.

Based on our evaluation of the applicant's proposed measures, NMFS has preliminarily determined that the proposed mitigation measures provide the means 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.

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.

NEFSC must designate a compliance coordinator who must be responsible for ensuring compliance with all requirements of any LOA issued pursuant to these regulations and for preparing for any subsequent request(s) for incidental take authorization.

Since the 2016 final rule, NEFSC has made its training, operations, data collection, animal handling, and sampling protocols more systematic in order to improve its ability to understand how mitigation measures influence interaction rates and ensure its research operations are conducted in an informed manner and consistent with lessons learned from those with experience operating these gears in close proximity to marine mammals. In addition, NMFS has established a formal incidental take reporting system, the PSIT database, requiring that incidental takes of protected species be reported within 48 hours of the occurrence. The PSIT generates automated messages to agency leadership and other relevant staff and alerts them to the event and that updated information describing the circumstances of the event have been inputted into the database. It is in this spirit that we propose the monitoring requirements described below.

Visual Monitoring

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

NEFSC will also monitor disturbance of hauled out pinnipeds resulting from the presence of researchers, paying particular attention to the distance at which pinnipeds are disturbed. Disturbance will be recorded according to the three-point scale, representing increasing seal response to disturbance, as shown in Table 15.

Training

NMFS considers the proposed suite of monitoring and operational procedures to be necessary to avoid adverse interactions with protected species and still allow NEFSC to fulfill its scientific missions. However, some mitigation measures such as the move-on rule require judgments about the risk of gear interactions with protected species and the best procedures for minimizing that risk on a case-by-case basis. Vessel operators and Chief Scientists are charged with making those judgments at sea. They are all highly experienced professionals but there may be inconsistencies across the range of research surveys conducted and funded by NEFSC in how those judgments are made. In addition, some of the mitigation measures described above could also be considered ''best practices'' for safe seamanship and avoidance of hazards during fishing (*e.g.,* prior surveillance of a sample site before setting trawl gear). At least for some of the research activities considered, explicit links between the implementation of these best practices and their usefulness as mitigation measures for avoidance of protected species may not have been formalized and clearly communicated with all scientific parties and vessel operators. NMFS therefore proposes a series of improvements to NEFSC protected species training, awareness, and reporting procedures. NMFS expects these new procedures will facilitate and improve the implementation of the mitigation measures described above.

NEFSC will continue to use the process for its Chief Scientists and vessel operators to communicate with each other about their experiences with marine mammal interactions during research work with the goal of improving decision-making regarding avoidance of adverse interactions. As noted above, there are many situations where professional judgment is used to decide the best course of action for avoiding marine mammal interactions before and during the time research gear is in the water. The intent of this mitigation measure is to draw on the collective experience of people who have been making those decisions, provide a forum for the exchange of information about what went right and what went wrong, and try to determine if there are any rules-of-thumb or key factors to consider that would help in future decisions regarding avoidance practices. NEFSC would coordinate not only among its staff and vessel captains

but also with those from other fisheries science centers and institutions with similar experience.

NEFSC would also continue utilizing the formalized marine mammal training program required for all NEFSC research projects and for all crew members that may be posted on monitoring duty or handle incidentally caught marine mammals. Training programs would be conducted on a regular basis and would include topics such as monitoring and sighting protocols, species identification, decision-making factors for avoiding take, procedures for handling and documenting marine mammals caught in research gear, and reporting requirements. The Observer Program currently provides protected species training (and other types of training) for NMFS-certified observers placed on board commercial fishing vessels. NEFSC Chief Scientists and appropriate members of NEFSC research crews will be trained using similar monitoring, data collection, and reporting protocols for marine mammal as is required by the Observer Program. All NEFSC research crew members that may be assigned to monitor for the presence of marine mammals during future surveys will be required to attend an initial training course and refresher courses annually or as necessary. The implementation of this training program would formalize and standardize the information provided to all research crew that might experience marine mammal interactions during research activities.

For all NEFSC research projects and vessels, written cruise instructions and protocols for avoiding adverse interactions with marine mammals will be reviewed and, if found insufficient, made fully consistent with the Observer Program training materials and any guidance on decision-making that arises out of the two training opportunities described above. In addition, informational placards and reporting procedures will be reviewed and updated as necessary for consistency and accuracy. All NEFSC research cruises already include pre-sail review of marine mammal protocols for affected crew but NEFSC will also review its briefing instructions for consistency and accuracy.

NEFSC will continue to coordinate with the Greater Atlantic Regional Fisheries Office (GARFO), NEFSC fishery scientists, NOAA research vessel personnel, and other NMFS staff as appropriate to review data collection, marine mammal interactions, and refine data collection and mitigation protocols, as required. NEFSC will also coordinate with NMFS' Office of Science and Technology to ensure training and guidance related to handling procedures and data collection is consistent with other fishery science centers, where appropriate.

Reporting

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

In the unanticipated event that NEFSC fisheries research activities clearly cause the take of a marine mammal in a prohibited manner, NEFSC personnel engaged in the research activity must immediately cease such activity until such time as an appropriate decision regarding activity continuation can be made by the NEFSC Director (or designee). The incident must be reported immediately to OPR and the NMFS GARFO. OPR will review the circumstances of the prohibited take and work with NEFSC to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The immediate decision made by NEFSC regarding continuation of the specified activity is subject to OPR concurrence. The report must include the following information:

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

(ii) Description of the incident including, but not limited to, monitoring prior to and occurring at time of the incident;

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

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

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

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

(vii) Water depth;

(viii) Fate of the animal(s) (*e.g.* dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared, etc.); and

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

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

In the event that NEFSC discovers an injured or dead marine mammal and determines that the injury or death is not associated with or related to NEFSC fisheries research activities (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, scavenger damage), NEFSC must report the incident to OPR and GARFO, NMFS, within 24 hours of the discovery. NEFSC must provide photographs or video footage or other documentation of the stranded animal sighting to OPR.

In the event of a ship strike of a marine mammal by any NEFSC or partner vessel involved in the activities covered by the authorization, NEFSC or partner must immediately report the information described above, as well as the following additional information:

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

(ii) Vessel's course/heading and what operations were being conducted;,

(iii) Status of all sound sources in use;

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

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

(vi) Description of the behavior of the marine mammal immediately preceding and following the strike.

NEFSC will also collect and report all necessary data, to the extent practicable given the primacy of human safety and the well-being of captured or entangled marine mammals, to facilitate serious injury (SI) determinations for marine mammals that are released alive. NEFSC will require that the CS complete data forms and address supplemental questions, both of which have been

developed to aid in SI determinations. NEFSC understands the critical need to provide as much relevant information as possible about marine mammal interactions to inform decisions regarding SI determinations. In addition, the NEFSC will perform all necessary reporting to ensure that any incidental M/SI is incorporated as appropriate into relevant SARs.

Negligible Impact Analysis and Determination

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

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

PBR is defined in section 3 of the MMPA (16 U.S.C. 1362(20)) as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (OSP) and, although not controlling, can be one measure considered among other factors when evaluating the effects of M/SI on a marine mammal species or stock during the section 101(a)(5)(A) process. OSP is defined in section 3 of the MMPA (16 U.S.C. 1362(9)) as the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element. Through section 2, an overarching goal of the statute is to ensure that each species or stock of marine mammal is maintained at or returned to its OSP.

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

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

Similarly, to the extent PBR may be relevant when considering the impacts of incidental take from activities other than commercial fisheries, using it as the sole reason to deny (or issue) incidental take authorization for those activities would be inconsistent with Congress's intent under section 101(a)(5), NMFS' long-standing regulatory definition of ''negligible impact,'' and the use of PBR under section 118. The standard for authorizing incidental take for activities other than commercial fisheries under section 101(a)(5) continues to be, among other things that are not related to PBR, whether the total taking will have a negligible impact on the species or stock. Nowhere does section 101(a)(5)(A) reference use of PBR to make the negligible impact finding or authorize incidental take through multi-year regulations, nor does its companion provision at 101(a)(5)(D) for authorizing

non-lethal incidental take under the same negligible-impact standard. NMFS' MMPA implementing regulations state that take has a negligible impact when it does not adversely affect the species or stock through effects on annual rates of recruitment or survival—likewise without reference to PBR. When Congress amended the MMPA in 1994 to add section 118 for commercial fishing, it did not alter the standards for authorizing non-commercial fishing incidental take under section 101(a)(5), implicitly acknowledging that the negligible impact standard under section 101(a)(5) is separate from the PBR metric under section 118. In fact, in 1994 Congress also amended section 101(a)(5)(E) (a separate provision governing commercial fishing incidental take for species listed under the Endangered Species Act) to add compliance with the new section 118 but retained the standard of the negligible impact finding under section 101(a)(5)(A) (and section 101(a)(5)(D)), showing that Congress understood that the determination of negligible impact and application of PBR may share certain features but are, in fact, different.

Since the introduction of PBR in 1994, NMFS had used the concept almost entirely within the context of implementing sections 117 and 118 and other commercial fisheries management-related provisions of the MMPA. Prior to the Court's ruling in *Conservation Council for Hawaii* v. *National Marine Fisheries Service,* 97 F. Supp. 3d 1210 (D. Haw. 2015) and consideration of PBR in a series of section 101(a)(5) rulemakings, there were a few examples where PBR had informed agency deliberations under other MMPA sections and programs, such as playing a role in the issuance of a few scientific research permits and subsistence takings. But as the Court found when reviewing examples of past PBR consideration in *Georgia Aquarium* v. *Pritzker,* 135 F. Supp. 3d 1280 (N.D. Ga. 2015), where NMFS had considered PBR outside the commercial fisheries context, ''it has treated PBR as only one 'quantitative tool' and [has not used it] as the sole basis for its impact analyses.'' Further, the agency's thoughts regarding the appropriate role of PBR in relation to MMPA programs outside the commercial fishing context have evolved since the agency's early application of PBR to section 101(a)(5) decisions. Specifically, NMFS' denial of a request for incidental take authorization for the U.S. Coast Guard in 1996 seemingly was based on the potential for lethal take in relation to PBR and did not appear to consider other factors that might also have informed the potential for ship strike in relation to negligible impact (61 FR 54157; October 17, 1996).

The MMPA requires that PBR be estimated in SARs and that it be used in applications related to the management of take incidental to commercial fisheries (*i.e.,* the take reduction planning process described in section 118 of the MMPA and the determination of whether a stock is ''strategic'' as defined in section 3), but nothing in the statute requires the application of PBR outside the management of commercial fisheries interactions with marine mammals. Nonetheless, NMFS recognizes that as a quantitative metric, PBR may be useful as a consideration when evaluating the impacts of other human-caused activities on marine mammal stocks. Outside the commercial fishing context, and in consideration of all known human-caused mortality, PBR can help inform the potential effects of M/SI requested to be authorized under 101(a)(5)(A). As noted by NMFS and the U.S. Fish and Wildlife Service in our implementation regulations for the 1986 amendments to the MMPA (54 FR 40341, September 29, 1989), the Services consider many factors, when available, in making a negligible impact determination, including, but not limited to, the status of the species or stock relative to OSP (if known); whether the recruitment rate for the species or stock is increasing, decreasing, stable, or unknown; the size and distribution of the population; and existing impacts and environmental conditions. In this multi-factor analysis, PBR can be a useful indicator for when, and to what extent, the agency should take an especially close look at the circumstances associated with the potential mortality, along with any other factors that could influence annual rates of recruitment or survival.

When considering PBR during evaluation of effects of M/SI under section 101(a)(5)(A), we first calculate a metric for each species or stock that incorporates information regarding ongoing anthropogenic M/SI into the PBR value (*i.e.,* PBR minus the total annual anthropogenic mortality/serious injury estimate in the SAR), which is called ''residual PBR'' (Wood *et al.,* 2012). We first focus our analysis on residual PBR because it incorporates anthropogenic mortality occurring from other sources. If the ongoing human-caused mortality from other sources does not exceed PBR, then residual PBR is a positive number, and we consider how the anticipated or potential incidental M/SI from the activities being evaluated compares to residual PBR using the framework in the following paragraph. If the ongoing anthropogenic mortality from other sources already exceeds PBR, then residual PBR is a negative number and we consider the M/SI from the activities being evaluated as described further below.

When ongoing total anthropogenic mortality from the applicant's specified activities does not exceed PBR and residual PBR is a positive number, as a simplifying analytical tool we first consider whether the specified activities could cause incidental M/SI that is less than 10 percent of residual PBR (the ''insignificance threshold,'' see below). If so, we consider M/SI from the specified activities to represent an insignificant incremental increase in ongoing anthropogenic M/SI for the marine mammal stock in question that alone (*i.e.,* in the absence of any other take) will not adversely affect annual rates of recruitment and survival. As such, this amount of M/SI would not be expected to affect rates of recruitment or survival in a manner resulting in more than a negligible impact on the affected stock unless there are other factors that could affect reproduction or survival, such as Level A and/or Level B harassment, or other considerations such as information that illustrates uncertainty involved in the calculation of PBR for some stocks. In a few prior incidental take rulemakings, this threshold was identified as the ''significance threshold,'' but it is more accurately labeled an insignificance threshold, and so we use that terminology here. Assuming that any additional incidental take by Level A or Level B harassment from the activities in question would not combine with the effects of the authorized M/SI to exceed the negligible impact level, the anticipated M/SI caused by the activities being evaluated would have a negligible impact on the species or stock. However, M/SI above the 10 percent insignificance threshold does not indicate that the M/SI associated with the specified activities is approaching a level that would necessarily exceed negligible impact. Rather, the 10 percent insignificance threshold is meant only to identify instances where additional analysis of the anticipated M/SI is not required because the negligible impact standard clearly will not be exceeded on that basis alone.

Where the anticipated M/SI is near, at, or above residual PBR, consideration of other factors (positive or negative), including those outlined above, as well as mitigation is especially important to

assessing whether the M/SI will have a negligible impact on the species or stock. PBR is a conservative metric and not sufficiently precise to serve as an absolute predictor of population effects upon which mortality caps would appropriately be based. For example, in some cases stock abundance (which is one of three key inputs into the PBR calculation) is underestimated because marine mammal survey data within the U.S. EEZ are used to calculate the abundance even when the stock range extends well beyond the U.S. EEZ. An underestimate of abundance could result in an underestimate of PBR. Alternatively, we sometimes may not have complete M/SI data beyond the U.S. EEZ to compare to PBR, which could result in an overestimate of residual PBR. The accuracy and certainty around the data that feed any PBR calculation, such as the abundance estimates, must be carefully considered to evaluate whether the calculated PBR accurately reflects the circumstances of the particular stock. M/SI that exceeds PBR may still potentially be found to be negligible in light of other factors that offset concern, especially when robust mitigation and adaptive management provisions are included.

PBR was designed as a tool for evaluating mortality and is defined as the number of animals that can be removed while allowing that stock to reach or maintain its OSP. OSP is defined as a population that falls within a range from the population level that is the largest supportable within the ecosystem to the population level that results in maximum net productivity, and thus is an aspirational management goal of the overall statute with no specific timeframe by which it should be met. PBR is designed to ensure minimal deviation from this overarching goal, with the formula for PBR typically ensuring that growth towards OSP is not reduced by more than 10 percent (or equilibrates to OSP 95 percent of the time). As PBR is applied by NMFS, it provides that growth toward OSP is not reduced by more than 10 percent, which certainly allows a stock to reach or maintain its OSP in a conservative and precautionary manner—and we can therefore clearly conclude that if PBR were not exceeded, there would not be adverse effects on the affected species or stocks. Nonetheless, it is equally clear that in some cases the time to reach this aspirational OSP level could be slowed by more than 10 percent (*i.e.,* total human-caused mortality in excess of PBR could be allowed) without adversely affecting a species or stock through effects on its rates of recruitment or survival. Thus even in situations where the inputs to calculate PBR are thought to accurately represent factors such as the species' or stock's abundance or productivity rate, it is still possible for incidental take to have a negligible impact on the species or stock even where M/SI exceeds residual PBR or PBR.

PBR is helpful in informing the analysis of the effects of mortality on a species or stock because it is important from a biological perspective to be able to consider how the total mortality in a given year may affect the population. However, section 101(a)(5)(A) of the MMPA indicates that NMFS shall authorize the requested incidental take from a specified activity if we find that the total of such taking [*i.e.,* from the specified activity] will have a negligible impact on such species or stock. In other words, the task under the statute is to evaluate the applicant's anticipated take in relation to their take's impact on the species or stock, not other entities' impacts on the species or stock. Neither the MMPA nor NMFS' implementing regulations call for consideration of other unrelated activities and their impacts on the species or stock. In fact, in response to public comments on the implementing regulations NMFS explained that such effects are not considered in making negligible impact findings under section 101(a)(5), although the extent to which a species or stock is being impacted by other anthropogenic activities is not ignored. Such effects are reflected in the baseline of existing impacts as reflected in the species' or stock's abundance, distribution, reproductive rate, and other biological indicators.

Our evaluation of the M/SI for each of the species and stocks for which M/SI could occur follows. In addition, all mortality authorized for some of the same species or stocks over the next several years pursuant to our final rulemakings for the NMFS Southeast Fisheries Science Center (SEFSC) and U.S. Navy has been incorporated into the residual PBR. By considering the maximum potential incidental M/SI in relation to PBR and ongoing sources of anthropogenic mortality, we begin our evaluation of whether the potential incremental addition of M/SI through NEFSC research activities may affect the species' or stocks' annual rates of recruitment or survival. We also consider the interaction of those mortalities with incidental taking of that species or stock by harassment pursuant to the specified activity.

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

Summary of Estimated Incidental Take

Here we provide a summary of the total incidental take authorization on an annual basis, as well as other information relevant to the negligible impact analysis. Table 19 shows information relevant to our negligible impact analysis concerning the annual amount of M/SI take that could occur for each stock when considering the proposed incidental take along with other sources of M/SI. As noted previously, although some gear interactions may result in Level A harassment or the release of an uninjured animal, for the purposes of the negligible impact analysis, we assume that all of these takes could potentially be in the form of M/SI.

We previously authorized take of marine mammals incidental to fisheries research operations conducted by the SEFSC (see 85 FR 27028, May 6, 2020) and U.S. Navy (84 FR 70712, December 23, 2019). This take would occur to some of the same stocks for which we may authorize take incidental to NEFSC fisheries research operations. Therefore, in order to evaluate the likely impact of the take by M/SI in this rule, we consider not only other ongoing sources of human-caused mortality but the potential mortality authorized for SEFSC fisheries and ecosystem research and U.S. Navy testing and training in the Atlantic Ocean. As used in this document, other ongoing sources of human-caused (anthropogenic) mortality refers to estimates of realized or actual annual mortality reported in the SARs and does not include authorized or unknown mortality. Below, we consider the total taking by M/SI for NEFSC activities and previously authorized for SEFSC and Navy activities together to produce a maximum annual M/SI take level (including take of unidentified marine mammals that could accrue to any relevant stock) and compare that value to the stock's PBR value, considering ongoing sources of anthropogenic

mortality. PBR and annual M/SI values considered in Table 19 reflect the most recent information available (*i.e.,* draft 2020 SARs).

TABLE 19—SUMMARY INFORMATION RELATED TO NEFSC PROPOSED ANNUAL TAKE BY MORTALITY OR SERIOUS INJURY AUTHORIZATION, 2021–2026

Species	Stock	Stock abundance	Proposed NEFSC M/SI take (annual)	PBR	Annual M/SI	SEFSC take by M/SI	Navy AFTT take by M/SI	r-PBR	Total M/SI take r-PBR (%)
Minke whale	Canadian East Coast	2,591	1	170	10.6	0	0.14	159.26	0.63
Risso's dolphin	W. North Atlantic	35,493	0.6	303	54.3	0.2	0	248.5	0.24
Atlantic white-sided dolphin		93,233	0.6	544	26	0	1.4	516.6	0.12
White-beaked common dolphin.		536,016	0.4	4,153	0	0	0	4,153	0.01
Short-beaked common dolphin.		172,974	1.4	1,452	399	0.8	0	1,052.2	0.13
Atlantic spotted dolphin		39,921	0.4	320	0	0.8	0	319.2	0.13
bottlenose dolphin	(offshore stock)	62,851	1.6	519	28	0.8	0	490.2	0.33
bottlenose dolphin	(N. migratory stock)	6,639	1.6	48	12.2–21.5	0.8	0	25.7–35	<1
bottlenose dolphin	(S. migratory stock)	3,751	0.2	23	0 to 18.3	0.8	0	3.9–22.2	<7.8–70
Harbor porpoise	GoM/Bay of Fundy	95,543	1.4	851	217	0.2	0	633.8	0.22
Harbor seal	W. North Atlantic	75,834	5	2,006	350	0.2	0	1,656	0.30
Gray seal		27,131	5	1,389	47,296	0.2	0	−45,907	

All but one stocks that may potentially be taken by M/SI fall below the insignificance threshold (*i.e.,* 10 percent of residual PBR). The annual proposed take of grey seals is above the insignificance threshold.

Stocks With M/SI Below the Insignificance Threshold

As noted above, for a species or stock with incidental M/SI less than 10 percent of residual PBR, we consider M/SI from the specified activities to represent an insignificant incremental increase in ongoing anthropogenic M/SI that alone (*i.e.,* in the absence of any other take and barring any other unusual circumstances) will clearly not adversely affect annual rates of recruitment and survival. In this case, as shown in Table 19, the following species or stocks have proposed M/SI from NEFSC fisheries research below their insignificance threshold: Minke whale (Canadian east coast); Risso's dolphin; the Western North Atlantic stocks of Atlantic white-sided dolphin; White-beaked common dolphin; Short-beaked common dolphin; Atlantic spotted dolphin; bottlenose dolphin (offshore and Northern migratory); harbor porpoise (Gulf of Marine/Bay of Fundy), and harbor seal (Western North Atlantic).

For these stocks with authorized M/SI below the insignificance threshold, there are no other known factors, information, or unusual circumstances that indicate anticipated M/SI below the insignificance threshold could have adverse effects on annual rates of recruitment or survival and they are not discussed further.

Stocks With M/SI Above the Insignificance Threshold

There is one stock for which we propose to authorize take where the annual rate of M/SI is above the 10 percent insignificance threshold: The western North Atlantic stock of gray seals. For this species, we explain below why we have preliminarily determined the proposed take is not expected or likely to adversely affect the species or stock through effects on annual rates of recruitment or survival.

At first glance, the annual rate of mortality of gray seals exceeds PBR in absence of any authorized take proposed here or in other LOAs. However, the size of population reported in the SAR (and consequently the PBR value) is estimated separately for the portion of the population in Canada versus the U.S., and mainly reflects the size of the breeding population in each respective country. However, the annual estimated human-caused mortality and serious injury values in the SAR reflects both U.S. and Canada M/SI. For the period 2014–2018, the average annual estimated human-caused mortality and serious injury to gray seals in the U.S. and Canada was 4,729 (953 U.S./3,776 Canada) per year. Therefore, The U.S. portion of 2013–2017 average annual human-caused mortality and serious injury during 2014–2018 in U.S. waters does not exceed the portion of PBR in of the U.S. waters portion of the stocks but is still high (approximately 68 percent of PBR).

In U.S. waters, the number of pupping sites has increased from 1 in 1988 to 9 in 2019, and are located in Maine and Massachusetts (Wood et al. 2019). Mean rates of increase in the number of pups born at various times since 1988 at 4 of the more frequently surveyed pupping sites (Muskeget, Monomoy, Seal, and Green Islands) ranged from −0.2 percent (95% CI: −2.3–1.9%) to 26.3 percent (95% CI: 21.6–31.4%) (Wood et al. 2019). These high rates of increase provide further support that seals from other areas are continually supplementing the breeding population in U.S. waters. From 1988–2019, the estimated mean rate of increase in the number of pups born was 12.8 percent on Muskeget Island, 26.3 percent on Monomoy Island, 11.5 percent on Seal Island, and −0.2 percent on Green Island (Wood et al. 2019). These rates only reflect new recruits to the population and do not reflect changes in total population growth resulting from Canadian seals migrating to the region. Overall, the total population of gray seals in Canada was estimated to be increasing by 4.4 percent per year from 1960–2016 (Hammill et al. 2017). The status of the gray seal population relative to OSP in U.S. Atlantic EEZ waters is unknown, but the stock's abundance appears to be increasing in both Canadian and U.S. waters. For these reasons, the issuance of the proposed M/SI take is not likely to affect annual rates of recruitment of survival.

Acoustic Effects

As described in greater depth previously, the NEFSC's use of active acoustic sources has the likely potential to result in no greater than Level B (behavioral) harassment of marine mammals. Level A harassment is not an anticipated outcome of exposure, and we are not proposing to authorize it. Marine mammals are expected to have short-term, minor behavioral reactions to exposure such as moving away from the source. Some marine mammals (*e.g.,*

delphinids) may choose to bow ride the source vessel; in which case exposure is expected to have no effect on behavior. For the majority of species, the amount of proposed annual take by Level B harassment is very low (less than 1 percent) in relation to the population abundance estimate. For stocks above 1 percent (n=3), the amount of proposed annual take by Level B harassment is less than 12 percent.

We have produced what we believe to be conservative estimates of potential incidents of Level B harassment. The procedure for producing these estimates, described in detail in the notice of proposed rulemaking for the initial LOA (80 FR 39542, July 9, 2015) and summarized earlier in the *Estimated Take Due to Acoustic Harassment* section, represents NMFS' best effort towards balancing the need to quantify the potential for occurrence of Level B harassment due to production of underwater sound with a general lack of information related to the specific way that these acoustic signals, which are generally highly directional and transient, interact with the physical environment and to a meaningful understanding of marine mammal perception of these signals and occurrence in the areas where the NEFSC operates. The sources considered here have moderate to high output frequencies (10 to 200 kHz), generally short ping durations, and are typically focused (highly directional) to serve their intended purpose of mapping specific objects, depths, or environmental features. In addition, some of these sources can be operated in different output modes (*e.g.,* energy can be distributed among multiple output beams) that may lessen the likelihood of perception by and potential impacts on marine mammals in comparison with the quantitative estimates that guide our take authorization.

In particular, low-frequency hearing specialists (*i.e.,* mysticetes) are less likely to perceive or, given perception, to react to these signals. As described previously, NEFSC determined that the EK60, ME 70, and DSM 300 sources comprise the total effective exposures relative to line-kilometers surveyed. Acoustic disturbance takes are calculated for these three dominant sources. Of these dominant acoustic sources, only the EK 60 can use a frequency within the hearing range of baleen whales (18k Hz). Therefore, Level B harassment of baleen whales is only expected for exposure to the EK60. The other two dominant sources are outside of their hearing range. There is some minimal potential for temporary effects to hearing for certain marine mammals, but most effects would likely be limited to temporary behavioral disturbance. Effects on individuals that are taken by Level B harassment will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring), reactions that are considered to be of low severity (*e.g.,* Southall *et al.,* 2007). There is the potential for behavioral reactions of greater severity, including displacement, but because of the directional nature of the sources considered here and because the source is itself moving, these outcomes are unlikely and would be of short duration if they did occur. Although there is no information on which to base any distinction between incidents of harassment and individuals harassed, the same factors, in conjunction with the fact that NEFSC survey effort is widely dispersed in space and time, indicate that repeated exposures of the same individuals would be unlikely. The acoustic sources proposed to be used by NEFSC are generally of low source level, higher frequency, and narrow beamwidth. As described previously, there is some minimal potential for temporary effects to hearing for certain marine mammals, but most effects would likely be limited to temporary behavioral disturbance. Effects on individuals that are taken by Level B harassment will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring), reactions that are considered to be of low severity (*e.g.,* Ellison *et al.,* 2012). Individuals may move away from the source if disturbed; however, because the source is itself moving and because of the directional nature of the sources considered here, there is unlikely to be even temporary displacement from areas of significance and any disturbance would be of short duration. The areas ensonified above the Level B harassment threshold during NEFSC surveys are extremely small relative to the overall survey areas. Although there is no information on which to base any distinction between incidents of harassment and individuals harassed, the same factors, in conjunction with the fact that NEFSC survey effort is widely dispersed in space and time, indicate that repeated exposures of the same individuals would be very unlikely. The short term, minor behavioral responses that may occur incidental to NEFSC use of acoustic sources, are not expected to result in impacts the reproduction or survival of any individuals, much less have an adverse impact on the population.

Similarly, disturbance of pinnipeds by researchers are expected to be infrequent and cause only a temporary disturbance on the order of minutes. This level of periodic incidental harassment would have temporary effects and would not be expected to alter the continued use of the tidal ledges by seals. Anecdotal reports from previous monitoring show that the pinnipeds returned to the various sites and did not permanently abandon haulout sites after the NEFSC conducted their research activities. Monitoring results from other activities involving the disturbance of pinnipeds and relevant studies of pinniped populations that experience more regular vessel disturbance indicate that individually significant or population level impacts are unlikely to occur. When considering the individual animals likely affected by this disturbance, only a small fraction of the estimated population abundance of the affected stocks would be expected to experience the disturbance. Therefore, the NEFSC activity cannot be reasonably expected to, and is not reasonably likely to, adversely affect species or stocks through effects on annual rates of recruitment or survival.

Conclusions

In summary, as described in the *Serious Injury and Mortality* section, the proposed takes by serious injury or mortality from NEFSC activities, alone, are unlikely to adversely affect any species or stock through effects on annual rates of recruitment or survival. Further, the low severity and magnitude of expected Level B harassment is not predicted to affect the reproduction or survival of any individual marine mammals, much less the rates of recruitment or survival of any species or stock. Therefore, the authorized Level B harassment, alone or in combination with the M/SI authorized for some species or stocks, will result in a negligible impact on the effected stocks and species.

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

Please see Table 18 for information relating to this small numbers analysis. The total amount of taking proposed for authorization is less than one percent for a majority of stocks, and no more than 12 percent for any given stock.

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

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by the issuance of regulations to the NEFSC. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 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 whenever we propose to authorize take for endangered or threatened species, in this case with the Greater Atlantic Regional Fisheries Office (GARFO).

NMFS is proposing to authorize take, by Level B harassment only of North Atlantic right, fin, sei, blue and sperm whales, which are listed under the ESA. Therefore, OPR has requested initiation of Section 7 consultation with the GARFO for the issuance of this IHA. NMFS will conclude the ESA consultation prior to reaching a determination regarding the proposed issuance of the authorization.

Adaptive Management

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

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

The following are some of the possible sources of applicable data to be considered through the adaptive management process: (1) Results from monitoring reports, as required by MMPA authorizations; (2) results from general marine mammal research and sound research; and (3) any information which reveals that marine mammals may have been taken in a manner, extent, or number not authorized by these regulations or subsequent LOAs.

Request for Information

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

Classification

The Office of Management and Budget has determined that this proposed rule is not significant for purposes of Executive Order 12866.

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce has certified to the Chief Counsel for Advocacy of the Small Business Administration that this proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities. NMFS is the sole entity that would be responsible for adhering to the requirements in these proposed regulations, and NMFS is not a small governmental jurisdiction, small organization, or small business, as defined by the RFA. Because of this certification, a regulatory flexibility analysis is not required and none has been prepared.

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

List of Subjects in 50 CFR Part 219

Endangered and threatened species, Fish, Marine mammals, Reporting and recordkeeping requirements, Wildlife.

Dated: May 21, 2021.

Samuel D. Rauch III,

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

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

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

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

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

■ 2. Amend Subpart D to part 219 to read as follows:

Subpart D—Taking Marine Mammals Incidental to Northeast Fisheries Science Center Fisheries Research in the Atlantic Coast Region

Sec.
219.31 Specified activity and specified geographical region.
219.32 Effective dates.
219.33 Permissible methods of taking.
219.34 Prohibitions.
219.35 Mitigation requirements.
219.36 Requirements for monitoring and reporting.
219.37 Letters of Authorization.
219.38 Renewals and modifications of Letters of Authorization.
219.39 [Reserved]
219.40 [Reserved]

Subpart D—Taking Marine Mammals Incidental to Northeast Fisheries Science Center Fisheries Research in the Atlantic Coast Region

§ 219.31 Specified activity and specified geographical region.

(a) Regulations in this subpart apply only to the National Marine Fisheries Service's (NMFS) Northeast Fisheries Science Center and those persons it authorizes or funds to conduct activities in the area outlined in paragraph (b) of this section during research survey program operations.

(b) The incidental taking of marine mammals by Northeast Fisheries Science Center may be authorized in a Letter of Authorization (LOA) only if it occurs within the Northeast and Southeast Large Marine Ecosystem.

§ 219.32 Effective dates.

Regulations in this subpart are effective from September 10, 2021 through September 9, 2026.

§ 219.33 Permissible methods of taking.

(a) Under LOAs issued pursuant to §§ 216.106 of this chapter and 219.37, the Holder of the LOA (hereinafter ''NEFSC'') may incidentally, but not intentionally, take marine mammals within the area described in § 219.31(b) of this chapter by Level B harassment associated with use of active acoustic systems and physical or visual disturbance of hauled out pinnipeds and by Level A harassment, serious injury, or mortality associated with use of trawl, dredge, bottom and pelagic longline, gillnet, pot and trap, and fyke net gears, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA.

§ 219.34 Prohibitions.

Except for takings contemplated in § 219.33 and authorized by a LOA issued under §§ 216.106 of this chapter and 219.37, it shall be unlawful for any person to do any of the following in connection with the activities described in § 219.31:

(a) Violate, or fail to comply with, the terms, conditions, and requirements of this subpart or a LOA issued under §§ 216.106 of this chapter and 219.37;

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

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

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

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

§ 219.35 Mitigation requirements.

When conducting the activities identified in § 219.31(a), the mitigation measures contained in any LOA issued under §§ 216.106 of this chapter and 219.37 must be implemented. These mitigation measures must include but are not limited to:

(a) *General conditions:*

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

(2) NEFSC must coordinate and conduct briefings at the outset of each survey and as necessary between the ship's crew (Commanding Officer/master or designee(s), contracted vessel owners, as appropriate) and scientific party or in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures;

(3) NEFSC must coordinate as necessary on a daily basis during survey cruises with OMAO personnel or other relevant personnel on non-NOAA platforms to ensure that requirements, procedures, and decision-making processes are understood and properly implemented;

(4) When deploying any type of sampling gear at sea, NEFSC must at all times monitor for any unusual circumstances that may arise at a sampling site and use best professional judgment to avoid any potential risks to marine mammals during use of all research equipment;

(5) All vessels must comply with applicable and relevant take reduction plans, including any required use of acoustic deterrent devices;

(6) If a NEFSC vessel 65 ft or longer is traveling within a North Atlantic right whale Seasonal Management Area, the vessel shall not exceed 10 knots in speed. When practicable, all NEFSC vessels traveling within a Dynamic Management Area shall not exceed 10 knots in speed;

(7) All NEFSC vessels shall maintain a separation distance of 500 m and 100 m from a North Atlantic right whale and other large whales, respectively;

(8) If a North Atlantic right whale is observed at any time during NEFSC research activities, NEFSC must immediately report sighting information to NMFS (866–755–6622), the U.S. Coast Guard via channel 16 and through the WhaleAlert app (*http://www.whalealert.org/*);

(9) NEFSC must implement handling and/or disentanglement protocols as specified in the guidance provided to NEFSC survey personnel; and

(10) In the case of a bottlenose dolphin entanglement resulting in mortality and stock origin is unknown, the NEFSC must request and arrange for expedited genetic sampling for stock determination and photograph the dorsal fin and submit the image to the NMFS Regional Marine Mammal Stranding Coordinator for identification/matching to bottlenose dolphins in the Bottlenose Dolphin Photo-identification Catalog.

(b) *Trawl survey protocols:*

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

(2) NEFSC must initiate marine mammal watches (visual observation) 15 minutes prior to sampling within 1 km of the site. Marine mammal watches must be conducted by scanning the surrounding waters with the naked eye and binoculars (or monocular). During nighttime operations, visual observation will be conducted using the naked eye and available vessel lighting;

(3) NEFSC must implement the following ''move-on rule.'' If a marine mammal is sighted within 1 nautical mile (nm) of the planned location in the 15 minutes before gear deployment,

NEFSC must move the vessel away from the marine mammal to a different section of the sampling area if the animal appears to be at risk of interaction with the gear based on best professional judgement. If, after moving on, marine mammals are still visible from the vessel, NEFSC may decide to move again or to skip the station;

(4) NEFSC must maintain visual monitoring effort during the entire period of time that trawl gear is in the water (*i.e.,* throughout gear deployment, fishing, and retrieval). If marine mammals are sighted before the gear is fully removed from the water, NEFSC must take the most appropriate action to avoid marine mammal interaction;

(5) If trawling operations have been suspended because of the presence of marine mammals, NEFSC may resume only after there are no sightings for 15 minutes within 1nm of sampling location;

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

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

(c) *Dredge survey protocols:*

(1) NEFSC must deploy dredge gear as soon as is practicable upon arrival at the sampling station;

(2) NEFSC must initiate marine mammal watches (visual observation) prior to sampling. Marine mammal watches must be conducted by scanning the surrounding waters with the naked eye and binoculars (or monocular). During nighttime operations, visual observation must be conducted using the naked eye and available vessel lighting;

(3) NEFSC must implement the following ''move-on rule.'' If marine mammals are sighted within 1 nautical mile (nm) of the planned location in the 15 minutes before gear deployment, the NEFSC may decide to move the vessel away from the marine mammal to a different section of the sampling area if the animal appears to be at risk of interaction with the gear, based on best professional judgement. If, after moving on, marine mammals are still visible from the vessel, NEFSC may decide to move again or to skip the station;

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

(5) If dredging operations have been suspended because of the presence of marine mammals, NEFSC may resume operations when practicable only when the animals are believed to have departed the area or after 15 minutes of no sightings. NEFSC may use best professional judgment in making this determination; and

(6) NEFSC must carefully empty the dredge gear as quickly as possible upon retrieval to determine if marine mammals are present in the gear.

(d) *Bottom and pelagic longline survey protocols:*

(1) NEFSC must deploy longline gear as soon as is practicable upon arrival at the sampling station;

(2) NEFSC must initiate marine mammal watches (visual observation) no less than fifteen minutes prior to both deployment and retrieval of the longline gear. Marine mammal watches must be conducted by scanning the surrounding waters with the naked eye and binoculars (or monocular). During nighttime operations, visual observation must be conducted using the naked eye and available vessel lighting;

(3) NEFSC must implement the following ''move-on rule.'' If marine mammals are sighted within 1 nautical mile (nmi) of the planned location in the 15 minutes before gear deployment, the NEFSC may decide to move the vessel away from the marine mammal to a different section of the sampling area if the animal appears to be at risk of interaction with the gear, based on best professional judgement. If, after moving on, marine mammals are still visible from the vessel, NEFSC may decide to move again or to skip the station;

(4) For the Apex Predators Bottom Longline Coastal Shark Survey, if one or more marine mammals are observed within 1 nautical mile (nm) of the planned location in the 15 minutes before gear deployment, NEFSC must transit to a different section of the sampling area to maintain a minimum set distance of 1 nmi from the observed marine mammals. If, after moving on, marine mammals remain within 1 nmi, NEFSC may decide to move again or to skip the station. NEFSC may use best professional judgment in making this decision but may not elect to conduct pelagic longline survey activity when animals remain within the 1-nmi zone;

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

(6) If deployment or retrieval operations have been suspended because of the presence of marine mammals, NEFSC may resume such operations after there are no sightings of marine mammals for at least 15 minutes within the area or within the 1-nm area for the Apex Predators Bottom Longline Coastal Shark Survey. NEFSC may use best professional judgment in making this decision; and

(7) NEFSC must implement standard survey protocols, including maximum soak durations and a prohibition on chumming.

(e) *Gillnet survey protocols:*

(1) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must deploy gillnet gear as soon as is practicable upon arrival at the sampling station;

(2) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must initiate marine mammal watches (visual observation) prior to both deployment and retrieval of the gillnet gear. When the vessel is on station during the soak, marine mammal watches must be conducted during the soak by scanning the surrounding waters with the naked eye and binoculars (or monocular);

(3) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must implement the following ''move-on rule.'' If marine mammals are sighted within 1 nmi of the planned location in the 15 minutes before gear deployment, the NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains, may decide to move the vessel away from the marine mammal to a different section of the sampling area if the animal appears to be at risk of interaction with the gear based on best professional judgement. If, after moving on, marine mammals are still visible from the vessel, the NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains may decide to move again or to skip the station;

(4) If marine mammals are sighted near the vessel during the soak and are determined to be at risk of interacting with the gear, then the NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must carefully retrieve the gear as quickly as possible. The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains

may use best professional judgment in making this decision;

(5) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must implement standard survey protocols, including continuously monitoring the gillnet gear during soak time and removing debris with each pass as the net is reset into the water to minimize bycatch;

(6) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must ensure that surveys deploy acoustic pingers on gillnets in areas where required for commercial fisheries. NEFSC must ensure that the devices are operating properly before deploying the net;

(7) NEFSC must ensure that cooperating institutions, contracted vessels, or commercially-hired captains conducting gillnet surveys adhere to monitoring and mitigation requirements and must include required protocols in all survey instructions, contracts, and agreements;

(8) For the COASTSPAN gillnet surveys, the NEFSC will actively monitor for potential bottlenose dolphin entanglements by hand-checking the gillnet every 30 minutes; and

(9) NEFSC will set only new or fully repaired gill nets, and modify nets to avoid large vertical gaps between float line and net as well as lead line and net when set.

(f) *Pot and trap survey protocols:*

(1) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must deploy pot gear as soon as is practicable upon arrival at the sampling station;

(2) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must initiate marine mammal watches (visual observation) no less than 30 minutes prior to both deployment and retrieval of the pot and trap gear. Marine mammal watches must be conducted by scanning the surrounding waters with the naked eye and binoculars (or monocular). During nighttime operations, visual observation must be conducted using the naked eye and available vessel lighting;

(3) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must implement the following ''move-on'' rule. If marine mammals are sighted within 1 nmi of the planned location in the 15 minutes before gear deployment, the NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains, as appropriate, may decide to move the vessel away from the marine mammal to a different section of the sampling area if the animal appears to be at risk of interaction with the gear, based on best professional judgement. If, after moving on, marine mammals are still visible from the vessel, the NEFSC, and/or its cooperating institutions, contracted vessels, or commercially-hired captains may decide to move again or to skip the station;

(4) If marine mammals are sighted near the vessel during the soak and are determined to be at risk of interacting with the gear, then the NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must carefully retrieve the gear as quickly as possible. The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains may use best professional judgment in making this decision;

(5) The NEFSC and/or its cooperating institutions, contracted vessels, or commercially-hired captains must ensure that surveys deploy gear fulfilling all Pot/Trap universal commercial gear configurations such as weak link requirements and marking requirements as specified by applicable take reduction plans as required for commercial pot/trap fisheries; and

(6) The NEFSC must ensure that its cooperating institutions, contracted vessels, or commercially-hired captains conducting pot and trap surveys adhere to monitoring and mitigation requirements and must include required protocols in all survey instructions, contracts, and agreements.

(g) *Fyke net gear protocols:*

(1) NEFSC must conduct fyke net gear deployment as soon as is practicable upon arrival at the sampling station;

(2) NEFSC must visually survey the area prior to both deployment and retrieval of the fyke net gear. NEFSC must conduct monitoring and retrieval of the gear every 12- to 24-hour soak period;

(3) If marine mammals are in close proximity (approximately 328 feet [100 meters]) of the set location, NEFSC must determine if the net should be removed from the water and the set location should be moved using best professional judgment;

(4) If marine mammals are observed to interact with the gear during the setting, NEFSC must remove the gear from the water and implement best handling practices; and

(5) NEFSC must install and use a marine mammal excluder device at all times when the 2-meter fyke net is used.

(h) *Rotary screw trap gear protocols:*

(1) NEFSC must conduct rotary screw trap deployment as soon as is practicable upon arrival at the sampling station;

(2) NEFSC must visually survey the area prior to both setting and retrieval of the rotary screw trap gear. If marine mammals are observed in the sampling area, NEFSC must suspend or delay the sampling. NEFSC may use best professional judgment in making this decision;

(3) NEFSC must tend to the trap on a daily basis to monitor for marine mammal interactions with the gear; and

(4) If the rotary screw trap captures a marine mammal, NEFSC must remove gear and and implement best handling practices.

§ 219.36 Requirements for monitoring and reporting.

(a) *Compliance coordinator*—NEFSC shall designate a compliance coordinator who shall be responsible for ensuring compliance with all requirements of any LOA issued pursuant to § 216.106 of this chapter and § 219.7 and for preparing for any subsequent request(s) for incidental take authorization.

(b) *Visual monitoring program:*

(1) Marine mammal visual monitoring must occur: Prior to deployment of beam, mid-water, and bottom trawl, bottom and pelagic longline, gillnet, fyke net, pot, trap, and rotary screw trap gear; throughout deployment of gear and active fishing of all research gears; and throughout retrieval of all research gear;

(2) Marine mammal watches must be conducted by watch-standers (those navigating the vessel and/or other crew) at all times when the vessel is being operated;

(3) NEFSC must monitor any potential disturbance of pinnipeds on ledges, paying particular attention to the distance at which different species of pinniped are disturbed. Disturbance must be recorded according to a three-point scale of response to disturbance; and

(4) The NEFSC must continue to conduct a local census of pinniped haulout areas prior to conducting any fisheries research in the Penobscot River estuary. The NEFSC's census reports must include an accounting of disturbance based on the three-point scale of response severity metrics.

(c) *Training:*

(1) NEFSC must conduct annual training for all chief scientists and other personnel (including its cooperating institutions, contracted vessels, or commercially-hired captains) who may be responsible for conducting dedicated marine mammal visual observations to explain mitigation measures and monitoring and reporting requirements,

mitigation and monitoring protocols, marine mammal identification, completion of datasheets, and use of equipment. NEFSC may determine the agenda for these trainings;

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

(3) NEFSC must coordinate with NMFS' Southeast Fisheries Science Center (SEFSC) regarding surveys conducted in the southern portion of the Atlantic coast region, such that training and guidance related to handling procedures and data collection is consistent.

(d) *Handling procedures and data collection:*

(1) NEFSC must develop and implement standardized marine mammal handling, disentanglement, and data collection procedures. These standard procedures will be subject to approval by NMFS Office of Protected Resources (OPR);

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

(3) NEFSC must provide its relevant personnel with standard guidance and training regarding handling of marine mammals, including how to identify different species, bring/or not bring an individual aboard a vessel, assess the level of consciousness, remove fishing gear, return an individual to water, and log activities pertaining to the interaction; and

(4) NEFSC must record such data on standardized forms, which will be subject to approval by OPR. The data must be collected at a sufficient level of detail (*e.g.,* circumstances leading to the interaction, extent of injury, condition upon release) to facilitate serious injury determinations under the MMPA.

(e) *Reporting:*

(1) NEFSC must report all incidents of marine mammal interaction to NMFS' Protected Species Incidental Take database within 48 hours of occurrence; and

(2) NEFSC must provide written reports to OPR upon request following any marine mammal interaction (animal captured or entangled in research gear). In the event of a marine mammal interaction, these reports must include details of survey effort, full descriptions of any observations of the animals, the context (vessel and conditions), decisions made and rationale for decisions made in vessel and gear handling.

(3) The NEFSC must submit annual reports.

(i) The period of reporting will be one year beginning at the date of issuance of the LOA. NEFSC must submit an annual summary report to OPR not later than ninety days following the end of the reporting period.

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

(A) Annual line-kilometers surveyed during which the EK60, ME70, DSM300 (or equivalent sources) were predominant;

(B) Summary information regarding use of the following: All trawl gear, all longline gear, all gillnet gear, all dredge gear, fyke net gear, and rotary screw trap gear (including number of sets, hook hours, tows, and tending frequency specific to each gear type);

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

(D) Summary information from the pinniped haulout censuses in the and summary information related to any disturbance of pinnipeds, including event-specific total counts of animals present, counts of reactions according to a three-point scale of response severity, and distance of closest approach;

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

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

(G) A summary of all relevant training provided by the NEFSC and any coordination with the NMFS Southeast Fishery Science Center, the Greater Atlantic Regional Fisheries Office, and the Southeast Regional Office.

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

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

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

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

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

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

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

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

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

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

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

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

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

(v) Status of all sound sources in use;

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

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

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

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

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

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

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

§ 219.37 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, NEFSC must apply for and obtain an LOA.

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

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

(d) In the event of projected changes to the activity or to mitigation and monitoring measures required by an LOA, NEFSC must apply for and obtain a modification of the LOA as described in § 219.38.

(e) The LOA must set forth:

(1) Permissible methods of incidental taking;

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

(3) Requirements for monitoring and reporting.

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

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

§ 219.38 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under § 216.106 of this chapter and § 219.37 for the activity identified in § 219.31(a) must be renewed or modified upon request by the applicant, provided that:

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

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

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

(c) An LOA issued under §§ 216.106 of this chapter and 219.37 for the activity identified in § 219.31(a) may be modified by OPR under the following circumstances:

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

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

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

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

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

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

(2) If OPR determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in § 219.32(b), an LOA may be modified without prior notice or opportunity for public comment. Notice would be published in the **Federal Register** within thirty days of the action.

§ 219.39–219.40 [Reserved]

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