DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 218

[Docket No. 191211–0106]

RIN 0648–BI85

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to the U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area

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

ACTION: Final rule; notification of issuance of Letters of Authorization.

SUMMARY: NMFS, upon request from the U.S. Navy (Navy), issues these regulations pursuant to the Marine Mammal Protection Act (MMPA) to govern the taking of marine mammals incidental to the training and testing activities conducted in the Atlantic Fleet Training and Testing (AFTT) Study Area over the course of seven years, effectively extending the time period from November 13, 2023, to November 13, 2025. In August 2018, the MMPA was amended by the John S. McCain National Defense Authorization Act (NDAA) for Fiscal Year 2019 to allow for seven-year authorizations for military readiness activities, as compared to the previously allowed five years. The Navy's activities qualify as military readiness activities pursuant to the MMPA as amended by the NDAA for Fiscal Year 2004. These regulations, which allow for the issuance of Letters of Authorization (LOAs) for the incidental take of marine mammals during the described activities and timeframes, prescribe the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, and establish requirements pertaining to the monitoring and reporting of such taking.

DATES: Effective from December 23, 2019 to November 13, 2025.

ADDRESSES: Copies of the Navy's applications, NMFS' proposed rule for these regulations, NMFS' proposed and final rules and subsequent LOAs for the associated five-year AFTT Study Area regulations, other supporting documents cited herein, and 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-military-readiness-activities.* In case of problems accessing these documents, please use the contact listed here (see **FOR FURTHER INFORMATION CONTACT**).

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

SUPPLEMENTARY INFORMATION:

Purpose of Regulatory Action

These regulations, issued under the authority of the MMPA (16 U.S.C. 1361 *et seq.*), extend the framework for authorizing the take of marine mammals incidental to the Navy's training and testing activities (which qualify as military readiness activities) from the use of sonar and other transducers, in-water detonations, air guns, impact pile driving/vibratory extraction, and the movement of vessels throughout the AFTT Study Area, which includes areas of the western Atlantic Ocean along the East Coast of North America, portions of the Caribbean Sea, and the Gulf of Mexico.

NMFS received an application from the Navy requesting to extend NMFS' existing MMPA regulations (50 CFR part 218, subpart I; hereafter ''2018 AFTT regulations'') that authorize the take of marine mammals incidental to Navy training and testing activities conducted in the AFTT Study Area to cover seven years of the Navy's activities, instead of five. Take is anticipated to occur by Level A harassment and Level B harassment as well as a very small number of serious injuries or mortalities incidental to the Navy's training and testing activities.

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1371(a)(5)(A)) directs the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if, after notice and public comment, the agency makes certain findings and issues regulations that set forth permissible methods of taking pursuant to that activity, as well as monitoring and reporting requirements. Section 101(a)(5)(A) of the MMPA and the implementing regulations at 50 CFR part 216, subpart I, provide the legal basis for issuing this final rule and the subsequent LOAs. As directed by this legal authority, this final rule contains mitigation, monitoring, and reporting requirements.

Summary of Major Provisions Within the Final Rule

Following is a summary of the major provisions of this final rule regarding the Navy's activities. Major provisions include, but are not limited to:

- The use of defined powerdown and shutdown zones (based on activity);
- Measures to reduce or eliminate the likelihood of ship strikes, especially for North Atlantic right whales (*Eubalaena glacialis*) (NARW);
- Operational limitations in certain areas and times that are biologically important (*i.e.,* for foraging, migration, reproduction) for marine mammals;
- Implementation of a Notification and Reporting Plan (for dead, live stranded, or marine mammals struck by a vessel); and
- Implementation of a robust monitoring plan to improve our understanding of the environmental effects resulting from Navy training and testing activities.

Additionally, the rule includes an adaptive management component that allows for timely modification of mitigation or monitoring measures based on new information, when appropriate.

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA 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 authorization is provided to the public for review and the opportunity to submit comments.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stocks and will not have an unmitigable adverse impact on the availability of the species or stocks 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 such species or stocks for taking for certain subsistence uses (referred to in this rule as ''mitigation measures''); and requirements pertaining to the monitoring and reporting of such takings. The MMPA defines ''take'' to mean to harass, hunt, capture, or kill, or attempt to harass,

hunt, capture, or kill any marine mammal. The *Analysis and Negligible Impact Determination* section below discusses the definition of ''negligible impact.''

The NDAA for Fiscal Year 2004 (2004 NDAA) (Pub. L. 108–136) amended section 101(a)(5) of the MMPA to remove the ''small numbers'' and ''specified geographical region'' provisions indicated above and amended the definition of ''harassment'' as it applies to a ''military readiness activity'' to read as follows (Section 3(18)(B) of the MMPA): (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered (Level B Harassment). In addition, the 2004 NDAA amended the MMPA as it relates to military readiness activities such that least practicable adverse impact shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

More recently, section 316 of the NDAA for Fiscal Year 2019 (2019 NDAA) (Pub. L. 115–232), signed on August 13, 2018, amended the MMPA to allow incidental take rules for military readiness activities under section 101(a)(5)(A) to be issued for up to seven years. Prior to this amendment, all incidental take rules under section 101(a)(5)(A) were limited to five years.

Summary of Request

On November 14, 2018, NMFS issued a five-year final rule governing the taking of marine mammals incidental to Navy training and testing activities conducted in the AFTT Study Area (83 FR 57076; hereafter ''2018 AFTT final rule''). Previously, on August 13, 2018, and towards the end of the time period in which NMFS was processing the Navy's request for the 2018 regulations, the 2019 NDAA amended the MMPA for military readiness activities to allow incidental take regulations to be issued for up to seven years instead of the previous five years. The Navy's training and testing activities conducted in the AFTT Study Area qualify as military readiness activities pursuant to the MMPA, as amended by the 2004 NDAA. On November 16, 2018, the Navy submitted an application requesting that NMFS extend the 2018 AFTT regulations and associated LOAs such that they would cover take incidental to seven years of training and testing activities instead of five, extending the expiration date from November 13, 2023 to November 13, 2025. A revised application correcting the estimated takes due to ship shock trials (Table 5.1–2) was submitted to NMFS by the Navy on January 18, 2019.

In its November 16, 2018, application, as revised on January 18, 2019 (hereafter ''2019 Navy application''), the Navy proposed no changes to the nature of the specified activities covered by the 2018 AFTT final rule, the level of activity within and between years will be consistent with that previously analyzed in the 2018 AFTT final rule, and all activities will be conducted within the same boundaries of the AFTT Study Area identified in the 2018 AFTT final rule. Therefore, the training and testing activities (*e.g.,* equipment and sources used, exercises conducted) and the mitigation, monitoring, and reporting measures are identical to those described and analyzed in the 2018 AFTT final rule. The only changes included in the Navy's request were to conduct those same activities in the same region for an additional two years. In its request, the Navy included all information necessary to identify the type and amount of incidental take that may occur in the two additional years so NMFS could determine whether the analyses and conclusions regarding the impacts of the proposed activities on marine mammal species and stocks previously reached for five years of activities remain applicable for seven years of identical activity.

The purpose of the Navy's training and testing activities is to ensure that the Navy meets its mission mandated by Federal law (10 U.S.C. 8062), which is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. The Navy executes this responsibility by establishing and executing training programs, including at-sea training and exercises, and ensuring naval forces have access to the ranges, operating areas (OPAREAs), and airspace needed to develop and maintain skills for conducting naval activities. The Navy's mission is achieved in part by conducting training and testing within the AFTT Study Area.

The 2019 Navy application reflects the same compilation of training and testing activities presented in the Navy's June 16, 2017, initial rulemaking and LOA application (hereafter ''2017 Navy application'') and the 2018 AFTT regulations that were subsequently promulgated, which can be found at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-military-readiness-activities.* These activities are deemed by the Navy necessary to accomplish military readiness requirements and are anticipated to continue into the reasonably foreseeable future. The 2019 Navy application and this rule cover training and testing activities that will occur over seven years, including the five years already authorized under the 2018 AFTT regulations, with the regulations valid from the publication date of this final rule through November 13, 2025.

Summary of the Regulations

NMFS is extending the incidental take regulations and associated LOAs through November 13, 2025, to cover the same Navy activities covered by the 2018 AFTT regulations. The 2018 AFTT final rule was recently published and its analysis remains current and valid. In its 2019 application, the Navy proposed no changes to the nature (*e.g.,* equipment and sources used, exercises conducted) or level of the specified activities within or between years or to the boundaries of the AFTT Study Area. The mitigation, monitoring, and reporting measures are identical to those described and analyzed in the 2018 AFTT final rule. The regulatory language included at the end of this final rule, which will be published at 50 CFR part 218, subpart I, also is the same as the AFTT 2018 regulations, except for a small number of minor, technical changes. No new information has been received from the Navy, or otherwise become available to NMFS, since publication of the 2018 AFTT final rule that significantly changes the analyses supporting the 2018 findings. Where there is any new information pertinent to the descriptions, analyses, or findings required to authorize incidental take for military readiness activities under MMPA section 101(a)(5)(A), that information is provided in the appropriate sections below.

Because the activities included in the 2019 Navy application have not changed and the analyses and findings included in the documents provided and produced in support of the 2018 AFTT final rule remain current and applicable, this final rule relies heavily on and references to the applicable information and analyses in those documents. Below is a list of the primary documents referenced in this final rule. The list indicates the short name by which the document is referenced in this final rule, as well as

the full titles of the cited documents. All of the documents can be found at: *www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-military-readiness-activities* and *https://www.public.navy.mil/usff/environmental/Pages/aftt.aspx.*

- NMFS March 13, 2018, Atlantic Fleet Training and Testing (AFTT) proposed rule (83 FR 10954; hereafter ''2018 AFTT proposed rule'');
- NMFS November 14, 2018, Atlantic Fleet Training and Testing (AFTT) final rule (83 FR 57076; hereafter ''2018 AFTT final rule'');
- NMFS May 13, 2019, Atlantic Fleet Training and Testing (AFTT) proposed rule (84 FR 21126; hereafter ''2019 AFTT proposed rule'');
- Navy June 16, 2017, MMPA rulemaking and LOA application (hereafter ''2017 Navy application'');
- Navy January 18, 2019, MMPA rulemaking and LOA extension application (hereafter ''2019 Navy application''); and
- September 14, 2018, Atlantic Fleet Training and Testing (AFTT) Final Environmental Impact Statement/Overseas Environmental Impact Statement (FEIS/OEIS) (hereafter ''2018 AFTT FEIS/OEIS'').

Description of the Specified Activity

The Navy requested authorization to take marine mammals incidental to conducting training and testing activities. The Navy has determined that acoustic and explosives stressors are most likely to result in impacts on marine mammals that could rise to the level of harassment. A small number of serious injuries or mortalities are also possible from vessel strikes or exposure to explosive detonations. Detailed descriptions of these activities are provided in Chapter 2 of the 2018 AFTT FEIS/OEIS and in the 2017 and 2019 Navy applications.

Overview of Training and Testing Activities

The Navy routinely trains in the AFTT Study Area in preparation for national defense missions. Training and testing activities and components covered in the 2019 Navy application are described in detail in the *Overview of Training and Testing Activities* sections of the 2018 AFTT proposed rule and the 2018 AFTT final rule and Chapter 2 of the 2018 AFTT FEIS/OEIS. Each military training and testing activity described meets mandated Fleet requirements to deploy ready forces. The Navy proposed no changes to the specified activities described and analyzed in the 2018 AFTT final rule. The boundaries of the AFTT Study Area (see Figure 1.2–1 of the 2019 Navy application); the training and testing activities (*e.g.,* equipment and sources used, exercises conducted); manner of and amount of vessel movement; and standard operating procedures presented in this final rule are identical to those described and analyzed in the 2018 AFTT final rule.

Dates and Duration

The specified activities will occur at any time during the seven-year period of validity of the regulations. The number of training and testing activities are described in the *Detailed Description of the Specified Activities* section (Tables 1 through 4).

Specified Geographical Region

The geographic extent of the AFTT Study Area is identical to that described in the 2018 AFTT final rule. The AFTT Study Area (see Figure 2–1 of the 2019 Navy application) includes areas of the western Atlantic Ocean along the east coast of North America, the Gulf of Mexico, and portions of the Caribbean Sea. The AFTT Study Area begins at the mean high tide line along the U.S. coast and extends east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The AFTT Study Area also includes Navy pierside locations, bays, harbors, and inland waterways, and civilian ports where training and testing occurs. The AFTT Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million nautical miles squared (nmi^2; approximately 6.7 million kilometers squared) of ocean area, and includes designated Navy range complexes and associated operating areas (OPAREAs) and special use airspace. While the AFTT Study Area itself is very large, the vast majority of Navy training and testing occurs in designated range complexes and testing ranges.

A Navy range complex consists of geographic areas that encompass a water component (above and below the surface) and airspace, and may encompass a land component where training and testing of military platforms, tactics, munitions, explosives, and electronic warfare systems occur. Range complexes include established OPAREAs, which may be further divided to provide better control of the area for safety reasons. Additional detail on range complexes and testing ranges was provided in the *Duration and Location* section of the 2018 AFTT proposed rule; please see the 2018 AFTT proposed rule or the 2017 Navy application for more information.

Description of Acoustic and Explosive Stressors

The Navy uses a variety of sensors, platforms, weapons, and other devices, including ones used to ensure the safety of Sailors and Marines, to meet its mission. Training and testing with these systems may introduce acoustic (sound) energy or shock waves from explosives into the environment. The specific components that could act as stressors by having direct or indirect impacts on the environment are described in detail in the *Description of Acoustic and Explosive Stressors* section of the 2018 AFTT final rule and Chapter 2 of the 2018 AFTT FEIS/OEIS. The Navy proposed no changes to the nature of the specified activities and, therefore, the acoustic and explosive stressors are identical to those described and analyzed in the 2018 AFTT final rule.

Other Stressor—Vessel Strike

Vessel strikes are not specific to any particular training or testing activity, but rather a limited, sporadic, and incidental result of Navy vessel movement within the AFTT Study Area. Navy vessels transit at speeds that are optimal for fuel conservation or to meet training and testing requirements. The average speed of large Navy ships ranges between 10 and 15 knots and submarines generally operate at speeds in the range of 8–13 knots, while a few specialized vessels can travel at faster speeds. By comparison, this is slower than most commercial vessels where full speed for a container ship is typically 24 knots (Bonney and Leach, 2010).

Should a vessel strike occur, it would likely result in incidental take from serious injury and/or mortality and, accordingly, for the purposes of the analysis we assume that any ship strike would result in serious injury or mortality. The Navy proposed no changes to the nature of the specified activities, the training and testing activities, the manner of or amount of vessel movement, and standard operating procedures. Therefore, the description of vessel strikes as a stressor is the same as those presented in the *Other Stressor—Vessel Strike* sections of the 2018 AFTT proposed rule and 2018 AFTT final rule.

Detailed Description of the Specified Activities

The Navy's specified activities are presented and analyzed as a representative year of training to

account for the natural fluctuation of training cycles and deployment schedules in any seven-year period. In the 2018 AFTT final rule, NMFS analyzed activities based on the Navy conducting three years of a representative level of activity and two years of a maximum level of activity. For the purposes of this rulemaking, the Navy presented and NMFS analyzed activities based on the additional two years of training and testing consisting of one additional year of a maximum level of activity and one year of a representative level of activity consistent with the pattern set forth in the 2018 AFTT final rule, the 2018 AFTT FEIS/OEIS, and the 2017 Navy application.

Training Activities

The number of planned training activities that could occur annually and the duration of those activities remains identical to those presented in Table 4 of the 2018 AFTT final rule, and are not repeated here. The number of planned training activities that could occur over the seven-year period are presented in Table 1. The table is organized according to primary mission areas and includes the activity name, associated stressors applicable to these regulations, sound source bin, number of activities, and locations of those activities in the AFTT Study Area. For further information regarding the primary platform used (*e.g.,* ship or aircraft type) see Appendix A (Navy Activity Descriptions) of the 2018 AFTT FEIS/OEIS.

TABLE 1—TRAINING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA

Stressor category	Activity name	Activity description	Source bin	7-Year number of activities [1]	Location [2]
Major Training Exercise—Large Integrated Anti-Submarine Warfare					
Acoustic	Composite Training Unit Exercise.	Aircraft carrier and its associated aircraft integrate with surface and submarine units in a challenging multi-threat operational environment in order to certify them for deployment.	ASW1, ASW2, ASW3, ASW4, ASW5, HF1, LF6, MF1, MF3, MF4, MF5, MF11, MF12.	17	VACAPES RC Navy Cherry Point RC JAX RC.
Major Training Exercises—Medium Integrated Anti-Submarine Warfare					
Acoustic	Fleet Exercises/ Sustainment Exercise.	Aircraft carrier and its associated aircraft integrates with surface and submarine units in a challenging multi-threat operational environment in order to maintain their ability to deploy.	ASW1, ASW2, ASW3, ASW4, HF1, LF6, MF1, MF3, MF4, MF5, MF11, MF12.	28 14	JAX RC. VACAPES RC.
Integrated/Coordinated Training—Small Integrated Anti-Submarine Warfare Training					
Acoustic	Naval Undersea Warfare Training Assessment Course.	Multiple ships, aircraft, and submarines integrate the use of their sensors to search for, detect, classify, localize, and track a threat submarine in order to launch an exercise torpedo.	ASW1, ASW3, ASW4, HF1, LF6, MF1, MF3, MF4, MF5, MF12.	42 21 21	JAX RC. Navy Cherry Point RC. VACAPES RC.
Integrated/Coordinated Training—Medium Coordinated Anti-Submarine Warfare Training					
Acoustic	Anti-Submarine Warfare Tactical Development Exercise.	Surface ships, aircraft, and submarines coordinate to search for, detect, and track submarines.	ASW1, ASW3, ASW4, HF1, LF6, MF1, MF3, MF4, MF5, MF11, MF12.	14 7 7	JAX RC. Navy Cherry Point RC. VACAPES RC.
Integrated/Coordinated Training—Small Coordinated Anti-Submarine Warfare Training					
Acoustic	Group Sail	Surface ships and helicopters search for, detect, and track threat submarines.	ASW2, ASW3, ASW4, HF1, MF1, MF3, MF4, MF5, MF11, MF12.	28 28 35	JAX RC. Navy Cherry Point RC. VACAPES RC.
Amphibious Warfare					
Explosive	Naval Surface Fire Support Exercise—At Sea.	Surface ship crews use large-caliber guns to support forces ashore; however, the land target is simulated at sea. Rounds are scored by passive acoustic buoys located at or near the target area.	E5	28 84 14 266	GOMEX RC. JAX RC. Navy Cherry Point RC. VACAPES RC.
Anti-Submarine Warfare					
Acoustic	Anti-submarine Warfare Torpedo Exercise—Helicopter.	Helicopter aircrews search for, track, and detect submarines. Recoverable air launched torpedoes are employed against submarine targets.	MF4, MF5, TORP1	98 28	JAX RC. VACAPES RC.
Acoustic	Anti-submarine Warfare Torpedo Exercise—Maritime Patrol Aircraft.	Maritime patrol aircraft aircrews search for, track, and detect submarines. Recoverable air launched torpedoes are employed against submarine targets.	MF5, TORP1	98 28	JAX RC. VACAPES RC.
Acoustic	Anti-Submarine Warfare Torpedo Exercise—Ship.	Surface ship crews search for, track, and detect submarines. Exercise torpedoes are used.	ASW3, MF1, TORP1	112 35	JAX RC. VACAPES RC.

TABLE 1—TRAINING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA—Continued

Stressor category	Activity name	Activity description	Source bin	7-Year number of activities [1]	Location [2]
Acoustic	Anti-Submarine Warfare Torpedo Exercise—Submarine.	Submarine crews search for, track, and detect submarines. Exercise torpedoes are used.	ASW4, HF1, MF3, TORP2	84	JAX RC.
				42	Northeast RC.
				14	VACAPES RC.
Acoustic	Anti-Submarine Warfare Tracking Exercise—Helicopter.	Helicopter aircrews search for, track, and detect submarines.	MF4, MF5	168	Other AFTT Areas.
				2,590	JAX RC.
				84	Navy Cherry Point RC.
				56	VACAPES RC.
Acoustic	Anti-Submarine Warfare Tracking Exercise—Maritime Patrol Aircraft.	Maritime patrol aircraft aircrews search for, track, and detect submarines.	ASW5, ASW2, MF5	630	Northeast RC.
				1,232	VACAPES RC.
				3,675	JAX RC.
				322	Navy Cherry Point RC.
Acoustic	Anti-Submarine Warfare Tracking Exercise—Ship.	Surface ship crews search for, track, and detect submarines.	ASW1, ASW3, MF1, MF11, MF12.	*35	Northeast RC.
				*770	Other AFTT Areas.
				*35	GOMEX RC.
				*3,080	JAX RC.
				*385	Navy Cherry Point RC.
				*1,540	VACAPES RC.
Acoustic	Anti-Submarine Warfare Tracking Exercise—Submarine.	Submarine crews search for, track, and detect submarines.	ASW4, HF1, MF3	308	Other AFTT Areas.
				7	JAX RC.
				91	Navy Cherry Point RC.
				126	Northeast RC.
				42	VACAPES RC.
Expeditionary Warfare					
Explosive	Maritime Security Operations—Anti-Swimmer Grenades.	Small boat crews engage in force protection activities by using anti-swimmer grenades to defend against hostile divers.	E2	14	GOMEX RC.
				14	JAX RC.
				14	Navy Cherry Point RC.
				28	Northeast RC.
				35	VACAPES RC.
Mine Warfare					
Acoustic	Airborne Mine Countermeasure—Mine Detection.	Helicopter aircrews detect mines using towed or laser mine detection systems.	HF4	462	GOMEX RC.
				2,219	JAX RC.
				2,597	Navy Cherry Point RC.
				1,708	NSWC Panama City.
				10,780	VACAPES RC.
Acoustic, Explosive	Civilian Port Defense—Homeland Security Anti-Terrorism/Force Protection Exercise.	Maritime security personnel train to protect civilian ports against enemy efforts to interfere with access to those ports.	HF4, SAS2, E2, E4	4	Beaumont, TX; Boston, MA; Corpus Christi, TX; Delaware Bay, DE; Earle, NJ; GOMEX RC, Hampton Roads, VA; JAX RC, Kings Bay, GA; NS Mayport, Morehead City, NC; Port Canaveral, FL; Savannah, GA; Tampa Bay, FL; VACAPES RC, Wilmington, NC.
Acoustic	Coordinated Unit Level Helicopter Airborne Mine Countermeasure Exercise.	A detachment of helicopter aircrews train as a unit in the use of airborne mine countermeasures, such as towed mine detection and neutralization systems.	HF4	14	GOMEX RC.
				14	JAX RC.
				14	Navy Cherry Point RC.
				14	VACAPES RC.
Acoustic, Explosive	Mine Countermeasures—Mine Neutralization—Remotely Operated Vehicle.	Ship, small boat, and helicopter crews locate and disable mines using remotely operated underwater vehicles.	HF4, E4	924	GOMEX RC.
				497	JAX RC.
				497	Navy Cherry Point RC.
				4,410	VACAPES RC.
Acoustic	Mine Countermeasures—Ship Sonar.	Ship crews detect and avoid mines while navigating restricted areas or channels using active sonar.	HF4	154	GOMEX RC.
				371	JAX RC.
				371	VACAPES RC.
Explosive	Mine Neutralization—Explosive Ordnance Disposal.	Personnel disable threat mines using explosive charges.	E4, E5, E6, E7	42	Lower Chesapeake Bay.
				112	GOMEX RC.
				140	JAX RC.
				119	Key West RC.
				112	Navy Cherry Point RC.
				3,668	VACAPES RC.
Surface Warfare					
Explosive	Bombing Exercise Air-to-Surface.	Fixed-wing aircrews deliver bombs against surface targets.	E9, E10, E12	469	GOMEX RC.
				3,038	JAX RC.
				756	Navy Cherry Point RC.
				2,303	VACAPES RC.

TABLE 1—TRAINING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA—Continued

Stressor category	Activity name	Activity description	Source bin	7-Year number of activities [1]	Location [2]
Explosive	Gunnery Exercise Surface-to-Surface Boat Medium-Caliber.	Small boat crews fire medium-caliber guns at surface targets.	E1	42	GOMEX RC.
				182	JAX RC.
				896	Navy Cherry Point RC.
				14	Northeast RC.
				1,820	VACAPES RC.
Explosive	Gunnery Exercise Surface-to-Surface Ship Large-Caliber.	Surface ship crews fire large-caliber guns at surface targets.	E3,E5	70	Other AFTT Areas.
				63	GOMEX RC.
				357	JAX RC.
				245	Navy Cherry Point RC.
				525	VACAPES RC.
Explosive	Gunnery Exercise Surface-to-Surface Ship Medium-Caliber.	Surface ship crews fire medium-caliber guns at surface targets.	E1	287	Other AFTT Areas.
				231	GOMEX RC.
				1,127	JAX RC.
				504	Navy Cherry Point RC.
				2,247	VACAPES RC.
Explosive	Integrated Live Fire Exercise.	Naval forces defend against a swarm of surface threats (ships or small boats) with bombs, missiles, rockets, and small-, medium- and large-caliber guns.	E1, E3, E6, E10	14	VACAPES RC.
				14	JAX RC.
Explosive	Missile Exercise Air-to-Surface.	Fixed-wing and helicopter aircrews fire air-to-surface missiles at surface targets.	E6, E8, E10	714	JAX RC.
				364	Navy Cherry Point RC.
				616	VACAPES RC.
Explosive	Missile Exercise Air-to-Surface—Rocket.	Helicopter aircrews fire both precision-guided and unguided rockets at surface targets.	E3	70	GOMEX RC.
				714	JAX RC.
				70	Navy Cherry Point RC.
				644	VACAPES RC.
Explosive	Missile Exercise Surface-to-Surface.	Surface ship crews defend against surface threats (ships or small boats) and engage them with missiles.	E6, E10	112	JAX RC.
				84	VACAPES RC.
Acoustic, Explosive	Sinking Exercise	Aircraft, ship, and submarine crews deliberately sink a seaborne target, usually a decommissioned ship (made environmentally safe for sinking according to U.S. Environmental Protection Agency standards), with a variety of munitions.	TORP2, E5, E8, E9, E10, E11.	7	SINKEX Box.
Acoustic	Elevated Causeway System.	A temporary pier is constructed off the beach. Supporting pilings are driven into the sand and then later removed.	Impact hammer or vibratory extractor.	7	Lower Chesapeake Bay.
				7	Navy Cherry Point RC.
Acoustic	Submarine Navigation	Submarine crews operate sonar for navigation and object detection while transiting into and out of port during reduced visibility.	HF1, MF3	1,183	NSB New London.
				21	NSB Kings Bay.
				21	NS Mayport.
				588	NS Norfolk.
				161	Port Canaveral, FL.
Acoustic	Submarine Sonar Maintenance.	Maintenance of submarine sonar systems is conducted pierside or at sea.	MF3	84	Other AFTT Areas.
				462	NSB New London.
				63	JAX RC.
				14	NSB Kings Bay.
				238	NS Norfolk.
				602	Northeast RC.
				14	Port Canaveral, FL.
				88	Navy Cherry Point RC.
				326	VACAPES RC.
Acoustic	Submarine Under Ice Certification.	Submarine crews train to operate under ice. Ice conditions are simulated during training and certification events.	HF1	21	JAX RC.
				21	Navy Cherry Point RC.
				63	Northeast RC.
				63	VACAPES RC.
Acoustic	Surface Ship Object Detection.	Surface ship crews operate sonar for navigation and object detection while transiting in and out of port during reduced visibility.	HF8, MF1K	532	NS Mayport.
				1,134	NS Norfolk.
Acoustic	Surface Ship sonar Maintenance.	Maintenance of surface ship sonar systems is conducted pierside or at sea.	HF8, MF1	350	JAX RC.
				350	NS Mayport.
				840	Navy Cherry Point RC.
				1,645	NS Norfolk.
				840	VACAPES RC.

[1] The number of training activities that could occur annually and the duration of those activities remains identical to those presented in Table 4 of the 2018 AFTT final rule.

[2] Locations given are areas where activities typically occur. However, activities could be conducted in other locations within the Study Area. Where multiple locations are provided within a single cell, the number of activities could occur in any of the locations, not in each of the locations.

* For Anti-Submarine Warfare Tracking Exercise—Ship, 50 percent of requirements are met through synthetic training or other training exercises.

Notes: GOMEX: Gulf of Mexico; JAX: Jacksonville; NS: Naval Station; NSB: Naval Submarine Base; NSWC: Naval Surface Warfare Center; RC: Range Complex; VACAPES: Virginia Capes.

Testing Activities

The number of planned testing activities that could occur annually and the duration of those activities are identical to those presented in Tables 5 through 7 of the 2018 AFTT final rule, and are not repeated here. Similar to the 2017 Navy application, the Navy's planned testing activities presented here are based on the level of testing activities anticipated to be conducted into the reasonably foreseeable future, with adjustments that account for changes in the types and tempo (increases or decreases) of testing activities to meet current and future military readiness requirements. The number of planned testing activities that could occur for the seven-year period are presented in Tables 2 through 4. The number of ship shock trials for the seven-year period will remain the same as the number covered by the 2018 AFTT final rule.

Naval Air Systems Command

The Naval Air Systems Command testing activities that could occur over the seven-year period within the AFTT Study Area are presented in Table 2.

TABLE 2—NAVAL AIR SYSTEMS COMMAND TESTING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA

Stressor category	Activity name	Activity description	Source bin	7-Year number of activities [1]	Location [2]
Anti-Submarine Warfare					
Acoustic	Anti-Submarine Warfare Torpedo Test.	This event is similar to the training event torpedo exercise. Test evaluates anti-submarine warfare systems onboard rotary-wing (*e.g.,* helicopter) and fixed-wing aircraft and the ability to search for, detect, classify, localize, track, and attack a submarine or similar target.	MF5, TORP1	209 523	JAX RC. VACAPES RC.
Acoustic, Explosive.	Anti-Submarine Warfare Tracking Test—Helicopter.	This event is similar to the training event anti-submarine warfare tracking exercise—helicopter. The test evaluates the sensors and systems used to detect and track submarines and to ensure that helicopter systems used to deploy the tracking system perform to specifications.	MF4, MF5, E3	34 36 64 442 1,368	GOMEX RC. JAX RC. Key West RC. Northeast RC VACAPES RC.
Acoustic, Explosive.	Anti-Submarine Warfare Tracking Test—Maritime Patrol Aircraft.	The test evaluates the sensors and systems used by maritime patrol aircraft to detect and track submarines and to ensure that aircraft systems used to deploy the tracking systems perform to specifications and meet operational requirements.	ASW2, ASW5, E1, E3, MF5, MF6.	85 133 76 101 279 175	GOMEX RC. JAX RC. Key West RC. Navy Cherry Point RC. Northeast RC. VACAPES RC.
Acoustic	Kilo Dip	Functional check of a helicopter deployed dipping sonar system prior to conducting a testing or training event using the dipping sonar system.	MF4	22 12 12 12 200	GOMEX RC. JAX RC. Key West RC. Northeast RC. VACAPES RC.
Acoustic, Explosive.	Sonobuoy Lot Acceptance Test.	Sonobuoys are deployed from surface vessels and aircraft to verify the integrity and performance of a production lot or group of sonobuoys in advance of delivery to the fleet for operational use.	ASW2, ASW5, HF5, HF6, LF4, MF5, MF6, E1, E3, E4.	1,120	Key West RC.
Mine Warfare					
Acoustic	Airborne Dipping Sonar Minehunting Test.	A mine-hunting dipping sonar system that is deployed from a helicopter and uses high-frequency sonar for the detection and classification of bottom and moored mines.	HF4	144 66	NSWC Panama City. VACAPES RC.
Explosive	Airborne Mine Neutralization System Test.	A test of the airborne mine neutralization system evaluates the system's ability to detect and destroy mines from an airborne mine countermeasures capable helicopter. The airborne mine neutralization system uses up to four unmanned underwater vehicles equipped with high-frequency sonar, video cameras, and explosive and non-explosive neutralizers.	E4	154 215	NSWC Panama City. VACAPES RC.
Acoustic	Airborne Sonobuoy Minehunting Test.	A mine-hunting system made up of a field of sonobuoys deployed by a helicopter. A field of sonobuoys, using high-frequency sonar, is used to detect and classify bottom and moored mines.	HF6	364 168	NSWC Panama City. VACAPES RC.

TABLE 2—NAVAL AIR SYSTEMS COMMAND TESTING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA—Continued

Stressor category	Activity name	Activity description	Source bin	7-Year number of activities [1]	Location [2]
Surface Warfare					
Explosive	Air-to-Surface Bombing Test.	This event is similar to the training event bombing exercise air-to-surface. Fixed-wing aircraft test the delivery of bombs against surface maritime targets with the goal of evaluating the bomb, the bomb carry and delivery system, and any associated systems that may have been newly developed or enhanced.	E9	140	VACAPES RC.
Explosive	Air-to-Surface Gunnery Test.	This event is similar to the training event gunnery exercise air-to-surface. Fixed-wing and rotary-wing aircrews evaluate new or enhanced aircraft guns against surface maritime targets to test that the guns, gun ammunition, or associated systems meet required specifications or to train aircrews in the operation of a new or enhanced weapon system.	E1	295 890	JAX RC. VACAPES RC.
Explosive	Air-to-Surface Missile Test	This event is similar to the training event missile exercise air-to-surface. Test may involve both fixed-wing and rotary-wing aircraft launching missiles at surface maritime targets to evaluate the weapon system or as part of another system's integration test.	E6, E9, E10	30 234 234	GOMEX RC. JAX RC. VACAPES RC.
Explosive	Rocket Test	Rocket tests evaluate the integration, accuracy, performance, and safe separation of guided and unguided 2.75-inch rockets fired from a hovering or forward-flying helicopter.	E3	121 233	JAX RC. VACAPES RC.
Other Testing Activities					
Acoustic	Undersea Range System Test.	Following installation of a Navy underwater warfare training and testing range, tests of the nodes (components of the range) will be conducted to include node surveys and testing of node transmission functionality.	MF9, BB4	66	JAX RC.

[1] The number of testing activities that could occur annually and the duration of those activities are identical to those presented in Table 5 of the 2018 AFTT final rule.
[2] Locations given are areas where activities typically occur. However, activities could be conducted in other locations within the Study Area.
Notes: GOMEX: Gulf of Mexico; JAX: Jacksonville; NSWC: Naval Surface Warfare Center; RC: Range Complex; VACAPES: Virginia Capes.

Naval Sea Systems Command

The Naval Sea Systems Command testing activities that could occur over the seven-year period within the AFTT Study Area are presented in Table 3.

TABLE 3—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA

Stressor category	Activity name	Activity description	Source bin	7-year number of activities [1]	Location [2]
Anti-Submarine Warfare					
Acoustic	Anti-Submarine Warfare Mission Package Testing.	Ships and their supporting platforms (*e.g.,* helicopters, unmanned aerial systems) detect, localize, and attack submarines.	ASW1, ASW2, ASW3, ASW5, MF1, MF4, MF5, MF12, TORP1.	294 28 28 182	JAX RC. Newport, RI. NUWC Newport. VACAPES RC.
Acoustic	At-Sea Sonar Testing	At-sea testing to ensure systems are fully functional in an open ocean environment.	ASW3, ASW4, HF1, LF5, M3, MF1, MF1K, MF3, MF5, MF9, MF11, TORP2.	14	JAX RC, Navy Cherry Point RC, Northeast RC, VACAPES RC.
				7	JAX RC, Navy Cherry Point RC, VACAPES RC.

TABLE 3—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA—Continued

Stressor category	Activity name	Activity description	Source bin	7-year number of activities [1]	Location [2]
				14	offshore Fort Pierce, FL, GOMEX RC, JAX RC, SFOMF, Northeast RC, VACAPES RC.
				28	JAX RC.
				14	Navy Cherry Point RC.
				56	NUWC Newport.
				84	VACAPES RC.
Acoustic	Pierside Sonar Testing.	Pierside testing to ensure systems are fully functional in a controlled pierside environment prior to at-sea test activities.	ASW3, HF1, HF3, HF8, M3, MF1, MF1K, MF3, MF9, MF10.	7	NSB New London, NS Norfolk, Port Canaveral, FL.
				77	Bath, ME.
				35	NSB New London.
				28	NSB Kings Bay.
				56	Newport, RI.
				91	NS Norfolk.
				14	Pascagoula, MS.
				21	Port Canaveral, FL.
				14	PNS.
Acoustic	Submarine Sonar Testing/Maintenance.	Pierside testing of submarine systems occurs periodically following major maintenance periods and for routine maintenance.	HF1, HF3, M3, MF3 ..	112	Norfolk, VA.
				168	PNS.
Acoustic	Surface Ship Sonar Testing/Maintenance.	Pierside and at-sea testing of ship systems occur periodically following major maintenance periods and for routine maintenance.	ASW3, MF1, MF1K, MF9, MF10.	7	JAX RC.
				7	NS Mayport.
				21	NS Norfolk.
				21	VACAPES RC.
Acoustic, Explosive.	Torpedo (Explosive) Testing.	Air, surface, or submarine crews employ explosive and non-explosive torpedoes against artificial targets.	ASW3, HF1, HF5, HF6, MF1, MF3, MF4, MF5, MF6, TORP1, TORP2, E8, E11.	28	GOMEX RC, offshore Fort Pierce, FL, Key West RC, Navy Cherry Point RC, Northeast RC, VACAPES RC,.
				14	GOMEX RC, JAX RC, Northeast RC, VACAPES RC.
Acoustic	Torpedo (Non-Explosive) Testing.	Air, surface, or submarine crews employ non-explosive torpedoes against submarines or surface vessels. When performed on a testing range, these torpedoes may be launched from a range craft or fixed structures and may use artificial targets.	ASW3, ASW4, HF1, HF6, MF1, MF3, MF4, MF5, MF6, TORP1, TORP2, TORP 3.	49	GOMEX RC.
				77	offshore Fort Pierce, FL.
				12	JAX RC.
				49	Navy Cherry Point RC.
				54	Northeast RC.
				210	NUWC Newport.
				77	VACAPES RC
Acoustic	Countermeasure Testing.	Countermeasure testing involves the testing of systems that will detect, localize, track, and attack incoming weapons including marine vessel targets. Testing includes surface ship torpedo defense systems and marine vessel stopping payloads.	ASW3, HF5, TORP1, TORP2.	35	GOMEX RC, JAX RC, NUWC Newport, VACAPES RC, Key West RC.
				20	GOMEX RC, JAX RC, Northeast RC, VACAPES RC.
		Mine Warfare			
Acoustic, Explosive.	Mine Countermeasure and Neutralization Testing.	Air, surface, and subsurface vessels neutralize threat mines and mine-like objects.	E4, E11	91	NSWC Panama City.
				42	VACAPES RC.

TABLE 3—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA—Continued

Stressor category	Activity name	Activity description	Source bin	7-year number of activities [1]	Location [2]
Acoustic, Explosive.	Mine Countermeasure Mission Package Testing.	Vessels and associated aircraft conduct mine countermeasure operations.	HF4, SAS2, E4	133	GOMEX RC.
				70	JAX RC.
				77	NSWC Panama City.
				14	SFOMF.
				35	VACAPES RC.
Acoustic	Mine Detection and Classification Testing.	Air, surface, and subsurface vessels and systems detect, classify, and avoid mines and mine-like objects. Vessels also assess their potential susceptibility to mines and mine-like objects.	HF1,HF4, HF8, MF1, MF1K, MF9.	42	GOMEX RC.
				70	Navy Cherry Point RC.
				359	NSWC Panama City.
				66	Riviera Beach, FL.
				28	SFOMF.
				21	VACAPES RC.
Surface Warfare					
Explosive	Gun Testing—Large Caliber.	Crews defend against targets with large-caliber guns.	E3, E5	84	GOMEX RC, JAX RC, Key West RC, Navy Cherry Point RC, Northeast RC, VACAPES RC.
				7	GOMEX RC.
				7	JAX RC.
				7	Key West RC.
				7	Navy Cherry Point RC.
				7	Northeast RC.
				231	NSWC Panama City.
				35	VACAPES RC.
Explosive	Gun Testing—Medium-Caliber.	Airborne and surface crews defend against targets with medium-caliber guns.	E1	84	GOMEX RC, JAX RC, Key West RC, Navy Cherry Point RC, Northeast RC, VACAPES RC.
				714	NSWC Panama City.
				34	VACAPES RC.
Explosive	Missile and Rocket Testing.	Missile and rocket testing includes various missiles or rockets fired from submarines and surface combatants. Testing of the launching system and ship defense is performed.	E6, E10	91	GOMEX RC, JAX RC, Key West RC, Navy Cherry Point RC, Northeast RC, VACAPES RC.
				7	GOMEX RC.
				14	JAX RC.
				35	Northeast RC.
				154	VACAPES RC.
Unmanned Systems					
Acoustic, Explosive.	Unmanned Underwater Vehicle Testing.	Testing involves the development or upgrade of unmanned underwater vehicles. This may include testing of mine detection capabilities, evaluating the basic functions of individual platforms, or complex events with multiple vehicles.	ASW4, FLS2, HF1, HF4, HF5, HF6, HF7, LF5, MF9, MF10, SAS1, SA2, SAS3, VHF1, E8.	112	GOMEX RC, JAX RC, NUWC Newport.
				287	GOMEX RC.
				175	JAX RC.
				1,018	NSWC Panama City.
				2,158	NUWC Newport.
				63	Riviera Beach, FL.
				294	SFOMF.
Vessel Evaluation					
Explosive	Large Ship Shock Trial.	Underwater detonations are used to test new ships or major upgrades.	E17	1	GOMEX RC, JAX RC, VACAPES RC.

TABLE 3—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA—Continued

Stressor category	Activity name	Activity description	Source bin	7-year number of activities [1]	Location [2]
Explosive	Surface Warfare Testing.	Tests capability of shipboard sensors to detect, track, and engage surface targets. Testing may include ships defending against surface targets using explosive and non-explosive rounds, gun system structural test firing and demonstration of the response to Call for Fire against land-based targets (simulated by sea-based locations).	E1, E5, E8	14 91 7 70 63	GOMEX RC. JAX RC. Key West RC. Northeast RC. VACAPES RC.
Acoustic	Undersea Warfare Testing.	Ships demonstrate capability of countermeasure systems and underwater surveillance, weapons engagement, and communications systems. This tests ships' ability to detect, track, and engage underwater targets.	ASW3, ASW4, HF4, HF8, MF1, MF1K, MF4, MF5, MF9, MF10, TORP1, TORP2.	14 6 14 42 14	JAX RC, VACAPES RC. JAX RC, Navy Cherry Point RC, SFOMF, VACAPES RC. GOMEX RC. JAX RC. VACAPES RC.
Explosive	Small Ship Shock Trial.	Underwater detonations are used to test new ships or major upgrades.	E16	3	JAX RC, VACAPES RC.
Acoustic	Submarine Sea Trials—Weapons System Testing.	Submarine weapons and sonar systems are tested at-sea to meet integrated combat system certification requirements.	HF1, M3, MF3, MF9, MF10, TORP2.	14 28 28 28	Offshore Fort Pierce, FL, GOMEX RC, JAX RC, SFOMF, Northeast RC, VACAPES RC. JAX RC. Northeast RC. VACAPES RC.
Other Testing Activities					
Acoustic	Insertion/Extraction	Testing of submersibles capable of inserting and extracting personnel and payloads into denied areas from strategic distances.	MF3, MF9	28 1,848	Key West RC. NSWC Panama City.
Acoustic	Acoustic Component Testing.	Various surface vessels, moored equipment, and materials are tested to evaluate performance in the marine environment.	FLS2, HF5, HF7, LF5, MF9, SAS2.	231	SFOMF.
Acoustic	Semi-Stationary Equipment Testing.	Semi-stationary equipment (*e.g.,* hydrophones) is deployed to determine functionality.	AG, ASW3, ASW4, HF5, HF6, LF4, LF5, MF9, MF10, SD1, SD2.	28 77 1,330	Newport, RI. NSWC Panama City. NUWC Newport.
Acoustic	Towed Equipment Testing.	Surface vessels or unmanned surface vehicles deploy and tow equipment to determine functionality of towed systems.	HF6, LF4, MF9	252	NUWC Newport.
Acoustic	Signature Analysis Operations.	Surface ship and submarine testing of electromagnetic, acoustic, optical, and radar signature measurements.	ASW2, HF1, LF4, LF5, LF6, M3, MF9, MF10.	7 413	JAX RC. SFOMF.

[1] The number of testing activities that could occur annually and the duration of those activities are identical to those presented in Table 6 of the 2018 AFTT final rule.

[2] Locations given are areas where activities typically occur. However, activities could be conducted in other locations within the Study Area. Where multiple locations are provided within a single cell, the number of activities could occur in any of the locations, not in each of the locations.

Notes: JEB LC–FS: Joint Expeditionary Base Little Creek-Fort Story; NS: Naval Station; NSB: Naval Submarine Base; NSWC: Naval Surface Warfare Center; NUWC: Naval Undersea Warfare Center; PNS: Portsmouth Naval Shipyard; SFOMF: South Florida Ocean Measurement Facility Testing Range.

Office of Naval Research

The Office of Naval Research testing activities that could occur over the seven-year period within the AFTT Study Area are presented in Table 4.

TABLE 4—OFFICE OF NAVAL RESEARCH TESTING ACTIVITIES ANALYZED FOR SEVEN-YEAR PERIOD IN THE AFTT STUDY AREA

Stressor category	Activity name	Activity description	Source bin	7-Year number of activities [1]	Location
Acoustic and Oceanographic Science and Technology					
Acoustic, Explosive	Acoustic and Oceanographic Research.	Research using active transmissions from sources deployed from ships and unmanned underwater vehicles. Research sources can be used as proxies for current and future Navy systems.	AG, ASW2, BB4, BB5, BB6, BB7, LF3, LF4, LF5, MF8, MF9, MF14, E1.	30 60 16 14	GOMEX RC. Northeast RC. VACAPES RC. Other AFTT Areas.
Acoustic	Emerging Mine Countermeasure Technology Research.	Test involves the use of broadband acoustic sources on unmanned underwater vehicles.	BB1, BB2, SAS4	7 14 7	JAX RC. Northeast RC. VACAPES RC.

[1] The number of testing activities that could occur annually and the duration of those activities are identical to those presented in Table 7 of the 2018 AFTT final rule.

Notes: GOMEX: Gulf of Mexico; JAX: Jacksonville, Florida; RC: Range Complex; VACAPES: Virginia Capes

Summary of Acoustic and Explosive Sources Analyzed for Training and Testing

Tables 5 through 8 show the acoustic source classes and numbers, explosive source bins and numbers, airgun sources, and pile driving and removal activities associated with the Navy's planned training and testing activities over the seven-year period in the AFTT Study Area that were analyzed in the 2019 Navy application and for this final rule. The annual numbers for acoustic source classes, explosive source bins, and airgun sources, as well as the annual pile driving and removal activities associated with Navy training and testing activities in the AFTT Study Area are identical to those presented in Tables 8 through 11 of the 2018 AFTT final rule, and are not repeated here. Consistent with the periodicity in the 2018 AFTT final rule, the Navy included the addition of two pile driving/extraction activities for each of the two additional years.

Table 5 describes the acoustic source classes (*i.e.,* low-frequency (LF), mid-frequency (MF), and high-frequency (HF)) that could occur over seven years under the planned training and testing activities. Acoustic source bin use in the activities would vary annually. The seven-year totals for the planned training and testing activities take into account that annual variability.

TABLE 5—ACOUSTIC SOURCE CLASSES ANALYZED AND NUMBER USED FOR SEVEN-YEAR PERIOD FOR TRAINING AND TESTING ACTIVITIES IN THE AFTT STUDY AREA.

Source class category	Bin	Description	Unit [1]	7-Year total	
				Training	Testing
Low-Frequency (LF): Sources that produce signals less than 1 kHz.	LF3	LF sources greater than 200 dB	H	0	9,156
	LF4	LF sources equal to 180 dB and up to 200 dB.	H	0	6,797
			C	0	140
	LF5	LF sources less than 180 dB	H	60	12,264
	LF6	LF sources greater than 200 dB with long pulse lengths.	H	1,104	280
Mid-Frequency (MF): Tactical and non-tactical sources that produce signals between 1–10 kHz.	MF1	Hull-mounted surface ship sonars (*e.g.,* AN/SQS–53C and AN/SQS–61).	H	36,833	23,358
	MF1K	Kingfisher mode associated with MF1 sonars.	H	819	1,064
	MF3	Hull-mounted submarine sonars (*e.g.,* AN/BQQ–10).	H	14,604	8,799
	MF4	Helicopter-deployed dipping sonars (*e.g.,* AN/AQS–22 and AN/AQS–13).	H	4,196	3,797
	MF5	Active acoustic sonobuoys (*e.g.,* DICASS).	C	47,340	38,663
	MF6	Active underwater sound signal devices (*e.g.,* MK84).	C	0	8,986
	MF8	Active sources (greater than 200 dB) not otherwise binned.	H	0	2,436
	MF9	Active sources (equal to 180 dB and up to 200 dB) not otherwise binned.	H	0	52,128
	MF10	Active sources (greater than 160 dB, but less than 180 dB) not otherwise binned.	H	6,088	39,830

TABLE 5—ACOUSTIC SOURCE CLASSES ANALYZED AND NUMBER USED FOR SEVEN-YEAR PERIOD FOR TRAINING AND TESTING ACTIVITIES IN THE AFTT STUDY AREA.—Continued

Source class category	Bin	Description	Unit [1]	7-Year total	
				Training	Testing
	MF11	Hull-mounted surface ship sonars with an active duty cycle greater than 80%.	H	6,495	9,968
	MF12	Towed array surface ship sonars with an active duty cycle greater than 80%.	H	2,658	9,716
	MF14	Oceanographic MF sonar	H	0	10,080
High-Frequency (HF): Tactical and non-tactical sources that produce signals between 10—100 kHz.	HF1	Hull-mounted submarine sonars (*e.g.,* AN/BQQ–10).	H	13,504	2,772
	HF3	Other hull-mounted submarine sonars (classified).	H	34,275	215
	HF4	Mine detection, classification, and neutralization sonar (*e.g.,* AN/SQS–20).	H	41,717	179,516
	HF5	Active sources (greater than 200 dB) not otherwise binned.	H	0	13,624
			C	0	280
	HF6	Active sources (equal to 180 dB and up to 200 dB) not otherwise binned.	H	0	15,254
	HF7	Active sources (greater than 160 dB, but less than 180 dB) not otherwise binned.	H	0	8,568
	HF8	Hull-mounted surface ship sonars (*e.g.,* AN/SQS–61).	H	140	14,587
Very High-Frequency Sonars (VHF): Non-tactical sources that produce signals between 100—200 kHz.	VHF1	VHF sources greater than 200 dB	H	0	84
Anti-Submarine Warfare (ASW): Tactical sources (*e.g.,* active sonobuoys and acoustic counter-measures systems) used during ASW training and testing activities.	ASW1	MF systems operating above 200 dB	H	4,251	5,740
	ASW2	MF Multistatic Active Coherent sonobuoy (*e.g.,* AN/SSQ–125).	C	10,572	35,842
	ASW3	MF towed active acoustic countermeasure systems (*e.g.,* AN/SLQ–25).	H	34,275	21,737
	ASW4	MF expendable active acoustic device countermeasures (*e.g.,* MK 3).	C	2,994	24,043
	ASW5	MF sonobuoys with high duty cycles	H	4,244	4,316
Torpedoes (TORP): Source classes associated with the active acoustic signals produced by torpedoes.	TORP1	Lightweight torpedo (*e.g.,* MK 46, MK 54, or Anti-Torpedo Torpedo).	C	399	6,122
	TORP2	Heavyweight torpedo (*e.g.,* MK 48)	C	560	2,600
	TORP 3	Heavyweight torpedo (*e.g.,* MK 48)	C	0	640
Forward Looking Sonar (FLS): Forward or upward looking object avoidance sonars used for ship navigation and safety.	FLS2	HF sources with short pulse lengths, narrow beam widths, and focused beam patterns.	H	0	8,568
Acoustic Modems (M): Systems used to transmit data through the water.	M3	MF acoustic modems (greater than 190 dB).	H	0	4,436
Swimmer Detection Sonars (SD): Systems used to detect divers and submerged swimmers.	SD1—SD2.	HF and VHF sources with short pulse lengths, used for the detection of swimmers and other objects for the purpose of port security.	H	0	1,232
Synthetic Aperture Sonars (SAS): Sonars in which active acoustic signals are post-processed to form high-resolution images of the seafloor.	SAS1	MF SAS systems	H	0	6,720
	SAS2	HF SAS systems	H	33,600	24,584
	SAS3	VHF SAS systems	H	0	6,720
	SAS4	MF to HF broadband mine countermeasure sonar.	H	0	6,720
Broadband Sound Sources (BB): Sonar systems with large frequency spectra, used for various purposes.	BB1	MF to HF mine countermeasure sonar	H	0	6,720
	BB2	HF to VHF mine countermeasure sonar	H	0	6,720

TABLE 5—ACOUSTIC SOURCE CLASSES ANALYZED AND NUMBER USED FOR SEVEN-YEAR PERIOD FOR TRAINING AND TESTING ACTIVITIES IN THE AFTT STUDY AREA.—Continued

Source class category	Bin	Description	Unit [1]	7-Year total	
				Training	Testing
	BB4	LF to MF oceanographic source	H	0	10,884
	BB5	LF to MF oceanographic source	H	0	4,704
	BB6	HF oceanographic source	H	0	4,704
	BB7	LF oceanographic source	C	0	840

[1] H = hours; C = count (*e.g.,* number of individual pings or individual sonobuoys).
Note: dB = decibel

Table 6 describes the number of air gun shots that could occur over seven years under the planned training and testing activities.

TABLE 6—TRAINING AND TESTING AIR GUN SOURCES QUANTITATIVELY ANALYZED IN THE AFTT STUDY AREA

Source class category	Bin	Unit [1]	7-Year total [2]	
			Training	Testing
Air Guns (AG): Small underwater air guns	AG	C	0	4,228

[1] C = count. One count (C) of AG is equivalent to 100 air gun firings.
[2] The annual numbers for airgun sources associated with Navy training and testing activities in the AFTT Study Area are identical to those presented in Table 9 in the 2018 AFTT final rule.

Table 7 summarizes the impact pile driving and vibratory pile removal activities that could occur during a 24-hour period. Annually, for impact pile driving, the Navy will drive 119 piles, two times a year for a total of 238 piles. Over the seven-year period of the rule, the Navy will drive a total of 1,666 piles by impact pile driving. Annually, for vibratory pile removal, the Navy will remove 119 piles, two times a year for a total of 238 piles. Over the seven-year period of the rule, the Navy will remove a total of 1,666 piles by vibratory pile removal.

TABLE 7—SUMMARY OF PILE DRIVING AND REMOVAL ACTIVITIES PER 24-HOUR PERIOD IN THE AFTT STUDY AREA

Method	Piles per 24-hour period	Time per pile (minutes)	Total estimated time of noise per 24-hour period (minutes)
Pile Driving (Impact)	6	15	90
Pile Removal (Vibratory)	12	6	72

Table 8 describes the number of in-water explosives that could be used in any year under the planned training and testing activities. Under the activities, bin use would vary annually, and the seven-year totals for the planned training and testing activities take into account that annual variability.

TABLE 8—EXPLOSIVE SOURCE BINS ANALYZED AND NUMBER USED FOR SEVEN-YEAR PERIOD FOR TRAINING AND TESTING ACTIVITIES WITHIN THE AFTT STUDY AREA

Bin	Net explosive weight [1] (lb.)	Example explosive source	7-Year Total [2]	
			Training	Testing
.				
E1	0.1–0.25	Medium-caliber projectile	53,900	160,880
E2	>0.25–0.5	Medium-caliber projectile	1,486	0
E3	>0.5–2.5	Large-caliber projectile	32,144	20,162
E4	>2.5–5	Mine neutralization charge	913	5,330
E5	>5–10	5-inch projectile	10,052	9,275
E6	>10–20	Hellfire missile	4,214	276
E7	> 20–60	Demo block/shaped charge	28	0
E8	>60–100	Light-weight torpedo	154	231
E9	>100–250	500 lb. bomb	462	28
E10	>250–500	Harpoon missile	630	566
E11	>500–650	650 lb. mine	7	70

TABLE 8—EXPLOSIVE SOURCE BINS ANALYZED AND NUMBER USED FOR SEVEN-YEAR PERIOD FOR TRAINING AND TESTING ACTIVITIES WITHIN THE AFTT STUDY AREA—Continued

Bin	Net explosive weight [1] (lb.)	Example explosive source	7-Year Total [2]	
			Training	Testing
E12	>650–1,000	2,000 lb. bomb	126	0
E16 [2]	>7,250–14,500	Littoral Combat Ship full ship shock trial	0	12
E17 [2]	>14,500–58,000	Aircraft carrier full ship shock trial	0	4

[1] Net Explosive Weight refers to the equivalent amount of Trinitrotoluene (TNT) the actual weight of a munition may be larger due to other components.

[2] The annual numbers for explosive source bins associated with Navy training and testing activities in the AFTT Study Area are identical to those presented in Table 11 in the 2018 AFTT final rule.

Note: Shock trials consist of four explosions each. In any given year there could be 0–3 small ship shock trials (E16) and 0–1 large ship shock trials (E17). Over a 7-year period, there could be three small ship shock trials (E16) and one large ship shock trial (E17) which is the same amount of ship shock trial events that could occur over the original five-year period. Therefore, there is no increase in ship shock trial events under this final rule.

Vessel Movement

Vessel movements associated with the planned activities include both surface and sub-surface operations. Vessels used as part of the activities include ships, submarines, unmanned vessels, and boats ranging in size from small, 22 feet (ft) (7 meters (m)) rigid hull inflatable boats to aircraft carriers with lengths up to 1,092 ft. (333 m). Large Navy ships greater than 60 ft (18 m) generally operate at speeds in the range of 10 to 15 kn for fuel conservation. Submarines generally operate at speeds in the range of 8 to 13 kn in transits and less than those speeds for certain tactical maneuvers. Small craft, less than 60 ft (18 m) in length, have much more variable speeds (dependent on the mission). For small craft types, sizes and speeds vary during training and testing. Speeds generally range from 10 to 14 kn. While these speeds for large and small crafts are representative of most events, some vessels need to temporarily operate outside of these parameters. A full description of Navy vessels that are used during training and testing activities and will be used under the seven-year period of this rule can be found in the 2017 Navy application and Chapter 2 of the 2018 AFTT FEIS/OEIS.

The manner in which Navy vessels will be used during training and testing activities, the speeds at which they operate, the number of vessels that will be used during various activities, and the locations in which Navy vessel movement will be concentrated within the AFTT Study Area are identical to those analyzed in the 2018 AFTT final rule. The only change related to the Navy's request regarding Navy vessel movement is the vessel use associated with the additional two years of Navy activities.

Standard Operating Procedures

For training and testing to be effective, personnel must be able to safely use their sensors and weapon systems as they are intended to be used in a real-world situation and to their optimum capabilities. While standard operating procedures are designed for the safety of personnel and equipment and to ensure the success of training and testing activities, their implementation often yields additional benefits on environmental, socioeconomic, public health and safety, and cultural resources. Because standard operating procedures are essential to safety and mission success, the Navy considers them to be part of the planned activities and has included them in the environmental analysis. Details on standard operating procedures were provided in the 2018 AFTT proposed rule; please see the 2018 AFTT proposed rule, the 2017 Navy application, and Chapter 2 of the 2018 AFTT FEIS/OEIS for more information. The Standard Operating Procedures for the seven-year period will be identical to those in place under the 2018 AFTT final rule.

Comments and Responses

On February 1, 2019, we published a notice of receipt (NOR) of the Navy's application in the **Federal Register** (84 FR 1069), and requested comments and information related to the Navy's request. The review and comment period for the NOR ended on March 4, 2019. We reviewed and considered all comments and information received on the NOR in development of the proposed rule. We published a proposed rule in the **Federal Register** on May 13, 2019 (84 FR 21126), with a 30-day comment period. In that proposed rule, we requested public input on the request for authorization described therein, our analyses, and the proposed authorizations and requested that interested persons submit relevant information, suggestions, and comments. During the 30-day comment period, we received eight comment letters. Of this total, one submission was from the Marine Mammal Commission (hereafter ''Commission''), one letter was from an organization or individual acting in an official capacity (*e.g.,* non-governmental organization (NGO)) and six submissions were from private citizens. NMFS has reviewed and considered all public comments received on the proposed rule and issuance of the LOAs. All relevant comments and our responses are described below. We provide no response to specific comments that addressed species or statutes not relevant to our proposed authorization under section 101(a)(5)(A) of the MMPA (*e.g.,* comments related to sea turtles).

The majority of the six comment letters from private citizens expressed general opposition toward the Navy's proposed training and testing activities and requested that NMFS not issue the LOAs, but without providing information relevant to NMFS' decisions. These comments appear to indicate a lack of understanding of the MMPA's requirement that NMFS ''shall issue'' requested authorizations when certain findings (see the *Background* section) are met; therefore, these comments were not considered further. The remaining comments are addressed below.

Both the Commission and NGO included their comments submitted on the 2018 AFTT proposed rule. The Commission did not reiterate their 2018 AFTT proposed rule recommendations in their comment letter but maintained that the recommendations that NMFS did not incorporate into the 2018 AFTT final rule are still relevant and pertain

to the extension of the five-year rule and asked that they be reviewed again in the course of considering the new seven-year rule. The NGO attached their 2018 AFTT proposed rule comment letter and their comments on the Notice of Receipt of the 2019 Navy application. They stated that ''most of the issues raised [in their 2018 AFTT proposed rule comment letter] were not adequately addressed in the 2018–2023 Final Rule'' and asked that NMFS renew consideration of their prior comments. To the extent they raised concerns with how ''most'' issues were addressed previously, it did not identify which issues those were. NMFS reviewed, considered, and responded to all comments received on the 2018 AFTT proposed rule and issuance of the proposed LOAs. Please see the 2018 AFTT final rule *Comments and Responses* section for a summary of the comments received and NMFS' responses to these comments. As the NGO resubmitted their comments on the Notice of Receipt of the 2019 Navy Application, we respond to those comments below.

Comment 1: Commenters noted that NMFS did not propose to authorize beaked whale mortalities subsequent to MFA sonar use for any of the Navy's Phase III activities and states that that approach is inconsistent with the tack taken for both the Trajectory Analysis Planner (TAP) I and Phase II activities. The Commenters noted that for the previous final rule for AFTT (78 FR 73009; December 4, 2013), NMFS authorized up to 10 beaked whale mortality takes during the five-year period of the final rule (78 FR 73067; December 4, 2013). They noted that NMFS justified authorizing those mortalities by stating that, although NMFS and the Navy do not anticipate any beaked whale strandings to occur and no strandings have ever been reported in the AFTT Study Area, NMFS cannot conclude with certainty the degree to which mitigation measures would eliminate or reduce the potential for serious injury or mortality (78 FR 73043; December 4, 2013). The Commenters stated that this justification is still applicable. The Commenters asserted that NMFS indicated that steep bathymetry, multiple hull-mounted platforms using sonar simultaneously, constricted channels, and strong surface ducts are not all present together in the AFTT Study Area during the specified activities (83 FR 57116; November 14, 2018), and that NMFS specified that it did not authorize beaked whale mortalities in the 2018 AFTT final rule based on the lack of those factors and the lack of any strandings associated with Navy sonar use in the AFTT Study Area (83 FR 57116; November 14, 2018). The Commenters stated that this does not comport with NMFS' acknowledgement in the 2018 AFTT proposed rule that all five of those factors are not necessary for a stranding to occur (83 FR 11012; March 13, 2018). They go on to state that ''NMFS still cannot conclude with certainty the degree to which mitigation measures would eliminate or reduce the potential for serious injury or mortality. This is especially true for a species that is cryptic and difficult for researchers, let alone Navy Lookouts, to observe visually in order to implement mitigation measures, and while passive acoustic monitoring could readily detect beaked whales, it is not used by the Navy as part of its mitigation measures involving MFA sonar.'' Given that the potential for beaked whale mortalities cannot be obviated, the Commenters recommend that NMFS authorize at least 10 mortality takes of beaked whales subsequent to MFA sonar use, consistent with the AFTT Phase II final rule (83 FR 57076).

Response: NMFS does not disregard the fact that it is possible for naval activities using hull-mounted tactical sonar to contribute to the death of marine mammals in certain circumstances (that are not present in the AFTT Study Area) via strandings resulting from behaviorally mediated physiological impacts or other gas-related injuries. NMFS included a discussion in the 2018 AFTT proposed and final rules of these potential causes and outlines the few cases where active naval sonar (in the U.S. or, largely, elsewhere) has either potentially contributed to or (as with the Bahamas example) been more definitively causally linked with marine mammal strandings. As noted, there are a suite of factors that have been associated with these specific cases of strandings directly associated with sonar (steep bathymetry, multiple hull-mounted platforms using sonar simultaneously, constricted channels, strong surface ducts, *etc.*). The Commenters are incorrect, however, in implying that NMFS found all these features must be present together. While not all of these factors must be present for a beaked whale stranding to occur, steep bathymetry and constricted channels specifically are not present in the AFTT Study Area, and surface ducts are not consistently present at any location. Further, in addition to the mitigation and monitoring measures in place (visual monitoring, passive acoustic monitoring when practicable, *etc.,* see the 2018 AFTT final rule *Mitigation* and *Monitoring* sections for a full description of these measures) the Navy minimizes active sonar military readiness activities when these features are present (in other areas outside of the AFTT Study Area) to the maximum extent practicable to meet specific training or testing requirements. Additionally, there have never been any strandings associated with Navy sonar use in the AFTT Study Area, including in the five years of Navy activities since the 2013 authorizations referenced by the Commenters. For these reasons as well as the other reasons discussed more fully in the 2018 AFTT final rule (*e.g.,* mitigation measures, monitoring, *etc.*), NMFS does not anticipate that the Navy's AFTT training and testing activities will result in beaked whale strandings and mortality, and none are authorized.

Comment 2: Commenters stated that NMFS cannot amend the existing five-year rule without undertaking a new negligible impact analysis for the full seven years of AFTT activity. They stated that while the Navy has not proposed any changes in activity parameters for the take that NMFS previously authorized, the addition of two years of explosives, sonar, and other disruptive activities alters the scope of that previous analysis. They go one to state that barring a negligible impact finding predicated on seven years of activity, taking into account the full extent of mortality, injury, and significant behavioral disruption that that entails, NMFS cannot amend the rule as the Navy has requested.

Response: NMFS agrees and conducted a negligible impact analysis for the full seven years of Navy training and testing activity in the AFTT Study Area in both the 2019 AFTT proposed rule and this final rule. Please see the *Analysis and Negligible Impact Determination* section below.

Comment 3: Commenters stated that NMFS must rigorously assess cumulative impacts on the same populations from other authorized and reasonably foreseeable activities, including the five large-scale seismic surveys that NMFS authorized in November, 2018 as well as the additional five years of oil and gas exploration that BOEM included in its 2014 Programmatic Environmental Impact Statement for Atlantic seismic, to which NMFS tiered its November environmental assessments. They note that NMFS has repeatedly recognized the importance of accounting for cumulative effects of human activity on marine mammal populations, including

the cumulative effects of acoustic disturbance and masking, but that despite this NMFS has made its negligible impact findings as though each authorized activity were taking place in a vacuum, resulting in an acoustic environment where the same populations are repeatedly harmed. The Commenters note that at particular risk are range-restricted populations that are resident off Cape Hatteras; as well as species already suffering from poor individual fitness, most notably the North Atlantic right whale.

Response: We recognize the need to address total impacts from the Navy's activities, and that the total impacts of the Navy's training and testing activities could be greater than the impacts of any one particular activity. The total impacts of the Navy's training and testing activities were evaluated for each species and stock in the *Group and Species-Specific Analyses* section of the *Analysis and Negligible Impact Determination* section of this rule and the 2018 AFTT final rule. See also the 2018 AFTT FEIS/OEIS, which evaluated the impacts of a maximum amount of activities, and which NMFS has adopted as the basis for its Record of Decision for the issuance of the final rule and LOAs.

As described in the 2019 AFTT proposed rule and this final rule along with the 2018 AFTT final rule, the preamble for NMFS' implementing regulations under section 101(a)(5) (54 FR 40338; September 29, 1989) explains in responses to comments that the impacts from other past and ongoing anthropogenic activities are incorporated into the negligible impact analysis via their impacts on the environmental baseline. Consistent with that direction, NMFS here has factored into its negligible impact analyses the impacts of other past and ongoing anthropogenic activities via their impacts on the baseline (*e.g.,* as reflected in the density/distribution and status of the species, population size and growth rate, and relevant stressors (such as incidental mortality in commercial fisheries, UMEs, or oil spills)). See the *Analysis and Negligible Impact Determination* section of this rule and the 2018 AFTT final rule.

Our 1989 final rule for the MMPA implementing regulations also addressed how cumulative effects from unrelated activities would be considered. There we stated that such effects are not considered in making findings under section 101(a)(5) concerning negligible impact, but that NMFS would consider cumulative effects that are reasonably foreseeable when preparing a National Environmental Policy Act (NEPA) analysis and also that reasonably foreseeable cumulative effects would be considered under section 7 of the Endangered Species Act (ESA) for ESA-listed species.

The cumulative effects of the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions (as well as the effects of climate change) were evaluated against the appropriate resources and regulatory baselines in the 2018 AFTT FEIS/OIES. The best available science and a comprehensive review of past, present, and reasonably foreseeable actions (including the potential for oil and gas exploration in the Atlantic, as the commenter notes) was used to develop the Cumulative Impacts analysis. This analysis is contained in Chapter 4 of the 2018 AFTT FEIS/OIES. As required under NEPA, the level and scope of the analysis is commensurate with the scope of potential impacts of the action and the extent and character of the potentially-impacted resources (*e.g.,* the geographic boundaries for cumulative impacts analysis for some resources are expanded to include activities outside the AFTT Study Area that might impact migratory or wide-ranging animals), as reflected in the resource-specific discussions in Chapter 3 (Affected Environment and Environmental Consequences) of the 2018 AFTT FEIS/OEIS. The 2018 AFTT FEIS/OEIS considered the proposed training and testing activities alongside other actions in the region whose impacts may be additive to those of the proposed training and testing. Past and present actions are also included in the analytical process as part of the affected environmental baseline conditions presented in Chapter 3 of the 2018 AFTT FEIS/OEIS. The 2018 AFTT FEIS/OEIS did so in accordance with 1997 Council on Environmental Quality (CEQ) guidance. Per the guidance, a qualitative approach and best professional judgment are appropriate where precise measurements are not available. Where precise measurements and/or methodologies were available they were used. Guidance from CEQ states it ''is not practical to analyze cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.'' Further, the U.S. EPA reviewed the 2018 AFTT FEIS/OEIS and rated the document as LO—lack of objections—which means it did not identify any environmental impact requiring substantive changes to the proposal. Information on the NEPA analysis is provided in Section 4.1.1 (Determination of Significance).

Comment 4: Commenters stated that NMFS should rigorously review its adaptive management procedures for military readiness activities for transparency, enforceability, and effectiveness, to strengthen their integrity for a seven-year authorization cycle. They particularly noted the need to ensure that research required, or simply recommended, by NMFS during the rulemaking process is actually completed by the Navy, as adaptive management cannot proceed if the underlying research to resolve uncertainties is not performed.

Response: NMFS has rigorously reviewed its adaptive management procedures for military readiness activities for transparency, enforceability, and effectiveness and continues to do so on an annual basis. In addition to the comprehensive written reports provided by the Navy and reviewed by NMFS, NMFS holds dual-purpose annual Monitoring and Adaptive Management meetings with the Navy that address all of the concerns the commenter raises. First, the Navy annually convenes the researchers conducting the monitoring studies required by the MMPA rules for Navy Training and Testing (along with NMFS and Commission staff) to discuss their work and results, allowing for direct meaningful discourse between the researchers on the ground and regulators, as well as the opportunity for the researchers to highlight challenges and recommendations for future work. Second, NMFS, the Commission, and Navy staff meet to specifically discuss: (1) Exercise Reports detailing the non-classified extent of activities conducted, associated mitigation implemented, and marine mammals detected; (2) the list of monitoring projects and which are finishing, continuing, or newly starting; (3) new science potentially applicable in an adaptive management context, and; (4) whether any changes to monitoring or mitigation are appropriate pursuant to the Adaptive Management provisions.

Comment 5: Commenters stated that NMFS must improve its negligible impact analysis and mitigation in issuing a new rule. They note that the Navy's application proposed no substantial changes in its take estimation, impact assessment, or mitigation measures, notwithstanding the issues raised during the previous rulemaking by Commenters.

Response: NMFS reviewed, considered, and responded to all comments received on the 2018 AFTT proposed rule and issuance of the proposed LOAs. Please see the 2018

AFTT final rule *Comments and Responses* section for a summary of the comments received and NMFS' responses to these comments. The 2019 AFTT proposed rule and this final rule contain thorough and complete analysis of the incidental take that is estimated or has the potential to occur from the Navy's activities, along with analysis of appropriate mitigation measures under the least practicable adverse impact standard. All analysis, including the negligible impact analysis for each species and stock, has been updated from the 2018 AFTT final rule as appropriate based on the Navy's application, any new information, and in consideration of all comments received.

Comment 6: Commenters stated that NMFS presents a flawed updated vessel strike analysis. The Commenters stated that the Navy made its take authorization request based on a Poisson distribution using ship-strike data (from strikes involving Navy vessels only) between 2009 and 2018 in the AFTT Study Area, as well as historical at-sea days in the AFTT Study Area from 2009–2018 and estimated potential at-sea days for the period from 2018–2025 covered by the requested regulations. This distribution predicted the probabilities of a specific number of strikes over the 2018–2025 period. The Commenters go on to state that in its take analysis, NMFS considered two factors in addition to those included in the Navy's request: (1) the relative likelihood of hitting members of one stock versus another, based on available data from all vessel strikes enumerated in the agency's Stock Assessment Reports (SARs); and (2) whether the Navy has ever definitively struck an individual from a particular stock and, if so, how many times. The Commenters stated that, thus in determining vessel strike probability, the agency's analysis only factors in vessel strikes reported by the Navy, rather than more objectively taking into account the total number of Navy ships that will be operating in the AFTT Study Area. The Commenters stated that some conditions the Navy operates in, including darkness and high sea states, would likely make it impossible to detect every vessel strike that occurred. In addition, some of the features of military vessels that NMFS notes as reducing vessel strike probability, such as the use of marine mammal Lookouts, would also only be effective in periods of good visibility. Therefore, the agency should not use the number of vessel strikes reported by the Navy as the basis for its vessel strike analysis. The Commenters stated that NMFS instead should analyze the likelihood of a ship hitting a particular stock in the AFTT Study Area (as based on the SARs) and the total number of Navy vessels, or the total amount of Navy vessel time spent operating within the AFTT Study Area.

Response: The Commenters are correct in stating that the Navy requested incidental takes due to vessel strikes based on probabilities derived from a Poisson distribution using Navy ship strike data between 2009 and 2018 in the AFTT Study Area (the time period from when current vessel strike mitigation measures were instituted until the Navy conducted the analysis for the 2019 Navy application, with no new ship strikes occurring since this analysis), as well as historical at-sea days in the AFTT Study Area from 2009–2018 and estimated potential at-sea days for the period from 2018 to 2025 covered by the requested regulations. NMFS concurs with the Navy that it is appropriate to use Navy ship strike data in this analysis, rather than all known ship strikes (as presented in the SARs), because there are key differences between Navy vessels and commercial vessels, as described in the *Authorized Take from Vessel Strikes* section, which reduce the potential of ship strikes by Navy vessels and provide confidence that any ship strike that did occur would be detected and reported. The Navy also implements mitigation measures (Lookouts, passive sonar when practicable, *etc.*) that are not implemented by commercial vessels. While visibility is decreased in certain situations, such as nighttime as described by the commenters, ships operated by or for the Navy have personnel assigned to stand watch at all times, day and night, when underway for safety of navigation, collision avoidance, range clearance, and man-overboard precautions. After sunset and prior to sunrise, watch personnel employ night visual search techniques, which can include the use of night vision devices. The Navy is able to detect if a whale is struck due to the diligence of standard watch personnel and Lookouts stationed specifically to observe for marine mammals while a vessel is underway, day and night. These measures make it highly unlikely that a Navy vessel would strike a whale, dolphin, porpoise, or pinniped without detecting and reporting it and, accordingly, NMFS is confident that the Navy's reported strikes are accurate and appropriate for use in the analysis.

NMFS uses all available information to determine the likelihood of vessel strike to a particular stock. As the commenter correctly asserts, NMFS considered two factors in addition to those considered in the Navy's request: (1) The relative likelihood of hitting one stock versus another based on available strike data from all vessel types as denoted in the SARs and (2) whether the Navy has ever definitively struck an individual from a particular stock and, if so, how many times. For a detailed description of the methods used to analyze the likelihood of vessel strikes, see the *Authorized Take from Vessel Strikes* section. However, the analysis does take into account the total number of Navy ships that will be operating in the AFTT Study Area. The estimated potential at-sea days for the period from 2018 to 2025 takes into account both the number of vessels and the number of days each vessel will operate in the AFTT Study Area. In other words, the number of vessel at-sea days directly reflects the number of vessels. Indeed this metric does exactly what the commenter suggests, which is that NMFS ''analyze the likelihood of a ship hitting a particular stock in the AFTT Study Area (as based on the SARs) and the total number of Navy vessels, *or the total amount of Navy vessel time spent operating within the AFTT Study Area.*''

Comment 7: Commenters stated that NMFS' adjustment of injury and mortality numbers for ''mitigation effectiveness'' remains arbitrary. The Commenters noted that in the 2018 AFTT final rule, NMFS stated that the Navy quantitatively assessed the effectiveness of its monitoring-based mitigation on a per-scenario basis using four factors: (1) Species sightability; (2) a Lookout's ability to observe the range to permanent threshold shift and range to mortality; (3) the portion of time when mitigation could be observed during periods of poor visibility or at night; and (4) the ability of sound sources to be positively controlled (*i.e.,* powered down) (83 FR 57076, 57115; November 14, 2018). The Commenters noted that NMFS then concluded that the Navy adequately accounted for mitigation effectiveness in its adjustment of take. The Commenters stated that while NMFS explained its support of the Navy's approach, as requested in these Commenters' comments on the 2018 AFTT proposed rule, the adjustments the Navy makes to account for reduced mitigation effectiveness at night or during periods of poor visibility still overestimate the potential level of mitigation effectiveness. The Commenters provided the following example to support this statement: ''If a scenario occurs in a high sea state (Beaufort sea

state of 4 or higher), then the Navy applies a visibility reduction factor of 0.25. However, the probability of sighting a North Atlantic right whale, for example, changed by a factor of 0.628 (95 percent CI: 0.428–0.921) for every unit increase in sea state. From the findings of Baumgartner *et al.* (2003), we would expect a reduction in detection probability of North Atlantic right whales by up to 84.5 percent based on an average Beaufort Sea State of 4, relative to ideal sighting conditions (*i.e.,* Beaufort Sea State = 0). The reduction of the effectiveness of a Navy lookout watching for North Atlantic right whales in Beaufort Sea State 4, would therefore be significantly greater than the 0.25 factored into the Navy's analysis.'' The Commenters reiterated their caution to NMFS against creating an under-supported, nonconservative adjustment for avoidance in the current AFTT final rule.

Response: As described in the technical report titled ''Quantifying Acoustic Impacts on Marine Mammals and Sea Turtles: Methods and Analytical Approach for Phase III Training and Testing'' (U.S. Department of the Navy, 2018), the Navy conservatively factored mitigation effectiveness (*i.e.,* underestimated mitigation effectiveness) into its quantitative analysis process. To calculate a mitigation effectiveness score for each scenario, the Navy multiplied the Species Sightability Factor, g(0), by a Visibility Factor [0.25, 0.5, 0.75, 1], then by an Observation Area Factor [0, 0.5, 1], and lastly by a Positive Control Factor [0, 0.5, 1]. Using a logistic regression model, Baumgartner *et al.* (2003) presented evidence to suggest there is an effect of sea state on the probability of sighting that changes by a factor of 0.628 for every unit increase in sea state. However, the authors did not suggest that the 0.628 factor should be applied to further reduce g(0) values that already consider sea state. The North Atlantic right whale g(0) value used by the Navy already takes into account perception bias (including sea state). Therefore, the Navy's approach to calculating mitigation effectiveness is more conservative than what is being suggested by Baumgartner *et al.* (2003) because the Navy reduced mitigation effectiveness twice based on sea state: once by using g(0) values that already incorporate perception bias, and again by multiplying g(0) by additional visibility factors. Another example of how the Navy's method for calculating mitigation effectiveness is conservative is that the Navy assigns worst-case scores (instead of typical-case scores) to each effectiveness factor. For example, the Navy assigns a visibility reduction factor of 0.25 if a scenario has the ''potential'' to occur in Beaufort sea state 4 or higher, even if it typically occurs in Beaufort sea state 3 or lower. Similarly, the Navy assigns another visibility reduction factor of 0.25 or 0.50 if the scenario ''could'' occur at night, rounding up to the most conservative reduction factor based on percent chance of nighttime occurrence.

Below is a simplified hypothetical calculation for a scenario involving hull-mounted mid-frequency active sonar. The furthest average range to a potential permanent threshold shift (PTS) exposure for the largest source bin used in this scenario, MF1, is 192 m. The hypothetical scenario uses a positive control sound source, would rarely occur in a Beaufort 4 sea state, and has a 10 percent chance of occurring at night. Lookouts are able to observe the entire range to PTS (192 m around the ship) for the duration of the scenario. This hypothetical scenario has 10 model-estimated PTS impacts.

Mitigation Effectiveness = Species Sightability [vessel sightability g(0) of 0.645 (Palka 2006)] × Visibility [1 − (0.25 reduction for sea state + 0.25 reduction for night) = 0.50] × Observation Area [1] × Positive Control [1] = 0.323

Number of animals assumed sighted by Lookouts = Mitigation Effectiveness [0.323] × Model-Estimated Impacts [10 model-estimated PTS impacts] = 3.23 (rounded down to 3)

This hypothetical calculation results in 3 out of 10 marine mammals being sighted by Lookouts within the average range to PTS (192 m from the ship). Mitigation measures would be implemented for these three individuals, and therefore, these animals would not be exposed to PTS-level impacts. The Navy corrects the category of predicted impact for these three animals (*i.e.,* shifts the level of three impacts from PTS to temporary threshold shift (TTS)), but does not modify the total number of impacts predicted from the scenario.

For reasons detailed in the technical report, the small range to PTS and close proximity to the observation platform would in reality result in a much higher likelihood that Lookouts would detect more than three marine mammals within 192 m from the ship hull. For example, the Species Sightability reduction factors, g(0), are based on values obtained during line-transect surveys, where each primary observer looks for marine species in the forward 90-degree quadrant on their side of the survey platform out to the limit of the available optics (*i.e.,* the horizon). In this example, Navy Lookouts would focus their observations directly on the sea space in front of the ship in an area several degrees of magnitude smaller than that used to calculate species sightability. However, as previously described, the Navy's approach to estimating marine mammal impacts integrates a host of conservative assumptions to ensure that potential impacts are overestimated instead of underestimated.

Description of Marine Mammals and Their Habitat in the Area of the Specified Activities

Marine mammal species and their associated stocks that have the potential to occur in the AFTT Study Area are presented in Table 9 along with the best/minimum abundance estimate and associated coefficient of variation value. Some marine mammal species, such as manatees, are not managed by NMFS, but by the U.S. Fish and Wildlife Service and therefore not discussed below. Consistent with the 2018 AFTT final rule, the Navy anticipates the take of individuals of 39 marine mammal species by Level A harassment and Level B harassment incidental to training and testing activities from the use of sonar and other transducers, in-water detonations, air guns, and impact pile driving/vibratory extraction activities. The Navy requested authorization for nine serious injuries or mortalities combined from four marine mammal stocks during ship shock trials, and four takes of large whales by serious injury or mortality from vessel strikes over the seven-year period.

We presented a detailed discussion of marine mammals and their occurrence in the AFTT Study Area, inclusive of important marine mammal habitat (*e.g.,* critical habitat), biologically important areas (BIAs), national marine sanctuaries (NMSs), and unusual mortality events (UMEs) in the 2018 AFTT proposed rule and 2018 AFTT final rule; please see these rules and the 2017 and 2019 Navy applications for additional information. There have been no changes to important marine mammal habitat, BIAs, NMSs, or Endangered Species Act (16 U.S.C. 1531 *et seq.;* ESA) designated critical habitat since the issuance of the 2018 AFTT final rule; therefore the information that supports our determinations here can be found in the 2018 AFTT proposed and final rules. NMFS has reviewed and incorporated into this rule the most recent Stock Assessment Reports (SARs) (Hayes *et al.,* 2019, which can be found

at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region*); updated information on relevant UMEs (see below); and new scientific literature (see the *Potential Effects of Specified Activities on Marine Mammals and their Habitat* section), and determined that none of these nor any other new information changes our determination of which species or stocks have the potential to be affected by the Navy's activities or the pertinent information in the *Description of Marine Mammals and Their Habitat in the Area of the Specified Activities* section in the 2018 AFTT proposed and final rules. Therefore, the information presented in those sections of the 2018 proposed and final rules remains current and valid.

As described in the 2018 AFTT final rule, the species carried forward for analysis are those likely to be found in the AFTT Study Area based on the most recent data available, and do not include stocks or species that may have once inhabited or transited the area but have not been sighted in recent years and therefore are extremely unlikely to occur in the AFTT Study Area (*e.g.,* species which were extirpated because of factors such as nineteenth and twentieth century commercial exploitation).

The species not carried forward for analysis (addressed in more detail in the *Description of Marine Mammals and Their Habitat in the Area of the Specified Activities* section of the 2018 AFTT final rule) include the bowhead whale, beluga whale, and narwhal, as these would be considered extralimital and are not part of the AFTT Study Area seasonal species assemblage. Additionally, for multiple bottlenose dolphin stocks, there was no potential for overlap with any stressors from Navy activities; therefore, there would be no adverse effects (or takes), and those stocks were not considered further. Specifically, with the exception of the Mississippi Sound, Lake Borgne, Bay Boudreau stock of bottlenose dolphins (which is addressed in the *Analysis and Negligible Impact Determination* section below), there is no potential for overlap of any Navy stressor with any other bay, sound, or estuary stocks in the northern Gulf of Mexico. Also, the following bottlenose dolphin stocks for the Atlantic do not have any potential for overlap with Navy activity stressors (or take), and therefore are not considered further: Northern South Carolina Estuarine System, Charleston Estuarine System, Northern Georgia/Southern South Carolina Estuarine System, Central Georgia Estuarine System, Southern Georgia Estuarine System, Biscayne Bay, and Florida Bay stocks. For the same reason, bottlenose dolphins off the coasts of Puerto Rico and the U.S. Virgin Islands were also not considered further.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA

Common name	*Scientific name*[1]	*Stock*[2]	*ESA/MMPA Status*[3]	*Stock Abundance*[4]	*Occurrence in AFTT study area*[5]		
				Best/minimum population	*Open ocean*	*Large marine ecosystems*	*Inland waters*
Order Cetacea							
Suborder Mysticeti (baleen whales)							
Family Balaenidae (right whales):							
Bowhead whale.	*Balaena mysticetus*	Eastern Canada-West Greenland.	Endangered, strategic, depleted.	7,660 (4,500–11,100)[6].	Labrador Current	Newfoundland-Labrador Shelf, West Greenland Shelf, Northeast U.S. Continental Shelf.	NA.
North Atlantic right whale.	*Eubalaena glacialis*	Western	Endangered, strategic, depleted.	451 (0)/445	Gulf Stream, Labrador Current, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, Gulf of Mexico (extralimital).	NA.
Family Balaenopteridae (rorquals):							
Blue whale	*Balaenoptera musculus.*	Western North Atlantic (Gulf of St. Lawrence).	Endangered, strategic, depleted.	Unknown/440[11] ..	Gulf Stream, North Atlantic Gyre, Labrador Current.	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, Southeast U.S. Continental Shelf, Caribbean Sea, and Gulf of Mexico (strandings only).	NA.
Bryde's whale	*Balaenoptera brydei/edeni.*	Northern Gulf of Mexico and NSD[21].	Endangered, strategic.	33 (1.07)/16	Gulf Stream, North Atlantic Gyre.	Gulf of Mexico	NA.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	*Scientific name*[1]	*Stock*[2]	*ESA/MMPA Status*[3]	*Stock Abundance*[4]	*Occurrence in AFTT study area*[5]		
				Best/minimum population	*Open ocean*	*Large marine ecosystems*	*Inland waters*
Fin whale	*Balaenoptera physalus*.	Western North Atlantic.	Endangered, strategic, depleted.	1,618 (0. 33)/1,234	Gulf Stream, North Atlantic Gyre, Labrador Current.	Caribbean Sea, Gulf of Mexico, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		West Greenland	Endangered, strategic, depleted.	4,468 (1,343–14,871)[9].	Labrador Current	West Greenland Shelf.	NA.
		Gulf of St. Lawrence.	Endangered, strategic, depleted.	328 (306–350)[10]	Gulf of St. Lawrence.	Newfoundland-Labrador Shelf, Scotian Shelf.	NA.
Humpback whale	*Megaptera novaeangliae*.	Gulf of Maine	NA	896 (0)/896	Gulf Stream, North Atlantic Gyre, Labrador Current.	Gulf of Mexico, Caribbean Sea, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
Minke whale	*Balaenoptera acutorostrata*.	Canadian Eastern Coastal.	NA	2,591 (0.81)/1,425.	Gulf Stream, North Atlantic Gyre, Labrador Current.	Caribbean Sea, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		West Greenland[7]	NA	16,609 (range: 7,172–38,461)/NA[7].	Labrador Current	West Greenland Shelf.	NA.
Sei whale	*Balaenoptera borealis*.	Nova Scotia	Endangered, strategic, depleted.	357 (0.52)/236	Gulf Stream, North Atlantic Gyre.	Gulf of Mexico, Caribbean Sea, Southeast Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		Labrador Sea	Endangered, strategic, depleted.	Unknown[8]	Labrador Current	Newfoundland-Labrador Shelf, West Greenland Shelf.	NA.
Family Physeteridae (sperm whale)							
Suborder Odontoceti (toothed whales)							
Sperm whale	*Physeter macrocephalus*.	North Atlantic	Endangered, strategic, depleted.	2,288 (0.28)/1,815.	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, Caribbean Sea.	NA.
		Northern Gulf of Mexico.	Endangered, strategic, depleted.	763 (0.38)/560	NA	Gulf of Mexico	NA.
		Puerto Rico and U.S. Virgin Islands.	Endangered, strategic, depleted.	Unknown	North Atlantic Gyre.	Caribbean Sea	NA.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	Scientific name[1]	Stock[2]	ESA/MMPA Status[3]	Stock Abundance[4]	Occurrence in AFTT study area[5]		
				Best/minimum population	Open ocean	Large marine ecosystems	Inland waters
Family Kogiidae (sperm whales)							
Pygmy and dwarf sperm whales.	*Kogia breviceps* and *Kogia sima*.	Western North Atlantic.	NA	3,785 (0.47)/2,598[12].	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, Caribbean Sea.	NA.
		Northern Gulf of Mexico.	NA	186 (1.04)/90[12]	NA	Gulf of Mexico, Caribbean Sea.	NA.
Family Monodontidae (beluga whale and narwhal)							
Beluga whale	*Delphinapterus leucas*.	Eastern High Arctic/Baffin Bay[13].	NA	21,213 (10,985–32,619)[13].	Labrador Current	West Greenland Shelf.	NA.
		West Greenland[14].	NA	10,595 (4.904–24,650)[14].	NA	West Greenland Shelf.	NA.
Narwhal	*Monodon monoceros*.	NA[15]	NA	NA[15]	NA	Newfoundland-Labrador Shelf, West Greenland Shelf.	NA.
Family Ziphiidae (beaked whales)							
Blainville's beaked whale.	*Mesoplodon densirostris*.	Western North Atlantic[16].	NA	7,092 (0.54)/4,632[17].	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		Northern Gulf of Mexico.	NA	149 (0.91)/77[18]	NA	Gulf of Mexico, Caribbean Sea.	NA.
Cuvier's beaked whale.	*Ziphius cavirostris*	Western North Atlantic[16].	NA	6,532 (0.32)/5,021.	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	74 (1.04)/36	NA	Gulf of Mexico, Caribbean Sea.	NA.
		Puerto Rico and U.S. Virgin Islands.	Strategic	Unknown	NA	Caribbean Sea	NA.
Gervais' beaked whale.	*Mesoplodon europaeus*.	Western North Atlantic[16].	NA	7,092 (0.54)/4,632[17].	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast United States Continental Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	149 (0.91)/77[18]	Gulf Stream, North Atlantic Gyre.	Gulf of Mexico, Caribbean Sea.	NA.
Northern bottlenose whale.	*Hyperoodon ampullatus*.	Western North Atlantic.	NA	Unknown	Gulf Stream, North Atlantic Gyre, Labrador Current.	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
Sowerby's beaked whale.	*Mesoplodon bidens*	Western North Atlantic[16].	NA	7,092 (0.54)/4,632[17].	Gulf Stream, North Atlantic Gyre.	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	*Scientific name*[1]	*Stock*[2]	*ESA/MMPA Status*[3]	*Stock Abundance*[4]	*Occurrence in AFTT study area*[5]		
				Best/minimum population	*Open ocean*	*Large marine ecosystems*	*Inland waters*
True's beaked whale.	*Mesoplodon mirus*	Western North Atlantic[16].	NA	7,092 (0.54)/ 4,632[17].	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
Family Delphinidae (dolphins)							
Atlantic spotted dolphin.	*Stenella frontalis*	Western North Atlantic[16].	NA	44,715 (0.43)/ 31,610.	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico.	NA	Unknown	NA	Gulf of Mexico, Caribbean Sea.	NA.
		Puerto Rico and U.S. Virgin Islands.	Strategic	Unknown	NA	Caribbean Sea	NA.
Atlantic white-sided dolphin.	*Lagenorhynchus acutus*.	Western North Atlantic.	NA	48,819 (0.61)/ 30,403.	Gulf Stream, Labrador Current.	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
Clymene dolphin	*Stenella clymene*	Western North Atlantic[16].	NA	Unknown	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	129 (1.0)/64	NA	Gulf of Mexico, Caribbean Sea.	NA.
Common bottlenose dolphin.	*Tursiops truncatus*	Western North Atlantic Offshore[19].	NA	77,532 (0.40)/ 56,053.	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf.	NA.
		Western North Atlantic Northern Migratory Coastal[20].	Strategic, depleted.	6,639 (0.41)/ 4,759.	NA	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	Long Island Sound, Sandy Hook Bay, Lower Chesapeake Bay, James River, Elizabeth River.
		Western North Atlantic Southern Migratory Coastal[20].	Strategic, depleted.	3,751 (0.06)/ 2,353.	NA	Southeast U.S. Continental Shelf.	Lower Chesapeake Bay, James River, Elizabeth River, Beaufort Inlet, Cape Fear River, Kings Bay, St. Johns River.
		Western North Atlantic South Carolina/Georgia Coastal[20].	Strategic, depleted.	6,027 (0.34)/ 4,569.	NA	Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.
		Northern North Carolina Estuarine System[20].	Strategic	823 (0.06)/782	NA	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	Beaufort Inlet, Cape Fear River.
		Southern North Carolina Estuarine System[20].	Strategic	Unknown	NA	Southeast U.S. Continental Shelf.	Beaufort Inlet, Cape Fear River.
		Northern South Carolina Estuarine System[20].	Strategic	Unknown	NA	Southeast U.S. Continental Shelf.	NA.
		Charleston Estuarine System[20].	Strategic	Unknown	NA	Southeast U.S. Continental Shelf.	NA.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	Scientific name[1]	Stock[2]	ESA/MMPA Status[3]	Stock Abundance[4]	Occurrence in AFTT study area[5]		
				Best/minimum population	Open ocean	Large marine ecosystems	Inland waters
		Northern Georgia/Southern South Carolina Estuarine System[20].	Strategic	Unknown	NA	Southeast U.S. Continental Shelf.	NA.
		Central Georgia Estuarine System[20].	Strategic	192 (0.04)/185	NA	Southeast U.S. Continental Shelf.	NA.
		Southern Georgia Estuarine System[20].	Strategic	194 (0.05)/185	NA	Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.
		Western North Atlantic Northern Florida Coastal[20].	Strategic, depleted.	877 (0.49)/595	NA	Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.
		Jacksonville Estuarine System[20].	Strategic	Unknown	NA	Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.
		Western North Atlantic Central Florida Coastal[20].	Strategic, depleted.	1,218 (0.35)/913	NA	Southeast U.S. Continental Shelf.	Port Canaveral.
		Indian River Lagoon Estuarine System[20].	Strategic	Unknown	NA	Southeast U.S. Continental Shelf.	Port Canaveral.
		Biscayne Bay[16]	Strategic	Unknown	NA	Southeast U.S. Continental Shelf.	NA.
		Florida Bay[16]	NA	Unknown	NA	Gulf of Mexico	NA.
		Northern Gulf of Mexico Continental Shelf[20].	NA	51,192 (0.10)/46,926.	NA	Gulf of Mexico	NA.
		Gulf of Mexico Eastern Coastal[20].	NA	12,388 (0.13)/11,110.	NA	Gulf of Mexico	NA.
		Gulf of Mexico Northern Coastal[20].	NA	7,185 (0.21)/6,044.	NA	Gulf of Mexico	St. Andrew Bay, Pascagoula River.
		Gulf of Mexico Western Coastal[20].	NA	20,161 (0.17)/17,491.	NA	Gulf of Mexico	Corpus Christi Bay, Galveston Bay.
		Northern Gulf of Mexico Oceanic[20].	NA	5,806 (0.39)/4,230.	NA	Gulf of Mexico	NA.
		Laguna Madre[20]	Strategic	80 (1.57)/Unknown.	NA	Gulf of Mexico	NA.
		Nueces Bay/Corpus Christi Bay[20].	Strategic	58 (0.61)/Unknown.	NA	Gulf of Mexico	NA.
		Copano Bay/Aransas Bay/San Antonio Bay/Redfish Bay/Espiritu Santo Bay[20].	Strategic	55 (0.82)/Unknown.	NA	Gulf of Mexico	NA.
		Matagorda Bay/Tres Palacios Bay/Lavaca Bay[20].	Strategic	61 (0.45)/Unknown.	NA	Gulf of Mexico	NA.
		West Bay[20]	NA	32 (0.015)/Unknown.	NA	Gulf of Mexico	NA.
		Galveston Bay/East Bay/Trinity Bay[20].	Strategic	152 (0.43)/Unknown.	NA	Gulf of Mexico	NA.
		Sabine Lake[20]	Strategic	0	NA	Gulf of Mexico	NA.
		Calcasieu Lake[20]	Strategic	0	NA	Gulf of Mexico	NA.
		Vermilion Bay/West Cote Blanche Bay/Atchafalaya Bay[20].	Strategic	0	NA	Gulf of Mexico	NA.
		Terrebonne Bay/Timbalier Bay[20].	NA	3,870 (0.15)/3,426.	NA	Gulf of Mexico	NA.
		Barataria Bay Estuarine System[20].	Strategic	2,306 (0.09)/2,138.	NA	Gulf of Mexico	NA.
		Mississippi River Delta[20].	Strategic	332 (0.93)/170	NA	Gulf of Mexico	NA.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	*Scientific name*[1]	*Stock*[2]	*ESA/MMPA Status*[3]	*Stock Abundance*[4]	*Occurrence in AFTT study area*[5]		
				Best/minimum population	*Open ocean*	*Large marine ecosystems*	*Inland waters*
		Mississippi Sound, Lake Borgne, Bay Boudreau[20].	Strategic	3,046 (0.06)/2,896.	NA	Gulf of Mexico	NA.
		Mobile Bay/Bonsecour Bay[20].	Strategic	122 (0.34)/Unknown.	NA	Gulf of Mexico	NA.
		Perdido Bay[20]	Strategic	0	NA	Gulf of Mexico	NA.
		Pensacola Bay/East Bay[20].	Strategic	33 (0.80)/Unknown.	NA	Gulf of Mexico	NA.
		Choctawhatchee Bay[20].	Strategic	179 (0.04)/Unknown.	NA	Gulf of Mexico	NA.
		St. Andrew Bay[20]	Strategic	124 (0.57)/Unknown.	NA	Gulf of Mexico	NA.
		St. Joseph Bay[20]	Strategic	152 (0.08)/Unknown.	NA	Gulf of Mexico	NA.
		St. Vincent Sound/Apalachicola Bay/St. George Sound[20].	Strategic	439 (0.14)/Unknown.	NA	Gulf of Mexico	NA.
		Apalachee Bay[20]	Strategic	491 (0.39)/Unknown.	NA	Gulf of Mexico	NA.
		Waccasassa Bay/Withlacoochee Bay/Crystal Bay[20].	Strategic	Unknown	NA	Gulf of Mexico	NA.
		St. Joseph Sound/Clearwater Harbor[20].	Strategic	Unknown	NA	Gulf of Mexico	NA.
		Tampa Bay[20]	Strategic	Unknown	NA	Gulf of Mexico	NA.
		Sarasota Bay/Little Sarasota Bay[20].	NA	158 (0.27)/126	NA	Gulf of Mexico	NA.
		Pine Island Sound/Charlotte Harbor/Gasparilla Sound/Lemon Bay[20].	Strategic	826 (0.09)/Unknown.	NA	Gulf of Mexico	NA.
		Caloosahatchee River[20].	Strategic	0	NA	Gulf of Mexico	NA.
		Estero Bay[20]	Strategic	Unknown	NA	Gulf of Mexico	NA.
		Chokoloskee Bay/Ten Thousand Islands/Gullivan Bay[20].	Strategic	Unknown	NA	Gulf of Mexico	NA.
		Whitewater Bay[20]	Strategic	Unknown	NA	Gulf of Mexico	NA.
		Florida Keys (Bahia Honda to Key West)[20].	Strategic	Unknown	NA	Gulf of Mexico	NA.
		Puerto Rico and U.S. Virgin Islands.	Strategic	Unknown	NA	Caribbean Sea	NA.
False killer whale	*Pseudorca crassidens.*	Western North Atlantic[22].	Strategic	442 (1.06)/212	NA	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	Unknown	NA	Gulf of Mexico, Caribbean Sea.	NA.
Fraser's dolphin	*Lagenodelphis hosei.*	Western North Atlantic[23].	NA	Unknown	Gulf Stream	Northeast U.S. Continental Shelf, Southeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	Unknown	NA	Gulf of Mexico, Caribbean Sea.	NA.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	Scientific name[1]	Stock[2]	ESA/MMPA Status[3]	Stock Abundance[4]	Occurrence in AFTT study area[5]		
				Best/minimum population	Open ocean	Large marine ecosystems	Inland waters
Killer Whale	*Orcinus orca*	Western North Atlantic[22].	NA	Unknown	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast United States Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	28 (1.02)/14	NA	Gulf of Mexico, Caribbean Sea.	NA.
Long-finned pilot whale.	*Globicephala melas*	Western North Atlantic.	NA	5,636 (0.63)/3,464.	Gulf Stream	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
Melon-headed Whale.	*Peponocephala electra*.	Western North Atlantic[23].	NA	Unknown	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	2,235 (0.75)/1,274.	NA	Gulf of Mexico, Caribbean Sea.	NA.
Pantropical spotted-dolphin.	*Stenella attenuate*	Western North Atlantic[16].	NA	3,333 (0.91)/1,733.	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[22].	NA	50,880 (0.27)/40,699.	NA	Gulf of Mexico, Caribbean Sea.	NA.
Pygmy Killer Whales.	*Feresa attenuata*	Western North Atlantic[16].	NA	Unknown	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	152 (1.02)/75	NA	Gulf of Mexico, Caribbean Sea.	NA.
Risso's dolphin	*Grampus griseus*	Western North Atlantic.	NA	18,250 (0.46)/12,619.	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast United States Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		Northern Gulf of Mexico.	NA	2,442 (0.57)/1,563.	NA	Gulf of Mexico, Caribbean Sea.	NA.
Rough-toothed dolphin.	*Steno bredanensis*	Western North Atlantic[16].	NA	136 (1.00)/67	Gulf Stream, North Atlantic Gyre.	Caribbean Sea Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico.	NA	624 (0.99)/311	NA	Gulf of Mexico, Caribbean Sea.	NA.
Short-finned pilot whale.	*Globicephala macrorhynchus*.	Western North Atlantic.	NA	28,924 (0.24)/23,637.	NA	Northeast Continental Shelf, Southeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[22].	NA	2,415 (0.66)/1,456.	NA	Gulf of Mexico, Caribbean Sea.	NA.
		Puerto Rico and U.S. Virgin Islands.	Strategic	Unknown	NA	Caribbean Sea	NA.
Spinner dolphin	*Stenella longirostris*	Western North Atlantic[16].	NA	Unknown	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	NA.
		Northern Gulf of Mexico[16].	NA	11,441 (0.83)/6,221.	NA	Gulf of Mexico, Caribbean Sea.	NA.
		Puerto Rico and U.S. Virgin Islands.	Strategic	Unknown	NA	Caribbean Sea	NA.
Striped dolphin	*Stenella coeruleoalba*.	Western North Atlantic[16].	NA	54,807 (0.30)/42,804.	Gulf Stream	Northeast U.S. Continental Shelf, Scotian Shelf.	NA.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	*Scientific name*[1]	*Stock*[2]	*ESA/MMPA Status*[3]	*Stock Abundance*[4]	*Occurrence in AFTT study area*[5]		
				Best/minimum population	*Open ocean*	*Large marine ecosystems*	*Inland waters*
		Northern Gulf of Mexico[16].	NA	1,849 (0.77)/ 1,041.	NA	Gulf of Mexico, Caribbean Sea.	NA.
Short-beaked common dolphin.	*Delphinus delphis* ..	Western North Atlantic.	NA	70,184 (0.28)/ 55,690.	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
White-beaked dolphin.	*Lagenorhynchus, albirostris.*	Western North Atlantic[23].	NA	2,003 (0.94)/ 1,023.	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
Family Phocoenidae (porpoises)							
Harbor porpoise	*Phocoena phocoena.*	Gulf of Maine/Bay of Fundy.	NA	79,883 (0.32)/ 61,415.	NA	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebec River.
		Gulf of St. Lawrence[24].	NA	Unknown[24]	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		Newfoundland[25]	NA	Unknown[25]	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
		Greenland[26]	NA	Unknown[26]	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, West Greenland Shelf.	NA.
Order Carnivora							
Suborder Pinnipedia							
Family Phocidae (true seals):							
Gray seal	*Halichoerus grypus*	Western North Atlantic.	NA	27,131 (0.19)/ 23,158.	NA	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebeck River.

TABLE 9—MARINE MAMMALS POTENTIALLY PRESENT IN THE AFTT STUDY AREA—Continued

Common name	Scientific name[1]	Stock[2]	ESA/MMPA Status[3]	Stock Abundance[4]	Occurrence in AFTT study area[5]		
				Best/minimum population	Open ocean	Large marine ecosystems	Inland waters
Harbor seal	*Phoca vitulina*	Western North Atlantic.	NA	75,834 (0.15)/ 66,884.	NA	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	Chesapeake Bay, Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebeck River.
Harp seal	*Pagophilus groenlandicus.*	Western North Atlantic.	NA	Unknown	NA	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	NA.
Hooded seal	*Cystophora cristata*	Western North Atlantic.	NA	Unknown	NA	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, West Greenland Shelf.	Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebec River.

Notes: CV coefficient of variation; ESA: Endangered Species Act; MMPA: Marine Mammal Protection Act; NA: not applicable.

[1] Taxonomy follows (Committee on Taxonomy, 2016).

[2] Stock designations for the U.S. EEZ and abundance estimates are from Atlantic and Gulf of Mexico SARs prepared by NMFS *(Hayes et al.,* 2019) and the final 2018 SARs, unless specifically noted.

[3] Populations or stocks defined by the MMPA as ''strategic'' for one of the following reasons: (1) the level of direct human-caused mortality exceeds the potential biological removal level; (2) based on the best available scientific information, numbers are declining and species are likely to be listed as threatened species under the ESA within the foreseeable future; (3) species are listed as threatened or endangered under the ESA; (4) species are designated as depleted under the MMPA.

[4] Stock abundance, CV, and minimum population are numbers provided by the Stock Assessment Reports *(SARs; Hayes et al.,* 2019). The stock abundance is an estimate of the number of animals within the stock. The CV is a statistical metric used as an indicator of the uncertainty in the abundance estimate. The minimum population estimate is either a direct count (*e.g.,* pinnipeds on land) or the lower 20th percentile of a statistical abundance estimate.

[5] Occurrence in the AFTT Study Area includes open ocean areas—Labrador Current, North Atlantic Gyre, Gulf Stream, and coastal/shelf waters of seven large marine ecosystems—West Greenland Shelf, Newfoundland-Labrador Shelf, Scotian Shelf, and Northeast U.S. Continental Shelf, Southeast U.S. Continental Shelf, Caribbean Sea, Gulf of Mexico, and inland waters of Kennebec River, Piscataqua River, Thames River, Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Sandy Hook Bay, Lower Chesapeake Bay, James River, Elizabeth River, Beaufort Inlet, Cape Fear River, Kings Bay, St. Johns River, Port Canaveral, St. Andrew Bay, Pascagoula River, Sabine Lake, Corpus Christi Bay, and Galveston Bay.

[6] The bowhead whale population off the West Coast of Greenland is not managed by NMFS and, therefore, does not have an associated Stock Assessment Report. Abundance and 95 percent highest density interval were presented in (Frasier *et al.,* 2015).

[7] The West Greenland stock of minke whales is not managed by NMFS and, therefore, does not have an associated Stock Assessment Report. Abundance and 95 percent confidence interval were presented in (Heide-Jørgensen *et al.,* 2010).

[8] The Labrador Sea stock of sei whales is not managed by NMFS and, therefore, does not have an associated Stock Assessment Report. Information was obtained in (Prieto *et al.,* 2014).

[9] The West Greenland stock of fin whales is not managed by NMFS and, therefore, does not have an associated Stock Assessment Report. Abundance and 95 percent confidence interval were presented in (Heide-Jørgensen *et al.,* 2010).

[10] The Gulf of St. Lawrence stock of fin whales is not managed by NMFS and, therefore, does not have an associated Stock Assessment Report. Abundance and 95 percent confidence interval were presented in (Ramp *et al.,* 2014).

[11] Photo identification catalogue count of 440 recognizable blue whale individuals from the Gulf of St. Lawrence is considered a minimum population estimate for the western North Atlantic stock (Waring *et al.,* 2010).

[12] Estimates include both the pygmy and dwarf sperm whales in the western North Atlantic (Waring *et al.,* 2014) and the northern Gulf of Mexico (Waring *et al.,* 2013).

[13] Beluga whales in the Atlantic are not managed by NMFS and have no associated Stock Assessment Report. Abundance and 95 percent confidence interval for the Eastern High Arctic/Baffin Bay stock were presented in (Innes e*t al.,* 2002).

[14] Beluga whales in the Atlantic are not managed by NMFS and have no associated Stock Assessment Report. Abundance and 95 percent confidence interval for the West Greenland stock were presented in (Heide-Jørgensen *et al.,* 2009).

[15] NA = Not applicable. Narwhals in the Atlantic are not managed by NMFS and have no associated Stock Assessment Report.

[16] Estimates for these western North Atlantic stocks are from Waring *et al.* (2014) and the northern Gulf of Mexico stock are from (Waring *et al.,* 2013) as applicable.

[17] Estimate includes undifferentiated *Mesoplodon* species.

[18] Estimate includes Gervais' and Blainville's beaked whales.

[19] Estimate may include sightings of the coastal form.

[20] Estimates for these Gulf of Mexico stocks are from SARs.

[21] These Bryde's whales span the mid- and southern Atlantic and have not been designated as a stock (NSD) under the MMPA and therefore have no associated Stock Assessment Report.

[22] Estimates for these stocks are from Waring *et al.,* (2015).

[23] Estimates for these western North Atlantic stocks are from (Waring *et al.,* 2007).

[24] Harbor porpoise in the Gulf of St. Lawrence are not managed by NMFS and have no associated Stock Assessment Report.

[25] Harbor porpoise in Newfoundland are not managed by NMFS and have no associated Stock Assessment Report.

[26] Harbor porpoise in Greenland are not managed by NMFS and have no associated Stock Assessment Report.

Unusual Mortality Events (UMEs)

An UME is defined under section 410(6) of the MMPA as a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response. The six active UMEs with ongoing investigations in the AFTT Study Area that inform our analysis are discussed below. The impacts to Barataria Bay bottlenose dolphins from the closed Northern Gulf of Mexico UME (discussed in the 2018 AFTT proposed rule) associated with the Deep Water Horizon oil spill in the Gulf of Mexico are thought to be persistent and continue to inform population analyses. The other more recent UMEs closed several years ago, and little is known about how the effects of those events might be appropriately applied to an impact assessment several years later.

North Atlantic Right Whale (NARW) UME

NOAA declared an UME for NARWs from January 1, 2017, to the present. The current total number of mortalities included in the event is approximately 30 whales, including potentially 21 NARW carcasses (1 carcass from 2019 is currently unconfirmed) from Canada in 2017 and 2019 and nine carcasses in the United States (5 in 2017; 3 in 2018; 1 in 2019). In 2017, 17 right whale mortalities were documented, in 2018, three right whale mortalities were documented, and in the summer and fall of 2019 (as of October 24, 2019) an additional 10 right whale mortalities have been documented (9 confirmed, 1 unconfirmed). Of the 12 NARW carcasses found in Canadian waters in 2017, six were necropsied and died as a direct result of human activities (either confirmed, probable, or suspect), from either rope entanglements (2) or vessel strikes (4) (Daoust *et al.,* 2017). Of the eight carcasses found in U.S. waters in 2017–2018, the cause of death was determined in six whales, with deaths attributable to either rope entanglement (5) or vessel strikes (1) (Sharp *et al.,* 2019). Eight carcasses were not able to be examined. Of the 10 whales documented in 2019, 8 carcasses were able to be examined at some level. Of the examined whales, three had evidence of vessel strikes and one had evidence of entanglement, the results from the remaining four whales are pending. Daoust *et al.* (2018) also concluded there were no oil and gas seismic surveys authorized in the months prior to or during the period over which these mortalities occurred, as well as no blasting or major marine development projects. Navy was consulted as to sonar use and they confirmed none was used in the vicinity of any of the strandings.

As part of the UME investigation process for NARW, NOAA assembled an independent team of scientists (Investigative Team) that coordinates with the Working Group on Marine Mammal Unusual Mortality Events to review the data collected, sample future whales that strand, and determine the next steps for the investigation. For more information on this UME, please refer to *https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2019-north-atlantic-right-whale-unusual-mortality-event#causes-of-the-north-atlantic-right-whale-ume.*

While data are not yet available to statistically estimate the population's trend beyond 2015, three lines of evidence indicate the population is still in decline. First, calving rates in 2016, 2017, and 2018 were low. Only five new calves were documented in 2017 (Pettis *et al.,* 2017a), well below the number needed to compensate for expected mortalities (Pace *et al.,* 2017), and no new calves were reported for 2018. Long-term photographic identification data indicate new calves rarely go undetected, so these years likely represent a continuation of the low calving rates that began in 2012 (Kraus *et al.,* 2007; Pace *et al.,* 2017). So far in 2019, seven calves have been documented. Second, the abundance estimate for 2016 is 451 individuals, down approximately 1.5 percent from 458 in 2015. Third, since January, 2017, approximately 30 NARWs have died in what has been declared an UME as discussed above (Meyer-Gutbrod *et al.,* 2018; NMFS, 2017).

Humpback Whale UME Along the Atlantic Coast

NOAA declared an UME for humpback whales from January 1, 2016, to the present, along the Atlantic coast from Maine through Florida. As of October 24, 2019, 107 humpback strandings have occurred (26, 34, 25, and 22 whales in 2016, 2017, 2018 and 2019 respectively). As of April 2019, partial or full necropsy examinations have been conducted on 43 cases, or approximately half of the 92 strandings (at that time). Of the 43 whales examined, approximately 20 had evidence of blunt force trauma or pre-mortem propeller wounds indicative of vessel strike and approximately 6 had evidence of entanglements. NOAA, in coordination with our stranding network partners, continues to investigate the recent mortalities and environmental conditions, and conduct population monitoring to better understand the recent humpback whale mortalities. At this time, vessel parameters (including size) are not known for each vessel-whale collision that led to the death of a whale. Therefore, NOAA considers all sizes of vessels to be a potential risk for whale species in highly trafficked areas. The Navy has investigated potential strikes and confirmed that it had none. Please refer to *https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2019-humpback-whale-unusual-mortality-event-along-atlantic-coast* for more information on this UME.

Minke Whale UME Along the Atlantic Coast

NOAA declared an UME for minke whales from January 1, 2017, to the present, along the Atlantic coast from Maine through Florida. As of October 24, 2019, 75 strandings have occurred (27, 30, and 18 whales in 2017, 2018 and 2019, respectively). As of April 1, 2019, full or partial necropsy examinations have been conducted on 33 whales. Preliminary findings on several of the whales have shown evidence of human interactions, primarily fisheries interactions, or infectious disease. These findings are not consistent across all of the whales examined, and final diagnostic results are still pending for many of the cases. Please refer to *https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2019-minke-whale-unusual-mortality-event-along-atlantic-coast* for more information on this UME.

Northeast Pinniped UME Along the Atlantic Coast

NOAA declared an UME on August 30, 2018, due to increased numbers of harbor seal and gray seal strandings along the U.S. coasts of Maine, New Hampshire, and Massachusetts during July and August of 2018. Strandings remained elevated in these three states and expanded south to Virginia primarily in late 2018 to early 2019 with additional cases on-going throughout 2019. In December 2018 and early 2019, harp and hooded seals began stranding as these seals migrated from Canada into U.S. waters and have been included in the investigation. From July 1, 2018, to October 24, 2019, 2,964 seals have stranded with approximately 95 percent of the seals stranding in Maine, New Hampshire, and Massachusetts. Full or partial necropsy examinations have been conducted on many of the seals and samples have been collected for testing. Based on testing conducted so far, the main pathogen found in the seals is phocine distemper virus, with

most positive cases stranded in 2018 and early 2019. Active phocine distemper virus infections have only been detected in harbor and gray seals to date. Please refer to *https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/2018-2019-pinniped-unusual-mortality-event-along* for more information on this UME.

Southwest Florida Bottlenose Dolphin UME Along the Gulf of Mexico

NOAA declared an UME in the summer of 2018 due to elevated bottlenose dolphin mortalities occurring along the Southwest coast of Florida including Collier, Lee, Charlotte, Sarasota, Manatee, Hillsborough, and Pinellas counties. From July 1, 2018, to October 24, 2019, 193 dolphins have been confirmed stranded in this event. Stranding network partners have conducted full or partial necropsy examinations on several dolphins, with positive results for the red tide toxin (brevetoxin) indicating this UME is primarily related to the severe bloom of a red tide that occurred in the area from November, 2017 through February, 2019. Please refer to *https://www.fisheries.noaa.gov/southeast/marine-life-distress/2018-2019-bottlenose-dolphin-unusual-mortality-event-southwest* for more information on this UME.

Bottlenose Dolphin UME Along the Northern Gulf of Mexico

NMFS declared an UME in the spring of 2019 due to elevated bottlenose dolphin strandings occurring in the Northern Gulf of Mexico including Louisiana, Mississippi, Alabama, and the panhandle of Florida (Alabama border through Franklin County). From February 1, 2019 to October 24, 2019, 320 dolphins have stranded, which is approximately three times higher than the average. Testing is underway of tissue samples for morbillivirus, harmful algal bloom toxins and other common causes of stranding. Please refer to *https://www.fisheries.noaa.gov/national/marine-life-distress/2019-bottlenose-dolphin-unusual-mortality-event-along-northern-gulf* for more information on this UME.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

We provided a full discussion of the potential effects of the specified activities on marine mammals and their habitat in our 2018 AFTT proposed rule and 2018 AFTT final rule. In the *Potential Effects of Specified Activities on Marine Mammals and Their Habitat* sections of the 2018 AFTT proposed and final rules, NMFS provided a description of the ways marine mammals may be affected by the same activities that the Navy will be conducting during the seven-year period analyzed in this rule in the form of serious injury or mortality, physical trauma, sensory impairment (permanent and temporary threshold shifts and acoustic masking), physiological responses (particularly stress responses), behavioral disturbance, or habitat effects. Therefore, we do not repeat the information here, all of which remains current and applicable, but refer the reader to those rules and the 2018 AFTT FEIS/OEIS (Chapter 3, Section 3.7 *Marine Mammals*) which NMFS participated in the development of via our cooperating agency status and adopted to meet our NEPA requirements.

NMFS has reviewed new relevant information from the scientific literature since publication of the 2018 AFTT final rule. Summaries of new scientific literature since publication of the 2018 AFTT final rule are presented below.

Southall *et al.* (2019a) evaluated Southall *et al.* (2007) and used updated scientific information to propose revised noise exposure criteria to predict onset of auditory effects in marine mammals (*i.e.,* PTS and TTS onset). Southall *et al.* (2019a) note that the quantitative processes described and the resulting exposure criteria (*i.e.,* thresholds and auditory weighting functions) are largely identical to those in Finneran (2016) and NOAA (2016 and 2018). However they differ in that the Southall *et al.* (2019a) exposure criteria are more broadly applicable as they include all marine mammal species (rather than those only under NMFS jurisdiction) for all noise exposures (both in air and underwater for amphibious species), and that while the hearing group compositions are identical they renamed the hearing groups.

In continued investigations of pinniped hearing, Kastelein *et al.* (2019a) exposed two female captive harbor seals to 6.5 kHz continuous, sinusoidal tones for 60 minutes (cumulative sound exposure levels (SELs) of 159–195 dB re: 1 μPa^2s), then measured TTS using behavioral (psychoacoustic) methods at the center frequency of the fatiguing sound (6.5 kHz) and 0.5 and 1 octave above that frequency (9.2 and 13 kHz). Susceptibility to TTS was similar in both individuals tested. At cumulative SELs below 179 dB re: 1 μPa^2s, maximum TTS was induced at the center frequency (6.5 kHz), and at cumulative SELs above 179 dB re: 1 μPa^2s, maximum TTS was induced at 0.5 octave above the center frequency (9.2 kHz). The highest TTSs were produced in the one-half octave band above the exposure frequency. Both seals recovered within 1–2 hours for up to 6 dB of TTS. One seal showed 19 dB of TTS after a dB re: 1 μPa^2s exposure and recovered within 24 hours. Overall, this study combined with previous work showed that for harbor seals, recovery times are consistent for similar-magnitude TTS, regardless of the type of fatiguing sound exposure (impulsive, continuous noise band, or sinusoidal wave), and that susceptibility to TTS in the fatiguing frequency range tested (2.5–6.5 kHz) varies little with hearing frequency. The two harbor seals in this study (and Kastelein *et al.,* 2012) had similar susceptibility to TTS as the seal in Kastak *et al.* (2005). The authors note that more fatiguing sound frequencies need to be tested in harbor seals to produce equal TTS curves, for generating weighting functions that can be used to develop exposure criteria for broadband sounds in the marine environment (Houser *et al.,* 2017). To determine the distances at which Helicopter Long Range Active Sonar (HELRAS) signals (~1.3–1.4 kHz) can be detected, Kastelein *et al.* (2019b) measured hearing thresholds using behavioral (psychoacoustic) techniques to simulated HELRAS signals in two captive harbor seals. Both seals showed similar thresholds (51 dB re: 1 µPa rms, approximately 4 dB lower than the detection thresholds for the same individuals in Kastelein *et al.,* 2009) to previously obtained data for stimuli having the same center frequencies, which suggests that the harmonics present within HELRAS sources do not impact hearing threshold and that a tonal audiogram can be used to estimate the audibility of more complex narrow-band tonal signals in harbor seals.

Recent studies on the behavioral responses of cetaceans to sonar examine and continue to demonstrate the importance of not only sound source parameters, but exposure context (*e.g.,* behavioral state, presence of other animals and social relationships, prey abundance, distance to source, presence of vessels, environmental parameters, *etc.*) in determining or predicting a behavioral response.

- Kastelein *et al.* (2018) examined the role of sound pressure level (SPL) and duty cycle on the behavior of two captive harbor porpoises when exposed to simulated Navy mid-frequency sonar (53C, 3.5 to 4.1 kHz). Neither harbor porpoise responded to the low duty cycle (2.7 percent) at any of the five SPLs presented, even at the maximum received SPL (143 dB re: 1 µPa). At the

higher duty cycle (96 percent), one porpoise responded by increasing his respiration rate at a received SPL of greater than or equal to 119 dB re: 1 µPa, and moved away from the transducer at a received SPL of 143 dB re: 1 µPa. Kastelein *et al.* (2018) observed that at the same received SPL and duty cycle, harbor porpoises respond less to 53C sonar sounds than 1–2 kHz, 6–7 kHz, and 25 kHz sonar signals observed in previous studies, but noted that when examining behavioral responses it is important to take into account the spectrum and temporal structure of the signal, the duty cycle, and the psychological interpretation by the animal.

• To investigate the effect of signal to noise ratio (SNR) on behavioral responses, Kastelein *et al.* (2019c) observed respiration rates (an indicator of behavioral response) of two captive harbor porpoises when exposed to simulated 30-minute playbacks of Navy mid-frequency sonar (53C, 3.5 to 4.1 kHz, 96 percent duty cycle), in noise simulating sea state 6 conditions. No behavioral responses were observed when the porpoises were exposed to sonar signals at an SPL of 117 dB re: 1 µPa (SNR equal to 49 dB re: 1 Hz). Both porpoises responded when exposed to sonar signals at an SPL of 122 dB re: 1 µPa (SNR equal to 54 dB re: 1 Hz), however in quiet conditions one porpoise responded at similar levels (Kastelein *et al.* 2018), suggesting the behavioral responses of harbor porpoises to sonar signals are not affected in sea state 6 ambient noise conditions.

• Wensveen *et al.* (2019) examined the role of sound source (simulated sonar pulses) distance and received level in northern bottlenose whales in an environment without frequent sonar activity using multi-scaled controlled exposure experiments. They observed behavioral avoidance of the sound source over a wide range of distances (0.8–28 km) and estimated avoidance thresholds ranging from received SPLs of 117–126 dB re: 1 µPa. The behavioral response characteristics and avoidance thresholds were comparable to those previously observed in beaked whale studies; however, they did not observe an effect of distance on behavioral response and found that onset and intensity of behavioral response were better predicted by received SPL.

• Joyce *et al.* (2019) presented movement and dive behavior data from seven Blainville's beaked whales (*Mesoplodon densirostris*) that were satellite tagged prior to naval sonar exercises using mid-frequency active sonar (MFAS, 3–8kHz) at the Atlantic Undersea Test and Evaluation Center (AUTEC) in the Bahamas. Five of the seven tagged were displaced 28–68 km after the onset of sonar exposure and returned to the AUTEC range 2–4 days after exercises ended. Three of the individuals for which modeled received SPLs were available during this movement showed declining received SPLs from initial maxima of 145–172 dB re: 1 µPa to maxima of 70–150 dB re: 1 µPa after displacements. Tagged individuals exhibited a continuation of deep diving activity consistent with foraging during MFAS exposure periods, but data also suggested that time spent on deep dives during initial exposure periods was reduced. These findings provide additional data for ongoing Population Consequences of Acoustic Disturbance assessments of disturbance as authors note that previous studies have suggested foraging dives may be lost in response to MFAS exposure, which could cause a decrease in energy intake and have potential effects on vital parameters. The data presented by Joyce *et al.* (2019) support the initial potential loss of foraging time, however they also suggest that Blainville's beaked whales may have the ability to partially compensate for this loss (assuming they have ample recovery times between dives) by increasing time spent at foraging depths following displacement.

• When conducting controlled exposure experiments on blue whales Southall *et al.* (2019b) observed that after exposure to simulated and operational mid-frequency active sonar, more than 50 percent of blue whales in deep-diving states responded to the sonar, while no behavioral response was observed in shallow-feeding blue whales. The behavioral responses they observed were generally brief, of low to moderate severity, and highly dependent on exposure context (behavioral state, source-to-whale horizontal range, and prey availability). Blue whale response did not follow a simple exposure-response model based on received sound exposure level.

• In a review of the previously published data (included in the 2018 AFTT EIS/OEIS analysis) on the potential impacts of sonar on beaked whales, Bernaldo de Quirós *et al.* (2019) suggested that the effect of mid-frequency active sonar on beaked whales varies among individuals or populations, and that predisposing conditions such as previous exposure to sonar and individual health risk factors may contribute to individual outcomes (such as decompression sickness).

Having considered this information, we have determined that there is no new information that substantively affects our analysis of potential impacts on marine mammals and their habitat that appeared in the 2018 AFTT final rule, all of which remains applicable and valid for our assessment of the effects of the Navy's activities during the seven-year period of this rule.

Estimated Take of Marine Mammals

This section indicates the number of takes that NMFS is authorizing, which are based on the amount of take that NMFS anticipates could occur or is likely to occur, depending on the type of take and the methods used to estimate it, as described below. NMFS coordinated closely with the Navy in the development of their incidental take application, and agrees that the methods the Navy has put forth described herein and in the 2018 AFTT proposed and final rules to estimate take (including the model, thresholds, and density estimates), and the resulting numbers are based on the best available science and appropriate for authorization. The number and type of incidental takes that could occur or are likely to occur annually remain identical to those authorized in the 2018 AFTT regulations.

Takes are predominantly in the form of harassment, but a small number of serious injuries or mortalities are also authorized. For military readiness activities, the MMPA defines ''harassment'' as (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered (Level B harassment).

Authorized takes will primarily be in the form of Level B harassment, as use of the acoustic and explosive sources (*i.e.,* sonar, air guns, pile driving, explosives) is more likely to result in behavioral disruption (rising to the level of a take as described above) or temporary threshold shift (TTS) for marine mammals than other forms of take. There is also the potential for Level A harassment, however, in the form of auditory injury and/or tissue damage (the latter from explosives only) to result from exposure to the sound sources utilized in training and testing activities. Lastly, a limited number of serious injuries or mortalities could occur for four species of mid-frequency

cetaceans during ship shock trials and no more than four serious injuries or mortalities total (over the seven-year period) of mysticetes (except for blue whales, Bryde's whales, and North Atlantic right whales) and North Atlantic sperm whales could occur through vessel collisions. Although we analyze the impacts of these potential serious injuries or mortalities that are authorized, the required mitigation and monitoring measures are expected to minimize the likelihood that ship strike or these high-level explosive exposures (and the associated serious injury or mortality) actually occur.

Generally speaking, for acoustic impacts we estimate the amount and type of harassment by considering: (1) Acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be taken by Level B harassment (in this case, as defined in the military readiness definition of Level B harassment included above) or incur some degree of temporary or permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day or event; (3) the density or occurrence of marine mammals within these ensonified areas; and (4) and the number of days of activities or events.

Acoustic Thresholds

Using the best available science, NMFS, in coordination with the Navy, has established acoustic thresholds that identify the most appropriate received level of underwater sound above which marine mammals exposed to these sound sources could be reasonably expected to experience a disruption in behavior patterns to a point where they are abandoned or significantly altered, or to incur TTS (equated to Level B harassment) or permanent threshold shift (PTS) of some degree (equated to Level A harassment). Thresholds have also been developed to identify the pressure levels above which animals may incur non-auditory injury from exposure to pressure waves from explosive detonation.

Despite the quickly evolving science, there are still challenges in quantifying expected behavioral responses that qualify as Level B harassment, especially where the goal is to use one or two predictable indicators *(e.g.,* received level and distance) to predict responses that are also driven by additional factors that cannot be easily incorporated into the thresholds (*e.g.,* context). So, while the new behavioral Level B harassment thresholds have been refined here to better consider the best available science (*e.g.,* incorporating both received level and distance), they also still, accordingly, have some built-in conservative factors to address the challenge noted. For example, while duration of observed responses in the data are now considered in the thresholds, some of the responses that are informing take thresholds are of a very short duration, such that it is possible some of these responses might not always rise to the level of disrupting behavior patterns to a point where they are abandoned or significantly altered. We describe the application of this Level B harassment threshold as identifying the maximum number of instances in which marine mammals could be reasonably expected to experience a disruption in behavior patterns to a point where they are abandoned or significantly altered. In summary, we believe these behavioral Level B harassment thresholds are the most appropriate method for predicting behavioral Level B harassment given the best available science and the associated uncertainty.

We described these acoustic thresholds, none of which have changed, in detail in the *Acoustic Thresholds* section and Tables 13 through 22 of the 2018 AFTT final rule; please see the 2018 AFTT final rule for detailed information.

Navy's Acoustic Effects Model

The Navy proposed no changes to the Acoustic Effects Model as described in the 2018 AFTT final rule and there is no new information that would affect the applicability or validity of the Model. Please see the 2018 AFTT final rule and Appendix E of the 2018 AFTT FEIS/OEIS for detailed information.

Range to Effects

The Navy proposed no changes from the 2018 AFTT final rule to the type and nature of the specified activities to be conducted during the seven-year period analyzed in this final rule, including equipment and sources used and exercises conducted. There is also no new information that would affect the applicability or validity of the ranges to effects previously analyzed for these activities. Therefore, the ranges to effects in this final rule are identical to those described and analyzed in the 2018 AFTT final rule, including received sound levels that may cause onset of significant behavioral response and TTS and PTS in hearing for each source type or explosives that may cause non-auditory injury. Please see the *Range to Effects* section and Tables 23 through 38 of the 2018 AFTT final rule for detailed information.

Marine Mammal Density

The Navy proposed no changes to the methods used to estimate marine mammal density described in the 2018 AFTT final rule and there is no new information that would affect the applicability or validity of these methods. Please see the 2018 AFTT final rule for detailed information.

Take Requests

As in the 2018 AFTT final rule, in its 2019 application, the Navy determined that the three stressors below could result in the incidental taking of marine mammals. NMFS has reviewed the Navy's data and analysis and determined that it is complete and accurate, and NMFS agrees that the following stressors have the potential to result in takes of marine mammals from the Navy's planned activities:

- Acoustics (sonar and other transducers; air guns; pile driving/extraction);
- Explosives (explosive shock wave and sound, assumed to encompass the risk due to fragmentation); and
- Vessel strike.

NMFS reviewed and agrees with the Navy's conclusion that acoustic and explosive sources have the potential to result in incidental takes of marine mammals by harassment, serious injury, or mortality. NMFS carefully reviewed the Navy's analysis and conducted its own analysis of vessel strikes, determining that the likelihood of any particular species of large whale being struck is quite low. Nonetheless, NMFS agrees that vessel strikes have the potential to result in incidental take from serious injury or mortality for certain species of large whales and the Navy specifically requested coverage for these species. Therefore, the likelihood of vessel strikes, and later the effects of the incidental take that is being authorized, has been fully analyzed and is described below.

Regarding the quantification of expected takes from acoustic and explosive sources (by Level A and Level B harassment, as well as mortality resulting from exposure to explosives), the number of takes are based directly on the level of activities (days, hours, counts, *etc.,* of different activities and events) in a given year. In the 2018 AFTT final rule, take estimates across the five-years were based on the Navy conducting three years of a representative level of activity and two years of maximum level of activity. Consistent with the pattern set forth in the 2017 application, the 2018 AFTT FEIS/OEIS, and the 2018 AFTT final rule, the Navy included one additional

representative year and one additional maximum year to determine the predicted take numbers in this rule. Specifically, as in the 2018 AFTT final rule, here the Navy uses the maximum annual level to calculate annual takes (which would remain identical to what was determined in the 2018 AFTT final rule), and the sum of all years (four representative and three maximum) to calculate the seven-year totals for this rule. The Navy will not conduct any additional ship shock activities, and therefore both the total number and annual number of ship shock takes estimated and authorized for the seven-year period is the same as the number requested in the five-year period under the 2018 AFTT final rule.

The quantitative analysis process used for the 2018 AFTT FEIS/OEIS and the 2017 and 2019 Navy applications to estimate potential exposures to marine mammals resulting from acoustic and explosive stressors is detailed in the technical report titled ''Quantifying Acoustic Impacts on Marine Mammals and Sea Turtles: Methods and Analytical Approach for Phase III Training and Testing'' (U.S. Department of the Navy, 2018). The Navy Acoustic Effects Model estimates acoustic and explosive effects without taking mitigation into account; therefore, the model overestimates predicted impacts on marine mammals within mitigation zones. To account for mitigation for marine species in the take estimates, the Navy conducts a quantitative assessment of mitigation. The Navy conservatively quantifies the manner in which procedural mitigation is expected to reduce model-estimated PTS to TTS for exposures to sonar and other transducers, and reduces model-estimated mortality to injury for exposures to explosives. For a complete explanation of the process for assessing the effects of mitigation, see the 2017 Navy application and the 2018 AFTT final rule. The extent to which the mitigation areas reduce impacts on the affected species and stocks is addressed separately in the *Analysis and Negligible Impact Determination* sections of this rule and the 2018 AFTT final rule.

No changes have been made to the quantitative analysis process to estimate potential exposures to marine mammals resulting from acoustic and explosive stressors and calculate take estimates. In addition, there is no new information that would call into question the validity of the Navy's quantitative analysis process. Please see the documents described in the paragraph above, the 2018 AFTT proposed rule, and the 2018 AFTT final rule for detailed descriptions of these analyses. In summary, we believe the Navy's methods, including the method for incorporating mitigation and avoidance, are the most appropriate methods for predicting PTS, TTS, and behavioral disruption. But even with the consideration of mitigation and avoidance, given some of the more conservative components of the methodology (*e.g.,* the thresholds do not consider ear recovery between pulses), we would describe the application of these methods as identifying the maximum number of instances in which marine mammals would be reasonably expected to be taken through PTS, TTS, or behavioral disruption.

Summary of Authorized Take From Training and Testing Activities

Based on the methods discussed in the previous sections and the Navy's model and quantitative assessment of mitigation, the Navy provided its take estimate and request for authorization of takes incidental to the use of acoustic and explosive sources for training and testing activities both annually (based on the maximum number of activities that could occur per 12-month period) and over the seven-year period covered by the 2019 Navy application. Annual takes (based on the maximum number of activities that could occur per 12-month period) are identical to those presented in Tables 39 through 41 in the *Take Requests* section of the 2018 AFTT final rule. The 2019 Navy application also includes the Navy's take estimate and request for vessel strikes due to vessel movement in the AFTT Study Area and individual small and large ship shock trials over a seven-year period. The Navy will not conduct additional ship shock trials, so the estimated and requested takes from ship shock trials are the same as those authorized in the 2018 AFTT final rule. NMFS has reviewed the Navy's data, methodology, and analysis and determined that it is complete and accurate. NMFS agrees that the estimates for incidental takes by harassment from all sources as well as the incidental takes by serious injury or mortality from explosives requested for authorization are reasonably expected to occur. NMFS also agrees that the takes by serious injury or mortality as a result of vessel strikes could occur. The total amount of estimated incidental take from acoustic and explosive sources over the total seven-year period covered by the 2019 Navy application is less than the annual total multiplied by seven, because although the annual estimates are based on the maximum number of activities per year and therefore the maximum possible estimated takes, the seven-year total take estimates are based on the sum of three maximum years and four representative years. Not all activities occur every year. Some activities would occur multiple times within a year, and some activities would occur only a few times over the course of the seven-year period. Using seven years of the maximum number of activities each year would vastly overestimate the amount of incidental take that would occur over the seven-year period where the Navy knows that it will not conduct the maximum number of activities each and every year for the seven years.

Authorized Harassment Take From Training Activities

For training activities, Table 10 summarizes the Navy's take estimate and request and the maximum amount and type of Level A harassment and Level B harassment for the seven-year period covered by the 2019 Navy application that NMFS concurs is reasonably expected to occur by species or stock, and is therefore authorized. For the authorized amount and type of Level A harassment and Level B harassment annually, see Table 39 in the 2018 AFTT final rule. Note that take by Level B harassment includes both behavioral disruption and TTS. Navy Figures 6.4–10 through 6.5–39 in Section 6 of the 2017 Navy application illustrate the comparative amounts of TTS and behavioral disruption for each species annually, noting that if a modeled marine mammal was ''taken'' through exposure to both TTS and behavioral disruption in the model, it was recorded as a TTS.

TABLE 10—SEVEN-YEAR TOTAL SPECIES- AND STOCK-SPECIFIC TAKE AUTHORIZED FROM ACOUSTIC AND EXPLOSIVE SOUND SOURCE EFFECTS FOR ALL TRAINING ACTIVITIES

Species	Stock	7-Year total [1]	
		Level A	Level B
Suborder Mysticeti (baleen whales)			
Family Balaenidae (right whales):			
North Atlantic right whale *	Western North Atlantic	1,644	0
Family Balaenopteridae (roquals):			
Blue whale *	Western North Atlantic	171	0
	(Gulf of St. Lawrence)		
Bryde's whale	Northern Gulf of Mexico *	5	0
	No Stock Designation	1,351	0
Minke whale	Canadian East Coast	15,824	0
Fin whale *	Western North Atlantic	10,225	19
Humpback whale	Gulf of Maine	1,564	4
Sei whale *	Nova Scotia	1,964	0
Suborder Odontoceti (toothed whales)			
Family Physeteridae (sperm whale):			
Sperm whale *	Gulf of Mexico Oceanic	167	0
	North Atlantic	96,479	0
Family Kogiidae (sperm whales):			
Dwarf sperm whale	Gulf of Mexico Oceanic	103	0
	Western North Atlantic	56,060	68
Pygmy sperm whale	Northern Gulf of Mexico	103	0
	Western North Atlantic	56,060	68
Family Ziphiidae (beaked whales):			
Blainville's beaked whale	Northern Gulf of Mexico	244	0
	Western North Atlantic	85,661	0
Cuvier's beaked whale	Northern Gulf of Mexico	242	0
	Western North Atlantic	317,180	0
Gervais' beaked whale	Northern Gulf of Mexico	244	0
	Western North Atlantic	85,661	0
Northern bottlenose whale	Western North Atlantic	7,504	0
Sowersby's beaked whale	Western North Atlantic	85,661	0
True's beaked whale	Western North Atlantic	85,661	0
Family Delphinidae (dolphins):			
Atlantic spotted dolphin	Northern Gulf of Mexico	6,584	0
	Western North Atlantic	804,058	64
Atlantic white-sided dolphin	Western North Atlantic	99,615	3
Bottlenose dolphin	Choctawhatchee Bay	46	0
	Gulf of Mexico Eastern Coastal	166	0
	Gulf of Mexico Northern Coastal	1,524	0
	Gulf of Mexico Western Coastal	16,778	0
	Indian River Lagoon Estuarine System	1,980	0
	Jacksonville Estuarine System	589	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	0	0
	Northern Gulf of Mexico Continental Shelf	10,918	13
	Northern Gulf of Mexico Oceanic	1,356	0
	Northern North Carolina Estuarine System	16,089	0
	Southern North Carolina Estuarine System	0	0
	Western North Atlantic Northern Florida Coastal	6,060	0
	Western North Atlantic Central Florida Coastal	35,861	0
	Western North Atlantic Northern Migratory Coastal	175,237	30
	Western North Atlantic Offshore	2,062,942	269
	Western North Atlantic South Carolina/Georgia Coastal.	28,814	0
	Western North Atlantic Southern Migratory Coastal	81,155	14
Clymene dolphin	Northern Gulf of Mexico	694	0
	Western North Atlantic	463,220	19
False killer whale	Northern Gulf of Mexico	291	0
	Western North Atlantic	54,818	0
Fraser's dolphin	Northern Gulf of Mexico	418	0
	.		
Western North Atlantic	26,155	0	
Killer whale	Northern Gulf of Mexico	5	0
	Western North Atlantic	522	0
Long-finned pilot whale	Western North Atlantic	116,412	0
Melon-headed whale	Northern Gulf of Mexico	493	0
Western North Atlantic	246,178	4	
Pantropical spotted dolphin	Northern Gulf of Mexico	3,959	0

TABLE 10—SEVEN-YEAR TOTAL SPECIES- AND STOCK-SPECIFIC TAKE AUTHORIZED FROM ACOUSTIC AND EXPLOSIVE SOUND SOURCE EFFECTS FOR ALL TRAINING ACTIVITIES—Continued

Species	Stock	7-Year total [1]	
		Level A	Level B
	Western North Atlantic	964,072	16
Pygmy killer whale	Northern Gulf of Mexico	118	0
	Western North Atlantic	43,009	0
Risso's dolphin	Northern Gulf of Mexico	276	0
	Western North Atlantic	140,368	0
Rough-toothed dolphin	Northern Gulf of Mexico	606	0
	Western North Atlantic	129,594	0
Short-beaked common dolphin	Western North Atlantic	1,467,625	87
Short-finned pilot whale	Northern Gulf of Mexico	251	0
	Western North Atlantic	210,736	0
Spinner dolphin	Northern Gulf of Mexico	1,593	0
	Western North Atlantic	487,644	9
Striped dolphin	Northern Gulf of Mexico	471	0
	Western North Atlantic	631,680	22
White-beaked dolphin	Western North Atlantic	269	0
Family Phocoenidae (porpoises):			
Harbor porpoise	Gulf of Maine/Bay of Fundy	206,071	1,121
Suborder Pinnipedia			
Family Phocidae (true seals):			
Gray seal	Western North Atlantic	10,038	0
Harbor seal	Western North Atlantic	16,277	0
Harp seal	Western North Atlantic	59,063	6
Hooded seal	Western North Atlantic	882	0

[1] The estimated amount and type of Level A harassment and Level B harassment annually are identical to those presented in Table 39 in the 2018 AFTT final rule.
* ESA-listed species or stocks within the AFTT Study Area.
† NSD: No stock designated.

Authorized Harassment Take From Testing Activities

For testing activities (excluding ship shock trials), Table 11 summarizes the Navy's take estimate and request and the maximum amount and type of Level A harassment and Level B harassment for the seven-year period covered by the 2019 Navy application that NMFS concurs is reasonably expected to occur by species or stock, and is therefore authorized. For the authorized amount and type of Level A harassment and Level B harassment annually, see Table 40 in the 2018 AFTT final rule. Note that take by Level B harassment includes both behavioral disruption and TTS. Navy Figures 6.4–10 through 6.5–39 in Section 6 of the 2017 Navy application illustrate the comparative amounts of TTS and behavioral disruption for each species annually, noting that if a modeled marine mammal was ''taken'' through exposure to both TTS and behavioral disruption in the model, it was recorded as a TTS.

TABLE 11—SEVEN-YEAR TOTAL SPECIES AND STOCK-SPECIFIC TAKE AUTHORIZED FROM ACOUSTIC AND EXPLOSIVE SOUND SOURCE EFFECTS FOR ALL TESTING ACTIVITIES

[Excluding Ship Shock Trials]

Species	Stock	7-Year total [1]	
		Level B	Level A
Suborder Mysticeti (baleen whales)			
Family Balaenidae (right whales):			
North Atlantic right whale*	Western North Atlantic	1,528	0
Family Balaenopteridae (roquals):			
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	127	0
Bryde's whale	Northern Gulf of Mexico*	358	0
	No Stock Designation	856	0
Minke whale	Canadian East Coast	11,155	9
Fin whale*	Western North Atlantic	24,808	22
Humpback whale	Gulf of Maine	3,380	0
Sei whale*	Nova Scotia	3,262	0
Suborder Odontoceti (toothed whales)			
Family Physeteridae (sperm whale):			
Sperm whale*	Gulf of Mexico Oceanic	7,315	0

TABLE 11—SEVEN-YEAR TOTAL SPECIES AND STOCK-SPECIFIC TAKE AUTHORIZED FROM ACOUSTIC AND EXPLOSIVE SOUND SOURCE EFFECTS FOR ALL TESTING ACTIVITIES—Continued

[Excluding Ship Shock Trials]

Species	Stock	7-Year total [1]	
		Level B	Level A
	North Atlantic	71,820	0
Family Kogiidae (sperm whales):			
Dwarf sperm whale	Gulf of Mexico Oceanic	4,787	38
	Western North Atlantic	29,368	91
Pygmy sperm whale	Northern Gulf of Mexico	4,787	38
	Western North Atlantic	29,368	91
Family Ziphiidae (beaked whales):			
Blainville's beaked whale	Northern Gulf of Mexico	9,368	0
	Western North Atlantic	68,738	0
Cuvier's beaked whale	Northern Gulf of Mexico	9,757	0
	Western North Atlantic	252,367	0
Gervais' beaked whale	Northern Gulf of Mexico	9,368	0
	Western North Atlantic	68,738	0
Northern bottlenose whale	Western North Atlantic	6,231	0
Sowersby's beaked whale	Western North Atlantic	68,903	0
True's beaked whale	Western North Atlantic	68,903	0
Family Delphinidae (dolphins):			
Atlantic spotted dolphin	Northern Gulf of Mexico	473,262	18
	Western North Atlantic	708,931	72
Atlantic white-sided dolphin	Western North Atlantic	210,578	8
Bottlenose dolphin	Choctawhatchee Bay	6,297	0
	Gulf of Mexico Eastern Coastal	0	0
	Gulf of Mexico Northern Coastal	108,154	7
	Gulf of Mexico Western Coastal	25,200	0
	Indian River Lagoon Estuarine System	21	0
	Jacksonville Estuarine System	20	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	5	0
	Northern Gulf of Mexico Continental Shelf	841,076	56
	Northern Gulf of Mexico Oceanic	95,044	8
	Northern North Carolina Estuarine System	746	0
	Southern North Carolina Estuarine System	0	0
	Western North Atlantic Northern Florida Coastal	2,263	0
	Western North Atlantic Central Florida Coastal	15,409	0
	Western North Atlantic Northern Migratory Coastal	79,042	20
	Western North Atlantic Offshore	794,581	161
	Western North Atlantic South Carolina/Georgia Coastal.	11,232	0
	Western North Atlantic Southern Migratory Coastal	29,176	0
Clymene dolphin	Northern Gulf of Mexico	27,841	0
	Western North Atlantic	234,001	12
False killer whale	Northern Gulf of Mexico	12,788	0
	Western North Atlantic	24,580	0
Fraser's dolphin	Northern Gulf of Mexico	7,452	0
	Western North Atlantic	8,270	0
Killer whale	Northern Gulf of Mexico	212	0
	Western North Atlantic	264	0
Long-finned pilot whale	Western North Atlantic	131,095	11
Melon-headed whale	Northern Gulf of Mexico	20,324	0
	Western North Atlantic	109,192	6
Pantropical spotted dolphin	Northern Gulf of Mexico	169,678	6
	Western North Atlantic	495,207	26
Pygmy killer whale	Northern Gulf of Mexico	4,771	0
	Western North Atlantic	18,609	0
Risso's dolphin	Northern Gulf of Mexico	10,929	0
	Western North Atlantic	132,141	9
Rough-toothed dolphin	Northern Gulf of Mexico	26,033	0
	Western North Atlantic	58,008	0
Short-beaked common dolphin	Western North Atlantic	2,351,361	101
Short-finned pilot whale	Northern Gulf of Mexico	12,041	0
	Western North Atlantic	111,326	10
Spinner dolphin	Northern Gulf of Mexico	51,039	0
	Western North Atlantic	218,786	10
Striped dolphin	Northern Gulf of Mexico	16,344	0
	Western North Atlantic	652,197	32
White-beaked dolphin	Western North Atlantic	300	0
Family Phocoenidae (porpoises):			
Harbor porpoise	Gulf of Maine/Bay of Fundy	811,201	1,405

TABLE 11—SEVEN-YEAR TOTAL SPECIES AND STOCK-SPECIFIC TAKE AUTHORIZED FROM ACOUSTIC AND EXPLOSIVE SOUND SOURCE EFFECTS FOR ALL TESTING ACTIVITIES—Continued

[Excluding Ship Shock Trials]

Species	Stock	7-Year total [1]	
		Level B	Level A
Suborder Pinnipedia			
Family Phocidae (true seals):			
Gray seal	Western North Atlantic	6,130	14
Harbor seal	Western North Atlantic	9,941	23
Harp seal	Western North Atlantic	53,646	17
Hooded seal	Western North Atlantic	5,335	0

[1] The estimated amount and type of Level A harassment and Level B harassment annually are identical to those presented in Table 40 in the 2018 AFTT final rule.

* ESA-listed species or stocks within the AFTT Study Area.

† NSD: No stock designated.

Authorized Take From Ship Shock

For ship shock trials, Table 12 summarizes the Navy's take estimate and request and the maximum amount and type of Level A and Level B harassment and serious injury/mortality for the seven-year period covered by the Navy application that NMFS concurs is reasonably expected to occur by species or stock per small and large ship shock events, and is therefore authorized. For the authorized amount and type of Level A harassment, Level B harassment, and serious injury/mortality annually, see Table 41 in the 2018 AFTT final rule. The Navy will not conduct additional ship shock trials over the additional two years covered by the 2019 Navy application, so the amount and type of authorized takes are the same as those authorized in the 2018 AFTT final rule.

TABLE 12—SEVEN-YEAR TOTAL SPECIES AND STOCK-SPECIFIC TAKE ESTIMATES AUTHORIZED FROM SHIP SHOCK TRIALS

Species/stock	Small ship shock			Large ship shock			7-Year total		
	Level B harassment	Level A harassment	Mortality	Level B harassment	Level A harassment	Mortality	Level B harassment	Level A harassment	Mortality
Suborder Mysticeti (baleen whales)									
Family Balaenidae (right whales):									
North Atlantic right whale *	1	0	0	2	0	0	5	0	0
Western North Atlantic	1	0	0	2	0	0	5	0	0
Family Balaenopteridae (roquals):									
Blue whale *	0	0	0	1	0	0	1	0	0
Western North Atlantic (Gulf of St. Lawrence)	0	0	0	1	0	0	1	0	0
Bryde's whale	3	0	0	6	1	0	15	1	0
Northern Gulf of Mexico *	0	0	0	3	1	0	3	1	0
NSD †	3	0	0	6	0	0	15	0	0
Minke whale	19	1	0	39	3	0	96	6	0
Canadian East Coast	19	1	0	39	3	0	96	6	0
Fin whale *	131	3	0	234	27	0	627	36	0
Western North Atlantic	131	3	0	234	27	0	627	36	0
Humpback whale	8	0	0	20	2	0	44	2	0
Gulf of Maine	8	0	0	20	2	0	44	2	0
Sei whale *	12	1	0	27	4	0	63	7	0
Nova Scotia	12	1	0	27	4	0	63	7	0
Suborder Odontoceti (toothed whales)									
Family Physeteridae (sperm whale):									
Sperm whale *	1	1	0	3	4	0	6	7	0
Gulf of Mexico Oceanic	0	0	0	2	0	0	2	0	0
North Atlantic	1	1	0	3	4	0	6	7	0
Family Kogiidae (sperm whales):									
Dwarf sperm whale	46	28	0	91	70	0	229	154	0
Gulf of Mexico Oceanic	0	0	0	51	64	0	51	64	0
Western North Atlantic	46	28	0	91	70	0	229	154	0
Pygmy sperm whale	46	28	0	91	70	0	229	154	0
Northern Gulf of Mexico	0	0	0	51	64	0	51	64	0
Western North Atlantic	46	28	0	91	70	0	229	154	0

TABLE 12—SEVEN-YEAR TOTAL SPECIES AND STOCK-SPECIFIC TAKE ESTIMATES AUTHORIZED FROM SHIP SHOCK TRIALS—Continued

Species/stock	Small ship shock			Large ship shock			7-Year total		
	Level B harassment	Level A harassment	Mortality	Level B harassment	Level A harassment	Mortality	Level B harassment	Level A harassment	Mortality
Family Ziphiidae (beaked whales):									
Blainville's beaked whale ...	1	0	0	1	1	0	4	1	0
Northern Gulf of Mexico	0	0	0	1	0	0	1	0	0
Western North Atlantic	1	0	0	1	1	0	4	1	0
Cuvier's beaked whale	2	1	0	2	3	0	8	6	0
Northern Gulf of Mexico	0	0	0	1	0	0	1	0	0
Western North Atlantic	2	1	0	2	3	0	8	6	0
Gervais' beaked whale	1	0	0	1	1	0	4	1	0
Northern Gulf of Mexico	0	0	0	1	0	0	1	0	0
Western North Atlantic	1	0	0	1	1	0	4	1	0
Northern bottlenose whale	0	0	0	0	0	0	0	0	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Sowerby's beaked whale ...	1	0	0	1	1	0	4	1	0
Western North Atlantic	1	0	0	1	1	0	4	1	0
True's beaked whale	1	0	0	1	1	0	4	1	0
Western North Atlantic	1	0	0	1	1	0	4	1	0
Family Delphinidae (dolphins):									
Atlantic spotted dolphin	6	4	0	8	12	0	26	24	0
Northern Gulf of Mexico	0	0	0	2	1	0	2	1	0
Western North Atlantic	6	4	0	8	12	0	26	24	0
Atlantic white-sided dolphin	1	1	0	3	9	1	6	12	1
Western North Atlantic	1	1	0	3	9	1	6	12	1
Bottlenose dolphin	13	10	0	16	24	0	55	54	0
Choctawhatchee Bay ..	0	0	0	0	0	0	0	0	0
Gulf of Mexico Eastern Coastal	0	0	0	0	0	0	0	0	0
Gulf of Mexico Northern Coastal	0	0	0	1	1	0	1	1	0
Gulf of Mexico Western Coastal	0	0	0	0	0	0	0	0	0
Indian River Lagoon Estuarine System	0	0	0	0	0	0	0	0	0
Jacksonville Estuarine System	0	0	0	0	0	0	0	0	0
Mississippi Sound, Lake Borgne, Bay Boudreau	0	0	0	0	0	0	0	0	0
Northern Gulf of Mexico Continental Shelf	0	0	0	10	6	0	10	6	0
Northern Gulf of Mexico Oceanic	0	0	0	10	9	0	10	9	0
Northern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0
Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0
Western North Atlantic Northern Florida Coastal	0	0	0	0	0	0	0	0	0
Western North Atlantic Central Florida Coastal	0	0	0	0	0	0	0	0	0
Western North Atlantic Northern Migratory Coastal	0	0	0	0	0	0	0	0	0
Western North Atlantic Offshore	13	10	0	16	24	0	55	54	0
Western North Atlantic South Carolina/ Georgia Coastal	0	0	0	0	0	0	0	0	0
Western North Atlantic Southern Migratory Coastal	0	0	0	0	0	0	0	0	0
Clymene dolphin	2	5	0	9	8	0	15	23	0
Northern Gulf of Mexico	0	0	0	8	6	0	8	6	0
Western North Atlantic	2	5	0	9	8	0	15	23	0
False killer whale	0	0	0	2	1	0	2	1	0
Northern Gulf of Mexico	0	0	0	2	1	0	2	1	0
Western North Atlantic	0	0	0	2	0	0	2	0	0

TABLE 12—SEVEN-YEAR TOTAL SPECIES AND STOCK-SPECIFIC TAKE ESTIMATES AUTHORIZED FROM SHIP SHOCK TRIALS—Continued

Species/stock	Small ship shock			Large ship shock			7-Year total		
	Level B harassment	Level A harassment	Mortality	Level B harassment	Level A harassment	Mortality	Level B harassment	Level A harassment	Mortality
Fraser's dolphin	0	0	0	2	3	0	2	3	0
Northern Gulf of Mexico	0	0	0	2	3	0	2	3	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Killer whale	0	0	0	0	0	0	0	0	0
Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Long-finned pilot whale	2	2	0	5	6	0	11	12	0
Western North Atlantic	2	2	0	5	6	0	11	12	0
Melon-headed whale	1	1	0	5	4	0	8	7	0
Northern Gulf of Mexico	0	0	0	4	4	0	4	4	0
Western North Atlantic	1	1	0	5	1	0	8	4	0
Pantropical spotted dolphin	2	3	0	25	20	1	31	29	1
Northern Gulf of Mexico	0	0	0	25	20	1	25	20	1
Western North Atlantic	2	3	0	7	3	0	13	12	0
Pygmy killer whale	0	0	0	1	1	0	1	1	0
Northern Gulf of Mexico	0	0	0	1	1	0	1	1	0
Western North Atlantic	0	0	0	1	0	0	1	0	0
Risso's dolphin	1	1	0	3	1	0	6	4	0
Northern Gulf of Mexico	0	0	0	2	1	0	2	1	0
Western North Atlantic	1	1	0	3	1	0	6	4	0
Rough-toothed dolphin	1	0	0	3	2	0	6	2	0
Northern Gulf of Mexico	0	0	0	2	2	0	2	2	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Short-beaked common dolphin	40	51	1	67	107	3	187	260	6
Western North Atlantic	40	51	1	67	107	3	187	260	6
Short-finned pilot whale	2	2	0	4	5	0	10	11	0
Northern Gulf of Mexico	0	0	0	2	3	0	2	3	0
Western North Atlantic	2	2	0	4	5	0	10	11	0
Spinner dolphin	3	1	0	37	45	1	46	48	1
Northern Gulf of Mexico	0	0	0	37	45	1	37	45	1
Western North Atlantic	3	1	0	7	3	0	16	6	0
Striped dolphin	4	8	0	10	12	0	22	36	0
Northern Gulf of Mexico	0	0	0	4	3	0	4	3	0
Western North Atlantic	4	8	0	10	12	0	22	36	0
White-beaked dolphin	0	0	0	0	0	0	0	0	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Family Phocoenidae (porpoises):									
Harbor porpoisE	43	41	0	120	81	0	249	204	0
Gulf of Maine/Bay of Fundy	43	41	0	120	81	0	249	204	0
Suborder Pinnipedia									
Family Phocidae (true seals):									
Gray seal	0	0	0	0	0	0	0	0	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Harbor seal	0	0	0	0	0	0	0	0	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Harp seal	0	0	0	0	0	0	0	0	0
Western North Atlantic	0	0	0	0	0	0	0	0	0
Hooded seal	0	0	0	0	0	0	0	0	0
Western North Atlantic	0	0	0	0	0	0	0	0	0

Note: The table displays maximum ship shock impacts to marine mammals by species (in bold text), as well as maximum impacts on individual stocks.
* ESA-listed species or stocks within the AFTT Study Area.
† NSD: No stock designated.

Authorized Take From Vessel Strikes

Vessel strikes from commercial, recreational, and military vessels are known to affect large whales and have resulted in serious injury and occasional fatalities to cetaceans (Berman-Kowalewski *et al.,* 2010; Calambokidis, 2012; Douglas *et al.,* 2008; Laggner 2009; Lammers *et al.,* 2003). Records of collisions date back to the early 17th century, and the worldwide number of collisions appears to have increased steadily during recent decades (Laist *et al.,* 2001; Ritter, 2012).

Numerous studies of interactions between surface vessels and marine

mammals have demonstrated that free-ranging marine mammals often, but not always (*e.g.,* McKenna *et al.,* 2015), engage in avoidance behavior when surface vessels move toward them. It is not clear whether these responses are caused by the physical presence of a surface vessel, the underwater noise generated by the vessel, or an interaction between the two (Amaral and Carlson, 2005; Au and Green, 2000; Bain *et al.,* 2006; Bauer 1986; Bejder *et al.,* 1999; Bejder and Lusseau, 2008; Bejder *et al.,* 2009; Bryant *et al.,* 1984; Corkeron, 1995; Erbe, 2002; Félix, 2001; Goodwin and Cotton, 2004; Lemon *et al.,* 2006; Lusseau, 2003; Lusseau, 2006; Magalhaes *et al.,* 2002; Nowacek *et al.,* 2001; Richter *et al.,* 2003; Scheidat *et al.,* 2004; Simmonds, 2005; Watkins, 1986; Williams *et al.,* 2002; Wursig *et al.,* 1998). Several authors suggest that the noise generated during motion is probably an important factor (Blane and Jaakson, 1994; Evans *et al.,* 1992; Evans *et al.,* 1994). Water disturbance may also be a factor. These studies suggest that the behavioral responses of marine mammals to surface vessels are similar to their behavioral responses to predators. Avoidance behavior is expected to be even stronger in the subset of instances that the Navy is conducting training or testing activities using active sonar or explosives.

The marine mammals most vulnerable to vessel strikes are those that spend extended periods of time at the surface in order to restore oxygen levels within their tissues after deep dives (*e.g.,* the sperm whale). In addition, some baleen whales, such as the NARW seem generally unresponsive to vessel sound, making them more susceptible to vessel collisions (Nowacek *et al.,* 2004). These species are primarily large, slower moving whales.

Some researchers have suggested the relative risk of a vessel strike can be assessed as a function of animal density and the magnitude of vessel traffic (*e.g.,* Fonnesbeck *et al.,* 2008; Vanderlaan *et al.,* 2008). Differences among vessel types also influence the probability of a vessel strike. The ability of any ship to detect a marine mammal and avoid a collision depends on a variety of factors, including environmental conditions, ship design, size, speed, and personnel, as well as the behavior of the animal. Vessel speed, size, and mass are all important factors in determining if injury or death of a marine mammal is likely due to a vessel strike. For large vessels, speed and angle of approach can influence the severity of a strike. For example, Vanderlaan and Taggart (2007) found that between vessel speeds of 8.6 and 15 knots, the probability that a vessel strike is lethal increases from 0.21 to 0.79. Large whales also do not have to be at the water's surface to be struck. Silber *et al.* (2010) found when a whale is below the surface (about one to two times the vessel draft), there is likely to be a pronounced propeller suction effect. This suction effect may draw the whale into the hull of the ship, increasing the probability of propeller strikes.

There are some key differences between the operation of military and non-military vessels, which make the likelihood of a military vessel striking a whale lower than some other vessels (*e.g.,* commercial merchant vessels). Key differences include:

- Many military ships have their bridges positioned closer to the bow, offering better visibility ahead of the ship (compared to a commercial merchant vessel).
- There are often aircraft associated with the training or testing activity (which can serve as Lookouts), which can more readily detect cetaceans in the vicinity of a vessel or ahead of a vessel's present course before crew on the vessel would be able to detect them.
- Military ships are generally more maneuverable than commercial merchant vessels, and if cetaceans are spotted in the path of the ship, could be capable of changing course more quickly.
- The crew size on military vessels is generally larger than merchant ships, allowing for stationing more trained Lookouts on the bridge. At all times when vessels are underway, trained Lookouts and bridge navigation teams are used to detect objects on the surface of the water ahead of the ship, including cetaceans. Additional Lookouts, beyond those already stationed on the bridge and on navigation teams, are positioned as Lookouts during some activities.
- When submerged, submarines are generally slow moving (to avoid detection) and therefore marine mammals at depth with a submarine are likely able to avoid collision with the submarine. When a submarine is transiting on the surface, there are Lookouts serving the same function as they do on surface ships.

Vessel strike to marine mammals is not associated with any specific training or testing activity but is rather an extremely limited and sporadic, but possible, accidental result of Navy vessel movement within the AFTT Study Area or while in transit.

There have been three recorded Navy vessel strikes (one in 2011 and two in 2012) of large whales in the AFTT Study Area from 2009 through 2018 (ten years), the period in which the Navy began implementing effective mitigation measures to reduce the likelihood of vessel strikes. Two of the vessel strikes occurred in the Virginia Capes Range Complex and one occurred in the lower Chesapeake Bay. One of the whales in 2012 had features suggesting it was most likely a humpback whale. Note that while the Navy was unable to identify the species of whale, it is unlikely the unidentified whales were NARW as the strikes occurred in areas where, or times of year when, NARW are not known to be present. In order to account for the accidental nature of vessel strikes to large whales in general, and the potential risk from any vessel movement within the AFTT Study Area within the seven-year period, the Navy requested incidental takes based on probabilities derived from a Poisson distribution using ship strike data between 2009 and 2018 in the AFTT Study Area (the time period from when current mitigation measures were instituted until the Navy conducted the analysis for the 2019 Navy application, with no new ship strikes occurring since this analysis), as well as historical at-sea days in the AFTT Study Area from 2009–2018 and estimated potential at-sea days for the period from 2018 to 2025 covered by the requested regulations. This distribution predicted the probabilities of a specific number of strikes (n = 0, 1, 2, *etc.*) over the period from 2018 to 2025. The analysis is described in detail in Chapter 6 of the Navy's 2017 and 2019 applications.

For the same reasons listed above describing why a Navy vessel strike is comparatively unlikely, it is highly unlikely that a Navy vessel would strike a whale, dolphin, porpoise, or pinniped without detecting it and, accordingly, NMFS is confident that the Navy's reported strikes are accurate and appropriate for use in the analysis. Specifically, Navy ships have multiple Lookouts, including on the forward part of the ship that can visually detect a hit animal, in the unlikely event ship personnel do not feel the strike. Unlike the situation for non-Navy ships engaged in commercial activities, NMFS and the Navy have no evidence that the Navy has struck a whale and not detected it. Navy's strict internal procedures and mitigation requirements include reporting of any vessel strikes of marine mammals, and the Navy's discipline, extensive training (not only for detecting marine mammals, but for detecting and reporting any potential navigational obstruction), and strict chain of command give NMFS a high level of confidence that all strikes actually get reported.

The Navy used the three whale strikes since 2009 in their calculations to determine the number of strikes likely to result from their activities (although worldwide strike information, from all Navy activities and other strikes, was used to inform the species that may be struck). The Navy evaluated data beginning in 2009, as that was the start of the Navy's Marine Species Awareness Training and adoption of additional mitigation measures to address ship strike, which will remain in place along with additional mitigation measures during the seven years of this rule.

The updated probability analysis in the 2019 Navy application concluded that there was a 12 percent chance that zero whales would be struck by Navy vessels over the next seven years in the AFTT Study Area, indicating an 88 percent chance that at least one whale would be struck over the next seven years. The analysis also concludes that there is a 10 percent chance of striking four whales over the seven-year period. Based on the revised analysis, the Navy requested coverage for one additional large whale mortality not previously included in the 2018 AFTT final rule bringing the total from three vessel strikes over five years to four vessel strikes over seven years. NMFS agrees that there is some probability that the Navy could strike, and take by serious injury or mortality, up to four large whales incidental to training and testing activities within the AFTT Study Area over the course of the seven years covered by this final rule.

Small whales, delphinids, porpoises, and pinnipeds are not expected to be struck by Navy vessels. In addition to the reasons listed above that make it unlikely that the Navy will hit a large whale (more maneuverable ships, larger crew, *etc.*), the following are additional reasons that vessel strike of dolphins, small whales, porpoises, and pinnipeds is very unlikely. Dating back more than 20 years and for as long as it has kept records, the Navy has no records of individuals of these groups being struck by a vessel as a result of Navy activities and, further, their smaller size and maneuverability make a strike unlikely. Also, NMFS has never received any reports from other authorized activities indicating that these species have been struck by vessels. Worldwide ship strike records show little evidence of strikes of these groups from the shipping sector and larger vessels, and the majority of the Navy's activities involving faster-moving vessels (that could be considered more likely to hit a marine mammal) are located in offshore areas where smaller delphinid, porpoise, and pinniped densities are lower. Based on this information, NMFS concurs with the Navy's assessment and recognizes the potential for incidental take by vessel strike of large whales only (*i.e.,* no dolphins, small whales, porpoises, or pinnipeds) over the course of the seven-year period analyzed here from training and testing activities.

Taking into account the available information regarding how many of any given stock could be struck and therefore should be authorized for take NMFS considered two factors in addition to those considered in the Navy's request: (1) The relative likelihood of hitting one stock versus another based on available strike data from all vessel types as denoted in the SARs and (2) whether the Navy has ever definitively struck an individual from a particular stock and, if so, how many times. To address number (1) above, NMFS compiled information from NMFS' SARs on detected annual rates of large whale serious injury and mortality from vessel collisions (Table 13). The annual rates of large whale serious injury and mortality from vessel collisions from the SARs help inform the relative susceptibility of large whale species to vessel strike in the Atlantic Ocean and the Gulf of Mexico. We summed the annual rates of mortality and serious injury from vessel collisions as reported in the SARs, then divided each species' annual rate by this sum to get the relative likelihood. To estimate the percent likelihood of striking a particular species of large whale, we multiplied the relative likelihood of striking each species by the total probability of striking a whale (*i.e.,* 88 percent, as described by the Navy's probability analysis). We also calculated the percent likelihood of striking a particular species of large whale twice by squaring the value estimated for the probability of striking a particular species of whale once (*i.e.,* to calculate the probability of an event occurring twice, multiply the probability of the first event by the second). We note that these probabilities vary from year to year as the average annual mortality for a given five-year window, as analyzed in the SARS, changes (and we include the annual averages from 2017 and 2018 draft SARs in Table 13 to illustrate); however, over the years and through changing SARs, stocks tend to consistently maintain a relatively higher or relatively lower likelihood of being struck. The analysis indicates that there is a very low percent chance of striking any particular species or stock more than once except for humpback whales, as shown in Table 13. The probabilities calculated as described above are then considered in combination with the information indicating the species that the Navy has definitively hit in the AFTT Study Area since 1995 (since they started tracking consistently). Accordingly, stocks that have no record of ever having been struck by any vessel are considered unlikely to be struck by the Navy in the seven-year period of the rule. Stocks that have never been struck by the Navy, have rarely been struck by other vessels, and have a low percentage likelihood based on the SAR calculation and a low relative abundance are also considered unlikely to be struck by the Navy during the seven-year rule.

TABLE 13—ANNUAL RATES OF MORTALITY AND SERIOUS INJURY (M/SI) FROM VESSEL COLLISIONS COMPILED FROM NMFS 2018 FINAL STOCK ASSESSMENT REPORTS (SARS) AND ESTIMATED PERCENT CHANCE OF STRIKING EACH LARGE WHALE SPECIES IN THE AFTT STUDY AREA OVER A SEVEN-YEAR PERIOD

Species (stock) [1]	Annual rate of M/SI from vessel collision (2017 SARs)	Annual rate of M/SI from vessel collision (2018 SARs)	Percent chance of ONE strike	Percent chance of TWO strikes	Annual authorized take	Take authorized over 7 years
Fin whale (Western North Atlantic)	1.6	1.4	19.83	3.93	0.14	1
Sei whale (Nova Scotia)	0.8	0.8	11.33	1.28	0.14	1
Minke whale (Canadian East Coast)	1.4	1	14.16	2.01	0.14	1
Humpback whale (Gulf of Maine)	1.8	2.6	36.82	13.55	0.29	2
Sperm whale (North Atlantic)	0.2	0.2	2.83	0.08	0.14	[2] 1
Bryde's whale (Northern Gulf of Mexico)	0.2	0.2	2.83	0.08	0	[3] 0
Sperm whale (Gulf of Mexico)	0	0	0	0	0	0

TABLE 13—ANNUAL RATES OF MORTALITY AND SERIOUS INJURY (M/SI) FROM VESSEL COLLISIONS COMPILED FROM NMFS 2018 FINAL STOCK ASSESSMENT REPORTS (SARS) AND ESTIMATED PERCENT CHANCE OF STRIKING EACH LARGE WHALE SPECIES IN THE AFTT STUDY AREA OVER A SEVEN-YEAR PERIOD—Continued

Species (stock) [1]	Annual rate of M/SI from vessel collision (2017 SARs)	Annual rate of M/SI from vessel collision (2018 SARs)	Percent chance of ONE strike	Percent chance of TWO strikes	Annual authorized take	Take authorized over 7 years
Blue whale (Western North Atlantic)	0	0	0	0	0	0

[1] North Atlantic right whales are not included in this analysis as NARWs are not anticipated to be struck due to the additional extensive mitigation the Navy implements to minimize the risk of striking this particular species. In addition, the Navy has not struck this species since prior to 2009 when the Navy's current vessel movement mitigation, reporting, and monitoring requirements have been in place.

[2] The analysis indicates only a very small likelihood (less than 3 percent) that a North Atlantic sperm whale would be struck over the seven years, however, the Navy has struck a sperm whale previously in the Atlantic, which may indicate a higher possibility that it could occur and suggests that authorizing one mortality over the seven years would be appropriate.

[3] Due to their low population abundance within the Study Area and lack of previous vessel strikes by the Navy, along with the Navy's enhanced mitigation measures in the Bryde's Whale Mitigation Area, Bryde's whales are not anticipated to be struck, and therefore have zero mortality/serious injury takes. The annual rate of mortality (0.2) is estimated from 1 Bryde's whale in 2009 (no more recent strikes have been documented).

For the reasons discussed in detail in the 2018 AFTT final rule and discussed further below, due to enhanced mitigation measures, NARWs are not anticipated to be struck by Navy vessels and are anticipated to have zero mortality/serious injury takes over the seven years of the rule. In addition, based on the quantitative method described above, blue whales and Gulf of Mexico sperm whales have a zero percent chance of being struck. After considering this result, along with additional factors discussed below, the Navy found that any vessel strike of these two stocks is highly unlikely. After fully considering all relevant information, NMFS agreed with this conclusion. Finally, the quantitative analysis outlined above indicates only a very small likelihood the Navy would strike a Bryde's whale (3 percent). Due to their low population abundance and lack of previous vessel strikes by the Navy, Bryde's whales are also unlikely to be struck and we have not authorized any mortality/serious injury takes. Alternately, the quantitative analysis discussed above also indicates only a very small likelihood that the Navy would strike a North Atlantic sperm whale over the seven years covered by the 2019 Navy application (less than 3 percent), however, the Navy has struck a sperm whale previously in the Atlantic (2005), which points to a higher possibility that it could occur and suggests that authorizing a single mortality/serious injury would be appropriate. Additional discussion relevant to our determinations for North Atlantic blue whales, Gulf of Mexico sperm whale, NARW, and Bryde's whale is included below.

In addition to the zero probability predicted by the quantitative model, there are no recent confirmed records of vessel collision to blue whales in the U.S. Atlantic waters, although there is one older historical record pointing to a ship strike that likely occurred beyond the U.S. Atlantic Exclusive Economic Zone (EEZ; outside of where most Navy activities occur, so less relevant) and one 1998 record of a dead 20 m (66 ft) male blue whale brought into Rhode Island waters on the bow of a tanker. The cause of death was determined to be ship strike; however, some of the injuries were difficult to explain from the necropsy. As noted previously, the Navy has been conducting Marine Species Awareness Training and implementing additional mitigation measures to protect against vessel strikes since 2009. Therefore, given the absence of any strikes in the recent past since the Navy has implemented its current mitigation measures, the very low abundance of North Atlantic blue whales throughout the AFTT Study Area (Nmin = 440 for the Western North Atlantic stock, Waring *et al.,* 2010), and the very low number of blue whales ever known to be struck in the area by any type of vessel (and none known to be struck by Navy vessels), we believe the likelihood of the Navy hitting a blue whale is discountable.

In addition to the zero probability of hitting a sperm whale in the Gulf of Mexico predicted by the quantitative model, there have been no vessel strikes of sperm whales by any entity since 2009 in the Gulf of Mexico per the SAR (2009–2013) and no Navy strikes of any large whales since 1995 (based on our records, which include Navy's records) in the Gulf of Mexico. Further, the Navy has comparatively fewer steaming days in the Gulf of Mexico and there is a fairly low abundance of sperm whales occurring there. As noted previously, the Navy has been conducting Marine Species Awareness Training and implementing additional mitigation measures to protect against vessel strikes since 2009. Therefore, NMFS believes that the likelihood of the Navy hitting a Gulf of Mexico sperm whale is discountable.

Although the quantitative analysis would indicate that NARWs do have a low probability of being struck one time within the seven-year period when vessel strikes across all activity types (including non-Navy) are considered (annual mortality and serious injury, hereafter abbreviated as M/SI, from vessel strikes is calculated as 0.41 in the 2018 SAR), when the enhanced mitigation measures (discussed below) that the Navy has been implementing and will continue to implement for NARWs are considered in combination with this low probability, a vessel strike is highly unlikely. Therefore, lethal take of NARWs was not requested by the Navy and is not authorized by NMFS. We further note that while there have been two strikes of unidentified whales by the Navy since 2009, it is unlikely they were NARW as the strikes occurred in areas where, or times of year when, NARW are not known to be present.

Regarding the Bryde's whale, due to the fact that the Navy has not struck a Bryde's whale (as no Navy strikes have occurred in the Gulf of Mexico), the very low abundance numbers (Nbest = 33 individuals, Hayes *et al.,* 2019), and the limited Navy ship traffic that overlaps with Bryde's whale habitat, neither the Navy nor NMFS anticipate any vessel-strike takes, and none were requested or authorized. The Navy is now also limiting activities (*i.e.,* 200 hr cap on hull-mounted MFAS) and will not use explosives (except during mine warfare activities) in the Bryde's Whale Mitigation Area. For a complete discussion and analysis of these mitigation areas, see the *Mitigation Measures* section in the 2018 AFTT

final rule along with a summary in the *Mitigation Measures* section of this final rule; see also Chapter 5 (Mitigation) of the 2018 AFTT FEIS/OEIS.

In addition to procedural mitigation, the Navy will continue to implement measures in mitigation areas used by NARW for foraging, calving, and migration. For a complete discussion and analysis of these mitigation areas, see the *Mitigation Measures* section in the 2018 AFTT final rule along with a summary in the *Mitigation Measures* section of this final rule; see also Chapter 5 (Mitigation) of the 2018 AFTT FEIS/OEIS. These measures, which go above and beyond those focused on other species (*e.g.,* funding of and communication with sightings systems, implementation of speed reductions during applicable circumstances in certain areas) have succeeded in the Navy avoiding strike of a NARW during training and testing activities in the past and essentially eliminate the potential for vessel strikes to occur during the seven-year period of this rule. In particular, the mitigation pertaining to vessels, including the continued participation in and sponsoring of the Early Warning System, will help Navy vessels avoid NARW during transits and training and testing activities. The Early Warning System is a comprehensive information exchange network dedicated to reducing the risk of vessel strikes to NARW off the southeast United States from all mariners (*i.e.,* Navy and non-Navy vessels). Navy participants include the Fleet Area Control and Surveillance Facility, Jacksonville; Commander, Naval Submarine Forces, Norfolk, Virginia; and Naval Submarine Support Command. The Navy, U.S. Coast Guard, U.S. Army Corps of Engineers, and NMFS collaboratively sponsor daily aerial surveys from December 1 through March 31 (weather permitting) to observe for NARW from the shoreline out to approximately 30–35 nmi offshore. Aerial surveyors relay sightings information to all mariners transiting within the NARW calving habitat (*e.g.,* commercial vessels, recreational boaters, and Navy ships).

In the Northeast NARW Mitigation Area, before all vessel transits, the Navy conducts a web query or email inquiry of NOAA's NARW Sighting Advisory System to obtain the latest NARW sightings information. Navy vessels currently use and will continue to use the obtained sightings information to reduce potential interactions with NARW during transits and prevent ship strikes. In this mitigation area, vessels will continue to implement speed reductions after they observe a NARW; if they are within 5 nmi of the location of a sighting reported to the NARW Sighting Advisory System within the past week; and when operating at night or during periods of reduced visibility. During transits and normal firing involving non-explosive torpedos activities, the Navy ships will continue to maintain a speed of no more than 10 kn. During submarine target firing, ships would maintain speeds of no more than 18 kn. During vessel target firing, vessel speeds would exceed 18 kn for only brief periods of time (*e.g.,* 10–15 min).

In the Southeast NARW Mitigation Area, before transiting or conducting training or testing activities within the mitigation area, the Navy will continue to initiate communication with the Fleet Area Control and Surveillance Facility, Jacksonville to obtain Early Warning System NARW whale sightings data. The Fleet Area Control and Surveillance Facility, Jacksonville will continue to advise vessels of all reported whale sightings in the vicinity to help vessels and aircraft reduce potential interactions with NARWs and prevent ship strikes. Commander Submarine Force U.S. Atlantic Fleet will coordinate any submarine activities that may require approval from the Fleet Area Control and Surveillance Facility, Jacksonville. Vessels will continue to use the sightings information to reduce potential interactions with NARW during transits and prevent ship strikes. Vessels will also implement speed reductions after they observe a NARW, if they are within 5 nmi of a sighting reported within the past 12 hours (hrs), or when operating in the mitigation area at night or during periods of poor visibility. To the maximum extent practicable, vessels will continue to minimize north-south transits in the mitigation area. Finally, the Navy will continue to broadcast awareness notification messages with NARW Dynamic Management Area information (*e.g.,* location and dates) to applicable Navy vessels operating in the vicinity of the Dynamic Management Area. The information will continue to alert assets to the possible presence of a NARW to maintain safety of navigation and further reduce the potential for a vessel strike. Navy platforms would use the information to assist their visual observation of applicable mitigation zones during training and testing activities and to aid in the implementation of procedural mitigation, including but not limited to, mitigation for vessel movement.

Implementation of these measures significantly reduces the possibility of striking NARWs during the seven-year period of the rule. The probability for any particular ship to strike a marine mammal is primarily a product of the ability of the ship to detect a marine mammal and the ability to effectively act to avoid it. Navy combat ships are inherently among the best at both of these because compared to large commercial vessels, they have trained Lookouts which have received specialized Marine Mammal Observer (MMO) training, and they are the most maneuverable ships, which means that they are more likely to sight a marine mammal and more likely to be able to maneuver to avoid it in the available time—both of which decrease the probability of striking a marine mammal below what it would have been in the absence of those abilities. In the case of the NARW, the extensive communication/detection network described above, which is in use in the areas of highest NARW occurrence and where they may be more susceptible to strike, further increases the likelihood of detecting a NARW and thereby avoiding it, which further reduces the probability of NARW strike. Further, detection of NARW in some areas/times is associated with reduced speed requirements, which may reduce the strike probability further by slightly increasing the time within which an operator has to maneuver away from a whale. Because of these additional mitigation measures combined with the already low probability that a NARW will be struck, it is extremely unlikely the Navy would strike a NARW, and mortality/serious injury of a NARW from vessel strike is neither anticipated nor authorized.

In conclusion, although it is generally unlikely that any whales will be struck in a year, based on the information and analysis above, NMFS anticipates that no more than four whales have the potential to be taken by serious injury or mortality over the seven-year period of the rule. Of those four whales over the seven years, no more than two would be humpback whales (Gulf of Maine stock) and no more than one would come from any of the four following stocks: Fin whale (Western North Atlantic stock), minke (Canadian East Coast stock), sperm whale (North Atlantic stock), and sei whale (Nova Scotia stock). Accordingly in the *Analysis and Negligible Impact Determination* section, NMFS has evaluated under the negligible impact standard the serious injury or mortality of 0.14 whales annually from each of these species or stocks (*i.e.,* 1 take over the 7 years divided by 7 to get the annual number), except for the humpback whale (North Atlantic stock) for which we used 0.29 (*i.e.,* 2 takes over

the 7 years divided by 7 to get the annual number) along with other expected harassment incidental take.

Mitigation Measures

Under section 101(a)(5)(A) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable adverse impact on the species or stock(s) and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock(s) for subsistence uses (''least practicable adverse impact''). NMFS does not have a regulatory definition for least practicable adverse impact. The 2004 NDAA amended the MMPA as it relates to military readiness activities and the incidental take authorization process such that a determination of ''least practicable adverse impact'' shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. For the full discussion of how NMFS interprets least practicable adverse impact, including how it relates to the negligible-impact standard, see the *Mitigation Measures* section in the 2018 AFTT final rule.

Section 101(a)(5)(A)(i)(II) requires NMFS to issue, in conjunction with its authorization, binding—and enforceable—restrictions (in the form of regulations) setting forth how the activity must be conducted, thus ensuring the activity has the ''least practicable adverse impact'' on the affected species or stocks. In situations where mitigation is specifically needed to reach a negligible impact determination, section 101(a)(5)(A)(i)(II) also provides a mechanism for ensuring compliance with the ''negligible impact'' requirement. Finally, we reiterate that the least practicable adverse impact standard also requires consideration of measures for marine mammal habitat, with particular attention to rookeries, mating grounds, and other areas of similar significance, and for subsistence impacts, whereas the negligible impact standard is concerned solely with conclusions about the impact of an activity on annual rates of recruitment and survival.[1] In evaluating what mitigation measures are appropriate, NMFS considers the potential impacts of the Specified Activities, the availability of measures to minimize those potential impacts, and the practicability of implementing those measures, as we describe below.

Implementation of Least Practicable Adverse Impact Standard

Our evaluation of potential mitigation measures includes consideration of two primary factors:

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

(2) The practicability of the measures for applicant implementation. Practicability of implementation may consider such things as cost, impact on activities, and, in the case of a military readiness activity, under section 101(a)(5)(A)(ii) specifically considers personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

While the language of the least practicable adverse impact standard calls for minimizing impacts to affected species or stocks and their habitats, we recognize that the reduction of impacts to those species or stocks accrues through the application of mitigation measures that limit impacts to individual animals. Accordingly, NMFS' analysis focuses on measures that are designed to avoid or minimize impacts on individual marine mammals when those impacts are likely to increase the probability or severity of population-level effects.

While direct evidence of impacts to species or stocks from a specified activity is rarely available, and additional study is still needed to understand how specific disturbance events affect the fitness of individuals of certain species, there have been improvements in understanding the process by which disturbance effects are translated to the population. With recent scientific advancements (both marine mammal energetic research and the development of energetic frameworks), the relative likelihood or degree of impacts on species or stocks may often be inferred given a detailed understanding of the activity, the environment, and the affected species or stocks—and the best available science has been used here. This same information is used in the development of mitigation measures and helps us understand how mitigation measures contribute to lessening effects (or the risk thereof) to species or stocks and their habitat. We also acknowledge that there is always the potential that new information, or a new recommendation that we had not previously considered becomes available in the future and necessitates reevaluation of mitigation measures (which may be addressed through adaptive management) to see if further reductions of population impacts are possible and practicable.

In the evaluation of specific measures, the details of the specified activity will necessarily inform each of the two primary factors discussed above (expected reduction of impacts and practicability), and are carefully considered to determine the types of mitigation that are appropriate under the least practicable adverse impact standard. Analysis of how a potential mitigation measure may reduce adverse impacts on a marine mammal stock or species, consideration of personnel safety, practicality of implementation, and consideration of the impact on effectiveness of military readiness activities are not issues that can be meaningfully evaluated through a yes/no lens. The manner in which, and the degree to which, implementation of a measure is expected to reduce impacts, as well as its practicability in terms of these considerations, can vary widely. For example, a time/area restriction could be of very high value for decreasing population-level impacts (*e.g.,* avoiding disturbance of feeding females in an area of established biological importance) or it could be of lower value (*e.g.,* decreased disturbance in an area of high productivity but of less firmly established biological importance). Regarding practicability, a measure might involve restrictions in an area or time that impede the Navy's ability to certify a strike group (higher impact on mission effectiveness), or it could mean delaying a small in-port training event by 30 minutes to avoid exposure of a marine mammal to injurious levels of sound (lower impact). A responsible evaluation of ''least practicable adverse impact'' considers the factors along these realistic scales. Accordingly, the greater the likelihood that a measure will contribute to reducing the probability or severity of adverse impacts to the species or stocks or their habitat, the greater the weight that measure is given when considered in combination with practicability to determine the appropriateness of the mitigation measure, and vice versa. In

[1] Outside of the military readiness context, mitigation may also be appropriate to ensure compliance with the ''small numbers'' language in MMPA sections 101(a)(5)(A) and (D).

the evaluation of specific measures, the details of the specified activity necessarily inform each of the two primary factors discussed above (expected reduction of impacts and practicability), and are carefully considered to determine the types of mitigation that are appropriate under the least practicable adverse impact standard. For more detail on how we apply these factors, see the discussion in the *Mitigation Measures* section of the 2018 AFTT final rule.

NMFS fully reviewed the Navy's specified activities and the mitigation measures for the 2018 AFTT rulemaking and determined that the mitigation measures would result in the least practicable adverse impact on marine mammals and their habitat. There is no change in either the activities or the mitigation measures for this seven-year rule. See the 2019 Navy application and the 2018 AFTT final rule for detailed information on the Navy's mitigation measures. NMFS worked with the Navy in the development of the Navy's initially proposed measures, which were informed by years of implementation and monitoring. A complete discussion of the Navy's evaluation process used to develop, assess, and select mitigation measures, which was informed by input from NMFS, can be found in Chapter 5 (Mitigation) of the 2018 AFTT FEIS/OEIS. The process described in Chapter 5 (Mitigation) of the 2018 AFTT FEIS/OEIS robustly supported NMFS' independent evaluation of whether the mitigation measures would meet the least practicable adverse impact standard. The Navy has implemented the mitigation measures under the 2018 AFTT regulations and will continue implementation of the mitigation measures identified in this rule for the full seven years to avoid or reduce potential impacts from acoustic, explosive, and physical disturbance and ship strike stressors.

In its 2019 application, the Navy proposed no changes to the mitigation measures in the 2018 AFTT final rule and there is no new information that affects NMFS' assessment of the applicability or effectiveness of those measures over the new seven-year period. See the 2018 AFTT proposed rule and the 2018 AFTT final rule for our full assessment and description of these measures. In summary, the Navy has agreed to procedural mitigation measures that will reduce the probability and/or severity of impacts expected to result from acute exposure to acoustic sources or explosives, ship strike, and impacts to marine mammal habitat. Specifically, the Navy will use a combination of delayed starts, powerdowns, and shutdowns to minimize or avoid serious injury or mortality, minimize the likelihood or severity of PTS or other injury, and reduce instances of TTS or more severe behavioral disruption caused by acoustic sources or explosives. The Navy also will implement multiple time/area restrictions (several of which were added in the 2018 AFTT final rule since the previous AFTT MMPA incidental take rule) that would reduce take of marine mammals in areas or at times where they are known to engage in important behaviors, such as feeding or calving, where the disruption of those behaviors would have a higher probability of resulting in impacts on reproduction or survival of individuals that could lead to population-level impacts. Summaries of the Navy's procedural mitigation measures and mitigation areas for the AFTT Study Area are provided in Tables 14 and 15.

TABLE 14—SUMMARY OF PROCEDURAL MITIGATION

Stressor or activity	Mitigation zones sizes and other requirements
Environmental Awareness and Education	• Afloat Environmental Compliance Training program for applicable personnel.
Active Sonar	Depending on sonar source: • 1,000 yd power down, 500 yd power down, and 200 yd shut down. • 200 yd shut down.
Air Guns	• 150 yd.
Pile Driving	• 100 yd.
Weapons Firing Noise	• 30 degrees on either side of the firing line out to 70 yd.
Explosive Sonobuoys	• 600 yd.
Explosive Torpedoes	• 2,100 yd.
Explosive Medium-Caliber and Large-Caliber Projectiles	• 1,000 yd (large-caliber projectiles). • 600 yd (medium-caliber projectiles during surface-to-surface activities). • 200 yd (medium-caliber projectiles during air-to-surface activities).
Explosive Missiles and Rockets	• 2,000 yd (21–500 lb net explosive weight). • 900 yd (0.6–20 lb net explosive weight).
Explosive Bombs	• 2,500 yd.
Sinking Exercises	• 2.5 nmi.
Explosive Mine Countermeasure and Neutralization Activities	• 2,100 yd (6–650 lb net explosive weight). • 600 yd (0.1–5 lb net explosive weight).
Explosive Mine Neutralization Activities Involving Navy Divers	• 1,000 yd (21–60 lb net explosive weight for positive control charges and charges using time-delay fuses). • 500 yd (0.1–20 lb net explosive weight for positive control charges).
Maritime Security Operations—Anti-Swimmer Grenades	• 200 yd.
Line Charge Testing	• 900 yd.
Ship Shock Trials	• 3.5 nmi.
Vessel Movement	• 500 yd (whales). • 200 yd (other marine mammals). • North Atlantic right whale Dynamic Management Area notification messages.
Towed In-Water Devices	• 250 yd.
Small-, Medium-, and Large-Caliber Non-Explosive Practice Munitions.	• 200 yd.
Non-Explosive Missiles and Rockets	• 900 yd.
Non-Explosive Bombs and Mine Shapes	• 1,000 yd.

Notes: lb: pounds; nmi: nautical miles; yd: yards.

TABLE 15—SUMMARY OF MITIGATION AREAS FOR MARINE MAMMALS

Summary of mitigation area requirements
Northeast North Atlantic Right Whale Mitigation Area
• The Navy must report the total hrs and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports. • The Navy must minimize use of active sonar to the maximum extent practicable and must not use explosives that detonate in the water. • The Navy must conduct non-explosive torpedo testing during daylight hrs in Beaufort sea state 3 or less using three Lookouts (one on a vessel, two in an aircraft during aerial surveys) and an additional Lookout on the submarine when surfaced; during transits, ships must maintain a speed of no more than 10 knots; during firing, ships must maintain a speed of no more than 18 knots except brief periods of time during vessel target firing. • Vessels must obtain the latest North Atlantic right whale sightings data and implement speed reductions after they observe a North Atlantic right whale, if within 5 nmi of a sighting reported within the past week, and when operating at night or during periods of reduced visibility.
Gulf of Maine Planning Awareness Mitigation Area
• The Navy must report the total hrs and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports. • The Navy must not conduct major training exercises and must not conduct >200 hrs of hull-mounted mid-frequency active sonar per year.
Northeast Planning Awareness Mitigation Areas and Mid-Atlantic Planning Awareness Mitigation Areas
• The Navy must avoid conducting major training exercises to the maximum extent practicable. • The Navy must not conduct more than four major training exercises per year.
Southeast North Atlantic Right Whale Mitigation Area (November 15–April 15)
• The Navy must report the total hrs and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports. • The Navy must not use active sonar except as necessary for navigation training, object detection training, and dipping sonar. • The Navy must not expend explosive or non-explosive ordnance. • Vessels must obtain the latest North Atlantic right whale sightings data; must implement speed reductions after they observe a North Atlantic right whale, if within 5 nmi of a sighting reported within the past 12 hrs, and when operating at night or during periods of reduced visibility; and must minimize north-south transits to the maximum extent practicable.
Jacksonville Operating Area (November 15–April 15)
• Navy units conducting training or testing activities in the Jacksonville Operating Area must obtain and use Early Warning System North Atlantic right whale sightings data as they plan specific details of events to minimize potential interactions with North Atlantic right whales to the maximum extent practicable. The Navy must use the reported sightings information to assist visual observations of applicable mitigation zones and to aid in the implementation of procedural mitigation.
Southeast North Atlantic Right Whale Critical Habitat Special Reporting Area (November 15–April 15)
• The Navy must report the total hrs and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports.
Navy Cherry Point Range Complex Nearshore Mitigation Area (March–September)
• The Navy must not conduct explosive mine neutralization activities involving Navy divers in the mitigation area. • To the maximum extent practicable, the Navy must not use explosive sonobuoys, explosive torpedoes, explosive medium-caliber and large-caliber projectiles, explosive missiles and rockets, explosive bombs, explosive mines during mine countermeasure and neutralization activities, and anti-swimmer grenades in the mitigation area.
Bryde's Whale Mitigation Area
• The Navy must report the total hrs and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports. • The Navy must not conduct >200 hrs of hull-mounted mid-frequency active sonar per year and must not use explosives (except during explosive mine warfare activities).
Gulf of Mexico Planning Awareness Mitigation Areas
• The Navy must not conduct any major training exercises under the action.

Notes: min.: minutes; nmi: nautical miles.

Mitigation Conclusions

NMFS has carefully evaluated the Navy's proposed mitigation measures—many of which were developed with NMFS' input during the previous phases of Navy training and testing authorizations and none of which have changed since our evaluation during the 2018 AFTT rulemaking—and considered a broad range of other measures (*i.e.,* the measures considered but eliminated in the 2018 AFTT FEIS/OEIS, which reflect many of the comments that have arisen via NMFS or public input in past years) in the context of ensuring that NMFS prescribes the means of effecting the least practicable adverse impact on the

affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: The manner in which, and the degree to which, the successful implementation of the mitigation measures is expected to reduce the likelihood and/or magnitude of adverse impacts to marine mammal species and stocks and their habitat; the proven or likely efficacy of the measures; and the practicability of the measures for applicant implementation, including consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. There is no new information that affects our analysis from the 2018 AFTT rulemaking, all of which remains applicable and valid for our assessment of the appropriateness of the mitigation measures during the seven-year period of this rule.

Based on our evaluation of the Navy's measures (which are currently being implemented under the 2018 AFTT regulations), as well as other measures considered by the Navy and NMFS, NMFS has determined that the Navy's mitigation measures are appropriate means of effecting the least practicable adverse impacts on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and considering specifically personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. Additionally, as described in more detail below, the 2018 AFTT final rule included an adaptive management provision, which NMFS has extended for the additional two years of this rule, which ensures that mitigation is regularly assessed and provides a mechanism to improve the mitigation, based on the factors above, through modification as appropriate.

Monitoring

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

In its 2019 application, the Navy proposed no changes to the monitoring described in the 2018 AFTT final rule. They would continue implementation of the robust Integrated Comprehensive Monitoring Program and Strategic Planning Process described in the 2018 AFTT final rule. The Navy's monitoring strategy, currently required by the 2018 AFTT regulations and extended for two years under this final rule, is well-designed to work across Navy ranges to help better understand the impacts of the Navy's activities on marine mammals and their habitat by focusing on learning more about marine mammal occurrence in different areas and exposure to Navy stressors, marine mammal responses to different sound sources, and the consequences of those exposures and responses on marine mammal populations. Similarly, the seven-year regulations include identical adaptive management provisions and reporting requirements as the 2018 AFTT regulations. There is no new information to indicate that the monitoring measures put in place under the 2018 AFTT final rule do not remain applicable and appropriate for the seven-year period of this final rule. See the *Monitoring* section of the 2018 AFTT final rule for more details on the monitoring that is required under this rule.

Adaptive Management

The 2018 AFTT regulations governing the take of marine mammals incidental to Navy training and testing activities in the AFTT Study Area contain an adaptive management component. Our understanding of the effects of Navy training and testing activities (*e.g.,* acoustic and explosive stressors) on marine mammals continues to evolve, which makes the inclusion of an adaptive management component both valuable and necessary within the context of seven-year regulations. The 2019 Navy application proposed no changes to the adaptive management component included in the 2018 AFTT final rule.

The reporting requirements associated with this rule are designed to provide NMFS with monitoring data from the previous year to allow NMFS to consider whether any changes to existing mitigation and monitoring requirements are appropriate. The use of adaptive management allows NMFS to consider new information from different sources to determine (with input from the Navy 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 more effectively accomplishing the goals of the mitigation and monitoring and if the measures are practicable. If the modifications to the mitigation, monitoring, or reporting measures are substantial, NMFS will publish a notice of the planned LOA in the **Federal Register** and solicit public comment.

The following are some of the possible sources of applicable data to be considered through the adaptive management process: (1) Results from monitoring and exercises reports, as required by MMPA authorizations; (2) compiled results of Navy funded research and development studies; (3) results from specific stranding investigations; (4) results from general marine mammal and sound research; and (5) 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. The results from monitoring reports and other studies may be viewed at *https://www.navymarinespeciesmonitoring.us/.*

Reporting

In order to issue incidental take authorization for an activity, section 101(a)(5)(A) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring. Reports from individual monitoring events, results of analyses, publications, and periodic progress reports for specific monitoring projects will be posted to the Navy's Marine Species Monitoring web portal: *http://www.navymarinespeciesmonitoring.us.* The 2019 Navy application proposed no changes to the reporting requirements identified in the 2018 AFTT final rule. Reporting requirements under this final rule remain identical to those described in the 2018 AFTT final rule, where there is no new information to indicate that the reporting requirements put in place under the 2018 AFTT final rule do not remain applicable and appropriate for the seven-year period of this final rule. See the *Reporting* section of the 2018 AFTT final rule for more details on the reporting that is required under this rule.

Analysis and Negligible Impact Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be ''taken'' through mortality, serious injury, and Level A or Level B harassment (as presented in Tables 10–13), NMFS considers other factors, such as the likely nature of any responses (*e.g.,* intensity, duration), the context of any responses (*e.g.,* critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.,* as reflected in the regulatory status of the species, population size and growth rate where known, other ongoing sources of human-caused mortality, and ambient noise levels).

In the *Estimated Take of Marine Mammals* sections of this final rule and the 2018 AFTT final rule (where the activities, species and stocks, potential effects, and mitigation measures are the same as for this rule), we identified the subset of potential effects that would be expected to rise to the level of takes both annually and over the seven-year period covered by this rule, and then identified the number of each of those mortality takes that we believe could occur or the maximum number of harassment takes that are reasonably expected to occur based on the methods described. The impact that any given take will have is dependent on many case-specific factors that need to be considered in the negligible impact analysis (*e.g.,* the context of behavioral exposures such as duration or intensity of a disturbance, the health of impacted animals, the status of a species that incurs fitness-level impacts to individuals, *etc.*). For this final rule we evaluated the likely impacts of the enumerated maximum number of harassment takes proposed to be authorized and reasonably expected to occur, in the context of the specific circumstances surrounding these predicted takes. We also assessed M/SI takes that have the potential to occur, as well as considering the traits and statuses of the affected species and stocks. Last, we collectively evaluated this information, as well as other more taxa-specific information and mitigation measure effectiveness, in group-specific assessments that support our negligible impact conclusions for each stock.

The nature and level of the specified activities and the boundaries of the AFTT Study Area, and therefore the training and testing activities (*e.g.,* equipment and sources used, exercises conducted) are the same as those analyzed in the 2018 AFTT final rule. In addition, the mitigation, monitoring, and reporting measures are identical to those described and analyzed in the 2018 AFTT final rule. As described above, there is no new information available since the publication of the 2018 AFTT final rule regarding the impacts of the specified activities on marine mammals, the status and distribution of any of the affected marine mammal species or stocks, or the effectiveness of the mitigation and monitoring measures that would change our analyses.

Harassment

As described in the *Estimated Takes of Marine Mammals* section, the annual number of takes authorized and reasonably expected to occur by Level A harassment and Level B harassment (based on the maximum number of activities per 12-month period) are identical to those presented in Tables 39 through 41 in the *Take Requests* section of the 2018 AFTT final rule. As such the negligible impact analyses and determinations of the effects of the estimated Level A harassment and Level B harassment takes on annual rates of recruitment or survival for each species and stock are identical to that presented in the 2018 AFTT final rule. The only difference is that the annual levels of take and the associated effects on reproduction or survival will occur for the seven-year period of the rule instead of the five-year period of the 2018 AFTT final rule, which will make no difference in effects on annual rates of recruitment or survival. For detailed discussion of the impacts that affected individuals may experience given the specific characteristics of the specified activities and required mitigation (*e.g.,* from behavioral harassment, masking, and temporary or permanent threshold shift), along with the effects of the expected Level A harassment and Level B harassment take on reproduction and survival, see the applicable subsections in the *Analysis and Negligible Impact Determination* section of the 2018 AFTT final rule (83 FR 57211–57217; November 14, 2018).

Serious Injury or Mortality

No additional ship shock trials will occur during the seven-year period of the rule, so the requested and authorized total takes by M/SI due to explosives used during ship shock trials over seven years are the same as those authorized in the existing 2018 AFTT regulations. There is no new information that affects the methodology or results of the ship-shock analysis presented in the 2018 AFTT final rule. But as these same activities would occur over seven years rather than five years, the estimated annual take is calculated as the number of total takes divided by seven. For each of the dolphin species and stocks listed in Table 16 there would be an annual take of 0.14 dolphins (*i.e.,* for those species and stocks where one take could occur divided by seven years to get the annual number of M/SIs) or 0.86 dolphins in the case of short-beaked common dolphin (*i.e.,* where six takes could occur divided by seven years to get the annual number of M/SIs). This is a decrease from the annual take of 0.2 dolphins (for the three species where one lethal take could occur) and annual take of 1.2 short-beaked common dolphins (where six lethal takes could occur) over the five-year period of the 2018 AFTT regulations, as shown in Table 70 in the 2018 AFTT final rule. As this annual number is less than that analyzed and authorized in the 2018 AFTT final rule and no other relevant information about the status, abundance, or effects of mortality on each species and stock has changed, the analysis of the effects of take from ship shock trials mirrors that presented in the 2018 AFTT final rule.

TABLE 16—SUMMARY INFORMATION RELATED TO AFTT SERIOUS INJURY OR MORTALITY FROM EXPLOSIVES (SHIP SHOCK TRIALS), 2018–2025

Species (stock)	Stock abundance (Nbest)*	Annual estimated take by serious injury or mortality (M/SI) [1]	Total annual M/SI *[2]	Fisheries interactions (Y/N); annual rate of M/SI from fisheries interactions *	Potential biological removal (PBR) *[3]	NEFSC authorized take (annual)	Residual PBR-PBR minus annual M/SI and NEFSC authorized take [4]	Stock trend *[5]	UME (Y/N); number and year
Atlantic white-sided dolphin (Western N. Atlantic).	48,819	0.14	30	30	304	0.6	273.4	?	N
Pantropical spotted dolphin (Northern GOMEX).	50,880	0.14	4.4	4.4	407	0	402.6	?	Y; 3 in 2010–2014
Short-beaked common dolphin (Western N. Atlantic).	70,184	0.86	406	406	557	2	149	?	N
Spinner dolphin (Northern GOMEX)	11,441	0.14	0	0	62	0	62	?	Y; 7 in 2010–2014

* Presented in the 2018 SARS.
[1] This column represents the annual take by M/SI during ship shock trials and was calculated by the number of mortalities planned for authorization divided by seven years (the length of the rule and LOAs).
[2] This column represents the total number of incidents of M/SI that could potentially accrue to the specified species or stock. This number comes from the SAR, but deducts the takes accrued from either Navy or NEFSC takes as noted in the SARs to ensure they are not double-counted against PBR. However, for these species, there were no takes from either Navy or NEFSC as noted in the SARs to deduct that would be considered double-counting.
[3] Potential biological removal (PBR) is defined in section 3 of the MMPA. See the *Analysis and Negligible Impact Determination* section of the 2018 AFTT final rule for a description of PBR.
[4] This value represents the calculated PBR less the average annual estimate of ongoing anthropogenic mortalities (*i.e.,* total annual human-caused M/SI, which is presented in the 2018 SARs) and authorized take for NEFSC.
[5] See relevant SARs for more information regarding stock status and trends.

The other facet of the analysis for which there is a quantitative change from the 2018 AFTT final rule is the number of potential mortalities due to ship strike authorized over the seven-year period. First, based on the information and methods discussed in the *Estimated Take of Marine Mammals* section (which are identical to those used in the 2018 AFTT final rule), NMFS has predicted that mortal takes of four large whales over the course of the seven-year rule could occur (as compared to three large whales over five years in the 2018 AFTT final rule). Second, while no more than one whale over the seven years of any species of fin whale, sei whale, minke whale, or sperm whale (North Atlantic stock) would occur (which is the same as in the five-year 2018 AFTT final rule), as described above in the *Estimated Take of Marine Mammals* section, the number of potential mortality takes of humpback whales has increased from one to two. This means an annual average of 0.29 humpback whales and an annual average of 0.14 whales for each of the other four species or stocks as described in Table 17 (*i.e.,* one, or two, take(s) over seven years divided by seven to get the annual number) are expected to potentially occur and are authorized. As this annual number is less than that analyzed and authorized in the 2018 AFTT final rule for fin whale, sei whale, minke whale, and sperm whale (North Atlantic stock), which was an annual average of 0.2 whales for the same four species and stocks, and no other relevant information about the status, abundance, or effects of mortality on each species or stock has changed, the analysis of the effects of vessel strike mirrors that presented in the 2018 AFTT final rule. For humpback whales, the annual number for potential mortality takes is slightly higher than in the 2018 AFTT final rule, but the number still falls below the insignificance threshold of 10 percent of residual Potential Biological Removal (PBR), which indicates an insignificant incremental increase in ongoing anthropogenic mortality that alone will not adversely affect annual rates of recruitment or survival. The analysis of the effects of this potential mortality on humpback whales' annual rates of recruitment and survival, considered in combination with other estimated harassment takes, appears in the *Group and Species-Specific Analyses* section for Mysticetes below.

See the *Serious Injury and Mortality* subsection in the *Analysis and Negligible Impact Determination* section of the 2018 AFTT final rule (83 FR 57217–57223; November 14, 2018) for detailed discussions of the impacts of M/SI, including a description of how the agency uses the PBR metric and other factors to inform our analysis, and an analysis of the impacts on each species and stock for which mortality is authorized, including the relationship of potential mortality for each species to the insignificance threshold and residual PBR. Because the annual number of potential mortality takes for humpback whales remains below the insignificance threshold, the discussion for humpback whales (83 FR 57221–57222; November 14, 2018) remains fully applicable. For discussion specifically on the role of the calculated PBR in evaluating the effects of M/SI, see both the 2018 AFTT final rule and the 2018 Hawaii-Southern California Training and Testing (HSTT) Study Area final rule (83 FR 66846; December 27, 2018).

TABLE 17—SUMMARY INFORMATION RELATED TO AFTT SHIP STRIKE, 2018–2025.

Species (stock)	Stock abundance (Nbest) *	Annual estimated take by serious injury or mortality (M/SI) [1]	Total annual M/SI *[2]	Fisheries interactions (Y/N); Annual rate of M/SI from fisheries interactions *	Vessel collisions (Y/N); Annual rate of M/SI from vessel collision *	PBR *	NEFSC authorized take (annual)	Residual PBR–PBR minus annual M/SI and NEFSC authorized take [3]	Stock trend *[4]	UME (Y/N); number and year [5]
Fin whale (Western North Atlantic).	1,618	0.14	2.5	Y; 1.1	Y; 1.4	2.5	0	0	?	N.
Sei whale (Nova Scotia).	357	0.14	0.8	N; 0	Y; 0.8 *	0.5	0	-0.3	?	N.
Minke Whale (Canadian East Coast).	2,591	0.14	7.5	Y; 6.5	Y; 1†	14	1	5.5	?	Y; 18 in 2019 as of 10/24/2019 (27 in 2017 and 30 in 2018).

TABLE 17—SUMMARY INFORMATION RELATED TO AFTT SHIP STRIKE, 2018–2025.—Continued

Species (stock)	Stock abundance (Nbest) *	Annual estimated take by serious injury or mortality (M/SI) [1]	Total annual M/SI * [2]	Fisheries interactions (Y/N); Annual rate of M/SI from fisheries interactions *	Vessel collisions (Y/N); Annual rate of M/SI from vessel collision *	PBR *	NEFSC authorized take (annual)	Residual PBR–PBR minus annual M/SI and NEFSC authorized take [3]	Stock trend * [4]	UME (Y/N); number and year [5]
Humpback whale (Gulf of Maine).	896	0.29	9.7	Y; 7.1	Y; 2.6	14.6	0	4.9	↑	Y; 22 in 2019 as of 10/24/2019 (26 in 2016, 34 in 2017 and 25 in 2018).
Sperm whale (North Atlantic).	2,288	0.14	0.8	Y; 0.6	Y; 0.2	3.6	0	2.8	?	N.

* Presented in the 2018 SARS.
† Value presented incorrectly in the 2018 AFTT final rule and corrected here.
[1] This column represents the annual take by M/SI by vessel collision and was calculated by the number of mortalities planned for authorization divided by seven years (the length of the rule and LOAs).
[2] This column represents the total number of incidents of M/SI that could potentially accrue to the specified species or stock. This number comes from the SAR, but deducts the takes accrued from either Navy strikes or NEFSC takes as noted in the SARs to ensure they are not double-counted against PBR. However, for these species, there were no takes from either Navy or NEFSC as noted in the SARs to deduct that would be considered double-counting.
[3] This value represents the calculated PBR less the average annual estimate of ongoing anthropogenic mortalities (*i.e.,* total annual human-caused M/SI, which is presented in the 2018 SARs) and authorized take for NEFSC.
[4] See relevant SARs for more information regarding stock status and trends.
[5] This column presents UME information updated since the 2018 AFTT final rule, as discussed in the earlier section *Potential Effects of Specified Activities on Marine Mammals and their Habitat.*

Group and Species-Specific Analyses

In addition to broader analyses of the impacts of the Navy's activities on mysticetes, odontocetes, and pinnipeds, the 2018 AFTT final rule contained detailed analyses of the effects of the Navy's activities in the AFTT Study Area on each affected species and stock. All of that information and analyses remain applicable and valid for our analyses of the effects of the same Navy activities on the same species and stocks for the seven-year period of this final rule. See the *Group and Species-Specific Analyses* subsection in the *Analysis and Negligible Impact Determination* section of the 2018 AFTT final rule (83 FR 57223–57247; November 14, 2018). In addition, no new information has been received since the publication of the 2018 AFTT final rule that significantly changes the analyses on the effects of the Navy's activities on each species and stock presented in the 2018 AFTT final rule.

In the discussions below, the estimated Level B harassment takes represent instances of take, not the number of individuals taken (the much lower and less frequent Level A harassment takes are far more likely to be associated with separate individuals), and in many cases some individuals are expected to be taken more than one time, while in other cases a portion of individuals will not be taken at all. Below, we compare the total take numbers (including PTS, TTS, and behavioral disruption) for species or stocks to their associated abundance estimates to evaluate the magnitude of impacts across the stock and to individuals. Specifically, when an abundance percentage comparison is below 100, it means that that percentage or less of the individuals in the stock will be affected (*i.e.,* some individuals will not be taken at all), that the average for those taken is one day per year, and that we would not expect any individuals to be taken more than a few times in a year. When it is more than 100 percent, it means there will definitely be some number of repeated takes of individuals. For example, if the percentage is 300, the average would be each individual is taken on three days in a year if all were taken, but it is more likely that some number of individuals will be taken more than three times and some number of individuals fewer or not at all. While it is not possible to know the maximum number of days across which individuals of a stock might be taken, in acknowledgement of the fact that it is more than the average, for the purposes of this analysis, we assume a number approaching twice the average. For example, if the percentage of take compared to the abundance is 800, we estimate that some individuals might be taken as many as 16 times. Those comparisons are included in the sections below. For some stocks these numbers have been adjusted slightly (with these adjustments being in the single digits) so as to more consistently apply this approach, but these minor changes did not change the analysis or findings.

To assist in understanding what this analysis means, we clarify a few issues related to estimated takes and the analysis here. In the annual estimated take tables below, takes within the U.S. EEZ include only those takes within the U.S. EEZ where most Navy activities occur and where we often have the best information on species and stock presence and abundance. Takes inside and outside the EEZ include all takes in the AFTT Study Area. An individual that incurs a PTS or TTS take may sometimes, for example, also be behaviorally disturbed at the same time. As described in the *Harassment* subsection of the *Analysis and Negligible Impact Determination* section of the 2018 AFTT final rule, the degree of PTS, and the degree and duration of TTS, expected to be incurred from the Navy's activities are not expected to impact marine mammals such that their reproduction or survival could be affected. Similarly, data do not suggest that a single instance in which an animal accrues PTS or TTS and is also behaviorally harassed would result in impacts to reproduction or survival. Alternately, we recognize that if an individual is behaviorally harassed repeatedly for a longer duration and on consecutive days, effects could accrue to the point that reproductive success is jeopardized (as discussed below in the stock-specific summaries). Accordingly, in analyzing the number of takes and the likelihood of repeated and sequential takes (which could result in reproductive impacts), we consider the total takes, not just the behavioral Level B harassment takes, so that individuals potentially exposed to both threshold shift and behavioral disruption are appropriately considered. We note that the same reasoning applies with the potential addition of behavioral disruption (harassment) to tissue damage from explosives, the difference

being that we do already consider the likelihood of reproductive impacts whenever tissue damage occurs. Further, the number of Level A harassment takes by either PTS or tissue damage are so low compared to abundance numbers that it is considered highly unlikely that any individual would be taken at those levels more than once.

Having considered all of the information and analyses previously presented in the 2018 AFTT final rule, including the information presented in the *Overview,* the *Deepwater Horizon (DWH) Oil Spill* discussion, and the *Group and Species-Specific Analyses* discussions organized by the different groups and species, below we present tables showing instances of total take as a percentage of stock abundance for each group, updated with the new vessel strike and ship shock calculations for some species. We then summarize the information for each species or stock, considering the analysis from the 2018 AFTT final rule and any new analysis. The analyses below in some cases address species collectively if they occupy the same functional hearing group (*i.e.,* low, mid, and high-frequency cetaceans and pinnipeds in water), share similar life history strategies, and/or are known to behaviorally respond similarly to acoustic stressors. Because some of these groups or species share characteristics that inform the impact analysis similarly, it would be duplicative to repeat the same analysis for each species or stock. In addition, animals belonging to each stock within a species typically have the same hearing capabilities and behaviorally respond in the same manner as animals in other stocks within the species.

Mysticetes

In Table 18 below for mysticetes, we indicate the total annual mortality, Level A and Level B harassment, and a number indicating the instances of total take as a percentage of abundance. Table 18 is unchanged from Table 72 in the 2018 AFTT final rule, except for updated information on mortality, as discussed above. For additional information and analysis supporting the negligible-impact analysis, see the *Mysticetes* discussion in the *Group and Species-Specific Analyses* section of the 2018 AFTT final rule, all of which remains applicable to this final rule unless specifically noted.

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Table 18 -- Annual Estimated Takes by Level B Harassment, Level A Harassment, and Mortality for Mysticetes in the AFTT Study Area and Number Indicating the Instances of Total Take as a Percentage of Stock Abundance.

		Instances of indicated types of incidental take (not all takes represent separate individuals, especially for disturbance)					Total takes		Abundance		Instances of total take as percentage of abundance	
		Level B Harassment		Level A Harassment								
Species	Stock	Behavioral Disturbance	TTS (may also include disturbance)	PTS	Tissue Damage	Mortality	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ
Suborder Mysticeti (baleen whales)												
Family Balaenidae (right whales)												
North Atlantic right whale*	Western North Atlantic	203	268	0	0	0	471	471	343	343	137	137
Family Balaenopteridae (roquals)												
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	12	35	0	0	0	44	47	9	104	489	45
Bryde's whale	Northern Gulf of Mexico	24	31	1	0	0	56	56	50	50	112	112
	NSD	77	260	0	0	0	313	337	50	563	626	60
Minke whale	Canadian East Coast	796	3,284	5	0	0.14	3,913	4,085	730	7,686	536	53
Fin whale*	Western North Atlantic	1,716	3,671	33	0	0.14	5,368	5,420	1,660	14,769	323	37
Humpback whale	Gulf of Maine	248	498	3	0	0.29	698	749	496	4,580	141	16
Sei whale*	Nova Scotia	245	556	4	0	0.14	779	805	246	11,737	317	7

Note: In the table we compare estimated takes to abundance estimates generated from the same underlying density estimate (as described in the *Estimated Take of Marine Mammals* section of the 2018 AFTT final rule), versus abundance estimates directly from NMFS' SARs, which are not based on the same data and would not be appropriate for this purpose. Note that comparisons are made both within the U.S. EEZ only (where density estimates have lesser uncertainty) and across the whole Study Area (which offers a more comprehensive comparison for many stocks).

Total takes inside and outside U.S. EEZ represent the sum of annual Level A and Level B harassment from training and testing plus harassment take from one large ship shock trial.

The annual mortality of 0.14 is the result of no more than one mortality over the course of seven years from vessel strikes as described above in the *Estimated Take of Marine Mammals* section. The annual mortality of 0.29 is the result of no more than two mortalities over the course of seven years from vessel strikes as described above in the same section.

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Below we compile and summarize the information that supports our determination that the Navy's activities will not adversely affect any species or stocks through effects on annual rates of recruitment or survival for any of the affected mysticete species and stocks.

North Atlantic Right Whale (Western Stock)

As described in the 2018 AFTT final rule, the status of NARW is precarious and they are listed as endangered under the ESA. There is an active UME associated with the recent unusually high number of deaths, some of which have been attributed to entanglement or vessel strike, although no vessel strikes have been attributed to the Navy. The number of births in recent years has been unusually low and recent studies have reported individuals showing poor health or high stress levels. Accordingly, as described above and in the 2018 AFTT final rule, the Navy is implementing and will continue to implement a suite of mitigation measures that not only avoid the likelihood of ship strikes, but also minimize the severity of behavioral disruption by minimizing impacts in areas that are important for feeding and calving, thus ensuring that the relatively small number of Level B harassment takes that do occur are not expected to affect reproductive success or survivorship via detrimental impacts to energy intake or cow/calf interactions. Specifically, no mortality or Level A harassment is anticipated or authorized. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances compared to the abundance (137 percent) combined with the fact that the AFTT Study Area overlaps most if not all of the range, suggests that many to most of the individuals in the stock will likely be taken, but only on one or two days per year, with no reason to think the days will likely be sequential. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short), the received sound levels are largely below 172 dB with some lesser portion up to 178 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response), and because of the mitigation measures the exposures will

not occur in areas or at times where impacts would be likely to affect feeding and energetics or important cow/calf interactions that could lead to reduced reproductive success or survival. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities are not at a level that would impact reproduction or survival.

Altogether, any individual NARW is likely to be disturbed at a low-moderate level on no more than a couple of likely non-sequential days per year (and not in biologically important areas). Even given the fact that some of the affected individuals may have compromised health, there is nothing to suggest that such a low magnitude and severity of effects would result in impacts on reproduction or survival of any individual, much less annual rates of recruitment or survival for the stock. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on NARW.

Blue Whale (Western North Atlantic Stock)

This is a wide-ranging stock that is best considered as ''an occasional visitor'' to the U.S. EEZ, which may represent the southern limit of its feeding range (Hayes *et al.,* 2018), though no specific feeding areas have been identified. For this reason, the abundances calculated by the Navy based on survey data in the U.S. EEZ are very low (9 and 104, in the U.S. EEZ and throughout the range respectively) and while NMFS' SAR does not predict an abundance, it does report an Nmin (minimum abundance) of 440. There is no currently reported trend for the population and there are no specific issues with the status of the stock that cause particular concern (*e.g.,* no UMEs), although the species is listed as endangered under the ESA. We note, however, that this species was originally listed under the ESA as a result of the impacts from commercial whaling, which is no longer affecting the species. No mortality or Level A harassment is anticipated or authorized for blue whales. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), given the number of total takes (47), the large range and wide-ranging nature of blue whales, and the minimum abundance identified in the SAR, there is no reason to think that any single animal will be taken by Level B harassment more than one time (though perhaps a few could be) and less than 10 percent of the population is likely to be impacted. Regarding the severity of those individual Level B harassment behavioral takes, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels are largely below 172 dB with a portion up to 178 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response). Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities not at a level that would impact reproduction or survival.

Altogether, less than 10 percent of the stock is likely to be impacted and any individual blue whale is likely to be disturbed at a low-moderate level on no more than a day or two days per year and not in any known biologically important areas. This low magnitude and severity of effects is unlikely to result in impacts on the reproduction or survival of any individual, much less annual rates of recruitment or survival for the stock. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on blue whales.

Bryde's Whale (Northern Gulf of Mexico Stock)

The Northern Gulf of Mexico Bryde's whale is a small resident population and is listed as endangered under the ESA. Although there is no current UME, the small size of the population and its constricted range, combined with the lingering effects of exposure to oil from the DWH oil spill (which include adverse health effects on individuals, as well as population effects) are cause for considerable caution. Accordingly, as described above, the Navy is implementing and will continue to implement considerable time/area mitigation to minimize impacts within their limited range, including not planning major training exercises (which include the most powerful sound sources operating in a more concentrated area), limiting the hours of other sonar use, and not using explosives, with the exception of mine warfare activities, which has both reduced the amount of take and reduced the likely severity of impacts. No mortality or Level A harassment by tissue damage injury is anticipated or authorized, and only one Level A harassment take by PTS is estimated and authorized.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances compared to the abundance (112 percent) combined with the fact that the AFTT Study Area overlaps all of the small range, suggests that most to all of the individuals in the stock will likely be taken, but only on one or two days per year, with no reason to think the days would likely be sequential. Regarding the severity of those individual Level B harassment behavioral takes, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short); the received sound levels are largely below 172 dB with a portion up to 178 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response); and because of the mitigation the exposures will be of a less impactful nature. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities not at a level that would impact reproduction or survival. For similar reasons the one estimated Level A harassment take by PTS for this stock is unlikely to have any effect on the reproduction or survival of that individual, even if it were to be experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, any individual Bryde's whale is likely to be disturbed at a low-moderate level on no more than one or two days per year. Even given the fact that some of the affected individuals may have compromised health, there is nothing to suggest that such a low magnitude and severity of effects would result in impacts on the reproduction or survival of any individual, much less annual rates of recruitment or survival for the stock. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on the Gulf of Mexico stock of Bryde's whales.

Bryde's Whale (No Stock Designated—NSD)

These Bryde's whales span the mid- and southern Atlantic and have not been designated as a stock under the MMPA. There is no currently reported trend for the population and there are no specific issues with the status of these whales that cause particular concern (*e.g.,* UMEs). No mortality or Level A harassment is anticipated or authorized. Regarding the magnitude of Level B harassment takes (TTS and

behavioral disruption), the number of estimated instances compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 626 percent and 60 percent, though the percentages would be far lower if compared against the abundance of the entire range of this species in the Atlantic. This information suggests that only a portion of the stock is likely impacted (significantly less than 60 percent given the large range), but that there is likely some repeat exposure (5 to 12 days within a year) of some subset of individuals within the U.S. EEZ if some animals spend extended time within the U.S. EEZ. Regarding the severity of those individual Level B harassment behavioral takes, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels are largely below 172 dB with a portion up to 178 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response). Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities not at a level that would impact reproduction or survival.

Altogether, only a portion of the population is impacted and any individual Bryde's whale is likely to be disturbed at a low to moderate level, with many animals likely exposed only once or twice and a subset potentially disturbed across 5 to 12 likely non-sequential days not in any known biologically important areas. This low magnitude and severity of effects is not expected to result in impacts on annual rates of recruitment or survival for the stock. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on Bryde's whales.

Minke Whale (Canadian East Coast Stock)

This stock of minke whales spans the East Coast and far into Northern Canada waters. Minke whales in the Atlantic are currently experiencing an UME wherein there have been unexpectedly elevated deaths along the Atlantic Coast, some of which have been preliminarily attributed to human interaction (primarily fisheries interactions) or infectious disease. As of July 26, 2019, six whales have stranded in 2019 (30 whales stranded in 2018 and 27 whales stranded in 2017). Because the most recent population estimate is based only on surveys in U.S. waters and slightly into Canada, and did not cover the habitat of the entire Canadian East Coast stock, the abundance is underestimated in the SAR and is likely significantly greater than what is reflected in the current SAR. NMFS authorizes one mortality in seven years, and the resulting 0.14 annual mortality which falls below 10 percent of residual PBR (0.55), remains under the insignificance threshold, and would be considerably even lower if compared against a more appropriate PBR. As discussed in the 2018 AFTT final rule, there are no known factors, information, or unusual circumstances that indicate that this potential M/SI below the insignificance threshold could have adverse effects on the stock through effects on annual rates of recruitment or survival. Consideration of all applicable information indicates that the authorized mortality of one whale over the seven years will not result in more than a negligible impact on this stock.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 536 percent and 53 percent. This information suggests that approximately less than half of the individuals are likely impacted, but that there is likely some repeat exposure (5 to 10 days within a year) of some subset of individuals within the U.S. EEZ if some animals spend extended time within the U.S. EEZ. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB, with a portion up to 178 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response). Also, the Navy currently implements and will continue to implement time/area mitigation in the Northeast that minimizes major training exercises and total sonar hours in an area that significantly overlaps an important feeding area for minke whales. This mitigation will reduce the severity of impacts to minke whales by reducing interference in feeding that could result in lost feeding opportunities or necessitate additional energy expenditure to find other good foraging opportunities. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities not at a level that would impact reproduction or survival.

For similar reasons the five estimated Level A harassment takes by PTS for this stock are unlikely to have an effect on the reproduction or survival of any individual, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, only a portion of the stock will be impacted and any individual minke whale is likely to be disturbed at a low to moderate level, with many animals likely exposed only once or twice and a subset potentially disturbed across 5 to 10 likely non-sequential days, minimized in biologically important areas. Even given the potential for compromised health of some individuals, this low magnitude and severity of effects is not expected to result in impacts on the reproduction or survival of individuals, nor are these harassment takes combined with the potential mortality expected to adversely affect this stock through impacts on annual rates of recruitment or survival for the stock. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on minke whales.

Fin Whale (Western North Atlantic Stock)

This stock spans the East Coast north into the Newfoundland waters of Canada. There is no currently reported trend for the population and there are no specific issues with the status of the stock that cause particular concern (*e.g.,* no UMEs), although the species is listed as endangered under the ESA. NMFS authorizes one mortality over the seven years of the rule, or 0.14 annually. With the addition of this 0.14 annual mortality, residual PBR is exceeded, which means the total human-caused mortality would exceed residual PBR by 0.14. However, as explained in the 2018 AFTT final rule, this does not mean that the stock is not at or increasing toward its optimum sustainable population level (OSP) or that one lethal take by the Navy over the seven years covered by this rule would adversely affect the stock through effects on annual rates of reproduction or survival. Consideration of all applicable information indicates that the authorized mortality will not result in more than a negligible impact on this stock.

The abundance of fin whales is likely significantly greater than what is reflected in the current SAR because, as noted in the SAR, the most recent population estimate is based only on

surveys in U.S. waters and slightly into Canada which does not include the habitat of the entire stock as it extends over a very large additional area into Nova Scotian and Newfoundland waters. Accordingly, if the PBR in the SAR reflected the actual abundance across the entire range of the stock, residual PBR would be notably higher. Additionally, the current abundance estimate does not account for availability bias due to submerged animals (*i.e.,* estimates are not corrected to account for the fact that given X number of animals seen at the surface, we can appropriately assume that Y number were submerged and not counted). Without a correction for this bias, the abundance estimate is likely further biased low. Because of these limitations, the current calculated PBR is not a reliable indicator of how removal of animals will affect the stock's ability to reach or maintain OSP. We note that, generally speaking, while the abundance may be underestimated in this manner for some stocks due to the lack of surveys in areas outside of the U.S. EEZ, it is also possible that the human-caused mortality could be underestimated in the un-surveyed area. However, in the case of fin whales, most mortality is caused by entanglement in gear that is deployed relatively close to shore and, therefore, unrecorded mortality offshore would realistically be proportionally less as compared to the unsurveyed abundance and therefore the premise that PBR is likely underestimated still holds. Given the small amount by which residual PBR is exceeded and more significant degree (proportionally) to which abundance is likely underestimated, it is reasonable to conclude that if a more realistic PBR were used, the anticipated total human-caused mortality would be notably under it.

We also note that 0.14 mortalities/serious injuries means one mortality/serious injury in one of the seven years and zero mortalities/serious injuries in six of the seven years. Therefore residual PBR would not be exceeded in 86 percent of the years covered by this rule. In situations where mortality/serious injury is fractional, consideration must be given to the lessened impacts due to the absence of mortality in six of the seven years. Further, as described in the 2018 AFTT final rule, the Atlantic Large Whale Take Reduction Plan directs multiple efforts and requirements towards reducing mortality from commercial fishing (via gear modifications, area closures, and other mechanisms) and NOAA Office of Law Enforcement has reported high compliance rates. Nonetheless, the exceedance of residual PBR calls for close attention to the remainder of impacts on fin whales from this activity to ensure that the total authorized impacts are negligible.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 323 percent and 37 percent. This information suggests that less than a third of the individuals are likely impacted, but that there is likely some repeat exposure (2–6 days within a year) of some subset of individuals within the U.S. EEZ if some animals spend extended time within the U.S. EEZ. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response). Also, the Navy currently implements, and will continue to implement time/area mitigation in the Northeast that minimizes major training exercises and total sonar hours in an area that significantly overlaps an important BIA feeding area for fin whales. This mitigation will reduce the severity of impacts to fin whales by reducing interference in feeding that could result in lost feeding opportunities or necessitate additional energy expenditure to find other good opportunities. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and mostly not in a frequency band that would be expected to interfere with fin whale communication or other important low-frequency cues, and the associated lost opportunities and capabilities are not at a level that would impact reproduction or survival. For these same reasons (low level and frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, at the expected scale the 33 estimated Level A harassment takes by PTS for fin whales would be unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive success or survival of any individuals, even if PTS were experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, only a portion of the stock will be impacted and any individual fin whale is likely to be disturbed at a low to moderate level, with many animals likely exposed only once or twice and a subset potentially disturbed across approximately six likely non-sequential days, minimized in biologically important areas. This low magnitude and severity of effects is not expected to result in impacts on reproduction or survival of individuals, nor are these harassment takes combined with the single potential mortality expected to adversely affect this stock through impacts on annual rates of recruitment or survival for the stock. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on fin whales.

Humpback Whale

The feeding group stock of humpback whales found in the Gulf of Maine is one of several associated with the larger, and increasing, West Indies DPS. The Gulf of Maine stock is reported in the SAR as increasing in abundance. Nonetheless, humpback whales in the Atlantic are currently experiencing an UME in which a portion of the whales have shown evidence of entanglement or vessel strike. There have been 22 strandings so far in 2019 (2018 had 25 total strandings and 2017 had 34 total strandings). NMFS authorizes two mortalities over the seven-year period (versus the one mortality over the five-year period of the 2018 AFTT final rule), as described in the *Estimated Take of Marine Mammals* section above. Though an increase from the 2018 AFTT final rule, this amount of mortality (0.29 per year) still falls below the insignificance threshold of 10 percent of residual PBR (0.49) for the Gulf of Maine stock based on a stock abundance of 896 from the 2018 SAR. As discussed in the 2018 AFTT final rule, there are no known factors, information, or unusual circumstances that indicate that this potential M/SI below the insignificance threshold could have adverse effects on the stock through effects on annual rates of recruitment or survival. Also, importantly, deaths of humpback whales along the Atlantic coast (whether by ship strike or other source) must be considered within the context of the larger West Indies DPS, as animals along the coast could come from the Gulf of Maine stock or any of three or more other associated feeding groups. Specifically, the West Indies DPS, the larger population from which

a humpback whale could potentially be taken, numbers in excess of 10,000 whales and has an increasing growth trend of 3.1 percent (Bettridge *et al.,* 2015), with an associated PBR, if calculated, much larger than that presented for the Gulf of Maine stock. Further, as described in the 2018 AFTT final rule, the Atlantic Large Whale Take Reduction Plan directs multiple efforts and requirements towards reducing mortality from commercial fishing (via gear modifications, area closures, and other mechanisms) and NOAA Office of Law Enforcement has reported high compliance rates. Therefore, even though the potential for M/SI from the Navy's activities has increased since the 2018 AFTT final rule, there is no information to indicate that the loss of two whales over seven years, even if it were to occur, would adversely affect the stock or the overall species through effects on annual rates of recruitment or survival. See the *Humpback Whale* section in the 2018 AFTT final rule for additional supporting information.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances (of any humpbacks) compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 141 percent and 16 percent. This suggests that only a small portion of the humpback whales in the AFTT Study Area would be likely impacted, with perhaps some individuals taken on a few days of the year. It would be impossible to determine exactly what portion of the takes are from the Gulf of Maine stock. However, based on information in the 2018 AFTT final rule, which indicated about one third of the humpback whales traversing the Atlantic Coast likely come from the Gulf of Maine stock, we estimate that approximately 250 of the 749 total humpback whale takes (both by Level A harassment and Level B harassment) might be from the Gulf of Maine stock. Two hundred and fifty represents about 28 percent of the minimum population estimate for the Gulf of Maine humpback whale abundance in NMFS' 2018 SAR, equating to an expectation that few animals would be exposed more than one time. The remaining approximately 499 Level A and Level B harassment takes would affect individuals from the much larger West Indies DPS, with a relatively small percentage of individuals affected as the estimated abundance is greater than 10,000. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB with a portion above 178 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response). Also, the Navy currently implements and will continue to implement time/area mitigation in the Northeast that minimizes major training exercises and total sonar hours in an area that significantly overlaps with an important feeding area for humpbacks. This mitigation will reduce the severity of impacts to humpbacks by reducing interference in feeding that could result in lost feeding opportunities or necessitate additional energy expenditure to find other good opportunities. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities not at a level that would impact reproduction or survival. For similar reasons the three estimated Level A harassment takes by PTS for this stock are unlikely to have any effect on the reproduction or survival of any individual, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, only a portion of the stock or species is impacted and any individual humpback whale will likely be disturbed at a low-moderate level, with most animals exposed only once or twice, and minimized in biologically important areas. This low magnitude and severity of effects is not expected to result in impacts on the reproduction or survival of any individuals, nor are these harassment takes combined with the potential mortalities of up to two whales expected to adversely affect the stock or species through impacts on annual rates of recruitment or survival. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on humpback whales, including the Gulf of Maine stock, as well as the larger species as a whole.

Sei Whale (Nova Scotia Stock)

This stock spans the northern East Coast and up to southern Newfoundland. There is no currently reported trend for the population and there are no specific issues with the status of the stock that cause particular concern (*e.g.,* no UMEs), although the species is listed as endangered under the ESA. NMFS authorizes one mortality over the seven years of the rule, or 0.14 annually. With the addition of this 0.14 annual mortality, residual PBR is exceeded, which means the total human-caused mortality would exceed residual PBR by 0.44. However, as explained in the 2018 AFTT final rule, this does not mean that the stock is not at or increasing toward its OSP or that one lethal take by the Navy over the seven years covered by this rule would adversely affect the stock through effects on annual rates of reproduction or survival. Consideration of all applicable information indicates that the authorized mortality will not result in more than a negligible impact on this stock.

As noted in the SAR, the abundance of sei whales is likely significantly greater than what is reflected in the current SAR because the population estimate is based only on surveys in U.S. waters and slightly into Canada, which does not cover the habitat of the entire stock, as it extends over a large additional area around to the south of Newfoundland. Accordingly, if a PBR were calculated based on an appropriately enlarged abundance, it would be higher. Additionally, the current abundance estimate does not account for availability bias due to submerged animals (*i.e.,* estimates are not corrected to account for the fact that given X number of animals seen at the surface, we can appropriate assume that Y number were submerged and not counted). Without a correction for this bias, the abundance estimate is likely biased low. Because of these limitations, the current calculated PBR is not a reliable indicator of how removal of animals will affect the stock's ability to reach or maintain OSP. We note that, generally speaking, while the abundance may be underestimated in this manner for some stocks due to the lack of surveys in areas outside of the U.S. EEZ, it is also possible that the human-caused mortality could be underestimated in the un-surveyed area. However, in the case of sei whales, most mortality is caused by ship strike and the density of ship traffic is higher the closer you are to shore (making strikes more likely closer to shore) and, therefore, unrecorded mortality offshore would realistically be proportionally less as compared to the unsurveyed abundance and therefore the premise that PBR is likely underestimated still holds.

Given the small amount by which residual PBR is exceeded and more significant degree (proportionally) to which abundance is likely underestimated, it is reasonable to think that if a more realistic PBR were used,

the anticipated total human-caused mortality would be notably under residual PBR. We also note that 0.14 mortalities/serious injuries means one mortality/serious injury in one of the seven years and zero mortalities/serious injuries in six of the seven years. Further, as described in the 2018 AFTT final rule the Atlantic Large Whale Take Reduction Plan directs multiple efforts and requirements towards reducing mortality from commercial fishing (via gear modifications, area closures, and other mechanisms) and NOAA Office of Law Enforcement has reported high compliance rates.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 317 percent and 7 percent. This information suggests that only a very small portion of individuals in the stock will be likely impacted, but that there will likely be some repeat exposure (several days within a year) of some subset of individuals within the U.S. EEZ if some animals spend extended time within the U.S. EEZ. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB with a portion up to 178 dB (*i.e.,* of a moderate or lower level, less likely to evoke a severe response). Also, the Navy implements time/area mitigation in the Northeast that minimizes major training exercises and total sonar hours in an area that significantly overlaps an important BIA feeding area for sei whales, which will reduce the severity of impacts to sei whales by reducing interference in feeding that could result in lost feeding opportunities or necessitate additional energy expenditure to find other good opportunities. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities not at a level that would impact reproduction or survival. For similar reasons the four estimated Level A harassment takes by PTS for this stock are unlikely to have any effect on the reproduction or survival of any individual, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes. Altogether, only a small portion of the stock will be impacted and any individual sei whale will likely be disturbed at a low-moderate level, with many animals likely exposed only once or twice and a subset potentially disturbed across a few days, minimized in biologically important areas. This low magnitude and severity of harassment effects is not expected to result in impacts on individual reproduction or survival, nor are these harassment takes combined with the single potential mortality expected to adversely affect this stock through impacts on annual rates of recruitment or survival. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on sei whales.

Odontocetes

Sperm Whales, Dwarf Sperm Whales, and Pygmy Sperm Whales

In Table 19 below for sperm whales, dwarf sperm whales, and pygmy sperm whales, we indicate the total annual mortality, Level A and Level B harassment, and a number indicating the instances of total take as a percentage of abundance. Table 19 is unchanged from Table 73 in the 2018 AFTT final rule, except for updated information on mortality, as discussed above. For additional information and analysis supporting the negligible-impact analysis, see the *Odontocetes* discussion as well as the *Sperm Whales, Dwarf Sperm Whales, and Pygmy Sperm Whales* discussion in the *Group and Species-Specific Analyses* section of the 2018 AFTT final rule, all of which remains applicable to this final rule unless specifically noted.

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Table 19 -- Annual Estimated Takes by Level B Harassment, Level A Harassment, and Mortality for Sperm Whales, Dwarf Sperm Whales, and Pygmy Sperm Whales in the AFTT Study Area and Number Indicating the Instances of Total Take as a Percentage of Stock Abundance.

		Instances of indicated types of incidental take (not all takes represent separate individuals, especially for disturbance)					Total takes		Abundance		Instances of total take as percentage of abundance	
		Level B Harassment		Level A Harassment								
Species	Stock	Behavioral Disturbance	TTS (may also include disturbance)	PTS	Tissue Damage	Mortality	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ
Suborder Odontoceti (toothed whales)												
Family Physeteridae (sperm whale)												
Sperm whale*	Gulf of Mexico Oceanic	1,107	25	0	0	0	1132	1132	2,114	2,114	54	54
	North Atlantic	24,703	662	3	1	0.14	21489	25369	3,950	61,700	544	41
Family Kogiidae (sperm whales)												
Dwarf sperm whale	Gulf of Mexico Oceanic	339	453	70	0	0	862	862	1,107	1,107	78	78
	Western North Atlantic	3,900	9,102	94	0	0	12852	13096	611	3,641	2105	360
Pygmy sperm whale	Northern Gulf of Mexico	339	453	70	0	0	862	862	1,107	1,107	78	78
	Western North Atlantic	3,900	9,102	94	0	0	12852	13096	611	3,641	2105	360

Note: In this table we compare estimated takes to abundance estimates generated from the same underlying density estimate (as described in the *Estimated Take of Marine Mammals* section in the 2018 AFTT final rule), versus abundance estimates directly from NMFS' SARs, which are not based on the same data and would not be appropriate for this purpose. Note that comparisons are made both within the U.S. EEZ only (where density estimates have lesser uncertainty) and across the whole Study Area (which offers a more comprehensive comparison for many stocks).

Total takes inside and outside U.S. EEZ represent the sum of annual Level A and Level B harassment from training and testing plus harassment take from one large ship shock trial.

The annual mortality of 0.14 is the result of no more than one mortality over the course of seven years from vessel strikes as described above in the *Estimated Take of Marine Mammals* section.

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Below we compile and summarize the information that supports our determination that the Navy's activities will not adversely affect any species or stocks through effects on annual rates of recruitment or survival for any of the affected species and stocks addressed in this section.

Sperm Whale (North Atlantic Stock)

This stock spans the East Coast out into oceanic waters well beyond the U.S. EEZ. There is no currently reported trend for the stock and, although the species is listed as endangered under the ESA, there are no specific issues with the status of the stock that cause particular concern (*e.g.,* no UMEs). NMFS authorizes one mortality over the seven years covered by this rule, and the resulting 0.14 annual mortality which falls below 10 percent of residual PBR (0.28), remains below the PBR insignificance threshold. As discussed in the 2018 AFTT final rule, there are no known factors, information, or unusual circumstances that indicate that this potential M/SI below the insignificance threshold could have adverse effects on the stock through effects on annual rates of recruitment or survival. One Level A harassment take by tissue damage is also estimated and authorized which, as discussed in the 2018 AFTT final rule, could range in impact from minor to something just less than M/SI that could seriously impact fitness. However, given the Navy's mitigation and the sperm whale's large size, which improves detection by Lookouts, exposure at the closer to the source and more severe end of the spectrum is less likely, and we cautiously assume some moderate impact for this single take that could lower one individual's fitness within the year such that a female (assuming a 50 percent chance of the one take being a female) might forego reproduction for one year. As discussed in the 2018 AFTT final rule, foregone reproduction has less of an impact on population rates than death (especially for one year) and one instance would not be expected to impact annual rates of recruitment or survival, even if it were a female.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 544 percent and 41 percent. This information, combined with the known range of the stock, suggests that something less than one half of the individuals in the stock will likely be impacted, but that there will likely be some repeat exposure (2–11 days within a year) of some subset of individuals that remain within the U.S. EEZ for an extended time. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely between 160 and 172 dB (*i.e.,* of a lower, to occasionally moderate, level). Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level and of short duration and the associated lost opportunities and capabilities not at a level that would impact reproduction or survival. For similar reasons three estimated Level A harassment takes by PTS for this stock is unlikely to have any effect on the reproduction or survival of any individual, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, less than one half of the stock will be impacted and any individual sperm whale will likely be disturbed at a low-moderate level, with the majority of animals likely disturbed once or not at all, and a subset potentially disturbed across 2–11 likely non-sequential days. Even for an animal disturbed at the high end of this range (11 days over a year), given the low to moderate impact from each incident, and the fact that few days with take will likely be sequential, no impacts to individual fitness are expected. This low to occasionally moderate magnitude and severity of effects is not expected to result in impacts on reproduction or survival, and nor are these harassment takes combined with the single authorized mortality and one possible instance of foregone reproduction expected to adversely affect the stock through annual rates of recruitment or survival. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on North Atlantic sperm whales.

Sperm Whale, Dwarf Sperm Whale, and Pygmy Sperm Whale (Gulf of Mexico Stocks)

These stocks suffer from lingering health issues from the DWH oil spill (6–7 percent of individuals of these stocks have adverse health effects), which means that some could be more susceptible to exposure to other stressors, and negative population effects (21–42 years until the DWH oil-injured population trajectory is projected to catch up with the baseline population trajectory (*i.e.,* in the absence of DWH, reported as years to recovery)). Neither mortality nor tissue damage from explosives is anticipated or authorized for any of these three stocks, and sperm whales are not expected to incur PTS. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance is 54–78 percent, which suggests that for each of the three species/stocks either this percentage of the individuals in these stocks will all be taken by harassment on a single day each within a year, or a small subset may be taken on a few days and the remainder not taken at all. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels are largely between 160 and 172 dB (*i.e.,* of a lower level, less likely to evoke a severe response). Additionally, the Navy is currently implementing and will continue to implement mitigation areas for sperm whales that are expected to reduce impacts in important feeding areas, further lessening the severity of impacts. In the Gulf of Mexico Planning Awareness Mitigation Areas, the Navy will not conduct any major training exercises. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and mostly not in a frequency band that would be expected to interfere significantly with conspecific communication, echolocation, or other important low-frequency cues. Also, there is no reason to believe that any individual would incur these TTS takes more than a few days in a year, and the associated lost opportunities and capabilities would not be expected to impact reproduction or survival. For these same reasons (low level and frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, 70 estimated Level A harassment takes by PTS for each of the two Kogia stocks in the Gulf of Mexico would be unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive success or survival of any individual, even if PTS were to be experienced by an animal that also experiences one or more Level B harassment takes.

Altogether, only a portion of these stocks will be impacted and any individual sperm, dwarf sperm, or pygmy sperm whale is likely to be disturbed at a low to occasionally moderate level and no more than a few days per year. Even given the fact that some of the affected individuals may have compromised health, there is nothing to suggest that such a low magnitude and severity of effects would result in impacts on the reproduction or survival of individuals, much less annual rates of recruitment or survival for any of the stocks. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on Gulf of Mexico sperm whales, dwarf sperm whales, and pygmy sperm whales.

Pygmy and Dwarf Sperm Whales (Western North Atlantic Stocks)

These stocks span the deeper waters of the East Coast north to Canada and out into oceanic waters beyond the U.S. EEZ. There is no currently reported trend for these populations and there are no specific issues with the status of the stocks that cause particular concern. Neither mortality nor tissue damage from explosives is anticipated or authorized for these stocks. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 2,105 percent and 360 percent. This information, combined with the known range of the stock, suggests that while not all of the individuals in these stocks will most likely be taken (because they span well into oceanic waters) of those that are taken, most would be taken over several repeated days (though likely not sequential) and some subset that spends extended time within the U.S. EEZ will likely be taken over a larger amount of days (likely 15–42 days during a year), some of which could be sequential.

Regarding the severity of the individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (and likely not more than 24 hours) and the received sound levels are largely between 160 and 172 dB (*i.e.,* of a lower level, less likely to evoke a severe response). Additionally, while interrupted feeding bouts are a known response and concern for odontocetes, we also know that there are often viable alternative habitat options in the relative vicinity. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration and mostly not in a frequency band that would be expected to interfere significantly with conspecific communication, echolocation, or other important low-frequency cues. Also, there is no reason to believe that any individual would incur these TTS takes more than a few days in a year, and the associated lost opportunities and capabilities would not be expected to impact reproduction or survival. For these same reasons (low level and frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, at the expected scale the 94 estimated Level A harassment takes by PTS for each of the two Kogia stocks in the North Atlantic would be unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive success or survival of any

individual, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, a large portion of each stock will likely be taken (at a low to occasionally moderate level) over several days a year, and some smaller portion of the stock will likely be taken on a relatively moderate to high number of days across the year, some of which could be sequential days. Though the majority of impacts are expected to be of a lower to sometimes moderate severity, the larger number of takes (in total and for certain individuals) makes it more likely (probabilistically) that a small number of individuals could be interrupted during foraging in a manner and amount such that impacts to the energy budgets of females (from either losing feeding opportunities or expending considerable energy to find alternative feeding options) could cause them to forego reproduction for a year (energetic impacts to males generally have little impact on population rates unless they cause death, and it takes extreme energy deficits beyond what would ever be likely to result from these activities to cause the death of an adult pygmy or dwarf sperm whale). As noted previously and discussed more fully in the 2018 AFTT final rule, however, foregone reproduction (especially for one year) has far less of an impact on population rates than mortality, and a small number of instances of foregone reproduction would not be expected to adversely impact annual rates of recruitment or survival, especially given that residual PBR for both of these stocks is 17.5. For these reasons, in consideration of all of the effects of the Navy's activities combined, we have determined that the authorized take will have a negligible impact on Western North Atlantic pygmy and dwarf sperm whales.

Dolphins and Small Whales

In Table 20 below for dolphins and small whales, we indicate the total annual mortality, Level A and Level B harassment, and a number indicating the instances of total take as a percentage of abundance. Table 20 is unchanged from Table 74 in the 2018 AFTT final rule, except for updated information on mortality, as discussed above. For additional information and analysis supporting the negligible-impact analysis, see the *Odontocetes* discussion as well as the *Dolphins and Small Whales* discussion in the *Group and Species-Specific Analyses* section of the 2018 AFTT final rule, all of which remains applicable to this final rule unless specifically noted.

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Table 20 -- Annual Estimated Takes by Level B Harassment, Level A Harassment, and Mortality for Dolphins and Small Whales in the AFTT Study Area and Number Indicating the Instances of Total Take as a Percentage of Stock Abundance.

		Instances of indicated types of incidental take (not all takes represent separate individuals, especially for disturbance)					Total takes		Abundance		Instances of total take as percentage of abundance	
		Level B Harassment		Level A Harassment								
Species	Stock	Behavioral Disturbance	TTS (may also include disturbance)	PTS	Tissue Damage	Mortality	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ
Family Delphinidae (dolphins)												
Atlantic spotted dolphin	Northern Gulf of Mexico	69,225	3,610	3	0	0	72,838	72,838	47,676	47,676	153	153
	Western North Atlantic	208,201	19,383	26	6	0	209,814	227,616	52,118	250,648	403	91
Atlantic white-sided dolphin	Western North Atlantic	44,077	2,207	7	3	0.14	44,210	46,294	14,332	137,305	308	34
Bottlenose dolphin	Choctawhatchee Bay	941	32	0	0	0	973	973	99	99	984	984
	Gulf of Mexico Eastern Coastal	42	0	0	0	0	42	42	9,888	9,888	0	0
	Gulf of Mexico Northern Coastal	15,644	834	2	0	0	16,480	16,480	8,476	8,476	194	194
	Gulf of Mexico Western Coastal	7,191	635	0	0	0	7,826	7,826	33,903	33,903	23	23
	Indian River Lagoon Estuarine System	255	31	0	0	0	286	286	36	36	790	790
	Jacksonville Estuarine System	74	13	0	0	0	87	87	27	27	320	320
	Mississippi Sound, Lake Borgne, Bay Boudreau	1	0	0	0	0	1	1	198	198	1	1
	Northern Gulf of Mexico Continental Shelf	121,223	6,287	15	1	0	127,526	127,526	72,043	72,043	177	177
	Northern Gulf of Mexico Oceanic	13,947	706	8	2	0	14,663	14,663	18,364	18,364	80	80
	Northern North Carolina Estuarine System	2,844	483	0	0	0	3,327	3,327	3,622	3,622	92	92
	Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	1,145	90	0	0	0	1,235	1,235	906	906	136	136
	Western North Atlantic Central Florida Coastal	7,100	513	0	0	0	7,613	7,613	4,528	4,528	168	168
	Western North Atlantic Northern Migratory Coastal	33,993	3,051	7	0	0	37,051	37,051	9,962	9,962	372	372
	Western North Atlantic Offshore	393,416	34,686	77	9	0	421,295	428,188	64,298	186,260	655	230
	Western North Atlantic South Carolina/Georgia Coastal	5,544	416	0	0	0	5,960	5,960	3,622	3,622	165	165
	Western North Atlantic Southern Migratory Coastal	15,411	1,305	2	0	0	16,718	16,718	7,245	7,245	231	231
Clymene dolphin	Northern Gulf of Mexico	4,174	99	4	2	0	4,279	4,279	10,942	10,942	39	39
	Western North Atlantic	97,952	7,816	10	3	0	92,364	105,781	15,370	171,202	601	62
False killer whale	Northern Gulf of Mexico	1,902	72	1	0	0	1,975	1,975	3,136	3,136	63	63
	Western North Atlantic	11,176	863	0	0	0	11,131	12,039	1,254	16,144	888	75
Fraser's dolphin	Northern Gulf of Mexico	1,123	58	2	1	0	1,184	1,184	1,637	1,637	72	72
	Western North Atlantic	4,931	291	0	0	0	3,914	5,222	411	17,588	952	30
Killer whale	Northern Gulf of Mexico	33	0	0	0	0	33	33	176	176	19	19
	Western North Atlantic	113	6	0	0	0	112	119	15	472	747	25
Long-finned pilot whale	Western North Atlantic	35,890	1,656	7	1	0	33,769	37,554	3,863	447,431	874	8
Melon-headed whale	Northern Gulf of Mexico	3,067	66	3	1	0	3,137	3,137	6,725	6,725	47	47
	Western North Atlantic	50,058	3,792	3	0	0	49,707	53,853	5,821	69,526	854	77
Pantropical spotted dolphin	Northern Gulf of Mexico	25,924	596	15	6	0.14	26,541	26,541	82,055	82,055	32	32
	Western North Atlantic	207,279	15,304	8	1	0	196,098	222,592	30,088	275,964	652	81
Pygmy killer whale	Northern Gulf of Mexico	720	16	1	0	0	737	737	2,062	2,062	36	36
	Western North Atlantic	8,702	629	0	0	0	8,507	9,331	1,052	12,296	809	76
Risso's dolphin	Northern Gulf of Mexico	1,647	43	1	0	0	1,691	1,691	3,096	3,096	55	55
	Western North Atlantic	38,887	2,220	2	0	0	40,144	41,109	5,601	39,085	717	105
Rough-toothed dolphin	Northern Gulf of Mexico	3,849	177	1	1	0	4,028	4,028	4,824	4,824	83	83
	Western North Atlantic	25,857	2,476	0	0	0	26,450	28,333	2,793	34,768	947	81
Short-beaked common dolphin	Western North Atlantic	540,662	30,561	101	36	0.86	571,100	571,361	73,481	520,317	777	110
Short-finned pilot whale	Northern Gulf of Mexico	1,835	26	3	0	0	1,864	1,864	2,032	2,032	92	92
	Western North Atlantic	45,724	2,639	5	1	0	34,760	48,369	6,578	450,146	528	11
Spinner dolphin	Northern Gulf of Mexico	7,803	277	31	14	0.14	8,125	8,125	13,653	13,653	60	60
	Western North Atlantic	98,665	8,382	5	1	0	98,817	107,053	11,280	135,573	876	79
Striped dolphin	Northern Gulf of Mexico	2,449	69	2	1	0	2,521	2,521	4,871	4,871	52	52
	Western North Atlantic	181,103	11,992	16	4	0	167,438	193,115	52,222	322,542	321	60
White-beaked dolphin	Western North Atlantic	80	4	0	0	0	84	84	42	42	200	200

Note: In the table we compare estimated takes to abundance estimates generated from the same underlying density estimate (as described in the *Estimated Take of Marine Mammals* section of the 2018 AFFT final rule), versus abundance estimates directly from NMFS' SARs, which are not based on the same data and would not be appropriate for this purpose. Note that comparisons are made both within the U.S. EEZ only (where density estimates have lesser uncertainty) and across the whole Study Area (which offers a more comprehensive comparison for many stocks).

Total takes inside and outside U.S. EEZ represent the sum of annual Level A and Level B harassment from training and testing plus take from one large ship shock trial.

For mortality takes there was an annual average of 0.14 dolphins from each dolphin species/stock listed above (*i.e.*, for those species or stocks where one take could potentially occur divided by seven years to get the annual number of mortalities/serious injuries) or 0.86 dolphins in the case of short-beaked common dolphin (*i.e.*, where six takes could potentially occur divided by seven years to get the annual number of mortalities/serious injuries).

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Below we compile and summarize the information that supports our determination that the Navy's activities will not adversely affect any species or stocks through effects on annual rates of recruitment or survival for any of the affected species or stocks addressed in this section.

Atlantic White-Sided Dolphin and Short-Beaked Common Dolphin (Western North Atlantic Stocks)

There is no currently reported trend for these stocks and there are no specific issues with the status of these stocks that cause particular concern (*e.g.,* no UMEs). We anticipate and therefore authorize one and six mortalities over the course of seven years for these two stocks, which is 0.14 and 0.86 annual mortalities for each stock, respectively. Given the large residual PBR values for these stocks (248 and 148), this number of mortalities falls well under the insignificance threshold. There are no known factors, information, or unusual circumstances that indicate that this estimated M/SI below the insignificance threshold could have adverse effects on these stocks through effects on annual rates of recruitment or survival. Some Level A harassment take by tissue damage from explosives has also been estimated and authorized for these stocks (3 and 36, respectively). As discussed previously and in the 2018 AFTT final rule, tissue damage effects could range in impact from minor to something just less than M/SI that could seriously impact fitness. However, given the Navy's mitigation, which makes exposure at the closer to the source and more severe end of the spectrum less likely, we cautiously assume some moderate impact for this category of take that could lower an individual's fitness within the year such that females (assuming a 50 percent chance that a take is a female) might forego reproduction for one year. As noted previously, foregone reproduction has less of an impact on population rates than death (especially for one year) and the number of takes anticipated for each stock would not be expected to impact annual rates of recruitment or survival, even if all of the takes were females (which would be highly unlikely), especially given the high residual PBRs of these stocks. In other words, if the stocks can absorb the numbers of mortalities indicated through each stock's residual PBR without impacting ability to approach OSP, they could absorb the significantly lesser effects of a small number of one-year delay in calving. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ for these two stocks, respectively, is 308 and 777 percent and 34 and 110 percent. This information suggests that some portion of these stocks will likely not be taken at all, but that there will likely be some repeat exposure (2–15 days within a year) of some subset of individuals. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB (*i.e.,* of a lower level, less likely to evoke a severe response). Additionally, while we do not have information that indicates that these takes would occur sequentially on more than several days in a row or be more severe in nature, the probability of this occurring increases the higher the total take numbers. While interrupted feeding bouts are a known response and concern for odontocetes, we also know that there are often viable alternative habitat options in the relative vicinity. Given the higher number of takes and the associated abundances (especially for short-beaked common dolphin) we acknowledge the possibility that some smaller subset of individuals could experience behavioral disruption of a degree that impacts energetic budgets such that reproduction could be delayed for a year. However, considering the potential reproductive effects from tissue damage and from these levels of take by behavioral Level B harassment, in combination with the estimated mortality, this degree of effect on the small subset of individuals that could be affected is still not expected to adversely affect the stocks through effects on annual rates of recruitment or survival.

Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would be expected to significantly interfere with dolphin communication, or echolocation or other important low-frequency cues. Therefore, the associated lost opportunities and capabilities would not be expected to impact reproduction or survival of any individuals. For these same reasons (low level and the likely frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, the estimated Level A harassment takes by PTS for the two dolphin stocks (7 and 101, respectively) would be unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive success or survival of any individual, even if PTS were to be experienced by an animal that also experiences one or more Level B harassment takes.

Altogether, individual dolphins will likely be taken at a low level, with some animals likely taken once or not at all, many potentially disturbed at low levels across 2–15 predominantly non-sequential days, and a small number potentially experiencing a level of effects that could result in curtailed reproduction for one year. This magnitude and severity of effects,

including consideration of the estimated mortality, is not expected to result in impacts on annual rates of recruitment or survival for either of the stocks, especially given the status of the stocks. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on these two Western North Atlantic dolphins.

Pantropical Spotted Dolphin and Spinner Dolphin (Gulf of Mexico Stocks)

As described in the 2018 AFTT final rule, the Gulf of Mexico dolphin stocks indicated in Table 20 suffer from lingering health issues resulting from the DWH oil spill (7 and 17 percent of individuals of these stocks, respectively, have adverse health effects), which means that some of them could be more susceptible to exposure to other stressors, as well as negative population effects (predicting it will take up to 39 and 105 years, respectively, for stocks to return to population growth rates predicted in the absence of DWH effects). We authorize one mortality over the course of seven years for each of these two stocks, which is 0.14 annual mortalities for each stock. Given the large residual PBR values for these stocks (402 and 62, respectively), this number of mortalities falls well under the insignificance threshold. As discussed in the 2018 AFTT final rule, there are no known factors, information, or unusual circumstances that indicate that this estimated M/SI below the insignificance threshold could have adverse effects on these stocks through effects on annual rates of recruitment or survival. Some Level A harassment take by tissue damage from explosives has also been estimated and authorized for these stocks (6 and 14, respectively). As noted previously, tissue damage effects could range in impact from minor to something just less than M/SI that could seriously impact fitness. However, given the Navy's mitigation, which makes exposure at the closer to the source and more severe end of the spectrum less likely, we cautiously assume some moderate impact for this category of take that could lower an individual's fitness within the year such that females (assuming a 50 percent chance that a take is a female) might forego reproduction for one year. As noted previously, foregone reproduction has less of an impact on population rates than death (especially for one year) and the number of takes anticipated for each stock would not be expected to impact annual rates of recruitment or survival, even if all of the takes were females (which would be highly unlikely), especially given the high residual PBRs of these stocks. In other words, if the stocks can absorb the numbers indicated through each stock's residual PBR without impacting ability to approach OSP, they can absorb the significantly lesser effect of a very small number of one-year delay in calving.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance is 32 percent and 60 percent, respectively, reflecting that only a subset of each stock will be taken by behavioral Level B harassment within a year. Of that subset, those taken would likely be taken one time, but if taken more than that, the 2 or 3 days would not likely be sequential. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB (*i.e.,* of a lower to occasionally moderate severity).

Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would be expected to significantly interfere with dolphin communication, or echolocation or other important low-frequency cues. Therefore, the associated lost opportunities and capabilities are not expected to impact reproduction or survival. For these same reasons (low level and the likely frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, the estimated Level A harassment takes by PTS for the dolphin stocks addressed here (15 and 31, respectively) would be unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive success or survival of any individuals.

Altogether, any individual dolphin will likely be taken at a low to occasionally moderate level, with most animals likely not taken at all and with a subset of animals being taken up to a few non-sequential days. Even given the fact that some of the affected individuals may have compromised health, there is nothing to suggest that such a low magnitude and severity of effects, including the potential tissue damage and the estimated mortality of one dolphin from each stock over the seven years, would result in impacts on annual rates of recruitment or survival for either of these two stocks. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on Gulf of Mexico pantropical spotted dolphins and spinner dolphins.

Western North Atlantic Dolphin Stocks (All Stocks in Table 20 Except Atlantic White-Sided Dolphin and Short-Beaked Common Dolphin)

There are no specific issues with the status of these stocks that cause particular concern (*e.g.,* no UMEs). No mortality is expected nor authorized for these stocks. For some of these stocks, some tissue damage has been estimated and authorized (1–9 depending on the stock). As discussed previously, tissue damage effects could range in impact from minor to something just less than M/SI that could seriously impact fitness. However, given the Navy's mitigation, which makes exposure at the closer to the source and more severe end of the spectrum less likely, we cautiously assume some moderate impact for all these takes that could lower an individual's fitness within the year such that a small number of females (assuming a 50 percent chance of being a female) might forego reproduction for one year. As noted previously, foregone reproduction has less of an impact on population rates than death (especially for one year) and one to a few instances would not be expected to impact annual rates of recruitment or survival, even if all of the takes were females (which would be highly unlikely), especially given the higher residual PBRs, which is known for the majority of stocks. For stocks with no calculated residual PBR or where abundance is unknown, the limited information available on population size indicates that the very low number of females who might forego reproduction would have no effect on annual rates of recruitment or survival.

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance ranges up to 984 percent inside the U.S. EEZ (though some are significantly lower) and is generally much lower across the whole range of most stocks, reflecting that for many stocks only a subset of the stock will be impacted—although alternately for a few of the smaller bay stocks all individuals are expected to be taken across multiple days. Generally, individuals of most stocks (especially bottlenose dolphins) might be taken no more than several times each, while the

other species in this group will only accrue takes to a portion of the stock, but individuals might be taken across 2–20 days within a year. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB (*i.e.,* of a lower level, less likely to evoke a severe response). While we do not have information to indicate that these takes would occur sequentially on more than several days in a row or be more severe in nature, the probability of this occurring increases the higher the total take numbers. Given higher percentages when compared to abundances, and especially where the absolute number of takes is higher (*e.g.,* spinner dolphin), we acknowledge the possibility that some smaller subset of individuals (especially in the larger stocks with higher total take numbers) could experience behavioral disruption of a degree that impacts energetic budgets such that reproduction could be delayed for a year. However, considering the very small number of potential reproductive effects from Level A harassment by tissue damage (1–9 depending on stock and assuming all individuals are female, which is very unlikely) in addition to the possible reproductive effect on a smaller subset of individuals from the takes by behavioral Level B harassment, this degree of effects on a small subset of individuals is still not expected to adversely affect annual rates of recruitment or survival. For the smaller Estuarine stocks with the potential repeated days of disturbance, we note that as described in the 2018 AFTT final rule, the activities that the Navy conducts in inland areas (not MTEs, *etc.*) are expected to generally result in lower severity responses, further decreasing the likelihood that they would cause effects on reproduction or survival, even if accrued over several sequential days.

Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would be expected to significantly interfere with dolphin communication, or echolocation or other important low-frequency cues. Therefore, the associated lost opportunities and capabilities would not be expected to impact reproduction or survival. For these same reasons (low level and the likely frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, the estimated Level A harassment takes by PTS for the dolphin stocks addressed here (between 1 and 77) would be unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive success or survival of any individual, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, any individual dolphin will likely be taken at a low to occasionally moderate level, with some animals likely taken once or not at all, a subset potentially disturbed across 2–20 predominantly non-sequential days, and a small number potentially experiencing a level of effects that could curtail reproduction for one year. The magnitude and severity of effects described is not expected to result in impacts on annual rates of recruitment or survival for any of the stocks. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on these Western North Atlantic dolphins.

Gulf of Mexico Dolphin Stocks (All of the Stocks Indicated in Table 20 Except Pantropical Spotted Dolphin and Spinner Dolphin)

As mentioned above and discussed in the 2018 AFTT final rule, the Gulf of Mexico stocks indicated in Table 20 suffer from lingering health issues resulting from the DWH oil spill (3–30 percent of individuals of these stocks have adverse health effects), which means that some of them could be more susceptible to exposure to other stressors, as well as negative population effects (predicting it will take up to 76 years, with that number varying across stocks, for stocks to return to population growth rates predicted in the absence of DWH effects). Of note, the Northern Coastal bottlenose dolphin adverse effect statistics are about twice as high as the others (*i.e.,* all other stocks are below 17 percent). As described above there is an active UME for bottlenose dolphins in the Northern Gulf of Mexico and in southwest Florida along the Gulf of Mexico. These UMEs could affect bottlenose dolphins from several stocks in the Gulf of Mexico, including those that are anticipated to be impacted by Navy activities and those that are not anticipated to be impacted by Navy activities. No mortality has been estimated or authorized for these stocks, however a few Level A harassment takes by tissue damage from explosives (zero for most, 1–2 for a few, and 6 for the Atlantic spotted dolphin stock) are estimated and authorized. As noted previously, tissue damage effects could range in impact from minor to something just less than M/SI that could seriously impact fitness. However, given the Navy's mitigation, which makes exposure at the closer to the source and more severe end of the spectrum less likely, we cautiously assume some moderate impact for these Level A harassment takes that could lower an individual's fitness within the year such that a female (assuming a 50 percent chance of being a female) might forego reproduction for one year. As noted previously, foregone reproduction has less of an impact on population rates than death (especially for one year) and a few instances, even up to six for the Atlantic spotted dolphin stock, would not be expected to impact annual rates of recruitment or survival, even if all of the takes were of females (which is highly unlikely).

Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance ranges up to 177 percent, but is generally much lower for most stocks, reflecting that generally only a subset of each stock will be taken, with those in the subset taken only a few non-sequential days of the year. Regarding the severity of those individual takes by Level B behavioral harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels largely below 172 dB (*i.e.,* of a lower to occasionally moderate severity).

Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would be expected to significantly interfere with dolphin communication, or echolocation or other important low-frequency cues. Therefore, the associated lost opportunities and capabilities would not be expected to impact reproduction or survival. For these same reasons (low level and the likely frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, the estimated Level A harassment takes by PTS for the dolphin stocks addressed here (all 3 or below, with the exception of three stocks with much larger abundances with 4, 8, and 15 PTS takes) would be

unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive success or survival of any individual, even if PTS were to be experienced by an animal that also experiences one or more Level B harassment takes.

Altogether, any individual dolphin will likely be taken at a low to occasionally moderate level, with many animals likely not taken at all and with a subset of animals being taken up to a few times. A very small number could potentially experience tissue damage that could curtail reproduction for one year. Even given the fact that some of the affected individuals may have compromised health, there is nothing to suggest that such a low magnitude and severity of effects would result in impacts on annual rates of recruitment or survival for any of the Gulf of Mexico stocks indicated in Table 20. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on these Gulf of Mexico dolphins.

Harbor Porpoise

In Table 21 below for porpoises, we indicate the total annual mortality, Level A and Level B harassment, and a number indicating the instances of total take as a percentage of abundance. Table 21 is unchanged from Table 75 in the 2018 AFTT final rule. For additional information and analysis supporting the negligible-impact analysis, see the *Odontocetes* discussion as well as the *Harbor Porpoise* discussion in the *Group and Species-Specific Analyses* section of the 2018 AFTT final rule, all of which remains applicable to this final rule unless specifically noted.

Table 21 -- Annual Estimated Takes by Level B Harassment, Level A Harassment, and Mortality for Porpoises in the AFTT Study Area and Number Indicating the Instances of Total Take as a Percentage of Stock Abundance

		Instances of indicated types of incidental take (not all takes represent separate individuals, especially for disturbance)					Total takes		Abundance		Instances of total take as percentage of abundance	
		Level B Harassment		Level A Harassment								
Species	Stock	Behavioral Disturbance	TTS (may also include disturbance)	PTS	Tissue Damage	Mortality	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ
Family Phocoenidae (porpoises)												
Harbor porpoise	Gulf of Maine/Bay of Fundy	133,396	21,917	454	0	0	155,767	155,767	16,552	195,727	941	80

Note: In the table we compare estimated takes to abundance estimates generated from the same underlying density estimate (as described in the *Estimated Take of Marine Mammals* section of the 2018 AFTT final rule), versus abundance estimates directly from NMFS' SARs, which are not based on the same data and would not be appropriate for this purpose. Note that comparisons are made both within the U.S. EEZ only (where density estimates have lesser uncertainty) and across the whole Study Area (which offers a more comprehensive comparison for many stocks).

Total takes inside and outside U.S. EEZ represent the sum of annual Level A and Level B harassment from training and testing plus harassment take from one large ship shock trial.

Below we compile and summarize the information that supports our determination that the Navy's activities will not adversely affect harbor porpoises through effects on annual rates of recruitment or survival.

The Gulf of Maine/Bay of Fundy stock of harbor porpoise is found predominantly in northern U.S. coastal waters (<150 m depth) and up into Canada's Bay of Fundy. No mortality or tissue damage by explosives are anticipated or authorized for this stock and there are no specific issues with the status of the stock that cause particular concern (*e.g.,* no UMEs). Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ, respectively, is 941 percent and 80 percent. This information, combined with the known range of the stock, suggests that only a portion of the individuals in the stock will likely be impacted (*i.e.,* notably less than 80 percent given the likely repeats; in other words more than 20 percent would be taken zero times), but that there will likely be some amount of repeat exposures across days (perhaps 6–19 days within a year) for some subset of individuals that spend extended times within the U.S. EEZ. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be from minutes to hours and not likely exceeding 24 hrs, and the received sound levels of the MF1 bin are largely between 154 and 166 dB, which, for a harbor porpoise (which have a lower behavioral Level B harassment threshold) would mostly be considered a moderate level.

Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would be expected to significantly interfere with harbor porpoise communication, or echolocation or other important low-frequency cues. Therefore, the associated lost opportunities and capabilities would not be expected to impact reproduction or survival. For these same reasons (low level and the likely frequency band), while a small permanent loss of hearing sensitivity may include some degree of energetic costs for compensating or may mean some small loss of opportunities or detection capabilities, the estimated 454 Level A harassment takes by PTS for harbor porpoise would be unlikely to impact behaviors, opportunities, or detection capabilities to a degree that would interfere with reproductive

success or survival for most individuals, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes. Because of the high number of PTS takes, we acknowledge that a few animals could potentially incur permanent hearing loss of a higher degree that could potentially interfere with their successful reproduction and growth. However, given the status of the stock (high abundance and residual PBR of 451), even if this occurred, it would not adversely impact rates of recruitment or survival.

Altogether, because harbor porpoises are particularly sensitive, it is likely that a fair number of the responses would be of a moderate nature. Additionally, as noted, some portion of the stock may be taken repeatedly on up to 19 days within a year, with some of those being sequential. Given this and the larger number of total takes (both to the stock and to individuals), it is more likely (probabilistically) that some small number of individuals could be interrupted during foraging in a manner and amount such that impacts to the energy budgets of females (from either losing feeding opportunities or expending considerable energy to find alternative feeding options) could cause them to forego reproduction for a year (energetic impacts to males generally have limited impact on population rates unless they cause death, and it takes extreme energy deficits beyond what would ever be likely to result from these activities to cause the death of an adult harbor porpoise). As noted previously, however, foregone reproduction (especially for one year) has far less of an impact on population rates than mortality and a small number of instances would not be expected to adversely impact annual rates of recruitment or survival, especially given that the residual PBR of harbor porpoises is 451. All indications are that the number of times in which reproduction would be likely to be foregone would not affect the stock's annual rates of recruitment or survival. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on harbor porpoises.

Beaked Whales

In Table 22 below for beaked whales, we indicate the total annual mortality, Level A and Level B harassment, and a number indicating the instances of total take as a percentage of abundance. Table 22 is unchanged from Table 76 in the 2018 AFTT final rule. For additional information and analysis supporting the negligible-impact analysis, see the *Odontocetes* discussion as well as the *Beaked Whales* discussion in the *Group and Species-Specific Analyses* section of the 2018 AFTT final rule, all of which remains applicable to this final rule unless specifically noted.

Table 22 -- Annual Estimated Takes by Level B Harassment, Level A Harassment, and Mortality for Beaked Whales in the AFTT Study Area and Number Indicating the Instances of Total Take as a Percentage of Stock Abundance.

		Instances of indicated types of incidental take (not all takes represent separate individuals, especially for disturbance)					Total takes		Abundance		Instances of total take as percentage of abundance	
		Level B Harassment		Level A Harassment								
Species	Stock	Behavioral Disturbance	TTS (may also include disturbance)	PTS	Tissue Damage	Mortality	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ
Suborder Odontoceti (toothed whales)												
Family Ziphiidae (beaked whales)												
Blainville's beaked whale	Northern Gulf of Mexico	1,420	8	0	0	0	1,428	1,428	966	966	148	148
	Western North Atlantic	22,902	197	1	0	0	19,959	23,100	1,274	14,277	1,567	162
Cuvier's beaked whale	Northern Gulf of Mexico	1,487	8	0	0	0	1,495	1,495	966	966	155	155
	Western North Atlantic	84,460	724	3	0	0	73,799	85,187	4,704	52,716	1,569	162
Gervais' beaked whale	Northern Gulf of Mexico	1,420	8	0	0	0	1,428	1,428	966	966	148	148
	Western North Atlantic	22,902	197	1	0	0	19,959	23,100	1,274	14,277	1,567	162
Northern bottlenose whale	Western North Atlantic	2,040	4	0	0	0	1,836	2,044	100	688	1,836	297
Sowersby's beaked whale	Western North Atlantic	22,930	197	1	0	0	19,987	23,128	1,274	14,277	1,569	162
True's beaked whale	Western North Atlantic	22,930	197	1	0	0	19,987	23,128	1,274	14,277	1,569	162

Note: In the table we compare estimated takes to abundance estimates generated from the same underlying density estimate (as described in the *Estimated Take of Marine Mammals* section of the 2018 AFTT final rule), versus abundance estimates directly from NMFS' SARs, which are not based on the same data and would not be appropriate for this purpose. Note that comparisons are made both within the U.S. EEZ only (where density estimates have lesser uncertainty) and across the whole Study Area (which offers a more comprehensive comparison for many stocks).

Total takes inside and outside U.S. EEZ represent the sum of annual Level A and Level B harassment from training and testing plus harassment take from one large ship shock trial.

Below we compile and summarize the information that supports our determination that the Navy's activities will not adversely affect any species or stocks through effects on annual rates of recruitment or survival for any of the affected species or stocks addressed in this section.

Beaked Whales, Including Northern Bottlenose Whale (Western North Atlantic Stocks)

These stocks span the deeper waters of the East Coast of the U.S. north to Canada and out into oceanic waters beyond the U.S. EEZ. There is no currently reported trend for these populations and there are no specific issues with the status of the stocks that cause particular concern. Neither mortality nor tissue damage from explosives is anticipated or authorized for these stocks. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance within the U.S. EEZ and both in and outside of the U.S. EEZ is 1,567–1,836 percent and 162–297 percent, respectively. This information, combined with the known range of the stocks, suggests that while not all of the individuals in these stocks would most likely be taken (because they span well into oceanic waters, beyond the AFTT Study Area), of those that are, most would be taken over a few days (though likely not sequential) and some subset that spends extended time within the U.S. EEZ will likely be taken over a larger amount of days (maybe 15–37), some of which could be sequential. Regarding the severity of those individual takes by behavioral Level B harassment, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to generally be between minutes and hours and largely between 148 and 160 dB, though with beaked whales, which are considered somewhat more sensitive, this could mean that some individuals will leave preferred habitat for a day or two. However, while interrupted feeding bouts are a known response and concern for odontocetes, we also know that there are often viable alternative habitat options in the relative vicinity in the Western North Atlantic.

Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would adversely affect communication, inhibit echolocation, or otherwise interfere with other low-frequency cues. Therefore any associated lost opportunities and capabilities would not impact reproduction or survival. For the same reasons (low level and frequency band) the one to three estimated Level A harassment takes by PTS for these stocks are unlikely to have any effect on the reproduction or survival of any individual, even if PTS were to be experienced by an individual that also experiences one or more Level B harassment takes.

Altogether, a small portion of the stock will likely be taken (at a relatively moderate level) on a relatively moderate to high number of days across the year, some of which could be sequential. Though the majority of impacts are expected to be of a sometimes low, but more likely, moderate magnitude and severity, the sensitivity of beaked whales and larger number of takes makes it more likely (probabilistically) that a small number of individuals could be interrupted during foraging in a manner and amount such that impacts to the energy budgets of females (from either losing feeding opportunities or expending considerable energy to find alternative feeding options) could cause them to forego reproduction for a year (energetic impacts to males generally have limited impact on population rates unless they cause death, and it takes extreme energy deficits beyond what would ever be likely to result from these activities to cause the death of an adult beaked whale). As noted previously, however, foregone reproduction (especially for one year) has far less of an impact on population rates than mortality and a small number of instances would not be expected to adversely impact annual rates of recruitment or survival. Based on the abundance of these stocks in the area and the evidence of little, if any, known human-caused mortality, all indications are that the small number of times in which reproduction would be likely to be foregone would not affect the stocks' annual rates of recruitment or survival. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on Western North Atlantic beaked whales.

Beaked Whales (Gulf of Mexico Stocks)

The animals in these stocks suffer from lingering health issues resulting from the DWH oil spill (four percent of individuals of these stocks have adverse health effects), which means that some of them could be more susceptible to exposure to other stressors, and negative population effects (10 years for their growth rate to recover to the rate predicted for the stocks if they had not incurred spill impacts). Neither mortality nor tissue damage from explosives is anticipated or authorized for these stocks. Level A harassment take from PTS is also unlikely to occur. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance is 148–155 percent. This information indicates that either the individuals in these stocks would all be taken by harassment one or two days within a year, or that a subset would not be taken at all and a small subset may be taken several times. Regarding the severity of those individual takes, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to generally be between minutes and hours and largely between 148 and 160 dB, though with beaked whales, which are considered somewhat more sensitive, this could mean that some individuals will leave preferred habitat for a day or two. However, while interrupted feeding bouts are a known response and concern for odontocetes, we also know that there are often viable alternative habitat options in the relative vicinity in the Gulf of Mexico. Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would adversely affect communication, inhibit echolocation, or otherwise interfere with other low frequency cues. Therefore any associated lost opportunities and capabilities would not impact reproduction or survival.

Altogether, likely only a portion of these stocks will be impacted and any individual beaked whale likely would be disturbed at a moderate level for no more than a few days per year. Even given the fact that some of the affected individuals may have compromised health, there is nothing to suggest that this magnitude and severity of effects would result in impacts on annual rates of recruitment or survival for any of the stocks. For these reasons, we have determined, in consideration of all of the effects of the Navy's activities combined, that the authorized take will have a negligible impact on Gulf of Mexico beaked whales included in Table 22.

Pinnipeds

In Table 23 below for pinnipeds, we indicate the total annual mortality, Level A and Level B harassment, and a number indicating the instances of total take as a percentage of abundance. Table 23 is unchanged from Table 77 in the 2018 AFTT final rule. For additional

information and analysis supporting the negligible-impact analysis, see the *Pinnipeds* discussion in the *Group and Species-Specific Analyses* section of the 2018 AFTT final rule, all of which remains applicable to this final rule unless specifically noted.

Table 23 -- Annual Estimated Takes by Level B Harassment, Level A Harassment, and Mortality for Pinnipeds in the AFTT Study Area and Number Indicating the Instances of Total Take as a Percentage of Stock Abundance.

		Instances of indicated types of incidental take (not all takes represent separate individuals, especially for disturbance)					Total takes		Abundance		Instances of total take as percentage of abundance	
		Level B Harassment		Level A Harassment								
Species	Stock	Behavioral Disturbance	TTS (may also include disturbance)	PTS	Tissue Damage	Mortality	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ	In EEZ	Inside and Outside EEZ
Suborder Pinnipedia												
Family Phocidae (true seals)												
Gray seal	Western North Atlantic	810	1,528	2	0	0	2,340	2,340	2,472	2,472	95	95
Harbor seal	Western North Atlantic	1,312	2,477	4	0	0	3,793	3,793	11,122	11,122	34	34
Harp seal	Western North Atlantic	6,339	9,955	3	0	0	16,297	16,297	7,242	7,242	225	225
Hooded seal	Western North Atlantic	448	466	0	0	0	914	914	880	880	104	104

Note: In the table we compare estimated takes to abundance estimates generated from the same underlying density estimate (as described in the *Estimated Take of Marine Mammals* section of the 2018 AFTT final rule), versus abundance estimates directly from NMFS' SARs, which are not based on the same data and would not be appropriate for this purpose. Note that comparisons are made both within the U.S. EEZ only (where density estimates have lesser uncertainty) and across the whole Study Area (which offers a more comprehensive comparison for many stocks).

Total takes inside and outside U.S. EEZ represent the sum of annual Level A and Level B harassment from training and testing plus harassment take from one large ship shock trial.

Below we compile and summarize the information that supports our determination that the Navy's activities will not adversely affect any pinnipeds through effects on annual rates of recruitment or survival for any of the affected species or stocks addressed in this section.

The Western North Atlantic pinniped (harp seal, harbor seal, hooded seal, and gray seal) stocks are northern, but highly migratory species. While harp seals are limited to the northern portion of the U.S. EEZ, gray and harbor seals may be found as far south as the Chesapeake Bay in late fall and hooded seals migrate as far south as Puerto Rico. An UME has been designated for seals from Maine to Virginia and the main pathogen found in the seals that have been tested is phocine distemper virus. Neither mortality nor tissue damage from explosives is anticipated or authorized for any of these stocks. Regarding the magnitude of Level B harassment takes (TTS and behavioral disruption), the number of estimated instances of harassment compared to the abundance that is expected within the AFTT Study Area is 34–225 percent, which suggests that only a subset of the animals in the AFTT Study Area would be taken, but that a few might be taken on several days within the year (1–5 days), but not likely on sequential days. When the fact that some of these seals are residing in areas near Navy activities is considered, we can estimate that perhaps some of those individuals might be taken some higher number of days within the year (up to approximately 10 days), but still with no reason to think that these takes would occur on sequential days, which means that we would not expect effects on reproduction or survival. Regarding the severity of those individual behavioral Level B harassment takes, as explained in the 2018 AFTT final rule, the duration of any exposure response is expected to be between minutes and hours (*i.e.,* relatively short) and the received sound levels are largely below 172 dB, with some up to 178 dB (*i.e.,* of a lower to moderate level, less likely to evoke a severe response) and therefore there is no indication that the expected takes by behavioral Level B harassment would have any effect on annual rates of recruitment or survival.

Regarding the severity of TTS takes, as explained in the 2018 AFTT final rule, they are expected to be low-level, of short duration, and not in a frequency band that would adversely affect communication or otherwise interfere with other low-frequency cues. Therefore any associated lost opportunities and capabilities would not impact reproduction or survival. For the same reasons (low level and frequency band) the two to four estimated Level A harassment takes by PTS for these stocks are unlikely to have any effect on the reproduction or survival of any individual, even if PTS were to be experienced by an animal that also experiences one or more Level B harassment takes.

Even given the fact that some of the affected harbor seal individuals may have compromised health due to the UME, there is nothing to suggest that such a low magnitude and severity of effects would result in impacts on annual rates of recruitment or survival, especially given that the stock abundance in the SAR is 75,839 with a residual PBR of 1,651. Similarly, given the low magnitude and severity of effects, there is no indication that these activities would affect reproduction or survival of harp or hooded seals, much less adversely affect rates of recruitment or survival, especially given that harp seal abundance is estimated at 6.9 million and hooded seal residual PBR is

13,950. Gray seals are experiencing an UME as well as an exceedance of more than 4,299 M/SI above PBR, as reported in the SAR. The NMFS SAR notes, however, that the U.S. portion of average annual human-caused M/SI in U.S. waters does not exceed the portion of PBR in U.S. waters, and while the status of the gray seal population relative to OSP in U.S. Atlantic EEZ waters is unknown, despite the exceedance of the reported PBR the stock abundance appears to be increasing in both U.S. and Canadian waters (Hayes *et al.,* 2018). Also, given the low magnitude (take compared to abundance is 95 percent, meaning the subset of individuals taken may be taken a few times on non-sequential days) and low to occasionally moderate severity of impacts, no impacts to individual reproduction or survival are expected and therefore no effects on annual rates of recruitment or survival would occur. For these reasons, in consideration of all of the effects of the Navy's activities combined, we have determined that the authorized take will have a negligible impact on gray seals, harbor seals, hooded seals, and harp seals.

Determination

The 2018 AFTT final rule included a detailed discussion of all of the anticipated impacts on the affected species and stocks from serious injury and mortality, Level A harassment, and Level B harassment; impacts on habitat; and how the Navy's mitigation and monitoring measures reduce the number and/or severity of adverse effects. We evaluated how these impacts and mitigation measures are expected to combine to affect individuals of each stock. Those effects were then evaluated in the context of whether they are reasonably likely to impact reproductive success or survivorship of individuals and then, if so, further analyzed to determine whether there would be effects on annual rates of recruitment or survival that would adversely affect the species or stock.

As described above, the basis for the negligible impact determination is the assessment of effects on annual rates of recruitment and survival. Accordingly, the analysis included in the 2018 AFTT final rule, as updated in this rule to consider new information and include the two additional years of activities, mitigation measures, and monitoring and reporting requirements, uses annual activity levels, the best available science, and approved methods to predict the annual impacts to marine mammals, which were then analyzed in the context of whether each species or stock would incur more than a negligible impact based on anticipated adverse impacts to annual rates of recruitment or survival. As we have described above, none of the factors upon which the annually-based conclusions in the 2018 AFTT final rule were based have changed in a manner that changes our determinations. Therefore, even though this final rule includes two additional years, because our findings are based on annual rates of recruitment and survival, and nothing has changed in a manner that would change our 2018 AFTT rule annual analyses, it is appropriate to rely on those analyses, in addition to the updated information and analysis discussed above, for this final rule.

Based on the applicable information and analysis from the 2018 AFTT final rule as updated with the information and analysis contained herein on the potential and likely effects of the specified activities on the affected marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the incidental take from the specified activities will have a negligible impact on all affected marine mammal species and stocks.

Subsistence Harvest of Marine Mammals

There are no subsistence uses or harvest of marine mammals in the geographic area affected by the specified activities. Therefore, NMFS has determined that the total taking affecting species or stocks will not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Classifications

Endangered Species Act

There are six marine mammal species under NMFS jurisdiction that are listed as endangered or threatened under the ESA with confirmed or possible occurrence in the AFTT Study Area: Blue whale, fin whale, sei whale, sperm whale, North Atlantic right whale, and Gulf of Mexico subspecies of Bryde's whale. The Navy consulted with NMFS pursuant to section 7 of the ESA for AFTT activities. NMFS also consulted internally on the issuance of the AFTT regulations and LOAs under section 101(a)(5)(A) of the MMPA. NMFS issued a Biological and Conference Opinion on October 22, 2018, concluding that the issuance of the 2018 AFTT final rule and subsequent LOAs are not likely to jeopardize the continued existence of the threatened and endangered species under NMFS' jurisdiction and are not likely to result in the destruction or adverse modification of critical habitat in the AFTT Study Area.

The 2018 Biological and Conference Opinion included specified conditions under which NMFS would be required to reinitiate section 7 consultation. The agency reviewed these specified conditions for this rulemaking and determined that reinitiation of consultation was not warranted. The incidental take statement that accompanied the 2018 Biological and Conference Opinion has been amended to cover the seven-year period of the rule. NMFS also requested that the Conference Opinion for Gulf of Mexico Bryde's whale, which was listed as an endangered species on April 15, 2019, be adopted as a Biological Opinion, which was completed on October 24, 2019. The 2018 Biological and Conference Opinion for this action is available at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-military-readiness-activities.*

National Marine Sanctuaries Act

Federal agency actions that are likely to injure national marine sanctuary resources are subject to consultation with the Office of National Marine Sanctuaries (ONMS) under section 304(d) of the National Marine Sanctuaries Act (NMSA).

On December 15, 2017, the Navy initiated consultation with ONMS and submitted a Sanctuary Resource Statement (SRS) that discussed the effects of the Navy's AFTT activities in the vicinity of Stellwagen Bank, Gray's Reef, and Florida Keys National Marine Sanctuaries on sanctuary resources. NMFS worked with the Navy in the development of the SRS to ensure that it could serve jointly as an SRS for NMFS' action under the MMPA as well.

On December 20, 2017, NMFS initiated consultation with ONMS on MMPA incidental take regulations for the Navy's AFTT activities. NMFS requested that ONMS consider the description and assessment of the effects of the Navy's activities included in the joint SRS submitted by the Navy, which included an assessment of the effects on marine mammals, as satisfying NMFS' need to provide an SRS.

ONMS reviewed the SRS, as well as an addendum the Navy provided on April 3, 2018. On April 12, 2018, ONMS found the SRS and addendum sufficient for the purposes of making an injury determination and developing recommended alternatives as required

by the NMSA. On May 15, 2018, ONMS recommended two reasonable and prudent measures to the Navy and NMFS (one of which applied to NMFS) to minimize injury and to protect sanctuary resources. ONMS subsequently provided a slight modification of those recommendations to the Navy and NMFS on August 1, 2018. On August 17, 2018, the Navy agreed to implement both ONMS recommendations and on October 30, 2018, NMFS agreed to implement the recommendation that applied to NMFS.

For this rulemaking, NMFS reviewed the conditions for reinitiation of NMSA consultation in ONMS' August 1, 2018, letter. The agency has determined that the current NMSA consultation remains valid for the issuance of the seven-year MMPA incidental take regulations and subsequent LOAs, and that reinitiation of consultation under the NMSA is not warranted. The Navy and NMFS will continue to implement the reasonable and prudent alternatives recommended by ONMS during the 2018 consultation.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must evaluate our proposed actions and alternatives with respect to potential impacts on the human environment. NMFS participated as a cooperating agency on the 2018 AFTT FEIS/OEIS (published on September 14, 2018, *https://www.public.navy.mil/usff/environmental/Pages/aftt.aspx*) which evaluated impacts from Navy training and testing activities in the AFTT Study Area for the reasonably foreseeable future. In accordance with 40 CFR 1506.3, NMFS independently reviewed and evaluated the 2018 AFTT FEIS/OEIS and determined that it was adequate and sufficient to meet our responsibilities under NEPA for the issuance of the 2018 AFTT final rule and associated LOAs. NOAA therefore adopted the 2018 AFTT FEIS/OEIS.

In accordance with 40 CFR 1502.9 and the information and analysis contained in this final rule, NMFS has determined that this final rule and the subsequent LOAs will not result in impacts that were not fully considered in the 2018 AFTT FEIS/OEIS. In addition, as indicated in this final rule, the addition of two years of authorized incidental take associated with the same activities conducted in the same geographic area and having the same potential effects on the same species and stocks is not a substantial change to the action, nor are there significant new circumstances or information relevant to environmental concerns or its impacts. Therefore, NMFS has determined that the 2018 AFTT FEIS/OEIS and 2018 NMFS Record of Decision (ROD) remain valid, and there is no need to supplement either document for this rulemaking.

Regulatory Flexibility Act

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

Pursuant to the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration during the proposed rule stage that this action would not have a significant economic impact on a substantial number of small entities. The factual basis for the certification was published in the proposed rule and is not repeated here. No comments were received regarding this certification. As a result, a regulatory flexibility analysis was not required and none was prepared.

Waiver of Delay in Effective Date Under the Administrative Procedure Act

NMFS has determined that there is good cause under the Administrative Procedure Act (5 U.S.C. 553(d)) to waive the 30-day delay in the effective date for this rule. This rule relieves the Navy from the restrictions of the take prohibitions under the MMPA by granting the Navy's request for incidental take authorization under MMPA section 101(a)(5)(A). In addition, there is good cause to waive the 30-day effective date period because the regulations are identical to those that the Navy has been implementing since November 2018 (except for a small number of minor, technical clarifications that do not affect implementation). The only substantive change in the regulations is to extend the mitigation measures and the monitoring and reporting requirements for an additional two years, until November 13, 2025. The Navy is the only entity affected by the regulations, the Navy specifically requested extension of the regulatory requirements for the two years, and the Navy has fully agreed to these requirements for the additional two years through its application for incidental take authorization. The Navy is anticipating finalization of the rule. For all these reasons, there is no need for a period of time following publication of the rule for the Navy to bring its training and testing operations into compliance with the requirements of the rule.

List of Subjects in 50 CFR Part 218

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

Dated: December 11, 2019.

Samuel D. Rauch III,

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

For reasons set forth in the preamble, 50 CFR part 218 is amended as follows:

PART 218—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

■ 1. The authority citation for part 218 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.,* unless otherwise noted.

■ 2. Revise subpart I to read as follows:

Subpart I—Taking and Importing Marine Mammals; U.S. Navy's Atlantic Fleet Training and Testing (AFTT)

Sec.

Subpart I—Taking and Importing Marine Mammals; U.S. Navy's Atlantic Fleet Training and Testing (AFTT)

§ 218.80 Specified activity and geographical region.

(a) Regulations in this subpart apply only to the U.S. Navy for the taking of marine mammals that occurs in the area described in paragraph (b) of this section and that occurs incidental to the activities listed in paragraph (c) of this section.

(b) The taking of marine mammals by the Navy under this subpart may be authorized in Letters of Authorization (LOAs) only if it occurs within the Atlantic Fleet Training and Testing (AFTT) Study Area, which includes areas of the western Atlantic Ocean along the East Coast of North America, portions of the Caribbean Sea, and the Gulf of Mexico. The AFTT Study Area begins at the mean high tide line along the U.S. East Coast and extends east to

the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The AFTT Study Area also includes Navy pierside locations, bays, harbors, and inland waterways, and civilian ports where training and testing occurs.

(c) The taking of marine mammals by the Navy is only authorized if it occurs incidental to the Navy conducting training and testing activities, including:

(1) *Training.* (i) Amphibious warfare;

(ii) Anti-submarine warfare;

(iii) Electronic warfare;

(iv) Expeditionary warfare;

(v) Mine warfare;

(vi) Surface warfare, and

(vii) Pile driving.

(2) *Testing.* (i) Naval Air Systems Command Testing Activities;

(ii) Naval Sea System Command Testing Activities; and

(iii) Office of Naval Research Testing Activities.

§ 218.81 Effective dates.

Regulations in this subpart are effective from December 23, 2019 through November 13, 2025.

§ 218.82 Permissible methods of taking.

(a) Under LOAs issued pursuant to §§ 216.106 of this chapter and 218.86, the Holder of the LOAs (hereinafter ''Navy'') may incidentally, but not intentionally, take marine mammals within the area described in § 218.80(b) by Level A harassment and Level B harassment associated with the use of active sonar and other acoustic sources and explosives as well as serious injury or mortality associated with ship shock trials and vessel strikes, provided the activity is in compliance with all terms, conditions, and requirements of this subpart and the applicable LOAs.

(b) The incidental take of marine mammals by the activities listed in § 218.80(c) is limited to the following species:

TABLE 1 TO § 218.82

Species	Stock
Suborder Mysticeti (baleen whales)	
Family Balaenidae (right whales):	
North Atlantic right whale	Western.
Family Balaenopteridae (roquals):	
Blue whale	Western North Atlantic (Gulf of St. Lawrence).
Bryde's whale	Northern Gulf of Mexico
	NSD.
Minke whale	Canadian East Coast.
Fin whale	Western North Atlantic.
Humpback whale	Gulf of Maine.
Sei whale	Nova Scotia.
Suborder Odontoceti (toothed whales)	
Family Physeteridae (sperm whale):	
Sperm whale	Gulf of Mexico Oceanic.
	North Atlantic.
Family Kogiidae (sperm whales):	
Dwarf sperm whale	Gulf of Mexico Oceanic.
	Western North Atlantic.
Pygmy sperm whale	Northern Gulf of Mexico.
	Western North Atlantic.
Family Ziphiidae (beaked whales):	
Blainville's beaked whale	Northern Gulf of Mexico.
	Western North Atlantic.
Cuvier's beaked whale	Northern Gulf of Mexico.
	Western North Atlantic.
Gervais' beaked whale	Northern Gulf of Mexico.
	Western North Atlantic.
Northern bottlenose whale	Western North Atlantic.
Sowersby's beaked whale	Western North Atlantic.
True's beaked whale	Western North Atlantic.
Family Delphinidae (dolphins):	
Atlantic spotted dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
Atlantic white-sided dolphin	Western North Atlantic.

TABLE 1 TO § 218.82—Continued

Species	Stock
Bottlenose dolphin	Choctawhatchee Bay.
	Gulf of Mexico Eastern Coastal.
	Gulf of Mexico Northern Coastal.
	Gulf of Mexico Western Coastal.
	Indian River Lagoon Estuarine System.
	Jacksonville Estuarine System.
	Mississippi Sound, Lake Borgne, Bay Boudreau.
	Northern Gulf of Mexico Continental Shelf.
	Northern Gulf of Mexico Oceanic.
	Northern North Carolina Estuarine System.
	Southern North Carolina Estuarine System.
	Western North Atlantic Northern Florida Coastal.
	Western North Atlantic Central Florida Coastal.
	Western North Atlantic Northern Migratory Coastal.
	Western North Atlantic Offshore.
	Western North Atlantic South Carolina/Georgia Coastal.
	Western North Atlantic Southern Migratory Coastal.
Clymene dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
False killer whale	Northern Gulf of Mexico.
	Western North Atlantic.
Fraser's dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
Killer whale	Northern Gulf of Mexico.
	Western North Atlantic.
Long-finned pilot whale	Western North Atlantic.
Melon-headed whale	Northern Gulf of Mexico.
	Western North Atlantic.
Pantropical spotted dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
Pygmy killer whale	Northern Gulf of Mexico.
	Western North Atlantic.
Risso's dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
Rough-toothed dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
Short-beaked common dolphin	Western North Atlantic.
Short-finned pilot whale	Northern Gulf of Mexico.
	Western North Atlantic.
Spinner dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
Striped dolphin	Northern Gulf of Mexico.
	Western North Atlantic.
White-beaked dolphin	Western North Atlantic.
Family Phocoenidae (porpoises):	
Harbor porpoise	Gulf of Maine/Bay of Fundy.
Suborder Pinnipedia	
Family Phocidae (true seals):	
Gray seal	Western North Atlantic.
Harbor seal	Western North Atlantic.
Harp seal	Western North Atlantic.
Hooded seal	Western North Atlantic.

§ 218.83 Prohibitions.

Notwithstanding incidental takings contemplated in § 218.82(a) and authorized by LOAs issued under §§ 216.106 of this chapter and 218.86, no person in connection with the activities listed in § 218.80(c) may:

(a) Violate, or fail to comply with the terms, conditions, and requirements of this subpart or an LOA issued under §§ 216.106 of this chapter and 218.86;

(b) Take any marine mammal not specified in § 218.82(b);

(c) Take any marine mammal specified § 218.82(b) in any manner other than as specified in the LOAs; or

(d) Take a marine mammal specified § 218.82(b) if the National Marine Fisheries Service (NMFS) determines such taking results in more than a negligible impact on the species or stocks of such marine mammal.

§ 218.84 Mitigation requirements.

When conducting the activities identified in § 218.80(c), the mitigation measures contained in any LOAs issued under §§ 216.106 of this chapter and 218.86 must be implemented. These mitigation measures include, but are not limited to:

(a) *Procedural mitigation.* Procedural mitigation is mitigation that the Navy must implement whenever and wherever an applicable training or testing activity takes place within the AFTT Study Area for each applicable activity category or stressor category and includes acoustic stressors (*i.e.,* active sonar, air guns, pile driving, weapons

firing noise), explosive stressors (*i.e.,* sonobuoys, torpedoes, medium-caliber and large-caliber projectiles, missiles and rockets, bombs, sinking exercises, mines, anti-swimmer grenades, line charge testing and ship shock trials), and physical disturbance and strike stressors (*i.e.,* vessel movement; towed in-water devices; small-, medium-, and large-caliber non-explosive practice munitions; non-explosive missiles and rockets; non-explosive bombs and mine shapes).

(1) *Environmental awareness and education.* Appropriate personnel (including civilian personnel) involved in mitigation and training or testing activity reporting under the specified activities must complete one or more modules of the U.S. Navy Afloat Environmental Compliance Training Series, as identified in their career path training plan. Modules include: Introduction to the U.S. Navy Afloat Environmental Compliance Training Series, Marine Species Awareness Training, U.S. Navy Protective Measures Assessment Protocol, and U.S. Navy Sonar Positional Reporting System and Marine Mammal Incident Reporting.

(2) *Active sonar.* Active sonar includes low-frequency active sonar, mid-frequency active sonar, and high-frequency active sonar. For vessel-based active sonar activities, mitigation applies only to sources that are positively controlled and deployed from manned surface vessels (*e.g.,* sonar sources towed from manned surface platforms). For aircraft-based active sonar activities, mitigation applies only to sources that are positively controlled and deployed from manned aircraft that do not operate at high altitudes (*e.g.,* rotary-wing aircraft). Mitigation does not apply to active sonar sources deployed from unmanned aircraft or aircraft operating at high altitudes (*e.g.,* maritime patrol aircraft).

(i) *Number of Lookouts and observation platform*—(A) *Hull-mounted sources.* One Lookout for platforms with space or manning restrictions while underway (at the forward part of a small boat or ship) and platforms using active sonar while moored or at anchor (including pierside); two Lookouts for platforms without space or manning restrictions while underway (at the forward part of the ship); and four Lookouts for pierside sonar testing activities at Port Canaveral, Florida and Kings Bay, Georgia.

(B) *Sources that are not hull-mounted sources.* One Lookout on the ship or aircraft conducting the activity.

(ii) *Mitigation zones and requirements.* During the activity, at 1,000 yard (yd) Navy personnel must power down 6 decibels (dB), at 500 yd Navy personnel must power down an additional 4 dB (for a total of 10 dB), and at 200 yd Navy personnel must shut down for low-frequency active sonar ≥200 dB and hull-mounted mid-frequency active sonar; or at 200 yd Navy personnel must shut down for low-frequency active sonar <200 dB, mid-frequency active sonar sources that are not hull-mounted, and high-frequency active sonar.

(A) Prior to the initial start of the activity (*e.g.,* when maneuvering on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of active sonar transmission.

(B) During low-frequency active sonar at or above 200 dB and hull-mounted mid-frequency active sonar, Navy personnel must observe the mitigation zone for marine mammals and power down active sonar transmission by 6 dB if marine mammals are observed within 1,000 yd of the sonar source; power down by an additional 4 dB (10 dB total) if marine mammals are observed within 500 yd of the sonar source; and cease transmission if marine mammals are observed within 200 yd of the sonar source.

(C) During low-frequency active sonar below 200 dB, mid-frequency active sonar sources that are not hull mounted, and high-frequency active sonar, Navy personnel must observe the mitigation zone for marine mammals and cease active sonar transmission if marine mammals are observed within 200 yd of the sonar source.

(D) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing or powering up active sonar transmission) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the sonar source; the mitigation zone has been clear from any additional sightings for 10 minutes (min) for aircraft-deployed sonar sources or 30 min for vessel-deployed sonar sources; for mobile activities, the active sonar source has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting; or for activities using hull-mounted sonar where a dolphin(s) is observed in the mitigation zone, the Lookout concludes that the dolphin(s) is deliberately closing in on the ship to ride the ship's bow wave, and is therefore out of the main transmission axis of the sonar (and there are no other marine mammal sightings within the mitigation zone).

(3) *Air guns*—(i) *Number of Lookouts and observation platform.* One Lookout must be positioned on a ship or pierside.

(ii) *Mitigation zone and requirements.* 150 yd around the air gun.

(A) Prior to the initial start of the activity (*e.g.,* when maneuvering on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of air gun use.

(B) During the activity, Navy personnel must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must cease use of air guns.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing air gun use) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the air gun; the mitigation zone has been clear from any additional sightings for 30 min; or for mobile activities, the air gun has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting.

(4) *Pile driving.* Pile driving and pile extraction sound during Elevated Causeway System training.

(i) *Number of Lookouts and observation platform.* One Lookout must be positioned on the shore, the elevated causeway, or a small boat.

(ii) *Mitigation zone and requirements.* 100 yd around the pile driver.

(A) Prior to the initial start of the activity (for 30 min), Navy personnel must observe the mitigation zone for

floating vegetation; if floating vegetation is observed, Navy personnel must delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must delay the start of pile driving or vibratory pile extraction.

(B) During the activity, Navy personnel must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must cease impact pile driving or vibratory pile extraction.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing pile driving or pile extraction) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the pile driving location; or the mitigation zone has been clear from any additional sightings for 30 min.

(5) *Weapons firing noise.* Weapons firing noise associated with large-caliber gunnery activities.

(i) *Number of Lookouts and observation platform.* One Lookout must be positioned on the ship conducting the firing. Depending on the activity, the Lookout could be the same as the one provided for under explosive medium-caliber and large-caliber projectiles or under small-, medium-, and large-caliber non-explosive practice munitions in paragraphs (a)(8)(i) and (a)(19)(i) of this section.

(ii) *Mitigation zone and requirements.* Thirty degrees on either side of the firing line out to 70 yd from the muzzle of the weapon being fired.

(A) Prior to the initial start of the activity, Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of weapons firing.

(B) During the activity, Navy personnel must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must cease weapons firing.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing weapons firing) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the firing ship; the mitigation zone has been clear from any additional sightings for 30 min; or for mobile activities, the firing ship has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting.

(6) *Explosive sonobuoys*—(i) *Number of Lookouts and observation platform.* One Lookout must be positioned in an aircraft or on small boat. If additional platforms are participating in the activity, personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* 600 yd around an explosive sonobuoy.

(A) Prior to the initial start of the activity (*e.g.,* during deployment of a sonobuoy field, which typically lasts 20–30 min), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel must conduct passive acoustic monitoring for marine mammals and use information from detections to assist visual observations. Navy personnel also must visually observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of sonobuoy or source/receiver pair detonations.

(B) During the activity, Navy personnel must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must cease sonobuoy or source/receiver pair detonations.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing detonations) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the sonobuoy; or the mitigation zone has been clear from any additional sightings for 10 min when the activity involves aircraft that have fuel constraints (*e.g.,* helicopter), or 30 min when the activity involves aircraft that are not typically fuel constrained.

(D) After completion of the activity (*e.g.,* prior to maneuvering off station), when practical (*e.g.,* when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(7) *Explosive torpedoes*—(i) *Number of Lookouts and observation platform.* One Lookout positioned in an aircraft. If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* 2,100 yd around the intended impact location.

(A) Prior to the initial start of the activity (*e.g.,* during deployment of the target), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, relocate or delay the start until the mitigation zone is clear. Navy personnel also must conduct passive acoustic monitoring for marine mammals and use the information from detections to assist visual observations. Navy personnel must visually observe the mitigation zone for marine mammals and jellyfish aggregations; if marine mammals or jellyfish aggregations are observed, Navy personnel must relocate or delay the start of firing.

(B) During the activity, Navy personnel must observe for marine mammals and jellyfish aggregations; if marine mammals or jellyfish aggregations are observed, Navy personnel must cease firing.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during

the activity (by not recommencing firing) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended impact location; or the mitigation zone has been clear from any additional sightings for 10 min when the activity involves aircraft that have fuel constraints, or 30 min when the activity involves aircraft that are not typically fuel constrained.

(D) After completion of the activity (*e.g.,* prior to maneuvering off station), when practical (*e.g.,* when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(8) *Explosive medium-caliber and large-caliber projectiles.* Gunnery activities using explosive medium-caliber and large-caliber projectiles. Mitigation applies to activities using a surface target.

(i) *Number of Lookouts and observation platform.* One Lookout must be on the vessel or aircraft conducting the activity. For activities using explosive large-caliber projectiles, depending on the activity, the Lookout could be the same as the one described for weapons firing noise in paragraph (a)(5)(i) of this section. If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* (A) 200 yd around the intended impact location for air-to-surface activities using explosive medium-caliber projectiles.

(B) 600 yd around the intended impact location for surface-to-surface activities using explosive medium-caliber projectiles.

(C) 1,000 yd around the intended impact location for surface-to-surface activities using explosive large-caliber projectiles.

(D) Prior to the initial start of the activity (*e.g.,* when maneuvering on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of firing.

(E) During the activity, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease firing.

(F) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing firing) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended impact location; the mitigation zone has been clear from any additional sightings for 10 min for aircraft-based firing or 30 min for vessel-based firing; or for activities using mobile targets, the intended impact location has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting.

(G) After completion of the activity (*e.g.,* prior to maneuvering off station), when practical (*e.g.,* when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(9) *Explosive missiles and rockets.* Aircraft-deployed explosive missiles and rockets. Mitigation applies to activities using a surface target.

(i) *Number of Lookouts and observation platform.* One Lookout must be positioned in an aircraft. If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* (A) 900 yd around the intended impact location for missiles or rockets with 0.6–20 lb net explosive weight.

(B) 2,000 yd around the intended impact location for missiles with 21–500 lb net explosive weight.

(C) Prior to the initial start of the activity (*e.g.,* during a fly-over of the mitigation zone), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of firing.

(D) During the activity, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease firing.

(E) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing firing) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended impact location; or the mitigation zone has been clear from any additional sightings for 10 min when the activity involves aircraft that have fuel constraints, or 30 min when the activity involves aircraft that are not typically fuel constrained.

(F) After completion of the activity (*e.g.,* prior to maneuvering off station), when practical (*e.g.,* when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(10) *Explosive bombs*—(i) *Number of Lookouts and observation platform.* One Lookout must be positioned in an aircraft conducting the activity. If additional platforms are participating in

the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* 2,500 yd around the intended target.

(A) Prior to the initial start of the activity (*e.g.,* when arriving on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of bomb deployment.

(B) During the activity (*e.g.,* during target approach), Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease bomb deployment.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing bomb deployment) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended target; the mitigation zone has been clear from any additional sightings for 10 min; or for activities using mobile targets, the intended target has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting.

(D) After completion of the activity (*e.g.,* prior to maneuvering off station), when practical (*e.g.,* when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(11) *Sinking exercises*—(i) *Number of Lookouts and observation platform.* Two Lookouts (one must be positioned in an aircraft and one must be positioned on a vessel). If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* 2.5 nautical miles (nmi) around the target ship hulk.

(A) Prior to the initial start of the activity (90 min prior to the first firing), Navy personnel must conduct aerial observations of the mitigation zone for floating vegetation; if floating vegetation is observed Navy personnel must delay the start until the mitigation zone is clear. Navy personnel also must conduct aerial observations of the mitigation zone for marine mammals and jellyfish aggregations; if marine mammals or jellyfish aggregations are observed, Navy personnel must delay the start of firing.

(B) During the activity, Navy personnel must conduct passive acoustic monitoring for marine mammals and use information from detections to assist visual observations. Navy personnel must visually observe the mitigation zone for marine mammals from the vessel; if marine mammals are observed, Navy personnel must cease firing. Immediately after any planned or unplanned breaks in weapons firing of longer than two hours, Navy personnel must observe the mitigation zone for marine mammals from the aircraft and vessel; if marine mammals are observed, Navy personnel must delay recommencement of firing.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing firing) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the target ship hulk; or the mitigation zone has been clear from any additional sightings for 30 min.

(D) After completion of the activity (for two hours after sinking the vessel or until sunset, whichever comes first), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(12) *Explosive mine countermeasure and neutralization activities*—(i) *Number of Lookouts and observation platform.* (A) One Lookout must be positioned on a vessel or in an aircraft when implementing the smaller mitigation zone defined at paragraph (a)(12)(ii)(A) of this section (using 0.1–5 lb net explosive weight charges).

(B) Two Lookouts (one must be in an aircraft and one must be on a small boat) when implementing the larger mitigation zone defined at paragraph (a)(12)(ii)(B) of this section (using 6–650 lb net explosive weight charges).

(C) If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* (A) 600 yd around the detonation site for activities using 0.1–5 lb net explosive weight.

(B) 2,100 yd around the detonation site for activities using 6–650 lb net explosive weight (including high explosive target mines).

(C) Prior to the initial start of the activity (*e.g.,* when maneuvering on station; typically, 10 min when the activity involves aircraft that have fuel constraints, or 30 min when the activity involves aircraft that are not typically fuel constrained), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of detonations.

(D) During the activity, Navy personnel must observe the mitigation zone for marine mammals; if marine mammals are observed, the Navy must cease detonations.

(E) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing detonations) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a

determination of its course, speed, and movement relative to detonation site; or the mitigation zone has been clear from any additional sightings for 10 min when the activity involves aircraft that have fuel constraints, or 30 min when the activity involves aircraft that are not typically fuel constrained.

(F) After completion of the activity (typically 10 min when the activity involves aircraft that have fuel constraints, or 30 min when the activity involves aircraft that are not typically fuel constrained), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(13) *Explosive mine neutralization activities involving navy divers*—(i) *Number of Lookouts and observation platform.* (A) Two Lookouts must be positioned (two small boats with one Lookout each, or one Lookout must be on a small boat and one must be in a rotary-wing aircraft) when implementing the smaller mitigation zone defined at paragraph (a)(13)(ii)(A) of this section.

(B) Four Lookouts must be positioned (two small boats with two Lookouts each), and a pilot or member of an aircrew must serve as an additional Lookout if aircraft are used during the activity, when implementing the larger mitigation zone defined at paragraph (a)(13)(ii)(B) of this section.

(C) All divers placing the charges on mines must support the Lookouts while performing their regular duties and must report applicable sightings to their supporting small boat or Range Safety Officer.

(D) If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* (A) 500 yd around the detonation site during activities under positive control using 0.1–20 lb net explosive weight.

(B) 1,000 yd around the detonation site during all activities using time-delay fuses (0.1–20 lb net explosive weight) and during activities under positive control using 21–60 lb net explosive weight charges.

(C) Prior to the initial start of the activity (*e.g.,* when maneuvering on station for activities under positive control; 30 min for activities using time-delay firing devices), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of detonation or fuse initiation.

(D) During the activity, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease detonation or fuse initiation. To the maximum extent practicable depending on mission requirements, safety, and environmental conditions, boats must position themselves near the mid-point of the mitigation zone radius (but outside of the detonation plume and human safety zone), must position themselves on opposite sides of the detonation location (when two boats are used), and must travel in a circular pattern around the detonation location with one Lookout observing inward toward the detonation site and the other observing outward toward the perimeter of the mitigation zone. If used, aircraft must travel in a circular pattern around the detonation location to the maximum extent practicable. Navy personnel must not set time-delay firing devices (0.1–20 lb. net explosive weight) to exceed 10 min.

(E) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing detonations) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the detonation site; or the mitigation zone has been clear from any additional sightings for 10 min during activities under positive control with aircraft that have fuel constraints, or 30 min during activities under positive control with aircraft that are not typically fuel constrained and during activities using time-delay firing devices.

(F) After completion of an activity (for 30 min), Navy personnel must observe for marine mammals in the vicinity of where any detonations have occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(14) *Maritime security operations—anti-swimmer grenades*—(i) *Number of Lookouts and observation platform.* One Lookout must be positioned on the small boat conducting the activity. If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* 200 yd around the intended detonation location.

(A) Prior to the initial start of the activity (*e.g.,* when maneuvering on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of detonation.

(B) During the activity, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease detonation.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing detonations) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended detonation location; the mitigation zone has been clear from any additional sightings for 30 min; or the intended detonation location has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting.

(D) After completion of the activity (*e.g.,* prior to maneuvering off station), when practical (*e.g.,* when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred;

if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(15) *Line charge testing*—(i) *Number of Lookouts and observation platform.* One Lookout must be positioned on a vessel. If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* 900 yd around the intended detonation location.

(A) Prior to the initial start of the activity (*e.g.,* when maneuvering on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must delay the start of detonations.

(B) During the activity, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease detonations.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing detonations) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended detonation location; or the mitigation zone has been clear from any additional sightings for 30 min.

(D) After completion of the activity (*e.g.,* prior to maneuvering off station), when practical (*e.g.,* when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(16) *Ship shock trials*—(i) *Number of Lookouts and observation platform.* (A) A minimum of ten Lookouts or trained marine species observers (or a combination thereof) must be positioned either in an aircraft or on multiple vessels (*i.e.,* a Marine Animal Response Team boat and the test ship).

(*1*) If aircraft are used, Lookouts or trained marine species observers must be in an aircraft and on multiple vessels.

(*2*) If aircraft are not used, a sufficient number of additional Lookouts or trained marine species observers must be used to provide vessel-based visual observation comparable to that achieved by aerial surveys.

(B) If additional platforms are participating in the activity, Navy personnel positioned in those assets (*e.g.,* safety observers, evaluators) must support observing the mitigation zone for marine mammals and other applicable biological resources while performing their regular duties.

(ii) *Mitigation zone and requirements.* 3.5 nmi around the ship hull.

(A) The Navy must not conduct ship shock trials in the Jacksonville Operating Area during North Atlantic right whale calving season from November 15 through April 15.

(B) The Navy must develop detailed ship shock trial monitoring and mitigation plans approximately one-year prior to an event and must continue to provide these to NMFS for review and approval.

(C) Pre-activity planning must include selection of one primary and two secondary areas where marine mammal populations are expected to be the lowest during the event, with the primary and secondary locations located more than 2 nmi from the western boundary of the Gulf Stream for events in the Virginia Capes Range Complex or Jacksonville Range Complex.

(D) If it is determined during pre-activity surveys that the primary area is environmentally unsuitable (*e.g.,* observations of marine mammals or presence of concentrations of floating vegetation), the shock trial can be moved to a secondary site in accordance with the detailed mitigation and monitoring plan provided to NMFS.

(E) Prior to the initial start of the activity at the shock trial location (in intervals of 5 hrs, 3 hrs, 40 min, and immediately before the detonation), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must delay triggering the detonation.

(F) During the activity, Navy personnel must observe for marine mammals, large schools of fish, jellyfish aggregations, and flocks of seabirds; if marine mammals, large schools of fish, jellyfish aggregations, and flocks of seabirds are observed, Navy personnel must cease triggering the detonation. After completion of each detonation, Navy personnel must observe the mitigation zone for marine mammals; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures and halt any remaining detonations until Navy personnel can consult with NMFS and review or adapt the mitigation, if necessary.

(G) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing detonations) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the ship hull; or the mitigation zone has been clear from any additional sightings for 30 min.

(H) After completion of the activity (during the following two days at a minimum, and up to seven days at a maximum), Navy personnel must observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, Navy personnel must follow established incident reporting procedures. If additional platforms are supporting this activity (*e.g.,* providing range clearance), these Navy assets must assist in the visual observation of the area where detonations occurred.

(17) *Vessel movement.* The mitigation must not be applied if: The vessel's safety is threatened; the vessel is restricted in its ability to maneuver (*e.g.,* during launching and recovery of aircraft or landing craft, during towing activities, when mooring, *etc.*); or the vessel is operated autonomously.

(i) *Number of Lookouts and observation platform.* One Lookout must be on the vessel that is underway.

(ii) *Mitigation zone and requirements.* (A) 500 yd around whales.

(B) 200 yd around all other marine mammals (except bow-riding dolphins

and pinnipeds hauled out on man-made navigational structures, port structures, and vessels).

(C) During the activity, when underway, Navy personnel must observe the mitigation zone for marine mammals; if any marine mammals are observed, Navy personnel must maneuver to maintain distance.

(D) Additionally, Navy personnel must broadcast awareness notification messages with North Atlantic right whale Dynamic Management Area information (*e.g.,* location and dates) to applicable Navy assets operating in the vicinity of the Dynamic Management Area. The information will alert assets to the possible presence of a North Atlantic right whale to maintain safety of navigation and further reduce the potential for a vessel strike. Platforms must use the information to assist their visual observation of applicable mitigation zones during training and testing activities and to aid in the implementation of procedural mitigation, including but not limited to, mitigation for vessel movement. If a marine mammal vessel strike occurs, Navy personnel must follow the established incident reporting procedures.

(18) *Towed in-water devices.* Mitigation applies to devices that are towed from a manned surface platform or manned aircraft. The mitigation will not be applied if the safety of the towing platform or in-water device is threatened.

(i) *Number of Lookouts and observation platform.* One Lookout must be positioned on a manned towing platform.

(ii) *Mitigation zone and requirements.* 250 yd around marine mammals. During the activity, when towing an in-water device, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must maneuver to maintain distance.

(19) *Small-, medium-, and large-caliber non-explosive practice munitions.* Mitigation applies to activities using a surface target.

(i) *Number of Lookouts and observation platform.* One Lookout must be positioned on the platform conducting the activity. Depending on the activity, the Lookout could be the same as the one described for weapons firing noise in paragraph (a)(5)(i) of this section.

(ii) *Mitigation zone and requirements.* 200 yd around the intended impact location.

(A) Prior to the initial start of the activity (*e.g.,* when maneuvering on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of firing.

(B) During the activity, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease firing.

(C) Commencement/recommencement conditions after a marine mammal sighting before or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing firing) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended impact location; the mitigation zone has been clear from any additional sightings for 10 min for aircraft-based firing or 30 min for vessel-based firing; or for activities using a mobile target, the intended impact location has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting.

(20) *Non-explosive missiles and rockets.* Aircraft-deployed non-explosive missiles and rockets. Mitigation applies to activities using a surface target.

(i) *Number of Lookouts and observation platform.* One Lookout must be positioned in an aircraft.

(ii) *Mitigation zone and requirements.* 900 yd around the intended impact location.

(A) Prior to the initial start of the activity (*e.g.,* during a fly-over of the mitigation zone), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of firing.

(B) During the activity, Navy personnel must observe for marine mammals; if marine mammals are observed, Navy personnel must cease firing.

(C) Commencement/recommencement conditions after a marine mammal sighting prior to or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing firing) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended impact location; or the mitigation zone has been clear from any additional sightings for 10 min when the activity involves aircraft that have fuel constraints, or 30 min when the activity involves aircraft that are not typically fuel constrained.

(21) *Non-explosive bombs and mine shapes.* Non-explosive bombs and non-explosive mine shapes during mine laying activities.

(i) *Number of Lookouts and observation platform.* One Lookout must be positioned in an aircraft.

(ii) *Mitigation zone and requirements.* 1,000 yd around the intended target.

(A) Prior to the initial start of the activity (*e.g.,* when arriving on station), Navy personnel must observe the mitigation zone for floating vegetation; if floating vegetation is observed, Navy personnel must relocate or delay the start until the mitigation zone is clear. Navy personnel also must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must relocate or delay the start of bomb deployment or mine laying.

(B) During the activity (*e.g.,* during approach of the target or intended minefield location), Navy personnel must observe the mitigation zone for marine mammals; if marine mammals are observed, Navy personnel must cease bomb deployment or mine laying.

(C) Commencement/recommencement conditions after a marine mammal sighting prior to or during the activity: Navy personnel must allow a sighted marine mammal to leave the mitigation zone prior to the initial start of the activity (by delaying the start) or during the activity (by not recommencing bomb deployment or mine laying) until one of the following conditions has been met: The animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course, speed, and movement relative to the intended target or minefield location; the mitigation zone has been clear from any additional sightings for 10 min; or for activities using mobile targets, the intended target has transited a distance equal to double that of the mitigation

zone size beyond the location of the last sighting.

(b) *Mitigation areas.* In addition to procedural mitigation, the Navy must implement mitigation measures within mitigation areas to avoid potential impacts on marine mammals.

(1) *Mitigation areas off the Northeastern United States for sonar, explosives, and physical disturbance and strikes*—(i) *Mitigation area requirements*—(A) *Northeast North Atlantic Right Whale Mitigation Area (year-round).* (*1*) Navy personnel must report the total hours and counts of active sonar and in-water explosives used in the mitigation area (which includes North Atlantic right whale ESA-designated critical habitat) in its annual training and testing activity reports submitted to NMFS.

(*2*) Navy personnel must minimize the use of low-frequency active sonar, mid-frequency active sonar, and high-frequency active sonar to the maximum extent practicable within the mitigation area.

(*3*) Navy personnel must not use Improved Extended Echo Ranging sonobuoys in or within 3 nmi of the mitigation area or use explosive and non-explosive bombs, in-water detonations, and explosive torpedoes within the mitigation area.

(*4*) For activities using non-explosive torpedoes within the mitigation area, Navy personnel must conduct activities during daylight hours in Beaufort sea state 3 or less. The Navy must use three Lookouts (one positioned on a vessel and two positioned in an aircraft during dedicated aerial surveys) to observe the vicinity of the activity. An additional Lookout must be positioned on the submarine, when surfaced. Immediately prior to the start of the activity, Navy personnel must observe for floating vegetation and marine mammals; if floating vegetation or marine mammals are observed, Navy personnel must not commence the activity until the vicinity is clear or the activity is relocated to an area where the vicinity is clear. During the activity, Navy personnel must observe for marine mammals; if observed, Navy personnel must cease the activity. To allow a sighted marine mammal to leave the area, Navy personnel must not recommence the activity until one of the following conditions has been met: The animal is observed exiting the vicinity of the activity; the animal is thought to have exited the vicinity of the activity based on a determination of its course, speed, and movement relative to the activity location; or the area has been clear from any additional sightings for 30 min. During transits and normal firing, ships must maintain a speed of no more than 10 knots (kn). During submarine target firing, ships must maintain speeds of no more than 18 kn. During vessel target firing, vessel speeds may exceed 18 kn for brief periods of time (*e.g.,* 10–15 min).

(*5*) For all activities, before a vessel transits within the mitigation area, Navy personnel must conduct a web query or email inquiry to the National Oceanographic and Atmospheric Administration Northeast Fisheries Science Center's North Atlantic Right Whale Sighting Advisory System to obtain the latest North Atlantic right whale sightings information. Navy personnel on vessels must use the sightings information to reduce potential interactions with North Atlantic right whales during transits. Navy personnel on vessels must implement speed reductions within the mitigation area after observing a North Atlantic right whale, if transiting within 5 nmi of a sighting reported to the North Atlantic Right Whale Sighting Advisory System within the past week, and if transiting at night or during periods of reduced visibility.

(B) *Gulf of Maine Planning Awareness Mitigation Area (year-round).* (*1*) Navy personnel must report the total hours and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports submitted to NMFS.

(*2*) Navy personnel must not conduct greater than 200 hrs of hull-mounted mid-frequency active sonar per year within the mitigation area.

(*3*) Navy personnel must not conduct major training exercises (Composite Training Unit Exercises or Fleet Exercises/Sustainment Exercises) within the mitigation area. If the Navy needs to conduct a major training exercise within the mitigation area in support of training requirements driven by national security concerns, Navy personnel must confer with NMFS to verify that potential impacts are adequately addressed.

(C) *Northeast Planning Awareness Mitigation Areas (year-round).* (*1*) Navy personnel will avoid planning major training exercises (Composite Training Unit Exercises or Fleet Exercises/ Sustainment Exercises) within the mitigation area to the maximum extent practicable.

(*2*) Navy personnel must not conduct more than four major training exercises per year (all or a portion of the exercise) within the mitigation area.

(*3*) If the Navy needs to conduct additional major training exercises in the mitigation area in support of training requirements driven by national security concerns, Navy personnel must provide NMFS with advance notification and include the information in its annual training and testing activity reports submitted to NMFS.

(ii) [Reserved]

(2) *Mitigation areas off the Mid-Atlantic and Southeastern United States for sonar, explosives, and physical disturbance and strikes*—(i) *Mitigation area requirements*—(A) *Southeast North Atlantic Right Whale Mitigation Area (November 15 through April 15).* (*1*) Navy personnel must report the total hours and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports submitted to NMFS.

(*2*) The Navy must not conduct: Low-frequency active sonar (except as noted in paragraph (b)(2)(i)(A)(*3*) of this section), mid-frequency active sonar (except as noted in paragraph (b)(2)(i)(A)(*3*) of this section), high-frequency active sonar, missile and rocket activities (explosive and non-explosive), small-, medium-, and large-caliber gunnery activities, Improved Extended Echo Ranging sonobuoy activities, explosive and non-explosive bombing activities, in-water detonations, and explosive torpedo activities within the mitigation area.

(*3*) To the maximum extent practicable, Navy personnel must minimize the use of: Helicopter dipping sonar, low-frequency active sonar and hull-mounted mid-frequency active sonar used for navigation training, and low-frequency active sonar and hull-mounted mid-frequency active sonar used for object detection exercises within the mitigation area.

(*4*) Before transiting or conducting training or testing activities within the mitigation area, Navy personnel must initiate communication with the Fleet Area Control and Surveillance Facility, Jacksonville to obtain Early Warning System North Atlantic right whale sightings data. The Fleet Area Control and Surveillance Facility, Jacksonville must advise Navy personnel on vessels of all reported whale sightings in the vicinity to help Navy personnel on vessels and aircraft reduce potential interactions with North Atlantic right whales. Commander Submarine Force U.S. Atlantic Fleet must coordinate any submarine activities that may require approval from the Fleet Area Control and Surveillance Facility, Jacksonville. Navy personnel on vessels must use the sightings information to reduce potential interactions with North Atlantic right whales during transits.

(*5*) Navy personnel on vessels must implement speed reductions after they observe a North Atlantic right whale, if

they are within 5 nmi of a sighting reported within the past 12 hrs, or when operating in the mitigation area at night or during periods of poor visibility.

(*6*) To the maximum extent practicable, Navy personnel on vessels must minimize north-south transits in the mitigation area.

(B) *Southeast North Atlantic Right Whale Critical Habitat Special Reporting Area (November 15 through April 15).* (*1*) Navy personnel must report the total hours and counts of active sonar and in-water explosives used in the Special Reporting Area (which includes southeast North Atlantic right whale ESA-designated critical habitat) in its annual training and testing activity reports submitted to NMFS.

(*2*) [Reserved]

(C) *Jacksonville Operating Area (November 15 through April 15).* (*1*) Navy units conducting training or testing activities in the Jacksonville Operating Area must initiate communication with the Fleet Area Control and Surveillance Facility, Jacksonville to obtain Early Warning System North Atlantic right whale sightings data. The Fleet Area Control and Surveillance Facility, Jacksonville must advise Navy personnel on vessels of all reported whale sightings in the vicinity to help Navy personnel on vessels and aircraft reduce potential interactions with North Atlantic right whales. Commander Submarine Force U.S. Atlantic Fleet must coordinate any submarine activities that may require approval from the Fleet Area Control and Surveillance Facility, Jacksonville. Navy personnel must use the reported sightings information as they plan specific details of events (*e.g.,* timing, location, duration) to minimize potential interactions with North Atlantic right whales to the maximum extent practicable. Navy personnel must use the reported sightings information to assist visual observations of applicable mitigation zones and to aid in the implementation of procedural mitigation.

(*2*) [Reserved]

(D) *Navy Cherry Point Range Complex Nearshore Mitigation Area (March through September).* (*1*) Navy personnel must not conduct explosive mine neutralization activities involving Navy divers in the mitigation area.

(*2*) To the maximum extent practicable, Navy personnel must not use explosive sonobuoys, explosive torpedoes, explosive medium-caliber and large-caliber projectiles, explosive missiles and rockets, explosive bombs, explosive mines during mine countermeasure and neutralization activities, and anti-swimmer grenades in the mitigation area.

(E) *Mid-Atlantic Planning Awareness Mitigation Areas (year-round).* (*1*) Navy personnel will avoid planning major training exercises (Composite Training Unit Exercises or Fleet Exercises/Sustainment Exercises) to the maximum extent practicable.

(*2*) Navy personnel must not conduct more than four major training exercises per year (all or a portion of the exercise) within the mitigation area.

(*3*) If the Navy needs to conduct additional major training exercises in the mitigation area in support of training requirements driven by national security concerns, Navy personnel must provide NMFS with advance notification and include the information in its annual training and testing activity reports submitted to NMFS.

(ii) [Reserved]

(3) *Mitigation areas in the Gulf of Mexico for sonar and explosives*—(i) *Mitigation area requirements*—(A) *Gulf of Mexico Planning Awareness Mitigation Areas (year-round).* (*1*) Navy personnel must not conduct major training exercises within the mitigation area (all or a portion of the exercise).

(*2*) If the Navy needs to conduct a major training exercise within the mitigation areas in support of training requirements driven by national security concerns, Navy personnel must confer with NMFS to verify that potential impacts are adequately addressed.

(B) *Bryde's Whale Mitigation Area (year-round).* (*1*) Navy personnel must report the total hours and counts of active sonar and in-water explosives used in the mitigation area in its annual training and testing activity reports submitted to NMFS.

(*2*) Navy personnel must not conduct greater than 200 hrs of hull-mounted mid-frequency active sonar per year within the mitigation area.

(*3*) Navy personnel must not use explosives (except during mine warfare activities) within the mitigation area.

(ii) [Reserved]

§ 218.85 Requirements for monitoring and reporting.

(a) *Unauthorized take.* The Navy must notify NMFS immediately (or as soon as operational security considerations allow) if the specified activity identified in § 218.80 is thought to have resulted in the mortality or serious injury of any marine mammals, or in any Level A or Level B harassment take of marine mammals not identified in this subpart.

(b) *Monitoring and reporting under the LOAs.* The Navy must conduct all monitoring and required reporting under the LOAs, including abiding by the AFTT Study Area monitoring program. Details on program goals, objectives, project selection process, and current projects are available at *www.navymarinespeciesmonitoring.us.*

(c) *Notification of injured, live stranded, or dead marine mammals.* The Navy must consult the Notification and Reporting Plan, which sets out notification, reporting, and other requirements when dead, injured, or live stranded marine mammals are detected. The Notification and Reporting Plan is available at *www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-military-readiness-activities.*

(d) *Annual AFTT Study Area marine species monitoring report.* The Navy must submit an annual report of the AFTT Study Area monitoring describing the implementation and results from the previous calendar year. Data collection methods must be standardized across range complexes and study areas to allow for comparison in different geographic locations. The report must be submitted to the Director, Office of Protected Resources of NMFS either within 90 days after the calendar year, or within 90 days after the conclusion of the monitoring year to be determined by the Adaptive Management process. This report will describe progress of knowledge made with respect to monitoring plan study questions across all Navy ranges associated with the Integrated Comprehensive Monitoring Program. Similar study questions must be treated together so that progress on each topic can be summarized across all Navy ranges. The report need not include analyses and content that does not provide direct assessment of cumulative progress on the monitoring plan study questions.

(e) *Annual AFTT Study Area training and testing reports.* Each year, the Navy must submit a preliminary report (Quick Look Report) detailing the status of authorized sound sources within 21 days after the anniversary of the date of issuance of each LOA to the Director, Office of Protected Resources, NMFS. Each year, the Navy must submit a detailed report within 3 months after the anniversary of the date of issuance of each LOA to the Director, Office of Protected Resources, NMFS. The annual reports must contain information on major training exercises (MTEs), sinking exercise (SINKEX) events, and a summary of all sound sources used, including within specified mitigation reporting areas, as described in paragraph (e)(3) of this section. The analysis in the detailed report must be

based on the accumulation of data from the current year's report and data collected from the previous report. The detailed reports must contain information identified in paragraphs (e)(1) through (5) of this section.

(1) *Major training exercises (MTEs).* This section of the report must contain the following information for MTEs conducted in the AFTT Study Area:

(i) Exercise information (for each MTE):

(A) Exercise designator;

(B) Date that exercise began and ended;

(C) Location;

(D) Number and types of active sonar sources used in the exercise;

(E) Number and types of passive acoustic sources used in exercise;

(F) Number and types of vessels, aircraft, and other platforms participating in exercise;

(G) Total hours of all active sonar source operation;

(H) Total hours of each active sonar source bin; and

(I) Wave height (high, low, and average) during exercise.

(ii) Individual marine mammal sighting information for each sighting in each exercise where mitigation was implemented:

(A) Date/time/location of sighting;

(B) Species (if not possible, indication of whale/dolphin/pinniped);

(C) Number of individuals;

(D) Initial detection sensor (*e.g.,* sonar, Lookout);

(E) Indication of specific type of platform observation made from (including, for example, what type of surface vessel or testing platform);

(F) Length of time observers maintained visual contact with marine mammal;

(G) Sea state;

(H) Visibility;

(I) Sound source in use at the time of sighting;

(J) Indication of whether animal was less than 200 yd, 200 to 500 yd, 500 to 1,000 yd, 1,000 to 2,000 yd, or greater than 2,000 yd from sonar source;

(K) Mitigation implementation (*e.g.* whether operation of sonar sensor was delayed, or sonar was powered or shut down, and how long the delay was);

(L) If source in use was hull-mounted, true bearing of animal from the vessel, true direction of vessel's travel, and estimation of animal's motion relative to vessel (opening, closing, parallel); and

(M) Lookouts must report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s) (such as animal closing to bow ride, paralleling course/speed, floating on surface and not swimming, *etc.*) and if any calves were present.

(iii) An evaluation (based on data gathered during all of the MTEs) of the effectiveness of mitigation measures designed to minimize the received level to which marine mammals may be exposed. This evaluation must identify the specific observations that support any conclusions the Navy reaches about the effectiveness of the mitigation.

(2) *Sinking exercises (SINKEXs).* This section of the report must include the following information for each SINKEX completed that year:

(i) Exercise information (gathered for each SINKEX):

(A) Location;

(B) Date and time exercise began and ended;

(C) Total hours of observation by Lookouts before, during, and after exercise;

(D) Total number and types of explosive source bins detonated;

(E) Number and types of passive acoustic sources used in exercise;

(F) Total hours of passive acoustic search time;

(G) Number and types of vessels, aircraft, and other platforms participating in exercise;

(H) Wave height in feet (high, low, and average) during exercise; and

(I) Narrative description of sensors and platforms utilized for marine mammal detection and timeline illustrating how marine mammal detection was conducted.

(ii) Individual marine mammal sighting information for each sighting where mitigation was implemented:

(A) Date/time/location of sighting;

(B) Species (if not possible, indicate whale, dolphin, or pinniped);

(C) Number of individuals;

(D) Initial detection sensor (*e.g.,* sonar or Lookout);

(E) Length of time observers maintained visual contact with marine mammal;

(F) Sea state;

(G) Visibility; and

(H) Whether sighting was before, during, or after detonations/exercise, and how many minutes before or after.

(I) Distance of marine mammal from actual detonations (*e.g.* less than 200 yd, 200 to 500 yd, 500 to 1,000 yd, 1,000 to 2,000 yd, or greater than 2,000 yd, or target spot if not yet detonated).

(J) Lookouts must report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s) (such as animal closing to bow ride, paralleling course/speed, floating on surface and not swimming *etc.*), including speed and direction and if any calves were present.

(K) Resulting mitigation implementation: The report must indicate whether explosive detonations were delayed, ceased, modified, or not modified due to marine mammal presence and for how long.

(L) If observation occurred while explosives were detonating in the water, indicate munition type in use at time of marine mammal detection.

(3) *Summary of sources used.* This section must include the following information summarized from the authorized sound sources used in all training and testing events:

(i) Total annual hours or quantity (per the LOA) of each bin of sonar or other acoustic sources (pile driving and air gun activities); and

(ii) Total annual expended/detonated ordnance (missiles, bombs, sonobuoys, *etc.*) for each explosive bin.

(4) *Geographic information presentation.* The reports must present an annual (and seasonal, where practical) depiction of training and testing bin usage (as well as pile driving activities) geographically across the AFTT Study Area.

(5) *Sonar exercise notification.* The Navy must submit to NMFS (contact as specified in the LOA) an electronic report within fifteen calendar days after the completion of any MTE indicating:

(i) Location of the exercise;

(ii) Beginning and end dates of the exercise; and

(iii) Type of exercise.

(f) *Seven-year close-out comprehensive training and testing report.* This report must be included as part of the 2025 annual training and testing report. This report must provide the annual totals for each sound source bin with a comparison to the annual allowance and the seven-year total for each sound source bin with a comparison to the seven-year allowance. Additionally, if there were any changes to the sound source allowance, this report must include a discussion of why the change was made and include the analysis to support how the change did or did not result in a change in the EIS and final rule determinations. The draft report must be submitted within three months after the expiration of this subpart to the Director, Office of Protected Resources, NMFS. NMFS must submit comments on the draft close-out report, if any, within three months of receipt. The report will be considered final after the Navy has addressed NMFS' comments, or 3 months after the submittal of the draft if NMFS does not provide comments.

§ 218.86 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to the regulations in this subpart, the Navy must apply for and obtain Letters of Authorization (LOAs) in accordance with § 216.106 of this chapter.

(b) LOAs, unless suspended or revoked, may be effective for a period of time not to exceed the expiration date of the regulations in this subpart.

(c) If an LOA expires prior to the expiration date of the regulations in this subpart, the Navy may apply for and obtain a renewal of the LOA.

(d) In the event of projected changes to the activity or to mitigation, monitoring, or reporting (excluding changes made pursuant to the adaptive management provision of § 218.87(c)(1) as required by an LOA issued under this subpart, the Navy must apply for and obtain a modification of the LOA as described in § 218.87.

(e) Each LOA will set forth:

(1) Permissible methods of incidental taking;

(2) Specified geographic areas for incidental taking;

(3) Means of effecting the least practicable adverse impact (*i.e.,* mitigation) on the species or stocks of marine mammals and their habitat; and

(4) Requirements for monitoring and reporting.

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

(g) Notice of issuance or denial of the LOA(s) will be published in the **Federal Register** within 30 days of a determination.

§ 218.87 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under §§ 216.106 of this subchapter and 218.86 may be renewed or modified upon request by the applicant, provided that:

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

(2) NMFS determines that the mitigation, monitoring, and reporting measures required by the previous LOA(s) under the regulations in this subpart were implemented.

(b) For LOA modification or renewal requests by the applicant that include changes to the activity or to the mitigation, monitoring, or reporting measures (excluding changes made pursuant to the adaptive management provision in paragraph (c)(1) of this section) that do not change the findings made for the regulations in this subpart or result in no more than a minor change in the total estimated number of takes (or distribution by species or stock or years), NMFS may publish a notice of planned 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 subchapter and 218.86 may be modified by NMFS under the following circumstances:

(1) *Adaptive management.* After consulting with the Navy regarding the practicability of the modifications, NMFS may modify (including adding or removing measures) the existing mitigation, monitoring, or reporting measures if doing so creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring.

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

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

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

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

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

(2) *Emergencies.* If NMFS determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in LOAs issued pursuant to §§ 216.106 of this chapter and 218.86, 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.

§§ 218.88–218.89 [Reserved]

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