

**REQUEST FOR AN EXTENSION OF THE REGULATIONS AND LETTERS OF
AUTHORIZATION
FOR THE INCIDENTAL TAKING OF MARINE MAMMALS
RESULTING FROM U.S. NAVY TRAINING AND TESTING ACTIVITIES
IN THE ATLANTIC FLEET TRAINING AND TESTING STUDY AREA OVER A
SEVEN YEAR PERIOD**

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Revised

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EXTENSION NOTES

On August 13, 2018, the John S. McCain National Defense Authorization Act for Fiscal Year 2019 was signed into law, effectively amending 16 United States Code section 1371 to extend the period the Secretary of Commerce may authorize the incidental taking of marine mammals by military readiness activities from five years to seven years if the Secretary finds that such takings will have a negligible impact on any marine mammal species and prescribes regulations for the permissible methods of take and means of effecting the least practicable adverse impact on species or stock and habitats, and requirements for monitoring and reporting such taking.

At the time of Notice of Receipt of the Letters of Authorization Application (following the original Letter of Authorization application submitted on August 4 2017), the Marine Mammal Protection Act only allowed the incidental taking of marine mammals by citizens while engaging in lawful activities for up to five consecutive years after notice and comment, issuance of regulations, and a Letter of Authorization issued by National Marine Fisheries Service (16 United States Code section 1371(a)(5)(A)(i)). While the Marine Mammal Protection Act has historically only allowed issuance of an incidental take permit for up to five consecutive years at a time, the Navy's military readiness activities are ongoing into the reasonably foreseeable future. Previous authorization requests have presented impacts in aggregate focused on identifying potential exposures and quantifying incidental take in a five-year structure due to the limitation based on the Marine Mammal Protection Act. For the purposes of presentation within the original LOA application, data was organized in one-year and five-year increments, however the analysis was conducted only on the 1 year (annual) numbers. The National Marine Fisheries Service then analyzes this data under the standards of the Marine Mammal Protection Act to determine if the maximum annual takes would result in a negligible impact on the species or stock by assessing their impact on the annual rates of recruitment and other measures. They also consider how the total or cumulative take over the period of the authorization would affect the species or stock. The annual and 5-year take request that was presented in the original LOA application remains the same. The only difference in this take request is that two additional years (one with a maximum level of training and testing activities and one with a representative year of training and testing activities) have been added to the Proposed Action, resulting in a revised total or cumulative take request across the seven years of the authorization. Annual rates of take are the same and as concluded in original LOA application.

Given the change to allow issuance of incidental take authorization for seven consecutive years, the Navy is requesting that the National Marine Fisheries Service extend the Atlantic Fleet Training and Testing Marine Mammal Protection Act Letters of Authorization of November 14, 2018 to allow for regulated training and testing activities to occur for the full seven years allowable by law, extending the Atlantic Fleet Training and Testing regulations and Letters of Authorization through 13 November 2025.

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Request for an Extension of the Regulations and LOAs for the Incidental Taking of Marine Mammals Resulting from U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area Over a Seven Year Period

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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
AFTT	Atlantic Fleet Training and Testing
ASW	Anti-Submarine Warfare
CV	coefficient of variation
dB	decibel(s)
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FA	Fathometers
FLS	Forward Looking Sonars
ft.	foot/feet
GOMEX	Gulf of Mexico
HF	High-Frequency
HHS	Handheld Sonars
IEER	Improved Extended Echo Ranging
IMS	Imaging Sonars
JAX	Jacksonville
kHz	kilohertz
lb.	pound
LF	low-frequency
LOA	Letter of Authorization
m	meter(s)
M	Acoustic Modems
MF	mid-frequency

Acronym	Definition
MMPA	Marine Mammal Protection Act
NAEMO	Navy Acoustic Effects Model
NEW	Net Explosive Weight
NM	nautical mile(s)
NMFS	National Marine Fisheries Service
OEIS	Overseas Environmental Impact Statement
OPAREA	operating area
P	Pingers
PCOD	population consequences of disturbance
PTS	permanent threshold shift
R	acoustic release
SAS	Synthetic Aperture Sonars
SDS	Swimmer Defense Sonars
SSS	Side Scan Sonars
SUS	Signal Underwater Sound
TNT	Trinitrotoluene
TORP	Torpedo
TTS	Temporary Threshold Shift
VACAPES	Virginia Capes
VHF	Very-High Frequency
U.S.C.	United States Code

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1 DESCRIPTION OF SPECIFIED ACTIVITY

1.1 INTRODUCTION

The United States (U.S.) Department of the Navy (Navy) submitted a consolidated request for regulations and two Letters of Authorization (LOAs) for the incidental taking (as defined in Chapter 5, Type of Incidental Take Authorization Requested) of marine mammals during the conduct of training and testing activities within the Atlantic Fleet Training and Testing (AFTT) Study Area on August 4, 2017 (referred to in this document as the original LOA application). The original LOA application supported the request for a 5-year LOA for training activities and a 5-year LOA for testing activities from 2018-2023. The requested LOAs and Final Rule were issued in November 2018 (*83 Federal Register 57076*). This request is for an extension of the original request for regulations and LOAs to support training and testing activities over a 7-year period, which is the maximum allowable under the law, that would be effective from November 2018 to November 2025.

The Marine Mammal Protection Act (MMPA) of 1972, as amended (16 United States Code [U.S.C.] Section [§] 1371(a)(5)), authorizes the issuance of regulations for the incidental, but not intentional, taking of marine mammals by a specified activity for a period of not more than 5 years. The issuance occurs when the Secretary of Commerce, after notice has been published in the Federal Register and opportunity for comment has been provided, finds that such taking will have a negligible impact on the species and stocks of marine mammals and will not have an unmitigable adverse impact on their availability for subsistence uses. The regulations must set forth the permissible methods of taking, other means of effecting the least practicable adverse impact on the species or stock(s), and requirements pertaining to the monitoring and reporting of such taking. On August 13, 2018 the John S. McCain National Defense Authorization Act for Fiscal Year 2019 was signed into law, effectively amending 16 U.S.C. section 1371 to extend the period the Secretary of Commerce may authorize the incidental taking of marine mammals by the military readiness activities from five years to seven years if the Secretary finds that such takings will have a negligible impact on any marine mammal species.

The Navy completed an Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) for the AFTT Study Area to evaluate Navy training and testing activities for the reasonably foreseeable future and presented activities annually and for any five-year period. The only difference in this take request is that two additional years (one with a maximum level of training and testing activities and one with a representative year of training and testing activities) have been added to the Proposed Action. A description of the AFTT Study Area and various components were provided in Chapter 2 (Dates, Duration and Specified Geographic Region) of the original LOA application. A description of the training and testing activities for which the Navy is requesting incidental take authorizations is provided below. As was done for the original LOA application, this extension request for the LOAs issued in November 2018 is based on the training and testing activities of the Navy's preferred and selected Alternative (Alternative 1 in the AFTT EIS/OEIS), referred to in this document as the Proposed Action.

This document has been prepared in accordance with the MMPA, as amended by the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136) and its implementing regulations. As with the original LOA application, this LOA extension request is based on: (1) the analysis of spatial and temporal distributions of protected marine mammals in the AFTT Study Area (hereafter referred to as

the Study Area), (2) the review of training and testing activities that have the potential to incidentally take marine mammals, and (3) a technical risk assessment to determine the likelihood of effects. This chapter describes those training and testing activities that could result in Level B harassment, Level A harassment, or mortality under the MMPA. Of the Navy activities analyzed in the AFTT EIS/OEIS, the Navy has determined that only the use of sonar and other transducers, in-water detonations, air guns, and impact pile driving/vibratory extraction have the potential to affect marine mammals in a manner which rise to the level of take. In addition to these potential impacts from specific activities, the Navy will also request takes from vessel strikes that may occur during any training or testing activities. These takes, however, are not specific to any particular training or testing activity.

1.2 PROPOSED ACTION

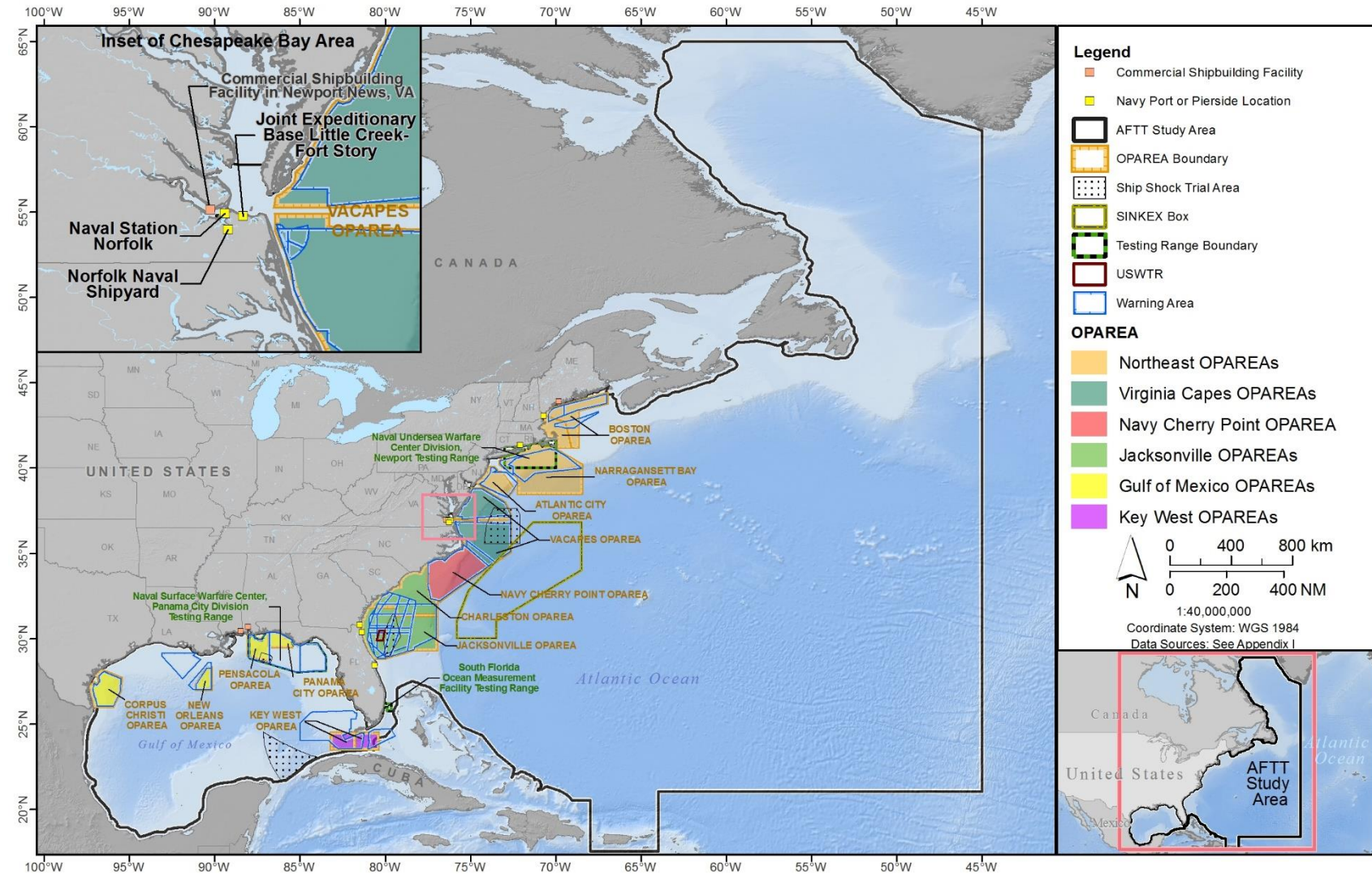
The original LOA application proposed to conduct Navy training and testing activities within the AFTT Study Area. The Navy has been conducting military readiness activities in the AFTT Study Area (see Figure 1.2-1) for well over a century and with active sonar for over 70 years. The tempo and types of training and testing activities have fluctuated because of the introduction of new technologies, the evolving nature of international events, advances in warfighting doctrine and procedures, and changes in force structure (organization of ships, weapons, and personnel). Such developments influenced the frequency, duration, intensity, and location of required training and testing activities. This LOA extension request reflects the same compilation of training and testing activities presented in the original LOA application, which are deemed necessary to accomplish military readiness requirements and are anticipated to continue into the reasonably foreseeable future.

1.2.1 TRAINING ACTIVITIES

As was included in the Navy's original LOA application, the training activities that the Navy proposes to conduct in the AFTT Study Area are described in Table 1.2-1. The table is organized according to primary mission areas and includes the activity name, associated stressors applicable to this LOA extension request, number of proposed activities and locations of those activities in the AFTT Study Area. For further information regarding the duration of activity and primary platform used (e.g., ship or aircraft type) see Appendix A (Navy Activity Descriptions) of the AFTT Final EIS/OEIS.

In the original LOA application, it was described that the Navy's Proposed Action reflects a representative year of training to account for the natural fluctuation of training cycles and deployment schedules that generally influences the maximum level of training from occurring year after year in any 5-year period. Using a representative level of activity rather than a maximum tempo of training activity in every year has reduced the amount of hull-mounted mid-frequency active sonar hours requested in the LOA application in order to remain within compliance of the permit while meeting training requirements. Both unit-level training and major training exercises are adjusted to meet this representative year, as was discussed in the original LOA application. All annual and 5-year activity numbers as reported in the original LOA application, the regulations published in the Federal Register on November 14, 2018 (*83 Federal Register 57076*), and the permit issued on November 14, 2018 will not change and are not reported in this document.

For the purposes of this LOA extension request, the Navy assumes that the additional two years of the permit would consist of an additional year of maximum training tempo and a representative year of training tempo consistent with the pattern set forth in the AFTT FEIS/OEIS, and the original LOA application. The number of proposed training activities that could occur over any 7-year period are reported in Table 1.5-1.



Notes: AFTT = Atlantic Fleet Training and Testing; km=kilometers; NM = nautical mile; OPAREA = Operating Area

Figure 1.2-1: AFTT Study Area

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Table 1.2-1: Proposed Training Activities Analyzed for this LOA Extension Request within the Study Area

Stressor Category	Activity Name	Activity Description	Source Bin	7-Year # of Activities	Location ¹
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	JAX RC
				14	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	JAX RC
				21	Navy Cherry Point RC
				21	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	JAX RC
				7	Navy Cherry Point RC
				7	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	JAX RC
				28	Navy Cherry Point RC
				35	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	GOMEX RC
				84	JAX RC
				14	Navy Cherry Point RC
				266	VACAPES RC

Table 1.2-1: Proposed Training Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
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	JAX RC
				28	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	JAX RC
				28	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	JAX RC
				35	VACAPES RC
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
Acoustic	Anti-Submarine Warfare Tracking Exercise – Submarine	Submarine crews search for, track, and detect submarines.	ASW4, HF1, MF3	1,540*	VACAPES RC
				308	Other AFTT Areas
				91	JAX RC
				7	Navy Cherry Point RC
				126	Northeast RC
				42	VACAPES RC

Table 1.2-1: Proposed Training Activities Analyzed for this LOA Extension Request within the Study Area

Stressor Category	Activity Name	Activity Description	Source Bin	7-Year # of Activities	Location ¹
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

Table 1.2-1: Proposed Training Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
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
<i>Surface Warfare</i>					
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
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

Table 1.2-1: Proposed Training Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
				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
Other Training Activities					
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

Table 1.2-1: Proposed Training Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
				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 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

1.2.2 TESTING ACTIVITIES

Testing activities covered in this LOA extension request are described in Table 1.2-2 through Table 1.2-4. As stated in the original LOA application, the Proposed Action entails a level of testing activities 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. This structure remains the same for this LOA extension request. The Proposed Action includes the testing of new platforms, systems, and related equipment that will be introduced after November 2018. The majority of these testing activities are the same as or similar to those conducted currently or in the past. The Proposed Action includes the testing of some new systems using new technologies and takes into account inherent uncertainties in this type of testing.

Under the Proposed Action, the Navy proposed an annual level of testing that reflects the fluctuations in testing programs by recognizing that the maximum level of testing will not be conducted each year. The Proposed Action contains a more realistic annual representation of activities, but includes years of a higher maximum amount of testing to account for these fluctuations. The annual level of testing was analyzed in the original LOA application, and has not changed, and therefore, will not be discussed further in this LOA extension request.

For the purposes of this LOA extension request, the Navy assumes that the additional two years of the permit would consist of an additional year of maximum testing tempo and a representative year of testing tempo. The number of proposed testing activities that could occur over any 7-year period are reported in Table 1.5-2 through Table 1.5-5. The number of ship shock proposed under the 5-year period will be the same as under the 7-year period.

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1.2.2.1 Naval Air Systems Command

Table 1.2-2: Proposed Naval Air Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
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	JAX RC
				523	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	GOMEX RC
				36	JAX RC
				64	Key West RC
				442	Northeast RC
				1,368	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	GOMEX RC
				133	JAX RC
				76	Key West RC
				101	Navy Cherry Point RC
				279	Northeast RC
				175	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	GOMEX RC
				12	JAX RC
				12	Key West RC
				12	Northeast RC
				200	VACAPES RC

Table 1.2-2: Proposed Naval Air Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
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	NSWC Panama City
				66	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	NSWC Panama City
				215	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	NSWC Panama City
				168	VACAPES RC
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			E1	295	JAX RC

Table 1.2-2: Proposed Naval Air Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
	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.		890	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	GOMEX RC
				234	JAX RC
				928	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	JAX RC
				233	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 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

1.2.2.2 Naval Sea Systems Command

Table 1.2-3: Proposed Naval Sea Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
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	JAX RC
				28	Newport, RI
				28	NUWC Newport
				182	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
				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

Table 1.2-3: Proposed Naval Sea Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
				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

Table 1.2-3: Proposed Naval Sea Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
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
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

Table 1.2-3: Proposed Naval Sea Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
				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	ASW4, FLS2, HF1, HF4, HF5, HF6, HF7, LF5, MF9, MF10,	112	GOMEX RC JAX RC NUWC Newport
				287	GOMEX RC
				175	JAX RC

Table 1.2-3: Proposed Naval Sea Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
		of individual platforms, or complex events with multiple vehicles.	SAS1, SA2, SAS3, VHF1, E8	1,018	NSWC Panama City
				2,158	NUWC Newport
				63	Riviera Beach, FL
				294	SFOMF
<i>Vessel Evaluation</i>					
Explosive	Large Ship Shock Trial	Underwater detonations are used to test new ships or major upgrades.	E17	1	GOMEX RC JAX RC VACAPES RC
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	GOMEX RC
				91	JAX RC
				7	Key West RC
				70	Northeast RC
				63	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	JAX RC VACAPES RC
				6	JAX RC Navy Cherry Point RC SFOMF VACAPES RC
				14	GOMEX RC
				42	JAX RC
				14	VACAPES RC
Explosive	Small Ship Shock Trial	Underwater detonations are used to test new ships or major upgrades.	E16	3	JAX RC VACAPES RC

Table 1.2-3: Proposed Naval Sea Systems Command Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location¹</i>
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	Offshore Fort Pierce, FL GOMEX RC JAX RC SFOMF Northeast RC VACAPES RC
				28	JAX RC
				28	Northeast RC
				28	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	Key West RC
				1,848	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	Newport, RI
				77	NSWC Panama City
				1,330	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	JAX RC
				413	SFOMF

¹ 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

1.2.2.3 Office of Naval Research

Table 1.2-4: Proposed Office of Naval Research Testing Activities Analyzed for this LOA Extension Request within the Study Area

<i>Stressor Category</i>	<i>Activity Name</i>	<i>Activity Description</i>	<i>Source Bin</i>	<i>7-Year # of Activities</i>	<i>Location</i>
<i>Acoustic and Oceanographic Science and Technology</i>					
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	GOMEX RC
				60	Northeast RC
				16	VACAPES RC
				14	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	JAX RC
				14	Northeast RC
				7	VACAPES RC

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

1.2.3 SUMMARY OF ACOUSTIC AND EXPLOSIVE SOURCES ANALYZED FOR TRAINING AND TESTING

In the original LOA application, Table 1.2-5 through Table 1.2-8 show the acoustic source classes and numbers, explosive source bins and numbers, air gun sources, and pile driving and removal activities associated with Navy training and testing activities in the AFTT Study Area that were analyzed both annually and over five years. These numbers have not changed, and they will not be reported again here. For this LOA extension request, Table 1.5-5 through Table 1.5-8 share the same information, however the bin totals are presented for seven years.

Table 1.2-5 shows the acoustic source bin use that could occur over seven years under the Proposed Action for training and testing activities. Under the Proposed Action, acoustic source bin use would vary annually, as was previously described in the original LOA application. Similar to the 5-year totals in the original LOA application, the 7-year totals for the Proposed Action take into account that annual variability.

Table 1.2-5: Acoustic Source Classes Analyzed and Numbers Used during Training and Testing Activities

Source Class Category	Bin	Description	Unit ¹	Training	Testing
				7-Year Total	
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

**Request for an Extension of the Regulations and LOAs for the Incidental Taking of Marine Mammals
Resulting from U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area
Over a Seven Year Period**

January 2019

Source Class Category	Bin	Description	Unit ¹	Training	Testing
				7-Year Total	
	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 countermeasures 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	TORP 1	Lightweight torpedo (e.g., MK 46, MK 54, or Anti-Torpedo Torpedo)	C	399	6,122
	TORP 2	Heavyweight torpedo (e.g., MK 48)	C	560	2,600
	TORP 3	Heavyweight torpedo (e.g., MK 48)	C	0	640

**Request for an Extension of the Regulations and LOAs for the Incidental Taking of Marine Mammals
Resulting from U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area
Over a Seven Year Period**

January 2019

Source Class Category	Bin	Description	Unit ¹	Training	Testing
				7-Year Total	
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 sub-merged 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
	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

¹H = hours; C = count (e.g., number of individual pings or individual sonobuoys).

Note: dB = decibel

Table 1.2-6: shows the number of air gun shots that could occur over seven years under the Proposed Action for training and testing activities.

Table 1.2-6: Training and Testing Air Gun Sources Quantitatively Analyzed in the Study Area

<i>Source Class Category</i>	<i>Bin</i>	<i>Unit¹</i>	<i>Training</i>	<i>Testing</i>
			<i>7-Year Total</i>	
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.

Table 1.2-7 summarizes the pile driving and pile removal activities that would occur during a 24-hour period. This table has not changed from the table presented in the original LOA application. The only change regarding pile driving in this LOA extension request is the addition of two pile driving/extraction activities for each of the additional two years, consistent with the periodicity presented in the AFTT FEIS/OEIS.

Table 1.2-7: Summary of Pile Driving and Removal Activities per 24-Hour Period

<i>Method</i>	<i>Piles Per 24-Hour Period</i>	<i>Time Per Pile</i>	<i>Total Estimated Time of Noise Per 24-Hour Period</i>
Pile Driving (Impact)	6	10 minutes	60 minutes
Pile Removal (Vibratory)	12	3 minutes	36 minutes

Table 1.2-8 shows the explosive source bin use that could occur over seven years under the Proposed Action for training and testing activities. Under the Proposed Action, explosive bin use would vary annually as was previously described in the original LOA application. Similar to the 5-year totals in the original LOA application, the 7-year totals for the Proposed Action take into account that annual variability.

Table 1.2-8: Explosive Source Bins Analyzed and Numbers Used during Training and Testing Activities

<i>Bin</i>	<i>Net Explosive Weight¹ (lb.)</i>	<i>Example Explosive Source</i>	<i>Training</i>	<i>Testing</i>
			<i>7-Year Total</i>	
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
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 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 5-year period. Therefore, there is no increase in ship shock trial events as a result of the extension of the regulations and LOAs.

1.2.4 VESSEL MOVEMENTS

As stated in the original LOA application, vessel movements include both surface and sub-surface operations. Vessels used as part of the Proposed Action include ships, submarines 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). A full description of Navy vessels that are used during training and testing activities can be found in the original LOA application. There has been no change to 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 would be used during various activities, or the locations in which Navy vessel movement would be concentrated within the AFTT Study Area. The only change related to this LOA extension request regarding Navy vessel movement, is the amount of vessel movement associated with the total seven years of Navy activities.

1.2.5 STANDARD OPERATING PROCEDURES

For training and testing to be effective, units 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. A list of Standard Operating Procedures was presented in the original LOA application, and for this LOA extension request, there would be no change to the Standard Operating Procedures.

1.2.6 MITIGATION MEASURES

The Navy implements mitigation to avoid or reduce potential impacts from the Proposed Action on marine mammals during numerous activities involving anti-submarine warfare, mine warfare, expeditionary warfare, surface warfare, and other warfare components. As a result of public comments received on the AFTT DEIS/OEIS; consultations with the National Marine Fisheries Service (NMFS) for both the original LOA application, and the Biological Assessment submitted under the Endangered Species Act; and its ongoing analysis of the best available science and potential mitigation measures, the Navy determined it would be practical to implement additional mitigation measures to enhance protection of marine mammals to the maximum extent practicable. See Chapter 11 (Mitigation Measures) for a complete presentation of the procedural mitigation and mitigation areas that will be implemented under the Proposed Action and a brief description of what mitigation has been modified or added since the original LOA application. The mitigation measures presented in this LOA extension request are the same mitigation measures as those presented in the NMFS Final Rule (*83 Federal Register 57076*). The Navy will implement mitigation for the activity categories, stressors, and geographic locations listed in Table 1.2-9.

Table 1.2-9: Mitigation Categories

<i>Chapter 11 (Mitigation Measures) Section</i>	<i>Applicable Stressor, Activity, or Location</i>
Section 11.1 (Procedural Mitigation)	Environmental Awareness and Education
Section 11.1.1 (Acoustic Stressors)	Low-Frequency Active Sonar Mid-Frequency Active Sonar High-Frequency Active Sonar Air Guns Pile Driving Weapons Firing Noise
Section 11.1.3 (Explosive Stressors)	Explosive Sonobuoys Explosive Torpedoes Explosive Medium-Caliber and Large-Caliber Projectiles Explosive Missiles and Rockets Explosive Bombs Sinking Exercises Explosive Mine Countermeasure and Neutralization Activities Explosive Mine Neutralization Activities Involving Navy Divers Maritime Security Operations – Anti-Swimmer Grenades Line Charge Testing Ship Shock Trials
Section 11.1.4 (Physical Disturbance and Strike Stressors)	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
Section 11.2 (Mitigation Areas)	Areas for Seafloor Resources Areas off the Northeastern United States Areas off the Mid-Atlantic and Southeastern United States Areas in the Gulf of Mexico

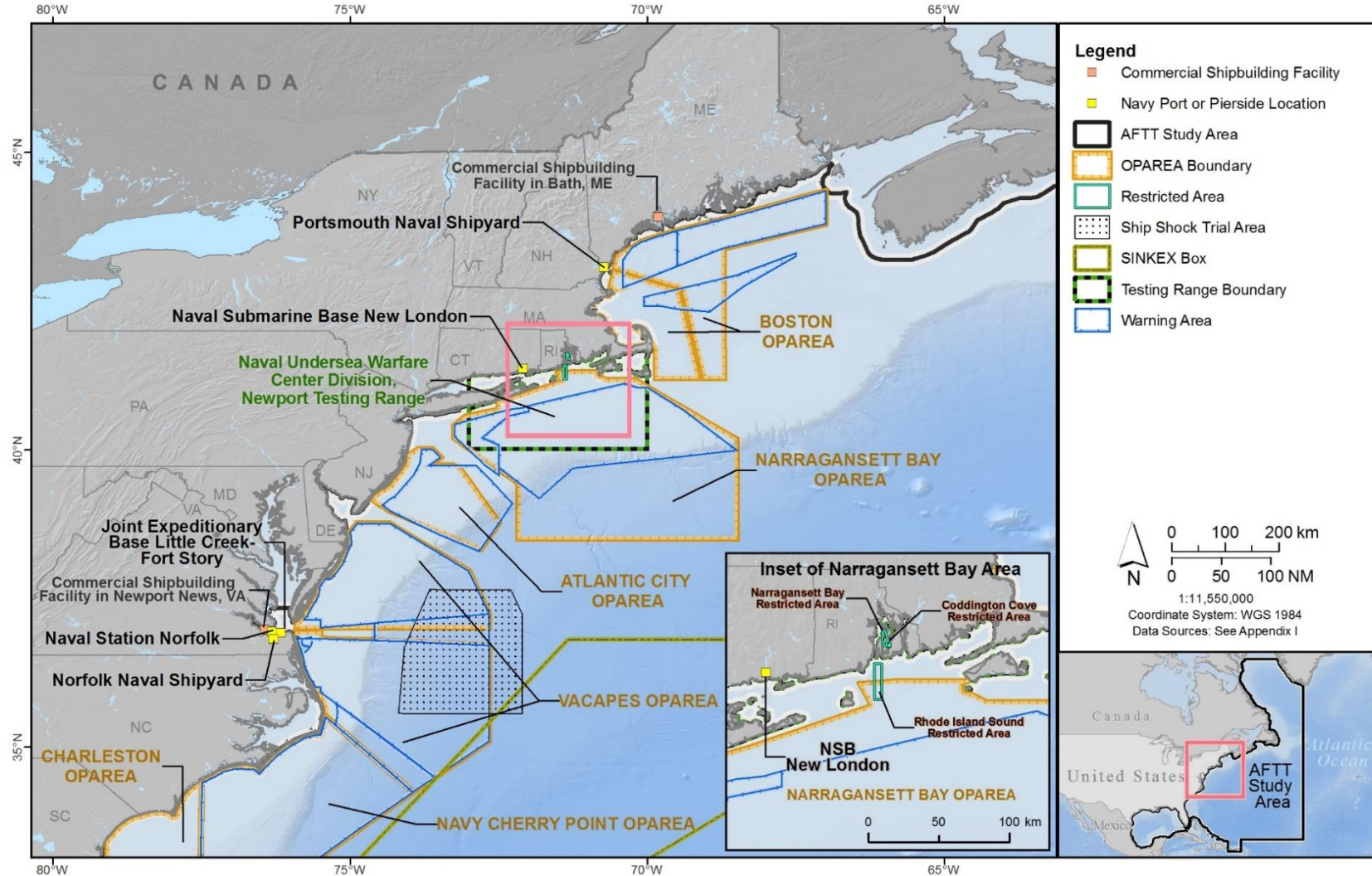
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2 DATES, DURATION, AND SPECIFIED GEOGRAPHIC REGION

The original LOA application, was for training and testing activities conducted in the AFTT Study Area throughout the year from 2018 through 2023. This LOA extension seeks regulations and LOAs for a 7-year period, the full duration allowed by law, making the full timeframe of the amended LOAs from November 2018 to November 2025. There would be no change to the geographic extent of the AFTT Study Area, which 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 square nautical miles (NM²) 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, it is important to note that the vast majority of Navy training and testing occurs in designated range complexes and testing ranges. A full description of the AFTT Study Area, range complexes, testing ranges and various bays, harbors, inland waterways, and pierside locations can be found in the original LOA application and will not be repeated here. For reference, the AFTT Study Area is depicted in Figure 1.2-1. Regional maps are provided in

Figure 2-1 through Figure 2-3 for additional detail of the range complexes and testing ranges.

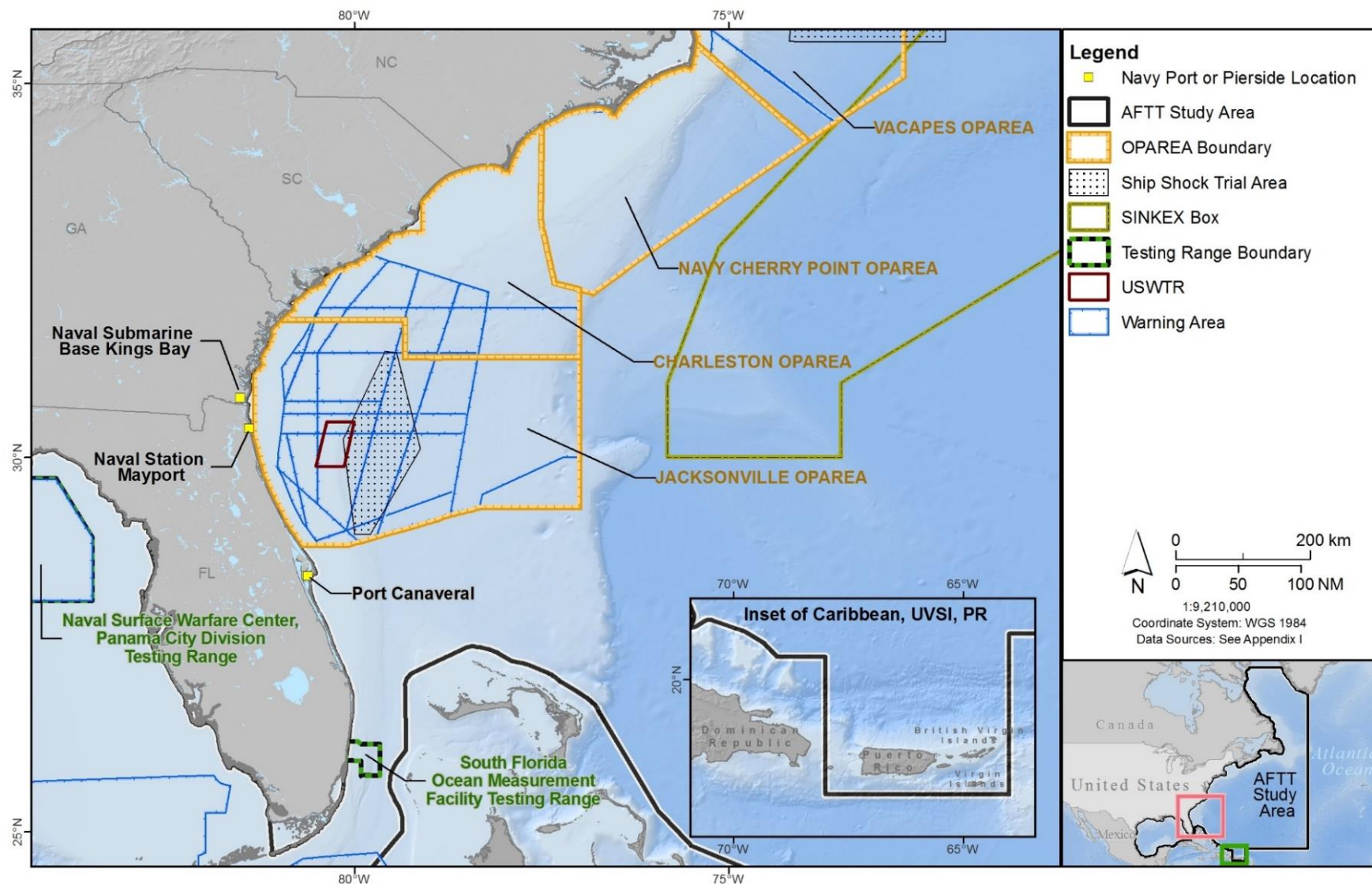
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Notes: AFTT = Atlantic Fleet Training and Testing; NSB = Naval Submarine Base; OPAREA = Operating Area; VACAPES = Virginia Capes; SINKEX = Sinking Exercise

Figure 2-1: AFTT Study Area, Northeast and Mid-Atlantic Region

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Notes: AFTT = Atlantic Fleet Training and Testing; OPAREA = Operating Area; VACAPES = Virginia Capes; SINKEX = Sinking Exercise

Figure 2-2: AFTT Study Area, Southeast Region

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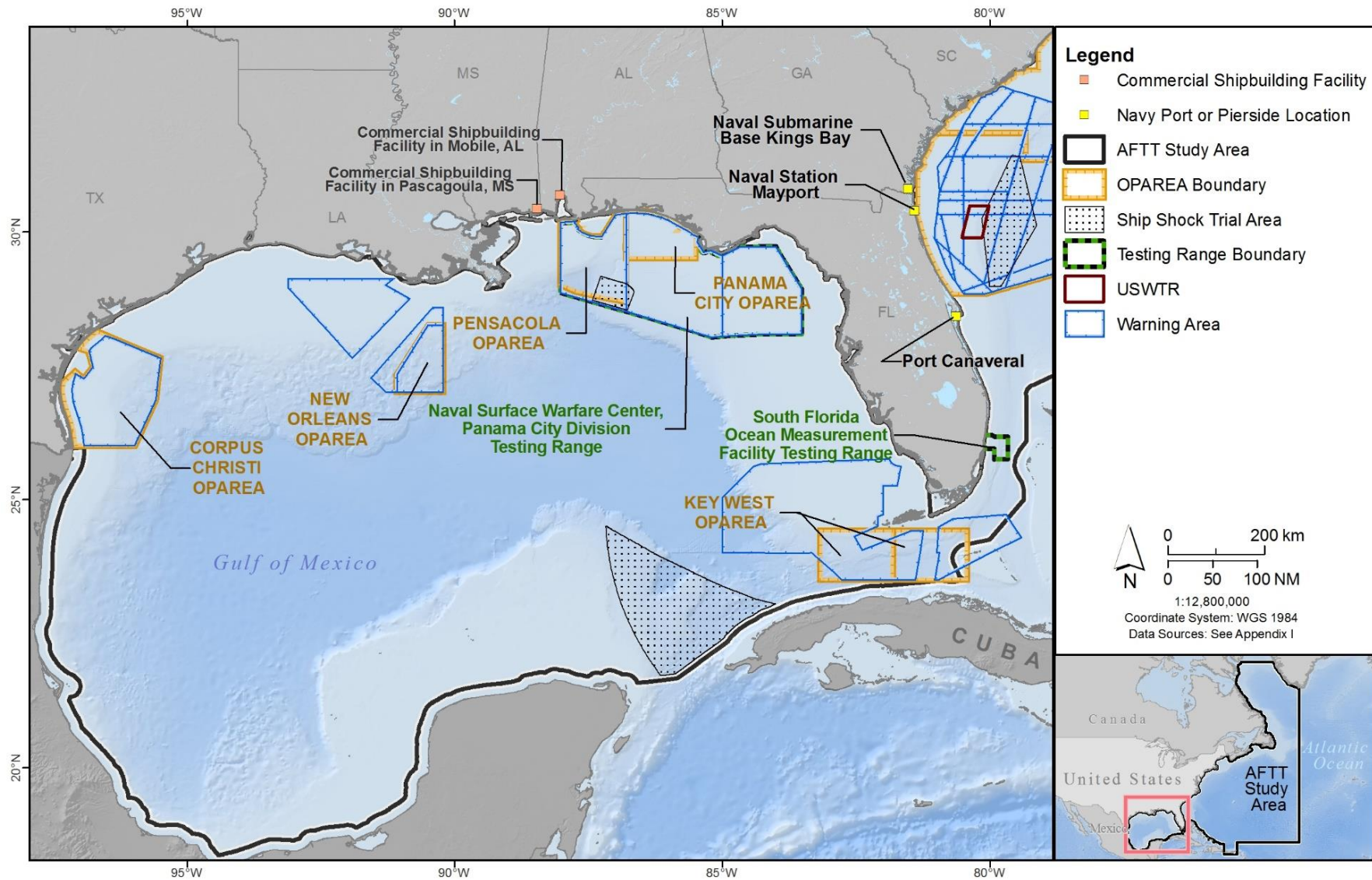


Figure 2-3: AFTT Study Area, Gulf of Mexico Region

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3 SPECIES AND NUMBERS OF MARINE MAMMALS

3.1 MARINE MAMMALS MANAGED BY NMFS WITHIN THE AFTT STUDY AREA

As stated in the original LOA application, 48 marine mammal species are known to occur in the AFTT Study Area, 42 of which are managed by NMFS. These species and associated stocks are presented in Table 3.1-1 along with ESA/MMPA status, an abundance estimate, an associated coefficient of variation value, and minimum abundance estimates. Relevant information on their status and management, habitat and range, and population trends was presented in Chapter 4 (Affected Species Status and Distribution) of the original LOA application, incorporating the best available science at the time in addition to information provided in the most recent U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessment Reports (Hayes et al., 2017). Table 3.1-1 in this LOA extension request has incorporated the abundance and stock information from the current U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessment Report available, which is the Draft 2018 report (*83 Federal Register 47131*).

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Table 3.1-1: Marine Mammals Managed by NMFS within the AFTT Study Area

Common Name	Scientific Name ¹	Stock ²	ESA/MMPA Status ³	Stock Abundance ⁴ Best / Minimum Population	Occurrence in Study Area ⁵		
					Open Ocean	Large Marine Ecosystems	Inland Waters
Order Cetacea							
Suborder Mysticeti (baleen whales)							
Family Balaenidae (right whales)							
Bowhead whale	<i>Balaena mysticetus</i>	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	–
North Atlantic right whale	<i>Eubalaena glacialis</i>	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)	–
Family Balaenopteridae (rorquals)							
Blue whale	<i>Balaenoptera musculus</i>	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)	-
Bryde’s whale	<i>Balaenoptera brydei/edeni</i>	Northern Gulf of Mexico	Proposed Endangered, Strategic	33 (1.07) / 16	Gulf Stream, North Atlantic Gyre	Gulf of Mexico	-
Fin whale	<i>Balaenoptera physalus</i>	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	-
		West Greenland	Endangered, strategic, depleted	4,468 (1,343-14,871) ⁹	Labrador Current	West Greenland Shelf	-
		Gulf of St. Lawrence	Endangered, strategic, depleted	328 (306-350) ¹⁰		Newfoundland-Labrador Shelf, Scotian Shelf	-
Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine	-	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	-
Minke whale	<i>Balaenoptera acutorostrata</i>	Canadian Eastern Coastal	-	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	-
		West Greenland ⁷	-	16,609 (7,172-38,461) / NA ⁷	Labrador Current	West Greenland Shelf	-
Sei whale	<i>Balaenoptera borealis</i>	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	-
		Labrador Sea	Endangered, strategic, depleted	Unknown ⁸	Labrador Current	Newfoundland-Labrador Shelf, West Greenland Shelf	-

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

¹Taxonomy follows (Committee on Taxonomy, 2016)

² Stock designations for the U.S. Exclusive Economic Zone and abundance estimates are from Atlantic and Gulf of Mexico Stock Assessment Reports prepared by National Marine Fisheries Service (Hayes et al., 2018), 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 (Hayes et al., 2018; 83 Federal Regiser 47131). 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 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)

Table 3.1-1: Marine Mammals Managed by NMFS within the AFTT Study Area (continued)

Common Name	Scientific Name ¹	Stock ²	ESA/MMPA Status ³	Stock Abundance ⁴ Best (McVey & Wibbles)/ Min	Occurrence in Study Area ⁵		
					Open Ocean	Large Marine Ecosystems	Inland Waters
Family <i>Physeteridae</i> (sperm whale)							
Suborder <i>Odontoceti</i> (toothed whales)							
Sperm whale	<i>Physeter macrocephalus</i>	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	–
		Northern Gulf of Mexico	Endangered, strategic, depleted	763 (0.38) / 560	–	Gulf of Mexico	–
		Puerto Rico and U.S. Virgin Islands	Endangered, strategic, depleted	Unknown	North Atlantic Gyre	Caribbean Sea	–
Family <i>Kogiidae</i> (sperm whales)							
Pygmy and dwarf sperm whales	<i>Kogia breviceps</i> and <i>Kogia sima</i>	Western North Atlantic	–	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	–
		Northern Gulf of Mexico	–	186 (1.04) / 90 ¹²	–	Gulf of Mexico, Caribbean Sea	–
Family <i>Monodontidae</i> (beluga whale and narwhal)							
Beluga whale	<i>Delphinapterus leucas</i>	Eastern High Arctic/Baffin Bay ¹³	–	21,213 (10,985–32,619) ¹³	Labrador Current	West Greenland Shelf	–
		West Greenland ¹⁴	–	10,595 (4,904–24,650) ¹⁴		West Greenland Shelf	–
Narwhal	<i>Monodon monoceros</i>	NA ¹⁵	–	NA ¹⁵		Newfoundland-Labrador Shelf, West Greenland Shelf	–
Family <i>Ziphiidae</i> (beaked whales)							
Blainville’s beaked whale	<i>Mesoplodon densirostris</i>	Western North Atlantic ¹⁶	–	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	–
		Northern Gulf of Mexico	–	149 (0.91) / 77 ¹⁸	–	Gulf of Mexico, Caribbean Sea	–
Cuvier’s beaked whale	<i>Ziphius cavirostris</i>	Western North Atlantic ¹⁶	–	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	–
		Northern Gulf of Mexico ¹⁶	–	74 (1.04) / 36		Gulf of Mexico, Caribbean Sea	–
		Puerto Rico and U.S. Virgin Islands	Strategic	Unknown	–	Caribbean Sea	–

¹²Estimates 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).

¹³Beluga 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 et al., 2002).

¹⁴Beluga 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).

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

¹⁶Estimates 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.

Table 3.1-1: Marine Mammals Managed by NMFS within the AFTT Study Area (continued)

Common Name	Scientific Name ¹	Stock ²	ESA/MMPA Status ³	Stock Abundance ⁴ Best (McVey & Wibbles)/ Min	Occurrence in Study Area ⁵		
					Open Ocean	Large Marine Ecosystems	Inland Waters
Gervais’ beaked whale	<i>Mesoplodon europaeus</i>	Western North Atlantic ¹⁶	–	7,092 (0.54) / 4,632 ¹⁷	Gulf Stream, North Atlantic Gyre	Southeast U.S. Continental Shelf, Northeast United States Continental Shelf	–
		Northern Gulf of Mexico ¹⁶	–	149 (0.91) / 77 ¹⁸	Gulf Stream, North Atlantic Gyre	Gulf of Mexico, Caribbean Sea	–
Northern bottlenose whale	<i>Hyperoodon ampullatus</i>	Western North Atlantic	–	Unknown	Gulf Stream, North Atlantic Gyre, Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
Sowerby’s beaked whale	<i>Mesoplodon bidens</i>	Western North Atlantic ¹⁶	–	7,092 (0.54) / 4,632 ¹⁷	Gulf Stream, North Atlantic Gyre	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
True’s beaked whale	<i>Mesoplodon mirus</i>	Western North Atlantic ¹⁶	–	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	–
Family Delphinidae (dolphins)							
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Western North Atlantic ¹⁶	–	44,715 (0.43) / 31,610	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf	–
		Northern Gulf of Mexico	–	Unknown	–	Gulf of Mexico, Caribbean Sea	–
		Puerto Rico and U.S. Virgin Islands	Strategic	Unknown	–	Caribbean Sea	–
Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>	Western North Atlantic	–	48,819 (0.61) / 30,403	Gulf Steam, Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
Clymene dolphin	<i>Stenella clymene</i>	Western North Atlantic ¹⁶	–	Unknown	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ¹⁶	–	129 (1.0) / 64	–	Gulf of Mexico, Caribbean Sea	–
Common bottlenose dolphin	<i>Tursiops truncatus</i>	Western North Atlantic Offshore ¹⁹	Strategic, depleted	77,532 (0.40) / 56,053	Gulf Stream, North Atlantic Gyre	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf	–
		Western North Atlantic Northern Migratory Coastal	–	6,639 (0.41) / 4,759	–	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	Strategic, depleted	3,751 (0.60) / 2,353	–	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	Strategic, depleted	6,027 (0.34) / 4,569	–	Southeast U.S. Continental Shelf	Kings Bay, St. Johns River
		Northern North Carolina Estuarine System	Strategic	823 (0.06) / 782	–	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf	Beaufort Inlet, Cape Fear River
		Southern North Carolina Estuarine System	Strategic	Unknown	–	Southeast U.S. Continental Shelf	Beaufort Inlet, Cape Fear River
		Northern South Carolina Estuarine System	Strategic	Unknown	–	Southeast U.S. Continental Shelf	–
		Charleston Estuarine System	Strategic	Unknown	–	Southeast U.S. Continental Shelf	–

¹⁷ Estimate includes undifferentiated *Mesoplodon* species.

¹⁸ Estimate includes Gervais’ and Blainville’s beaked whales.

¹⁹ Estimate may include sightings of the coastal form.

Table 3.1-1: Marine Mammals Managed by NMFS within the AFTT Study Area (continued)

Common Name	Scientific Name ¹	Stock ²	ESA/MMPA Status ³	Stock Abundance ⁴ Best (McVey & Wibbles)/ Min	Occurrence in Study Area ⁵		
					Open Ocean	Large Marine Ecosystems	Inland Waters
Common bottlenose dolphin (continued)	<i>Tursiops truncatus</i> (continued)	Northern Georgia/Southern South Carolina Estuarine System	Strategic	Unknown	–	Southeast U.S. Continental Shelf	–
		Central Georgia Estuarine System	Strategic	192 (0.04) / 185	–	Southeast U.S. Continental Shelf	–
		Southern Georgia Estuarine System	Strategic	194 (0.05) / 185	–	Southeast U.S. Continental Shelf	Kings Bay, St. Johns River
		Western North Atlantic Northern Florida Coastal	Strategic, depleted	877 (0.49) / 595	–	Southeast U.S. Continental Shelf	Kings Bay, St. Johns River
		Jacksonville Estuarine System	Strategic	Unknown	–	Southeast U.S. Continental Shelf	Kings Bay, St. Johns River
		Western North Atlantic Central Florida Coastal	Strategic, depleted	1,218 (0.35) / 913	–	Southeast U.S. Continental Shelf	Port Canaveral
		Indian River Lagoon Estuarine System	Strategic	Unknown	–	Southeast U.S. Continental Shelf	Port Canaveral
		Biscayne Bay ¹⁶	Strategic	Unknown	–	Southeast U.S. Continental Shelf	–
		Florida Bay ¹⁶	–	Unknown	–	Gulf of Mexico	–
		Northern Gulf of Mexico Continental Shelf ²⁰	–	51,192 (0.10) / 46,926	–	Gulf of Mexico	–
		Gulf of Mexico Eastern Coastal ²⁰	–	12,388 (0.13) / 11,110	–	Gulf of Mexico	–
		Gulf of Mexico Northern Coastal ²⁰	–	7,185 (0.21) / 6,044	–	Gulf of Mexico	St. Andrew Bay, Pascagoula River
		Gulf of Mexico Western Coastal ²⁰	–	20,161 (0.17) / 17,491	–	Gulf of Mexico	Corpus Christi Bay, Galveston Bay
		Northern Gulf of Mexico Oceanic ²⁰	–	5,806 (0.39) / 4,230	–	Gulf of Mexico	–
		Laguna Madre ²¹	Strategic	80 (1.57) / Unknown	–	Gulf of Mexico	–
		Nueces Bay/Corpus Christi Bay ²¹	Strategic	58 (0.61) / Unknown	–	Gulf of Mexico	–
		Copano Bay/Aransas Bay/San Antonio Bay/Redfish Bay/Espiritu Santo Bay	Strategic	55 (0.82) / Unknown	–	–	Aransas Bay
		Matagorda Bay/Tres Palacios Bay/Lavaca Bay ²¹	Strategic	61 (0.45) / Unknown	–	Gulf of Mexico	–
		West Bay ²¹	NA	48 (0.03) / 46	–	Gulf of Mexico	–
		Galveston Bay/East Bay/Trinity Bay ²¹	Strategic	152 (0.43) / Unknown	–	Gulf of Mexico	–
		Sabine Lake	Strategic	0	–	–	Sabine Lake
		Calcasieu Lake ²¹	Strategic	0	–	Gulf of Mexico	–
		Vermilion Bay/West Cote Blanche Bay/Atchafalaya Bay ²¹	Strategic	0	–	Gulf of Mexico	–

Table 3.1-1: Marine Mammals Managed by NMFS within the AFTT Study Area (continued)

Common Name	Scientific Name ¹	Stock ²	ESA/MMPA Status ³	Stock Abundance ⁴ Best (McVey & Wibbles)/ Min	Occurrence in Study Area ⁵		
					Open Ocean	Large Marine Ecosystems	Inland Waters
Common bottlenose dolphin (continued)	<i>Tursiops truncatus</i> (continued)	Terrebonne Bay/Timbalier Bay ²¹	NA	3,870 (0.15) / 3,426	–	Gulf of Mexico	–
		Barataria Bay Estuarine System ²⁰	Strategic	2,306 (0.09) / 2,138	–	Gulf of Mexico	–
		Mississippi River Delta ²¹	Strategic	332 (0.93) / 170	–	Gulf of Mexico	–
		Mississippi Sound, Lake Borgne, Bay Boudreau ²⁰	Strategic	3,046 (0.06) / 2,896	–	Gulf of Mexico	Pascagoula River
		Mobile Bay/Bonsecour Bay	Strategic	122 (0.34) / Unknown	–	Gulf of Mexico	Mobile Bay
		Perdido Bay ²¹	Strategic	0	–	Gulf of Mexico	–
		Pensacola Bay/East Bay ²¹	Strategic	33 (0.80) / Unknown	–	Gulf of Mexico	–
		Choctawhatchee Bay ²⁰	Strategic	179 (0.04) / Unknown	–	Gulf of Mexico	–
		St. Andrew Bay	Strategic	124 (0.57) / Unknown	–	–	St. Andrew Bay
		St. Joseph Bay ²⁰	Strategic	152 (0.08) / Unknown	–	Gulf of Mexico	–
		St. Vincent Sound/Apalachicola Bay/St. George Sound ²¹	Strategic	439 (0.14) / Unknown	–	Gulf of Mexico	–
		Apalachee Bay	Strategic	491 (0.39) / Unknown	–	Gulf of Mexico	–
		Waccasassa Bay/Withlacoochee Bay/Crystal Bay ²¹	Strategic	Unknown	–	Gulf of Mexico	–
		St. Joseph Sound/Clearwater Harbor ²¹	Strategic	Unknown	–	Gulf of Mexico	–
		Tampa Bay	Strategic	Unknown	–	–	Tampa Bay
		Sarasota Bay/Little Sarasota Bay ²¹	Strategic	158 (0.27) / 126	–	Gulf of Mexico	–
		Pine Island Sound/Charlotte Harbor/Gasparilla Sound/Lemon Bay ²¹	Strategic	826 (0.09) / Unknown	–	Gulf of Mexico	–
		Caloosahatchee River ²¹	Strategic	0	–	Gulf of Mexico	–
		Esteros Bay ²¹	Strategic	Unknown	–	Gulf of Mexico	–
		Chokoloskee Bay/Ten Thousand Islands/Gullivan Bay ²¹	Strategic	Unknown	–	Gulf of Mexico	–
		Whitewater Bay ²¹	Strategic	Unknown	–	Gulf of Mexico	–
		Florida Keys (Bahia Honda to Key West)	Strategic	Unknown	–	Gulf of Mexico	–
		Puerto Rico and U.S. Virgin Islands	Strategic	Unknown	–	Caribbean Sea	–
False killer whale	<i>Pseudorca crassidens</i>	Western North Atlantic ²²	Strategic	442 (1.06) / 212	–	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ¹⁶	–	Unknown		Gulf of Mexico, Caribbean Sea	–

²⁰ Estimates for these Gulf of Mexico stocks are from Waring et al. (2016)

²¹ These stocks are part of the previously grouped Gulf of Mexico bay, sound, and estuary stocks. Their distribution does not overlap the AFTT Study Area, however are included in this table for consistency with the original LOA application and NMFS Final Rule.

²² Estimates for these stocks are from Waring et al. (2015).

Table 3.1-1: Marine Mammals Managed by NMFS within the AFTT Study Area (continued)

Common Name	Scientific Name ¹	Stock ²	ESA/MMPA Status ³	Stock Abundance ⁴ Best (McVey & Wibbles)/ Min	Occurrence in Study Area ⁵		
					Open Ocean	Large Marine Ecosystems	Inland Waters
Fraser’s dolphin	<i>Lagenodelphis hosei</i>	Western North Atlantic ²³	–	Unknown	Gulf Stream	Northeast U.S. Continental Shelf, Southeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ¹⁶	–	Unknown	–	Gulf of Mexico, Caribbean Sea	–
Killer Whale	<i>Orcinus orca</i>	Western North Atlantic ²²	–	Unknown	Gulf Stream, North Atlantic Gyre, Labrador Current	Southeast U.S. Continental Shelf, Northeast United States Continental Shelf, Scotian Shelf, Newfoundland – Labrador Shelf	–
		Northern Gulf of Mexico ¹⁶	–	28 (1.02) / 14	-	Gulf of Mexico, Caribbean Sea	–
Long-finned pilot whale	<i>Globicephala melas</i>	Western North Atlantic	-	5,636 (0.63) / 3,464	Gulf Stream	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
Melon-headed Whale	<i>Peponocephala electra</i>	Western North Atlantic ²³	–	Unknown	Gulf Stream, North Atlantic Gyre	Southeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ¹⁶	–	2,235 (0.75) / 1,274	–	Gulf of Mexico, Caribbean Sea	–
Pantropical spotted-dolphin	<i>Stenella attenuate</i>	Western North Atlantic ¹⁶	–	3,333 (0.91) / 1,733	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ²²	–	50,880 (0.27) / 40,699	–	Gulf of Mexico, Caribbean Sea	–
Pygmy Killer Whales	<i>Feresa attenuata</i>	Western North Atlantic ¹⁶	–	Unknown	Gulf Stream, North Atlantic Gyre	Southeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ¹⁶	–	152 (1.02) / 75	–	Gulf of Mexico, Caribbean Sea	–
Risso’s dolphin	<i>Grampus griseus</i>	Western North Atlantic	–	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	–
		Northern Gulf of Mexico	–	2,442 (0.57) / 1,563	–	Gulf of Mexico, Caribbean Sea	–
Rough-toothed dolphin	<i>Steno bredanensis</i>	Western North Atlantic ¹⁶	–	136 (1.00) /67	Gulf Stream, North Atlantic Gyre	Caribbean Sea Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf	–
		Northern Gulf of Mexico	–	624 (0.99) / 311	–	Gulf of Mexico, Caribbean Sea	–
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Western North Atlantic	-	28,924 (0.24) / 23,637	–	Northeast Continental Shelf, Southeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ²²	–	2,415 (0.66) / 1,456	–	Gulf of Mexico, Caribbean Sea	–
		Puerto Rico and U.S. Virgin Islands	Strategic	Unknown	–	Caribbean Sea	–
Spinner dolphin	<i>Stenella longirostris</i>	Western North Atlantic ¹⁶	–	Unknown	Gulf Stream, North Atlantic Gyre	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf	–
		Northern Gulf of Mexico ¹⁶	–	11,441 (0.83) / 6,221	–	Gulf of Mexico, Caribbean Sea	–
		Puerto Rico and U.S. Virgin Islands	Strategic	Unknown	–	Caribbean Sea	–
Striped dolphin	<i>Stenella coeruleoalba</i>	Western North Atlantic ¹⁶	–	54,807 (0.30) / 42,804	Gulf Stream	Northeast U.S. Continental Shelf, Scotian Shelf	–
		Northern Gulf of Mexico ¹⁶	–	1,849 (0.77) / 1,041	–	Gulf of Mexico, Caribbean Sea	–
Short-beaked common dolphin	<i>Delphinus delphis</i>	Western North Atlantic	–	70,184 (0.28) / 55,690	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
White-beaked dolphin	<i>Lagenorhynchus albirostris</i>	Western North Atlantic ²³	–	2,003 (0.94) / 1,023	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
Family Phocoenidae (porpoises)							
Harbor porpoise	<i>Phocoena phocoena</i>	Gulf of Maine/Bay of Fundy	–	79,883 (0.32) / 61,415	—	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	–	Unknown ²⁴	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–

Table 3.1-1: Marine Mammals Managed by NMFS within the AFTT Study Area (continued)

Common Name	Scientific Name ¹	Stock ²	ESA/MMPA Status ³	Stock Abundance ⁴ Best (McVey & Wibbles)/ Min	Occurrence in Study Area ⁵		
					Open Ocean	Large Marine Ecosystems	Inland Waters
		Newfoundland ²⁵	–	Unknown ²⁵	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
		Greenland ²⁵	–	Unknown ²⁶	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, West Greenland Shelf	–
Order Carnivora							
Suborder Pinnipedia							
Family Phocidae (true seals)							
Gray seal	<i>Halichoerus grypus</i>	Western North Atlantic	–	27,131 (0.19) / 23,158	–	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
Harbor seal	<i>Phoca vitulina</i>	Western North Atlantic	–	75,834 (0.15) / 66,884	–	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	<i>Pagophilus groenlandicus</i>	Western North Atlantic	–	Unknown	–	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf	–
Hooded seal	<i>Cystophora cristata</i>	Western North Atlantic	–	Unknown	–	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

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.

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4 AFFECTED SPECIES STATUS AND DISTRIBUTION

The species profiles presented in the original LOA application have not changed substantially. Stock Assessment Reports were updated for several species since the original submission. Those species include:

- North Atlantic right whale
- Gulf of Maine stock of humpback whale
- 34 stocks of bottlenose dolphin
 - Western North Atlantic, northern migratory coastal; Western North Atlantic, southern migratory coastal; Western North Atlantic, S. Carolina/Georgia coastal; Western North Atlantic, northern Florida coastal; Western North Atlantic, central Florida coastal; Barataria Bay; and Mississippi Sound, Lake Borgne, Bay Boudreau; and Gulf of Mexico bay, sound and estuary stocks (split out into 27 individually named stocks)
- Western North Atlantic stock of long-finned pilot whale
- Western North Atlantic stock of the rough-toothed dolphin
- Western North Atlantic stock of grey seal

Of these species with updated Stock Assessment Reports since the original LOA application, the most notable difference is the way in which the Gulf of Mexico bay, sound, and estuary stocks of bottlenose dolphin were reported. Twenty-seven of the Gulf of Mexico bay, sound, and estuary stocks of bottlenose dolphin were assessed together in one report and did not display their individual abundance numbers in the summary table of the Final 2016 Stock Assessment Reports. In the most recent Draft 2018 Stock Assessment Report, all 27 stocks are now reported with individual abundance numbers, however 25 stocks are still assessed together in the same report, and only two stocks now have individual reports. While the 27 stocks are now addressed separately with regards to their abundances, and two stocks now have individual reports, there is no substantial change in the way these stocks were defined. While being reported differently in the Draft 2018 Stock Assessment Report, all 27 of these stocks were considered in the original LOA application, and therefore their change in reporting does not affect the analysis that was conducted. See the Draft 2018 Stock Assessment Report for the most up to date information on all bottlenose dolphin stocks (*83 Federal Register 47131*).

The updated ESA/MMPA status and abundance numbers for the updated species/stocks mentioned in this chapter are presented in Table 3.1 (along with all those species and stocks that did not have updated stock assessment reports). All other information can be found in the Draft 2018 Stock Assessment Report and will not be discussed further in this LOA application extension.

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5 TYPE OF INCIDENTAL TAKE AUTHORIZATION REQUESTED

As stated in the original LOA application, the Navy requested regulations and two LOAs for the taking of marine mammals incidental to proposed activities in the AFTT Study Area. Specifically, the Navy requested one LOA for training activities, and one LOA for testing activities. The term “take,” as defined in Section 3 (16 U.S.C. § 1362 (13)) of the MMPA, means “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.” “Harassment” was further defined in the 1994 amendments to the MMPA, which provided two levels of harassment: Level A (potential injury) and Level B (potential behavioral disturbance). For military readiness activities, the relevant definition of harassment is 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
- 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”) [16 U.S.C. § 1362(18) (B)(i) and (ii)].

Although the statutory definition of Level B harassment for military readiness activities requires that the natural behavior patterns of a marine mammal be significantly altered or abandoned, the current state of science for determining those thresholds is somewhat unsettled. Therefore, in its analysis of impacts associated with acoustic sources, the Navy has adopted a conservative approach that overestimates the number of takes by Level B harassment. Many of the responses estimated using the Navy’s quantitative analysis are most likely to be moderate severity. Moderate severity responses would be considered significant if they were sustained for a duration long enough that it caused an animal to be outside of normal daily variations in feeding, reproduction, resting, migration/movement, or social cohesion. As discussed in Section 6.4.2.1.1.2 (Behavioral Responses from Sonar and Other Transducers) of the original LOA application, the behavioral response functions used within the Navy’s quantitative analysis were primarily derived from experiments using short-duration sound exposures lasting, in many cases, for less than 30 minutes. If animals exhibited moderate severity reactions for the duration of the exposure or longer, then it was conservatively assumed that the animal experienced a significant behavioral reaction. However, the experiments did not include measurements of costs to animals beyond the immediately observed reactions, and no direct correlations exist between an observed behavioral response and a cost that may result in long-term consequences. Within the Navy’s quantitative analysis, many behavioral reactions are estimated from exposure to sound that may exceed an animal’s behavioral threshold for only a single exposure to several minutes. It is likely that many of the estimated behavioral reactions within the Navy’s quantitative analysis would not constitute significant behavioral reactions; however, the numbers of significant versus non-significant behavioral reactions are currently impossible to predict. Consequently, there is a high likelihood that a substantial number of marine mammals exposed to acoustic sources are not significantly altering or abandoning their natural behavior patterns. The overall impact of acoustic sources from military readiness activities on marine mammal species and stocks is negligible, i.e. cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stocks through effects on annual rates of recruitment or survival.

As noted previously in the original LOA application, the AFTT Final EIS/ OEIS considered all training and testing activities proposed to occur in the AFTT Study Area that have the potential to result in the MMPA defined take of marine mammals. The Navy determined that the following three stressors could result in the incidental taking of marine mammals:

- **Acoustics** (sonar and other transducers; air guns; pile driving/extraction)
- **Explosives** (explosive shock wave and sound; explosive fragments)
- **Physical Disturbance and Strike** (vessel strike)

Acoustic and explosive sources have the potential to result in incidental takes of marine mammals by harassment or injury. Explosive sources have the potential to result in incidental takes of marine mammals by harassment, injury, or mortality. Vessel strikes have the potential to result in incidental take from direct injury and/or mortality.

The quantitative analysis process used for the AFTT Final EIS/OEIS, the original LOA application, and this LOA extension request to estimate potential exposures to marine mammals resulting from acoustic and explosive stressors is detailed in the technical report titled *Quantitative Analysis for Estimating Acoustic and Explosive Impacts to Marine Mammals and Sea Turtles* (U.S. Department of the Navy, 2017). The Navy Acoustic Effects Model (NAEMO) 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, the Navy conservatively quantifies the potential for mitigation to reduce model-estimated permanent threshold shift (PTS) to temporary threshold shift (TTS) for exposures to sonar and other transducers, and reduce model-estimated mortality to injury for exposures to explosives. For additional information on the quantitative analysis process and mitigation measures, refer to Chapter 6 (Take Estimates for Marine Mammals) in the original LOA application and Chapter 11 (Mitigation Measures) of this LOA extension request.

5.1 INCIDENTAL TAKE REQUEST FROM ACOUSTIC AND EXPLOSIVE SOURCES

A detailed analysis of effects due to marine mammal exposures to acoustic and explosive sources in the AFTT Study Area from Navy training and testing activities is presented in Chapter 6 (Take Estimates for Marine Mammals) of the original LOA application. Based on the quantitative analysis described in Chapter 6 of the original LOA application, Table 1.2-1 summarizes the Navy's take request from acoustic and explosive sources for training and testing activities over a 7-year period. The annual and 5-year take request that was presented in the original LOA application will remain the same. The only difference in this take request is that two additional years have been added to the analysis; therefore, only the 7-year take request numbers are presented here. Table 5.1-1 summarizes the Navy's total take request excluding ship shock trials by MMPA category. Table 5.1-2 summarizes the Navy's take request for individual small and large ship shock trials and the take that could occur over a 7-year period for all ship shock activities by MMPA category. Table 5.1-3 through Table 5.1-5 display the takes by species and stocks associated with all training, testing, and ship shock activities.

Table 5.1-1: Summary of 7-Year Take Request from Acoustic and Explosive Sources for AFTT Training and Testing Activities (Excluding Ship Shock Trials)

<i>MMPA Category</i>	<i>Source</i>	<i>7-Year Authorization Sought</i>	
		<i>Training Activities</i>	<i>Testing Activities²</i>
Mortality	Explosive	None	None
Level A	Acoustic & Explosive	1,841	2,331
Level B	Acoustic & Explosive	9,543,569	9,947,418

¹ Take estimates for acoustic and explosive sources for training activities are based on the maximum number of activities in a 12-month period. Species specific information shown in Table 5.1-3.

² Take estimates for acoustic and explosive sources for testing activities are based on the maximum number of activities in a 12-month period (excluding ship shock trials). Species specific information shown in Table 5.1-4.

Table 5.1-2: Summary of 7-Year Take Request from Explosions Used During the AFTT Ship Shock Trials

<i>MMPA Category¹</i>	<i>7-Year Authorization Sought</i>
Mortality	9
Level A	1,117
Level B	2,022

¹ Species specific shown Table 5.1-5.

5.1.1 INCIDENTAL TAKE REQUEST FROM ACOUSTIC AND EXPLOSIVE SOURCES FOR TRAINING ACTIVITIES

Chapter 6 (Take Estimates for Marine Mammals) of the original LOA application contains detailed species (and stock)-specific annual results of modeled potential exposures to acoustic and explosive sources from training and testing activities within the AFTT Study Area. The annual take request numbers are not affected by this LOA extension request. This extension request only addresses two additional years that would be added to the current LOAs to make the LOAs valid for seven years. Table 5.1-3 summarizes the Navy's take request (exposures which may lead to Level B harassment and exposures which may lead to Level A harassment) for training activities by species and stock breakout over a 7-year period from the acoustic and explosive effects modeling. No mortalities are requested under training activities.

Table 5.1-3: 7-Year Total Species Specific Take Requests from Modeling Estimates of Acoustic and Explosive Sound Source Effects for All Training Activities

Species	Stock	7-Year Total	
		Level B	Level A
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 (Gulf of St. Lawrence)	171	0
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

Request for an Extension of the Regulations and LOAs for the Incidental Taking of Marine Mammals Resulting from U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area Over a Seven Year Period

January 2019

<i>Species</i>	<i>Stock</i>	<i>7-Year Total</i>	
		<i>Level B</i>	<i>Level A</i>
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

Request for an Extension of the Regulations and LOAs for the Incidental Taking of Marine Mammals Resulting from U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area Over a Seven Year Period

January 2019

<i>Species</i>	<i>Stock</i>	<i>7-Year Total</i>	
		<i>Level B</i>	<i>Level A</i>
	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
<i>Family Phocoenidae (porpoises)</i>			
Harbor porpoise	Gulf of Maine/Bay of Fundy	206,071	1,121
<i>Suborder Pinnipedia</i>			
<i>Family Phocidae (true seals)</i>			
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

* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designated

5.1.2 INCIDENTAL TAKE REQUEST FROM ACOUSTIC AND EXPLOSIVE SOURCES FOR TESTING ACTIVITIES

Table 5.1-4 summarizes the Navy's take request (exposures which may lead to Level B harassment and exposures which may lead to Level A harassment) for testing activities (excluding ship shock trials) by species and stock breakout over a 7-year period.

Table 5.1-4: 7-Year Total Species Specific Take Requests from Modeling Estimates of Acoustic and Explosive Source Effects for All Testing Activities (Excluding Ship Shock Trials)

Species	Stock	7-Year Total	
		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
	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

Request for an Extension of the Regulations and LOAs for the Incidental Taking of Marine Mammals Resulting from U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area Over a Seven Year Period

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<i>Species</i>	<i>Stock</i>	<i>7-Year Total</i>	
		<i>Level B</i>	<i>Level A</i>
True's beaked whale	Western North Atlantic	68,903	0
<i>Family Delphinidae (dolphins)</i>			
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

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<i>Species</i>	<i>Stock</i>	<i>7-Year Total</i>	
		<i>Level B</i>	<i>Level A</i>
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
<i>Family Phocoenidae (porpoises)</i>			
Harbor porpoise	Gulf of Maine/Bay of Fundy	811,201	1,405
<i>Suborder Pinnipedia</i>			
<i>Family Phocidae (true seals)</i>			
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

* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designated

Table 5.1-5 summarizes the Navy's take request (Level B, A, and Mortality) for ship shock trials under testing activities over a 7-year period.

Table 5.1-5: 7-Year Total Species Specific Take Requests from Modeling Estimates of Ship Shock Trials¹

<i>Species</i>	<i>7-Year Total</i>		
	<i>Level B</i>	<i>Level A</i>	<i>Mortality</i>
<i>Suborder Mysticeti (baleen whales)</i>			
<i>Family Balaenidae (right whales)</i>			
North Atlantic right whale*	5	0	0
<i>Family Balaenopteridae (roquals)</i>			
Blue whale*	1	0	0
Bryde's whale	15	1	0
Minke whale	96	6	0
Fin whale*	627	36	0
Humpback whale	44	2	0
Sei whale*	63	7	0
<i>Suborder Odontoceti (toothed whales)</i>			
<i>Family Physeteridae (sperm whale)</i>			
Sperm whale*	6	7	0
<i>Family Kogiidae (sperm whales)</i>			
Dwarf sperm whale	229	154	0
Pygmy sperm whale	229	154	0
<i>Family Ziphiidae (beaked whales)</i>			
Blainville's beaked whale	4	1	0
Cuvier's beaked whale	8	6	0
Gervais' beaked whale	4	1	0
Northern bottlenose whale	0	0	0
Sowersby's beaked whale	4	1	0
True's beaked whale	4	1	0
<i>Family Delphinidae (dolphins)</i>			
Atlantic spotted dolphin	26	24	0
Atlantic white-sided dolphin	6	12	1
Bottlenose dolphin	55	54	0
Clymene dolphin	15	23	0
False killer whale	2	1	0
Fraser's dolphin	2	3	0
Killer whale	0	0	0
Long-finned pilot whale	11	12	0
Melon-headed whale	8	7	0
Pantropical spotted dolphin	31	29	1
Pygmy killer whale	1	1	0
Risso's dolphin	6	4	0

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<i>Species</i>	<i>7-Year Total</i>		
	<i>Level B</i>	<i>Level A</i>	<i>Mortality</i>
Rough-toothed dolphin	6	2	0
Short-beaked common dolphin	187	260	6
Short-finned pilot whale	10	11	0
Spinner dolphin	46	48	1
Striped dolphin	22	36	0
White-beaked dolphin	0	0	0
<i>Family Phocoenidae (porpoises)</i>			
Harbor porpoise	249	204	0
<i>Suborder Pinnipedia</i>			
<i>Family Phocidae (true seals)</i>			
Gray seal	0	0	0
Harbor seal	0	0	0
Harp seal	0	0	0
Hooded seal	0	0	0

* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designated

¹ The 7-year numbers displayed here are the same as the 5-year numbers displayed in the original LOA application as no additional ship shock trials would occur over the additional two years of the permit.

5.2 INCIDENTAL TAKE REQUEST FROM VESSEL STRIKES

Similar to the original LOA application, a detailed analysis of strike data is contained in Section 6.4 (Estimated Numbers and Species Taken by Vessel Strike) of this LOA extension request. Vessel strike to marine mammals is not associated with any specific training or testing activity but rather a limited, sporadic, and incidental result of Navy vessel movement within the AFTT Study Area. Based on the probabilities of whale strikes suggested by an analysis of past strike data and anticipated future vessel movements provided in Section 6.4 (Estimated Numbers and Species Taken by Vessel Strike) of this extension request, the Navy requests authorization for take of four (4) marine mammals by injury or mortality, resulting from vessel strike incidental to the training and testing activities combined, within any portion of the AFTT Study Area over the course of the seven years of the regulations. This is one (1) more marine mammal take resulting from vessel strike than was requested in the original LOA application and issued in the current permit. Because of the number of incidents in which the struck animal has remained unidentified to species, the Navy cannot quantifiably predict that the proposed takes will be of any particular species, and therefore seeks take authorization for any combination of the following marine mammal stocks in the AFTT study area:

- Gulf of Maine humpback
- Western North Atlantic Fin whale
- Nova Scotia sei whale
- Canadian East Coast minke whale
- North Atlantic sperm whale

Based on the broad distribution of training and testing activities and the relative distribution and abundances of large whale species within the AFTT study area, it is anticipated that vessel strikes would not exceed one (1) from any individual stock.

In addition to procedural mitigation, the Navy will implement measures in mitigation areas used by North Atlantic right whales for foraging, calving, and migration (Chapter 11, Mitigation Measures). These measures (e.g., funding of and communication with sightings systems, implementation of speed reductions during applicable circumstances in certain areas) have helped the Navy avoid striking a North Atlantic right whale during training and testing activities in the past; and therefore, are likely to eliminate the potential for future strikes to occur.

6 TAKE ESTIMATES FOR MARINE MAMMALS

6.1 ESTIMATED TAKE OF MARINE MAMMALS BY ACOUSTIC AND EXPLOSIVE SOURCES

As discussed above in Chapter 5, a detailed analysis of effects due to marine mammal exposures to acoustic and explosive sources in the AFTT Study Area from Navy training and testing activities was presented in Chapter 6 (Take Estimates for Marine Mammals) of the original LOA application. The annual and 5-year take request that was presented in the original LOA application will remain the same. The only difference in this take request is that two additional years have been added to the Proposed Action, making the full LOA extension request valid for seven years. Annual rates of take are the same and as concluded in original LOA application, population consequences are not anticipated for any marine mammal species due to the Navy's training and testing activities.

6.1.1 NEW PERTINENT MARINE MAMMAL SCIENCE SINCE AUGUST 2017

The scientific community continues to conduct research to generate new data in an effort to expand and improve our understanding of the marine environment. The Navy is a strong advocate for and sponsor of marine research and is vigilant in its review of new information that may inform the analyses or affect the conclusions. Since the submittal of the original LOA application, the Navy has reviewed numerous publications relevant to the analysis of impacts described in the application. The Navy has identified additional references, many of them published within the last year, that are relevant to the analysis in the original LOA application. The majority of these references are peer-reviewed journal articles and present the results of ongoing and new research on the topics of effects of vessel noise, impulsive noise, construction noise, and sonar on marine mammals; disturbance models for marine mammals; auditory impacts to marine mammals; and behavioral responses of fish species, as well as other topics. Overall, these new references do not change the impacts analysis or conclusions discussed in the original LOA application. The Navy will continue to monitor and review the results of new research and evaluate how those results apply to the Navy's assessment of marine resources. Due to their relevancy to the analysis of the Proposed Action, however, several of these studies are described below.

Nachtigall et al. (2018) and Finneran (2018) describe the measurements of hearing sensitivity of multiple odontocete species (bottlenose dolphin, harbor porpoise, beluga, and false killer whale) when a relatively loud sound was preceded by a warning sound. These captive animals were shown to reduce hearing sensitivity when warned of an impending intense sound. Based on these experimental observations of captive animals, the authors suggest that wild animals may dampen their hearing during prolonged exposures or if conditioned to anticipate intense sounds. Finneran recommends further investigation of the mechanisms of hearing sensitivity reduction in order to understand the implications for interpretation of some existing TTS data obtained from captive animals, notably for considering TTS due to short duration, unpredictable exposures. No modification of analysis of auditory impacts is currently suggested, as the current auditory impact thresholds are based on best available data for both impulsive and non-impulsive exposures to marine mammals.

Several publications described models developed to examine the long-term effects of environmental or anthropogenic disturbance of foraging on various life stages of selected species [sperm whale – Farmer et al. (2018), California sea lions – McHuron et al. (2018), and blue whale – Pirota, et al. (2018)]. These models, taken into consideration with similar models described in the AFTT Final EIS/OEIS, will continue

to add to refinement of approaches to the population consequences of disturbance (PCOD) framework. Such models also help identify what data inputs require further investigation. As described in the original LOA application, many of the inputs required by such models are not yet known for acoustic and explosive impacts. The Navy will continue to support long-term monitoring efforts and data gathering on Navy ranges and subsequently continue to assess the applicability of population consequences models to its analysis.

Additionally, Kastelein et al. (2018) exposed two captive harbor porpoises to mid-frequency sonar (which was a scaled version that was meant to mimic the U.S. Navy's most powerful and common sonar source) to investigate reactions at varying duty cycles. Neither porpoise responded to lower duty cycle and one of the porpoises responded to the high duty cycle at several levels; although both animals jumped more at the high duty cycle and highest received level. The investigators also indicated that there was no habituation or sensitization across the exposure periods. These received levels are similar to previous levels at which harbor porpoises have responded to sonar, however the investigators suggest that further research is required to determine the effect of duty cycle on the context of behavioral responses and whether behavioral response to duty cycles associated with Navy sonar use are less likely to occur than was previously thought. This information does not change the current analysis and conclusions.

6.2 ESTIMATED TAKE OF MARINE MAMMALS BY VESSEL STRIKE

Most vessel strikes of marine mammals reported involve commercial vessels and occur over or near the continental shelf (Laist et al., 2001). It is Navy policy to report all marine mammal strikes by Navy vessels. The information is collected by Office of the Chief of Naval Operations Environmental Readiness and provided to NMFS on an annual basis. Only Navy and the U.S. Coast Guard reliably report in this manner. Therefore, it should be noted that Navy vessel strikes reported in the scientific literature and NMFS databases are the result of the Navy's commitment to reporting all strikes to NMFS rather than a greater frequency of collisions relative to other ship types (e.g. commercial cargo vessels). Vessel strike to marine mammals is not associated with any specific training or testing activity but rather a limited, sporadic, and incidental result of vessel movement within the AFTT Study Area. Figure 6.2-1 provides the history of Navy vessel strikes reported in the AFTT Study Area for the ten-year period from 2009 through November 2018.

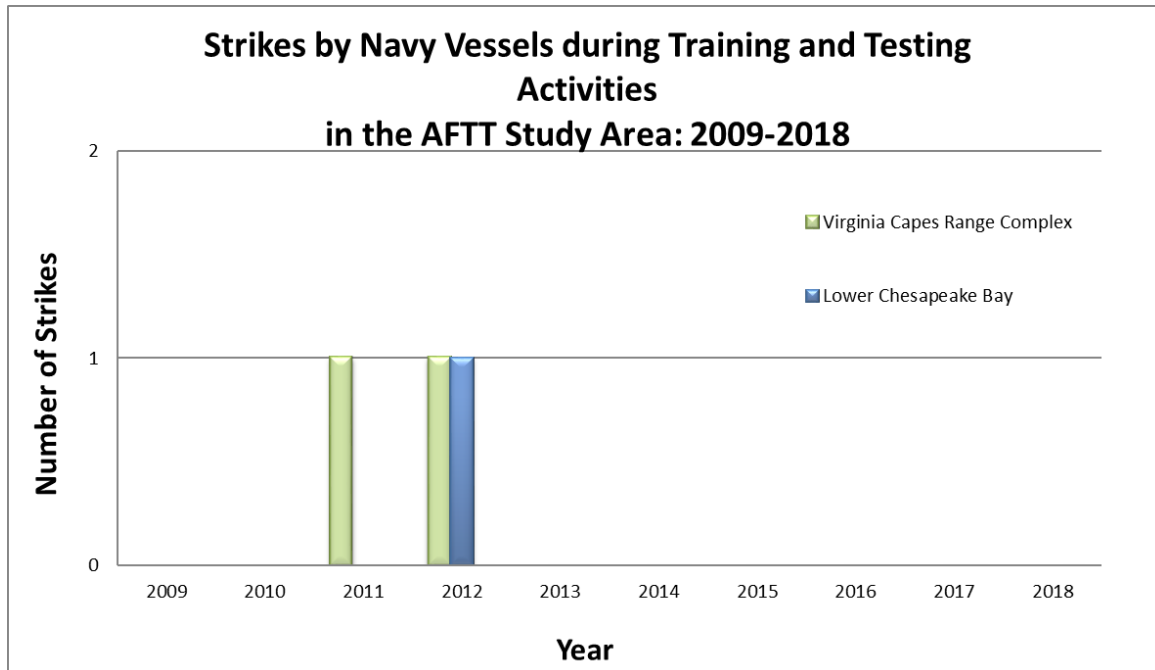


Figure 6.2-1: Navy Vessel Strikes Reported by Year (2009 to November 2018)

Between 2007 and 2009, the Navy developed and distributed additional training, mitigation, and reporting tools to Navy operators to improve marine mammal protection and to ensure compliance with upcoming permit requirements. In 2007, the Navy implemented the Marine Species Awareness Training, which is designed to improve the effectiveness of visual observations for marine resources, including marine mammals and sea turtles. In subsequent years, the Navy issued refined policy guidance regarding marine mammal incidents (e.g., vessel strikes) in order to collect the most accurate and detailed data possible in response to a possible incident. For over a decade, the Navy has implemented the Protective Measures Assessment Protocol software tool, which provides operators with notification of the required mitigation and a visual display of the planned training or testing activity location overlaid with relevant environmental data.

Similar mitigation, reporting, and monitoring requirements have been in place since 2009 and will continue into the future. Therefore, the conditions affecting the potential for vessel strikes are the most consistent across this time frame. As a result, data from the past ten years (i.e., 2009 to 2018) are used here to calculate the probability of a Navy vessel striking a whale during proposed training and testing activities in the AFTT Study Area. The year 2009 was selected because it is the beginning of programmatic permitting within the Atlantic and Pacific oceans; acknowledges advances in Navy marine species awareness training and overall enhanced sensitivity to marine resource issues in general; and is the first year of the codification of multiple marine species mitigation measures including specific measures to avoid large whales by 500 yards so long as it is safe for navigation. Additionally, due to better data and knowledge of species presence, the period beginning in 2009 is more representative of current and reasonably foreseeable marine mammal occurrence in AFTT. The level of vessel uses and

the manner in which the Navy trains and tests in the future is expected to be consistent with this time period.

Since the probability of a Navy vessel strike to whales is influenced by the amount of time at sea for Navy vessels within the AFTT Study Area during future training and testing activities, historical vessel use (i.e. steaming days) and reported vessel strike data from 2009 to 2018 were used to calculate the probability of a direct strike during proposed training and testing activities in the offshore portion of the AFTT Study Area over the 7-year period covered by this application extension. The Navy determined that data beginning in 2009 would be the most representative for predicting the potential for future vessel strikes, because this coincided with when the Navy's mitigation, monitoring, and reporting requirements became standardized across the Navy with the issuance of MMPA Authorizations for sonar and explosive usage in at-sea Navy ranges, as discussed above.

There were a total of three (3) reported vessel strikes of whales by Navy vessels from 2009 to November 2018 in the AFTT Study Area. During this same 10-year time period there was a total of 48,800 steaming days by Navy vessels within the AFTT Study Area. Therefore, there was an average strike rate of 0.00006 strikes per steaming day. Based on the annual average from 2009-2018 the Navy estimates that 34,160 steaming days will occur over the 7-year period (2018-2025) covered under the requested LOAs (as compared to 24,400 steaming days that are presented in the 5-year period covered in the original LOA application). These values were used to determine the rate parameters to calculate a series of probabilities based on a Poisson distribution. A Poisson distribution is often used to describe random occurrences when the probability of an occurrence is small, e.g., count data such as cetacean sighting data, or in this case strike data, are often described as a Poisson or over-dispersed Poisson distribution). In modeling strikes as a Poisson process, we assume this strike rate for the future and we use the Poisson distribution to estimate the probability of a number of strikes over a defined time period in the future:

$$P \langle n | \mu \rangle = \frac{e^{-\mu} \cdot \mu^n}{n!}$$

$P(n|\mu)$ is the probability of observing n events in some time interval, when the expected number of events in that time interval is μ . As stated previously, the Navy estimates that 34,160 steaming days would occur over the 7-year period covered under the anticipated MMPA authorization; given a strike rate of 0.00006 strikes per steaming day, the expected number of strikes (μ) over a 7-year period is 2.100. The Poisson distribution can then be used to estimate the probability of n where $n=0$ (no strikes), 1 strike, 2 strikes, etc., over the time period. For example, the equation yields a value of $P(0) = 0.122$, indicating a 12 percent probability of not striking any whales over the 7-year period. The resulting probabilities of one through five strikes over the next seven years covering through the end of the anticipated MMPA authorization are:

- 26 percent probability of striking one whale over 7 years
- 27 percent probability of striking two whales over 7 years
- 19 percent probability of striking three whales over 7 years
- 10 percent probability of striking four whales over 7 years
- 4 percent probability of striking five whales over 7 years

Based on the resulting probabilities presented in this analysis and the cumulative low history of Navy vessel strikes since 2009 and introduction of the Marine Species Awareness Training and adaptation of

additional mitigation measures, the Navy estimates that it may strike, and take by injury or mortality, up to four (4) large whales incidental to training and testing activities within the AFTT Study Area over the course of the seven years of the AFTT regulations. Based on the previous consultations with NMFS, it was determined that for any probability of vessel strike 10 percent or greater, the Navy would request the number of takes associated with the 10 percent probability threshold. Most Navy-reported whale strikes are not identified to the species level, however, large whales (i.e. mysticetes and sperm whales) are the most likely to be struck by a large vessel as a result of training and testing activities, primarily in the offshore portion of the AFTT Study Area.

Because of the number of incidents in which the struck animal has remained unidentified to species, the Navy cannot quantifiably predict that the proposed takes will be of any particular species, and therefore seeks take authorization for any of the following species and stocks: Gulf of Maine stock of humpback whale, Western North Atlantic stock of fin whale, Nova Scotia stock of sei whale, Canadian East Coast stock of minke whale, and North Atlantic stock of sperm whale. Based on the broad distribution of training and testing activities and the relative distribution and abundances of these species within the AFTT study area, it is not anticipated that vessel strikes would exceed one (1) of any individual stock.

The Navy does not anticipate it will strike a North Atlantic right whale as a result of training or testing activities because of the extensive measures in place to reduce the risk of a strike to this species. Refer to Chapter 11 (Mitigation Measures) for a full list of these measures. Although vessels may transit into bowhead whale habitat during training and testing activities, these transits are expected to be very infrequent and it is therefore extremely unlikely that this species will be struck by Navy vessels in the AFTT study area. Also, due to the low abundance and the transient nature of the Western North Atlantic stock of blue whale, and the low abundance of the Northern Gulf of Mexico stock of sperm whales and Northern Gulf of Mexico stock of Bryde's whale coupled with limited numbers of vessel related activities that occur in the Gulf of Mexico, the Navy is not requesting vessel strike takes for these three stocks.

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7 ANTICIPATED IMPACT OF THE ACTIVITY

As stated in the original LOA application, consideration of ‘negligible impact’ to the species or stock is required for NMFS to authorize incidental take of marine mammals. By definition, an activity has a ‘negligible impact’ on a species or stock when the activity 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.

In the original LOA application, the Navy concluded that the proposed training and testing activities in the AFTT study area would result in Level B, Level A, or mortality takes, as summarized in Section 5.1 (Incidental Take Request from Acoustic and Explosive Sources) and Section 5.2 (Incidental Take Request from Vessel Strikes). Also, as discussed in the original LOA application, all conclusions were based on annual metrics such as rates of recruitment and survival. Therefore, the addition of two years to the permit, resulting in a 7-year permit, does not change the annual analysis that was previously conducted and therefore the annual activity and take numbers remain consistent. The number of mortality takes will increase by one (1) for this LOA extension as a result of vessel strike, however, the overall effect to any stock remains the same cumulatively over the 7-year period. Based on best available science, the Navy concluded that exposures of marine mammal species and stocks to the proposed training and testing activities would result in only short-term effects on most individuals exposed and would not affect annual rates of recruitment or survival for species and stocks for the following reasons:

- Most acoustic exposures were within the non-injurious TTS or behavioral effects zones (Level B harassment).
- Although the numbers presented in Section 6.6 (Summary of All Estimated Numbers and Species Taken by Acoustic and Explosive Sources) of the original LOA application represented estimated harassment takes under the MMPA, they were conservative (i.e., over-predictions) estimates of harassment, primarily by behavioral disturbance.
- The mitigation measures described in Chapter 11 (Mitigation Measures) of this LOA extension request are designed to avoid or reduce the potential for injury from acoustic, explosive, and physical disturbance stressors to the maximum extent practicable. The quantitative analysis process estimates harassment taking into consideration mitigation measures.
- Range complexes and testing ranges where intensive training and testing have been occurring for decades have populations of multiple species with strong site fidelity (including resident beaked whales at some locations) and increases in the number of some species.

The original LOA application assumed that short-term non-injurious sound exposure levels predicted to cause onset-TTS or temporary behavioral disruptions (non-TTS) qualify as Level B harassment. This overestimated reactions qualifying as harassment under MMPA because there is no established scientific correlation between short-term use of sonar and other transducers, explosives, and pile driving/extraction, air guns, and long term abandonment or significant alteration of behavioral patterns in marine mammals.

An analysis of the potential impacts of the proposed activities on recruitment or survival was presented in Chapter 6 (Take Estimates for Marine Mammals) of the original LOA application for each individual species, species group, or stock based on life history information, estimated take levels, an analysis of estimated take levels in comparison to the overall population, and identified geographic areas that may

be particularly important for activities such as feeding and breeding. The species-specific analyses, in combination with the mitigation measures provided in Chapter 11 (Mitigation Measures) support the conclusion that proposed training and testing activities would have a negligible impact on marine mammal species or stocks within the Study Area. The analysis of impacts presented in the original LOA application, were analyzed based on the annual levels of training and testing activities. This request only adds two years to the current LOAs (making them applicable for a total of seven years as opposed to the original five years) and no changes would occur in the annual levels of training and testing. As discussed above, there has been no change to the information, analysis, and conclusions presented in the original LOA application. Therefore, impacts are not discussed further here.

8 ANTICIPATED IMPACTS ON SUBSISTENCE USE

As discussed in the original LOA application, potential marine mammal impacts resulting from the Proposed Action will be limited to marine mammals located in the AFTT Study Area, none of which have subsistence requirements. Therefore, no impacts on the availability of species or stocks for subsistence use are considered in this LOA extension request.

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9 ANTICIPATED IMPACTS ON HABITAT

As stated in the original LOA application, activity components with the potential to impact marine mammal habitat as a result of the Proposed Action include: (1) changes in water quality, (2) the introduction of sound into the water column, and (3) temporary changes to prey distribution and abundance. Each of these components was considered in the AFTT Final EIS/OEIS and was determined to have no impact on marine mammal habitat. While this LOA extension request addresses a total of seven years compared to the original LOA application which addressed a total of five years, the original analysis supports the determination in this LOA extension request that there would be no greater impacts on habitat than those discussed in the original LOA application. Therefore, the conclusions reached for the three stressors with potential to impact marine mammal habitat would remain the same.

As stated in the original LOA application, one NMFS-managed marine mammal species, the North Atlantic right whale, has designated critical habitat in the Study Area. After an assessment of the potential impacts of training and testing activities on marine mammal critical habitat in the Study Area, the Navy has determined that acoustic sources, energy sources, physical disturbances and strikes, entanglement, ingestion, and indirect stressors will have no effect on the primary constituent elements of the North Atlantic right whale critical habitat (i.e., water temperature and depth in the southeast and copepods in the northeast). While this LOA extension request addresses a total of seven years compared to the original LOA application which addressed a total of five years, the original analysis supports the determination in this LOA extension request that there would be no greater impacts on habitat than those discussed in the original LOA application. Therefore, the conclusions reached for the three stressors with potential to impact marine mammal habitat would remain the same.

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10 ANTICIPATED EFFECTS OF HABITAT IMPACTS ON MARINE MAMMALS

As stated in the original LOA application, the Proposed Action is not expected to have any habitat-related effects that could cause significant or long-term consequences for individual marine mammals or their populations. Based on the discussions in Chapter 9 (Impacts on Marine Mammal Habitat and the Likelihood of Restoration), there will be no impacts on marine mammals resulting from loss or modification of marine mammal habitat. Therefore, it is expected there will continue to be no impacts on marine mammals resulting from loss or modification of marine mammal habitat from the additional two years of the Proposed Action associated with this LOA extension.

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11 MITIGATION MEASURES

As stated in the original LOA application, the Navy will implement mitigation measures to avoid potential impacts from acoustic, explosive, and physical disturbance and strike stressors. The Navy's mitigation measures are organized into two categories: procedural mitigation and mitigation areas. A complete discussion of the evaluation process used to develop, assess, and select mitigation measures can be found in Chapter 5 (Mitigation) of the AFTT Final EIS/OEIS. The following sections summarize the mitigation measures that will be implemented in association with the training and testing activities analyzed in this document.

As a result of public comments received on the AFTT Draft EIS/OEIS, through the MMPA consultation process with NMFS, and based on its ongoing analysis of the best available science and potential mitigation measures, the Navy determined it would be practical to implement additional mitigation measures to enhance protection of marine mammals to the maximum extent practicable. The Navy modified or added several procedural mitigation measures and mitigation areas, which were fully captured in the November 14, 2018 Final Rule (*83 Federal Register 57076*), and are described in Section 11.1 (Procedural Mitigation) and Section 11.2 (Mitigation Areas). The full suite of mitigation measures that the Navy will implement under the Proposed Action are presented below and the Navy is not proposing any new or additional mitigation measures from those found in the November 14, 2018 Final Rule (*83 Federal Register 57076*).

11.1 PROCEDURAL MITIGATION

Procedural mitigation is mitigation that the Navy will implement whenever and wherever training or testing activities involving applicable acoustic, explosive, and physical disturbance and strike stressors takes place within the Study Area. Procedural mitigation generally involves: (1) the use of one or more trained Lookouts to observe for specific biological resources within a mitigation zone, (2) requirements for Lookouts to immediately communicate sightings of specific biological resources to the appropriate watch station for information dissemination, and (3) requirements for the watch station to implement mitigation until a pre-activity commencement or during-activity recommencement condition has been met. The Navy customizes procedural mitigation for each applicable activity category or stressor.

The procedural mitigation measures that have been updated since the original LOA application addendum include: (1) adding a requirement to survey for marine mammals and ESA-listed species after the completion of explosive activities in the vicinity of where detonations occurred (when practical), (2) requiring additional platforms already participating in explosive activities to support observing for applicable biological resources before, during, and after the activity, and (3) adding a requirement to transmit special notification messages to applicable naval units with information from the North Atlantic right whale Dynamic Management Areas.

The first procedural mitigation (Table 11.1-1) is designed to aid Lookouts and other applicable personnel with their observation, environmental compliance, and reporting responsibilities. The remainder of the procedural mitigations are organized by stressor type and activity category.

Table 11.1-1: Procedural Mitigation for Environmental Awareness and Education

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • All training and testing activities, as applicable
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Appropriate personnel (including civilian personnel) involved in mitigation and training or testing activity reporting under the Proposed Action will 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: <ul style="list-style-type: none"> – Introduction to the U.S. Navy Afloat Environmental Compliance Training Series. The introductory module provides information on environmental laws (e.g., ESA, MMPA) and the corresponding responsibilities that are relevant to Navy training and testing activities. The material explains why environmental compliance is important in supporting the Navy's commitment to environmental stewardship. – Marine Species Awareness Training. All bridge watch personnel, Commanding Officers, Executive Officers, maritime patrol aircraft aircrews, anti-submarine warfare and mine warfare rotary-wing aircrews, Lookouts, and equivalent civilian personnel must successfully complete the Marine Species Awareness Training prior to standing watch or serving as a Lookout. The Marine Species Awareness Training provides information on sighting cues, visual observation tools and techniques, and sighting notification procedures. Navy biologists developed Marine Species Awareness Training to improve the effectiveness of visual observations for biological resources, focusing on marine mammals and sea turtles, and including floating vegetation, jellyfish aggregations, and flocks of seabirds. – U.S. Navy Protective Measures Assessment Protocol. This module provides the necessary instruction for accessing mitigation requirements during the event planning phase using the Protective Measures Assessment Protocol software tool. – U.S. Navy Sonar Positional Reporting System and Marine Mammal Incident Reporting. This module provides instruction on the procedures and activity reporting requirements for the Sonar Positional Reporting System and marine mammal incident reporting.

11.1.1 ACOUSTIC STRESSORS

Mitigation measures for acoustic stressors are provided in Tables 11.1-2 through 11.1-5.

Table 11.1-2: Procedural Mitigation for Active Sonar

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Low-frequency active sonar, mid-frequency active sonar, high-frequency active sonar <ul style="list-style-type: none"> – For vessel-based 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 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).
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • Hull-mounted sources: <ul style="list-style-type: none"> – 1 Lookout: 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) – 2 Lookouts: Platforms without space or manning restrictions while underway (at the forward part of the ship) – 4 Lookouts: Pierside sonar testing activities at Port Canaveral, Florida and Kings Bay, Georgia • Sources that are not hull-mounted: <ul style="list-style-type: none"> – 1 Lookout on the ship or aircraft conducting the activity

Table 11.1-2: Procedural Mitigation for Active Sonar (continued)

<i>Procedural Mitigation Description</i>
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zones: <ul style="list-style-type: none"> – 1,000 yd. power down, 500 yd. power down, and 200 yd. shut down for low-frequency active sonar ≥ 200 decibels (dB) and hull-mounted mid-frequency active sonar – 200 yd. shut down for low-frequency active sonar < 200 dB, mid-frequency active sonar sources that are not hull-mounted, and high-frequency active sonar • Prior to the initial start of the activity (e.g., when maneuvering on station): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of active sonar transmission. • During the activity: <ul style="list-style-type: none"> – Low-frequency active sonar ≥ 200 decibels (dB) and hull-mounted mid-frequency active sonar: Observe the mitigation zone for marine mammals; power down active sonar transmission by 6 dB if observed within 1,000 yd. of the sonar source; power down an additional 4 dB (10 dB total) within 500 yd.; cease transmission within 200 yd. – Low-frequency active sonar < 200 dB, mid-frequency active sonar sources that are not hull-mounted, and high-frequency active sonar: Observe the mitigation zone for marine mammals; cease active sonar transmission if observed within 200 yd. of the sonar source. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) the mitigation zone has been clear from any additional sightings for 10 min. for aircraft-deployed sonar sources or 30 min. for vessel-deployed sonar sources; (4) 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 (5) for activities using hull-mounted sonar, the ship concludes that dolphins are deliberately closing in on the ship to ride the ship's bow wave, and are therefore out of the main transmission axis of the sonar (and there are no other marine mammal sightings within the mitigation zone). • Additional requirements: <ul style="list-style-type: none"> – At Port Canaveral, Florida and Kings Bay, Georgia the Navy will equip Lookouts with polarized sunglasses and conduct active sonar activities during daylight hours to ensure adequate sightability of manatees and sea turtles. The Navy will notify the Port Authority prior to commencing pierside sonar testing at these locations. The Navy will observe the mitigation zone for marine mammals and sea turtles for 30 min. after completion of pierside sonar testing at these locations. – The Navy will reduce mid-frequency active sonar transmissions at Kings Bay, Georgia by at least 36 dB from full power. The Navy will communicate sightings of manatees and sea turtles (e.g., time, location, count, animal size, description of research tags if present, direction of travel) made during or after pierside sonar testing at Kings Bay, Georgia to the Georgia Department of Natural Resources sightings hotline, Base Natural Resources Manager, and Port Operations. Port Operations will disseminate sightings information to other vessels operating in the vicinity and will keep logs of all manatee sightings.

Table 11.1-3: Procedural Mitigation for Air Guns

<i>Procedural Mitigation Description</i>
<u>Stressor or Activity</u> <ul style="list-style-type: none"> • Air guns
<u>Number of Lookouts and Observation Platform</u> <ul style="list-style-type: none"> • 1 Lookout positioned on a ship or pierside
<u>Mitigation Requirements</u> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 150 yd. around the air gun • Prior to the initial start of the activity (e.g., when maneuvering on station): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of air gun use. • During the activity: <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals; if observed, cease air gun use. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) the mitigation zone has been clear from any additional sightings for 30 min.; or (4) 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.

Table 11.1-4: Procedural Mitigation for Pile Driving

<i>Procedural Mitigation Description</i>
<u>Stressor or Activity</u> <ul style="list-style-type: none"> • Pile driving and pile extraction sound during Elevated Causeway System training
<u>Number of Lookouts and Observation Platform</u> <ul style="list-style-type: none"> • 1 Lookout positioned on the shore, the elevated causeway, or a small boat
<u>Mitigation Requirements</u> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 100 yd. around the pile • Prior to the initial start of the activity (for 30 min.): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, delay the start of pile driving or vibratory pile extraction. • During the activity: <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals; if observed, cease impact pile driving or vibratory pile extraction. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) the mitigation zone has been clear from any additional sightings for 30 min.

Table 11.1-5: Procedural Mitigation for Weapons Firing Noise

<i>Procedural Mitigation Description</i>
<u>Stressor or Activity</u> <ul style="list-style-type: none"> Weapons firing noise associated with large-caliber gunnery activities
<u>Number of Lookouts and Observation Platform</u> <ul style="list-style-type: none"> 1 Lookout positioned on the ship conducting the firing Depending on the activity, the Lookout could be the same one described for Explosive Medium-Caliber and Large-Caliber Projectiles or Small-, Medium-, and Large-Caliber Non-Explosive Practice Munitions.
<u>Mitigation Requirements</u> <ul style="list-style-type: none"> Mitigation zone: <ul style="list-style-type: none"> 30° on either side of the firing line out to 70 yd. from the muzzle of the weapon being fired Prior to the initial start of the activity: <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of weapons firing. During the activity: <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease weapons firing. Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) the mitigation zone has been clear from any additional sightings for 30 min.; or (4) 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.

11.1.2 EXPLOSIVE STRESSORS

Mitigation measures for explosive stressors are provided in Tables 11.1-6 through 11.1-16

Table 11.1-6: Procedural Mitigation for Explosive Sonobuoys

<i>Procedural Mitigation Description</i>
<u>Stressor or Activity</u> <ul style="list-style-type: none"> Explosive sonobuoys
<u>Number of Lookouts and Observation Platform</u> <ul style="list-style-type: none"> 1 Lookout 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) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<u>Mitigation Requirements</u> <ul style="list-style-type: none"> Mitigation zone: <ul style="list-style-type: none"> 600 yd. around an explosive sonobuoy Prior to the initial start of the activity (e.g., during deployment of a sonobuoy field, which typically lasts 20–30 min.): <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. Conduct passive acoustic monitoring for marine mammals; use information from detections to assist visual observations. Visually observe the mitigation zone for marine mammals; if observed, relocate or delay the start of sonobuoy or source/receiver pair detonations. During the activity: <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease sonobuoy or source/receiver pair detonations.

Table 11.1-6: Procedural Mitigation for Explosive Sonobuoys (continued)

<i>Procedural Mitigation Description</i>
<ul style="list-style-type: none"> • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) 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. • After completion of the activity (e.g., prior to maneuvering off station): <ul style="list-style-type: none"> – When practical (e.g., when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. – If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-7: Procedural Mitigation for Explosive Torpedoes

<i>Procedural Mitigation Description</i>
<u>Stressor or Activity</u> <ul style="list-style-type: none"> • Explosive torpedoes
<u>Number of Lookouts and Observation Platform</u> <ul style="list-style-type: none"> • 1 Lookout positioned in an aircraft • If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<u>Mitigation Requirements</u> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 2,100 yd. around the intended impact location • Prior to the initial start of the activity (e.g., during deployment of the target): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. – Conduct passive acoustic monitoring for marine mammals; use information from detections to assist visual observations. – Visually observe the mitigation zone for marine mammals and jellyfish aggregations; if observed, relocate or delay the start of firing. • During the activity: <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals and jellyfish aggregations; if observed, cease firing. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) 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. • After completion of the activity (e.g., prior to maneuvering off station): <ul style="list-style-type: none"> – When practical (e.g., when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. – If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-8: Procedural Mitigation for Explosive Medium-Caliber and Large-Caliber Projectiles

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> Gunnery activities using explosive medium-caliber and large-caliber projectiles <ul style="list-style-type: none"> Mitigation applies to activities using a surface target
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> 1 Lookout 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. If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> Mitigation zones: <ul style="list-style-type: none"> 200 yd. around the intended impact location for air-to-surface activities using explosive medium-caliber projectiles 600 yd. around the intended impact location for surface-to-surface activities using explosive medium-caliber projectiles 1,000 yd. around the intended impact location for surface-to-surface activities using explosive large-caliber projectiles Prior to the initial start of the activity (e.g., when maneuvering on station): <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of firing. During the activity: <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease firing. Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) 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 (4) 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. After completion of the activity (e.g., prior to maneuvering off station): <ul style="list-style-type: none"> When practical (e.g., when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-9: Procedural Mitigation for Explosive Missiles and Rockets

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Aircraft-deployed explosive missiles and rockets <ul style="list-style-type: none"> – Mitigation applies to activities using a surface target
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • 1 Lookout positioned in an aircraft • If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zones: <ul style="list-style-type: none"> – 900 yd. around the intended impact location for missiles or rockets with 0.6–20 lb. net explosive weight – 2,000 yd. around the intended impact location for missiles with 21–500 lb. net explosive weight • Prior to the initial start of the activity (e.g., during a fly-over of the mitigation zone): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of firing. • During the activity: <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals; if observed, cease firing. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) 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. • After completion of the activity (e.g., prior to maneuvering off station): <ul style="list-style-type: none"> – When practical (e.g., when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. – If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-10: Procedural Mitigation for Explosive Bombs

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> Explosive bombs
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> 1 Lookout positioned in the aircraft conducting the activity If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> Mitigation zone: <ul style="list-style-type: none"> 2,500 yd. around the intended target Prior to the initial start of the activity (e.g., when arriving on station): <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of bomb deployment. During the activity (e.g., during target approach): <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease bomb deployment. Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) the mitigation zone has been clear from any additional sightings for 10 min.; or (4) 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. After completion of the activity (e.g., prior to maneuvering off station): <ul style="list-style-type: none"> When practical (e.g., when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-11: Procedural Mitigation for Sinking Exercises

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Sinking exercises
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • 2 Lookouts (one positioned in an aircraft and one on a vessel) • If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 2.5 NM around the target ship hulk • Prior to the initial start of the activity (90 min. prior to the first firing): <ul style="list-style-type: none"> – Conduct aerial observations of the mitigation zone for floating vegetation; delay the start until the mitigation zone is clear. – Conduct aerial observations of the mitigation zone for marine mammals and jellyfish aggregations; if observed, delay the start of firing. • During the activity: <ul style="list-style-type: none"> – Conduct passive acoustic monitoring for marine mammals; use information from detections to assist visual observations. – Visually observe the mitigation zone for marine mammals from the vessel; if observed, cease firing. – Immediately after any planned or unplanned breaks in weapons firing of longer than 2 hours, observe the mitigation zone for marine mammals from the aircraft and vessel; if observed, delay recommencement of firing. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) the mitigation zone has been clear from any additional sightings for 30 min. • After completion of the activity (for 2 hours after sinking the vessel or until sunset, whichever comes first): <ul style="list-style-type: none"> – Observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. – If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-12: Procedural Mitigation for Explosive Mine Countermeasure and Neutralization Activities

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> Explosive mine countermeasure and neutralization activities
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> 1 Lookout positioned on a vessel or in an aircraft when implementing the smaller mitigation zone 2 Lookouts (one positioned in an aircraft and one on a small boat) when implementing the larger mitigation zone If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> Mitigation zones: <ul style="list-style-type: none"> 600 yd. around the detonation site for activities using 0.1–5-lb. net explosive weight 2,100 yd. around the detonation site for activities using 6–650 lb. net explosive weight (including high explosive target mines) 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): <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of detonations. During the activity: <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease detonations. Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) 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. 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): <ul style="list-style-type: none"> Observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-13: Procedural Mitigation for Explosive Mine Neutralization Activities Involving Navy Divers

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> Explosive mine neutralization activities involving Navy divers
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> 2 Lookouts (two small boats with one Lookout each, or one Lookout on a small boat and one in a rotary-wing aircraft) when implementing the smaller mitigation zone 4 Lookouts (two small boats with two Lookouts each), and a pilot or member of an aircrew will serve as an additional Lookout if aircraft are used during the activity, when implementing the larger mitigation zone All divers placing the charges on mines will support the Lookouts while performing their regular duties and will report applicable sightings to their supporting small boat or Range Safety Officer. If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> Mitigation zones: <ul style="list-style-type: none"> 500 yd. around the detonation site during activities under positive control using 0.1–20 lb. net explosive weight 1,000 yd. around the detonation site during 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 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): <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of detonations or fuse initiation. During the activity: <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease detonations or fuse initiation. To the maximum extent practicable depending on mission requirements, safety, and environmental conditions, boats will position themselves near the mid-point of the mitigation zone radius (but outside of the detonation plume and human safety zone), will position themselves on opposite sides of the detonation location (when two boats are used), and will 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 will travel in a circular pattern around the detonation location to the maximum extent practicable. The Navy will not set time-delay firing devices (0.1–20 lb. net explosive weight) to exceed 10 min. Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) 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. After completion of an activity (for 30 min): <ul style="list-style-type: none"> Observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-14: Procedural Mitigation for Maritime Security Operations – Anti-Swimmer Grenades

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> Maritime Security Operations – Anti-Swimmer Grenades
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> 1 Lookout positioned on the small boat conducting the activity If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> Mitigation zone: <ul style="list-style-type: none"> 200 yd. around the intended detonation location Prior to the initial start of the activity (e.g., when maneuvering on station): <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of detonations. During the activity: <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease detonations. Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) the mitigation zone has been clear from any additional sightings for 30 min.; or (4) the intended detonation location has transited a distance equal to double that of the mitigation zone size beyond the location of the last sighting. After completion of the activity (e.g., prior to maneuvering off station): <ul style="list-style-type: none"> When practical (e.g., when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-15: Procedural Mitigation for Line Charge Testing

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> Line charge testing
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> 1 Lookout positioned on a vessel If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> Mitigation zone: <ul style="list-style-type: none"> 900 yd. around the intended detonation location Prior to the initial start of the activity (e.g., when maneuvering on station): <ul style="list-style-type: none"> Observe the mitigation zone for floating vegetation; if observed, delay the start until the mitigation zone is clear. Observe the mitigation zone for marine mammals; if observed, delay the start of detonations. During the activity: <ul style="list-style-type: none"> Observe the mitigation zone for marine mammals; if observed, cease detonations. Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) the mitigation zone has been clear from any additional sightings for 30 min. After completion of the activity (e.g., prior to maneuvering off station): <ul style="list-style-type: none"> When practical (e.g., when platforms are not constrained by fuel restrictions or mission-essential follow-on commitments), observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

Table 11.1-16: Procedural Mitigation for Ship Shock Trials

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Ship shock trials
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • At least 10 Lookouts or trained marine species observers (or a combination thereof) positioned either in an aircraft or on multiple vessels (i.e., a Marine Animal Response Team boat and the test ship) <ul style="list-style-type: none"> – If aircraft are used, Lookouts or trained marine species observers will be in an aircraft and on multiple vessels – If aircraft are not used, a sufficient number of additional Lookouts or trained marine species observers will be used to provide vessel-based visual observation comparable to that achieved by aerial surveys • If additional platforms are participating in the activity, personnel positioned in those assets (e.g., safety observers, evaluators) will support observing the mitigation zone for applicable biological resources while performing their regular duties.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 3.5 NM around the ship hull • During event planning: <ul style="list-style-type: none"> – The Navy will not conduct ship shock trials in the Jacksonville Operating Area during North Atlantic right whale calving season from November 15 through April 15. – The Navy develops detailed ship shock trial monitoring and mitigation plans approximately 1-year prior to an event and will continue to provide these to NMFS for review and approval. – Pre-activity planning will 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 NM from the western boundary of the Gulf Stream for events in the Virginia Capes Range Complex or Jacksonville Range Complex. – 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 could be moved to a secondary site in accordance with the detailed mitigation and monitoring plan provided to NMFS. • Prior to the initial start of the activity at the primary shock trial location (in intervals of 5 hours, 3 hours, 40 min., and immediately before the detonation): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, delay triggering the detonation. • During the activity: <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals, large schools of fish, jellyfish aggregations, and flocks of seabirds; if observed, cease triggering the detonation. – After completion of each detonation, observe the mitigation zone for marine mammals; if any injured or dead marine mammals are observed, follow established incident reporting procedures and halt any remaining detonations until the Navy can consult with NMFS and review or adapt the mitigation, if necessary. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) the mitigation zone has been clear from any additional sightings for 30 min. • After completion of the activity (during the following 2 days at a minimum, and up to 7 days at a maximum): <ul style="list-style-type: none"> – Observe for marine mammals in the vicinity of where detonations occurred; if any injured or dead marine mammals are observed, follow established incident reporting procedures. – If additional platforms are supporting this activity (e.g., providing range clearance), these assets will assist in the visual observation of the area where detonations occurred.

11.1.3 PHYSICAL DISTURBANCE AND STRIKE STRESSORS

Mitigation measures for physical disturbance and strike stressors are provided in Table 11.1-17 through Table 11.1-21.

Table 11.1-17: Procedural Mitigation for Vessel Movement

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Vessel movement <ul style="list-style-type: none"> – The mitigation will not be applied if: (1) the vessel's safety is threatened, (2) 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 (3) the vessel is operated autonomously.
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • 1 Lookout on the vessel that is underway
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zones: <ul style="list-style-type: none"> – 500 yd. around whales – 200 yd. around other marine mammals (except bow-riding dolphins and pinnipeds hauled out on man-made navigational structures, port structures, and vessels) • During the activity: <ul style="list-style-type: none"> – When underway, observe the mitigation zone for marine mammals; if observed, maneuver to maintain distance. • Additional requirements: <ul style="list-style-type: none"> – The Navy will 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 will 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, the Navy will follow the established incident reporting procedures.

Table 11.1-18: Procedural Mitigation for Towed In-Water Devices

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Towed in-water devices <ul style="list-style-type: none"> – 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
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • 1 Lookout positioned on the manned towing platform
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zones: <ul style="list-style-type: none"> – 250 yd. around marine mammals • During the activity (i.e., when towing an in-water device): <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals; if observed, maneuver to maintain distance.

Table 11.1-19: Procedural Mitigation for Small-, Medium-, and Large-Caliber Non-Explosive Practice Munitions

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Gunnery activities using small-, medium-, and large-caliber non-explosive practice munitions <ul style="list-style-type: none"> – Mitigation applies to activities using a surface target
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • 1 Lookout 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.
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 200 yd. around the intended impact location • Prior to the initial start of the activity (e.g., when maneuvering on station): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of firing. • During the activity: <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals; if observed, cease firing. • Commencement/recommencement conditions after a marine mammal sighting before or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) 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 (4) 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.

Table 11.1-20: Procedural Mitigation for Non-Explosive Missiles and Rockets

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Aircraft-deployed non-explosive missiles and rockets <ul style="list-style-type: none"> – Mitigation applies to activities using a surface target
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • 1 Lookout positioned in an aircraft
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 900 yd. around the intended impact location • Prior to the initial start of the activity (e.g., during a fly-over of the mitigation zone): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of firing. • During the activity: <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals; if observed, cease firing. • Commencement/recommencement conditions after a marine mammal sighting prior to or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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 (3) 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.

Table 11.1-21: Procedural Mitigation for Non-Explosive Bombs and Mine Shapes

<i>Procedural Mitigation Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Non-explosive bombs • Non-explosive mine shapes during mine laying activities
<p><u>Number of Lookouts and Observation Platform</u></p> <ul style="list-style-type: none"> • 1 Lookout positioned in an aircraft
<p><u>Mitigation Requirements</u></p> <ul style="list-style-type: none"> • Mitigation zone: <ul style="list-style-type: none"> – 1,000 yd. around the intended target • Prior to the start of the activity (e.g., when arriving on station): <ul style="list-style-type: none"> – Observe the mitigation zone for floating vegetation; if observed, relocate or delay the start until the mitigation zone is clear. – Observe the mitigation zone for marine mammals; if observed, relocate or delay the start of bomb deployment or mine laying. • During the activity (e.g., during approach of the target or intended minefield location): <ul style="list-style-type: none"> – Observe the mitigation zone for marine mammals; if observed, cease bomb deployment or mine laying. • Commencement/recommencement conditions after a marine mammal sighting prior to or during the activity: <ul style="list-style-type: none"> – The Navy will 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: (1) the animal is observed exiting the mitigation zone; (2) 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; (3) the mitigation zone has been clear from any additional sightings for 10 min.; or (4) 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.

11.2 MITIGATION AREAS

Mitigation areas are geographic locations within the AFTT Study Area where the Navy will implement mitigation measures to: (1) avoid or reduce potential impacts on biological or cultural resources that are not observable by Lookouts from the water's surface (i.e., resources for which procedural mitigation cannot be implemented), (2) in combination with procedural mitigation, effect the least practicable adverse impact on marine mammal species or stocks and their habitat, or (3) in combination with procedural mitigation, ensure that the Proposed Action does not jeopardize the continued existence of endangered or threatened species, or result in destruction or adverse modification of critical habitat. The Navy completed an extensive assessment of the AFTT Study Area to develop the mitigation areas included in the AFTT Final EIS/OEIS. The Navy considered a mitigation area to be effective if it met the following criteria:

- **The mitigation area is a key area of biological or ecological importance or contains cultural resources:** The best available science suggests that the mitigation area contains submerged cultural resources (e.g., shipwrecks) or is particularly important to one or more species or resources for a biologically important life process (i.e., foraging, migration, reproduction) or ecological function (e.g., shallow-water coral reefs that provide critical ecosystem functions); and
- **The mitigation will result in an avoidance or reduction of impacts:** Implementing the mitigation will likely avoid or reduce potential impacts on: (1) species, stocks, or populations of marine

mammals based on data regarding their seasonality, density, and behavior; or (2) other biological or cultural resources based on their distribution and physical properties. Furthermore, implementing the mitigation will not shift or transfer adverse effects from one area or species to another (e.g., to a more vulnerable or sensitive species).

The mitigation areas that have been updated since the original LOA application include: (1) enlarging the Northeast North Atlantic Right Whale Mitigation Area to cover the full extent of the northeast North Atlantic right whale critical habitat, (2) expanding the Gulf of Mexico Planning Awareness Area to cover the full extent of the Bryde's whale small and resident population area that was expanded during the 2016 NMFS status review, (3) developing a new Bryde's Whale Mitigation Area to restrict all explosives except for mine warfare activities in the expanded Bryde's whale small and resident population area, (4) implementing special reporting procedures for the use of active sonar and in-water explosives within the newly developed Southeast North Atlantic Right Whale Critical Habitat Special Reporting Area and Bryde's Whale Mitigation Area, and newly expanded Northeast North Atlantic Right Whale Mitigation Area and Southeast North Atlantic Right Whale Mitigation Area, (5) adding a requirement for Navy units conducting training or testing activities in the Jacksonville Operating Area to use Early Warning System North Atlantic right whale sightings data as they plan specific details of events and to assist visual observation of applicable mitigation zones to minimize potential interactions with North Atlantic right whales to the maximum extent practicable, (6) adding seafloor resource mitigation areas for submerged aquatic vegetation, (7) adding a requirement to confer with NMFS if the Navy needs to conduct additional major training exercises in the Gulf of Maine Planning Awareness Mitigation Area or Gulf of Mexico Planning Awareness Mitigation Area, (8) adding a requirement for vessels to operate within specific water depths within the Key West Range Complex to avoid bottom scouring and prop dredging, and (9) adding a mitigation measure to 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 within 3.2 nautical miles (NM) of an estuarine inlet and within 1.6 NM of the shoreline in the Navy Cherry Point Range Complex from March through September to the maximum extent practicable to avoid or reduce potential impacts on sea turtles near nesting beaches during the nesting season and on sandbar sharks in Habitat Areas of Particular Concern.

These are the same mitigation measures presented in the November 14, 2018 Final Rule (*83 Federal Register 57076*), and information on these measures to be implemented within the mitigation areas is provided in Table 11.2-1 through Table 11.2-4. The mitigation applies year-round unless specified otherwise in the tables.

Table 11.2-1: Mitigation Areas for Seafloor Resources

<i>Mitigation Area Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Explosives • Physical disturbance and strikes
<p><u>Resource Protection Focus</u></p> <ul style="list-style-type: none"> • Shallow-water coral reefs • Live hard bottom • Artificial reefs • Submerged aquatic vegetation • Shipwrecks
<p><u>Mitigation Area Requirements (year-round)</u></p> <ul style="list-style-type: none"> • Within the anchor swing circle of shallow-water coral reefs, live hard bottom, artificial reefs, submerged aquatic vegetation, and shipwrecks: <ul style="list-style-type: none"> – The Navy will not conduct precision anchoring (except in designated anchorages). • Within a 350-yd. radius of live hard bottom, artificial reefs, submerged aquatic vegetation, and shipwrecks: <ul style="list-style-type: none"> – The Navy will not conduct explosive mine countermeasure and neutralization activities or explosive mine neutralization activities involving Navy divers (except in designated locations, such as Truman Harbor and Demolition Key, where these resources will be avoided to the maximum extent practicable). – The Navy will not place mine shapes, anchors, or mooring devices on the seafloor. • Within a 350-yd. radius of shallow-water coral reefs: <ul style="list-style-type: none"> – The Navy will not conduct explosive or non-explosive small-, medium-, and large-caliber gunnery activities using a surface target; explosive or non-explosive missile and rocket activities using a surface target; explosive or non-explosive bombing and mine laying activities; explosive or non-explosive mine countermeasure and neutralization activities; and explosive or non-explosive mine neutralization activities involving Navy divers. – The Navy will not place mine shapes, anchors, or mooring devices on the seafloor. • Within the Key West Range Complex: <ul style="list-style-type: none"> – Vessels will operate within waters deep enough to avoid bottom scouring or prop dredging, with at least a 1-ft. clearance between the deepest draft of the vessel (with the motor down) and the seafloor at mean low water. • Within the South Florida Ocean Measurement Facility Testing Range: <ul style="list-style-type: none"> – The Navy will use real-time geographic information system and global positioning system (along with remote sensing verification) during deployment, installation, and recovery of anchors and mine-like objects and during deployment of bottom-crawling unmanned underwater vehicles in waters deeper than 10 ft. to avoid shallow-water coral reefs and live hard bottom. – Vessels deploying anchors, mine-like objects, and bottom-crawling unmanned underwater vehicles will aim to hold a relatively fixed position over the intended mooring or deployment location using a dynamic positioning navigation system with global positioning system. – The Navy will minimize vessel movement and drift in accordance with mooring installation and deployment plans and will conduct activities during sea and wind conditions that allow vessels to maintain position and speed control during deployment, installation, and recovery of anchors, mine-like objects, and bottom-crawling unmanned underwater vehicles. – Vessels will operate within waters deep enough to avoid bottom scouring or prop dredging, with at least a 1-ft. clearance between the deepest draft of the vessel (with the motor down) and the seafloor at mean low water. – The Navy will not anchor vessels or spud over shallow-water coral reefs and live hard bottom. – The Navy will use semi-permanent anchoring systems that are assisted with riser buoys over soft bottom habitats to avoid contact of mooring cables with shallow-water coral reefs and live hard bottom.

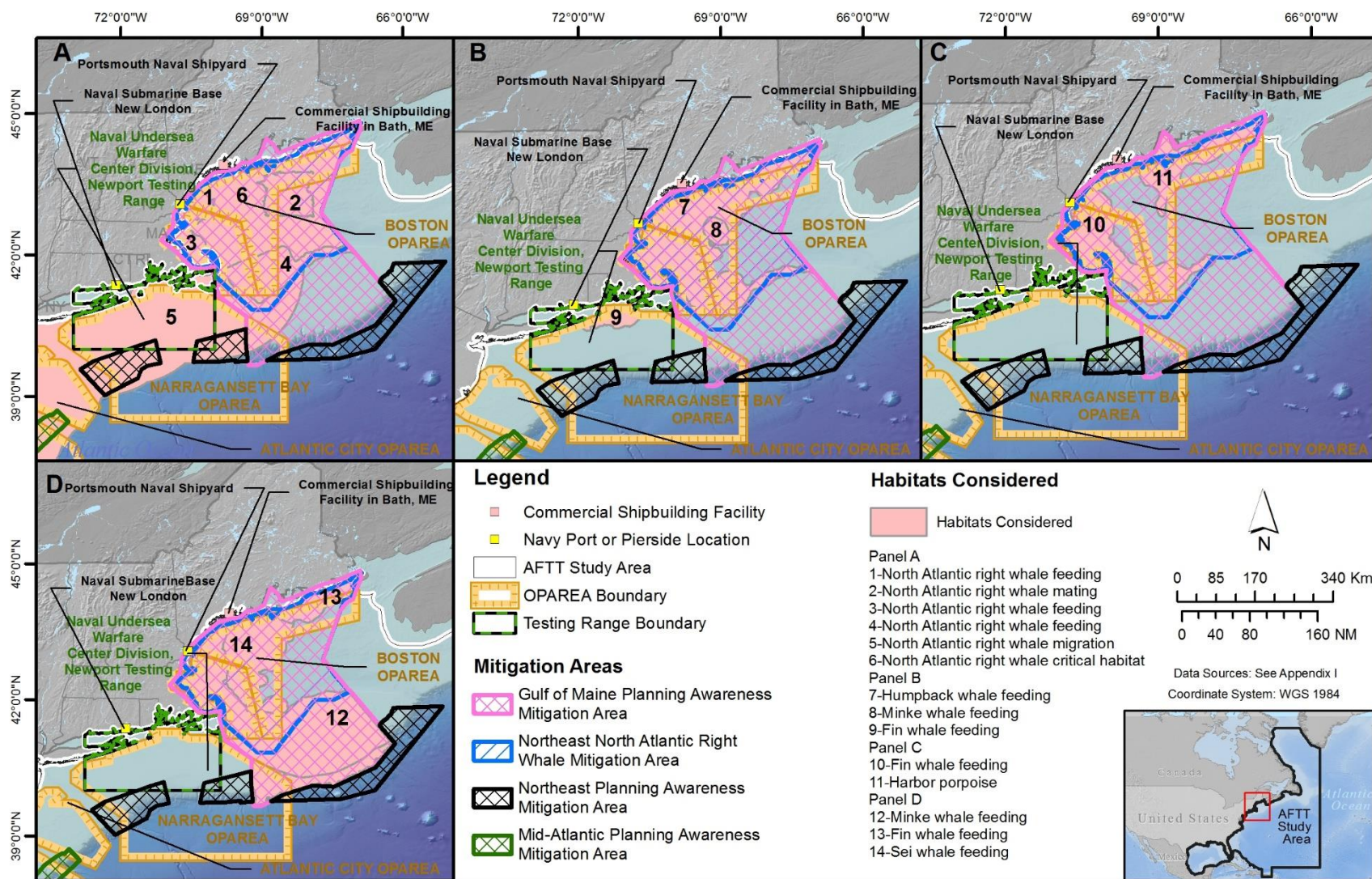
Table 11.2-2: Mitigation Areas off the Northeastern United States

<i>Mitigation Area Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Sonar • Explosives • Physical disturbance and strikes
<p><u>Mitigation Area Requirements (year-round)</u></p> <ul style="list-style-type: none"> • Northeast North Atlantic Right Whale Mitigation Area: <ul style="list-style-type: none"> – The Navy will report the total hours and counts of active sonar and in-water explosives used in the mitigation area (i.e., the northeast North Atlantic right whale critical habitat) in its annual training and testing activity reports submitted to NMFS. – The Navy will 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. – The Navy will not use Improved Extended Echo Ranging sonobuoys (within 3 NM of the mitigation area), explosive and non-explosive bombs, in-water detonations, and explosive torpedoes within the mitigation area. – For activities using non-explosive torpedoes within the mitigation area, the Navy will conduct activities during daylight hours in Beaufort sea state 3 or less. The Navy will use three Lookouts (one positioned on a vessel and two in an aircraft during dedicated aerial surveys) to observe the vicinity of the activity. An additional Lookout will be positioned on the submarine, when surfaced. Immediately prior to the start of the activity, Lookouts will observe for floating vegetation and marine mammals; if observed, the activity will not commence until the vicinity is clear or the activity is relocated to an area where the vicinity is clear. During the activity, Lookouts will observe for marine mammals; if observed, the activity will cease. To allow a sighted marine mammal to leave the area, the Navy will not recommence the activity until one of the following conditions has been met: (1) the animal is observed exiting the vicinity of the activity; (2) 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 (3) the area has been clear from any additional sightings for 30 min. During transits and normal firing, ships will maintain a speed of no more than 10 knots. During submarine target firing, ships will maintain speeds of no more than 18 knots. During vessel target firing, vessel speeds may exceed 18 knots for brief periods of time (e.g., 10–15 min.). – Before vessel transits within the mitigation area, the Navy will 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. Vessels will use the sightings information to reduce potential interactions with North Atlantic right whales during transits. Vessels will implement speed reductions within the mitigation area after observing a North Atlantic right whale, if transiting within 5 NM 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. • Gulf of Maine Planning Awareness Mitigation Area: <ul style="list-style-type: none"> – The Navy will 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. – The Navy will not conduct >200 hours of hull-mounted mid-frequency active sonar per year within the mitigation area. – The Navy will 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, it will confer with NMFS to verify that potential impacts are adequately addressed in the Navy’s Final EIS/OEIS and associated consultation documents. • Northeast Planning Awareness Mitigation Areas: <ul style="list-style-type: none"> – The Navy will avoid conducting major training exercises (Composite Training Unit Exercises or Fleet Exercises/Sustainment Exercises) within the mitigation area to the maximum extent practicable. – The Navy will not conduct more than four major training exercises per year within the mitigation area (all or a portion of the exercise). If the Navy needs to conduct additional major training exercises in the mitigation area in support of training requirements driven by national security concerns, it will provide NMFS with advance notification and include the information in its annual training and testing activity reports submitted to NMFS.

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Request for an Extension of the Regulations and LOAs for the Incidental Taking of Marine Mammals Resulting from U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area Over a Seven Year Period

January 2019



Notes: AFTT: Atlantic Fleet Training and Testing; OPAREA: Operating Area

Figure 11.2-1: Mitigation Areas and Habitats Considered off the Northeastern United States

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Table 11.2-3: Mitigation Areas off the Mid-Atlantic and Southeastern United States

Mitigation Area Description
<p>Stressor or Activity</p> <ul style="list-style-type: none"> • Sonar • Explosives • Physical disturbance and strikes
<p>Mitigation Area Requirements</p> <ul style="list-style-type: none"> • Southeast North Atlantic Right Whale Mitigation Area (November 15 through April 15): <ul style="list-style-type: none"> – The Navy will 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. – The Navy will not conduct: (1) low-frequency active sonar (except as noted below), (2) mid-frequency active sonar (except as noted below), (3) high-frequency active sonar, (4) missile and rocket activities (explosive and non-explosive), (5) small-, medium-, and large-caliber gunnery activities, (6) Improved Extended Echo Ranging sonobuoy activities, (7) explosive and non-explosive bombing activities, (8) in-water detonations, and (9) explosive torpedo activities within the mitigation area. – To the maximum extent practicable, the Navy will minimize the use of: (1) helicopter dipping sonar, (2) low-frequency active sonar and hull-mounted mid-frequency active sonar used for navigation training, and (3) low-frequency active sonar and hull-mounted mid-frequency active sonar used for object detection exercises within the mitigation area. – Before transiting or conducting training or testing activities within the mitigation area, the Navy will 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 will advise vessels of all reported whale sightings in the vicinity to help vessels and aircraft reduce potential interactions with North Atlantic right whales. 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 use the sightings information to reduce potential interactions with North Atlantic right whales during transits. – Vessels will implement speed reductions after they observe a North Atlantic right whale, if they are within 5 NM of a sighting reported within the past 12 hours, or when operating in the mitigation area at night or during periods of poor visibility. – To the maximum extent practicable, vessels will minimize north-south transits in the mitigation area. • Jacksonville Operating Area (November 15 through April 15): <ul style="list-style-type: none"> – Navy units conducting training or testing activities in the Jacksonville Operating Area will 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 will advise vessels of all reported whale sightings in the vicinity to help vessels and aircraft reduce potential interactions with North Atlantic right whales. 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. The Navy will use the reported sightings information as it plans specific details of events (e.g., timing, location, duration) to minimize potential interactions with North Atlantic right whales to the maximum extent practicable. The Navy will 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 through April 15): <ul style="list-style-type: none"> – The Navy will report the total hours and counts of active sonar and in-water explosives used in the Special Reporting Area (i.e., the southeast North Atlantic right whale critical habitat) in its annual training and testing activity reports submitted to NMFS. • Mid-Atlantic Planning Awareness Mitigation Areas (year-round): <ul style="list-style-type: none"> – The Navy will avoid conducting major training exercises within the mitigation area (Composite Training Unit Exercises or Fleet Exercises/Sustainment Exercises) to the maximum extent practicable. – The Navy will not conduct more than four major training exercises per year (all or a portion of the exercise) within the mitigation area. If the Navy needs to conduct additional major training exercises in the mitigation area in support of training requirements driven by national security concerns, it will provide NMFS with advance notification and include the information in its annual training and testing activity reports submitted to NMFS. • Navy Cherry Point Range Complex Nearshore Mitigation Area (March through September): <ul style="list-style-type: none"> – The Navy will not conduct explosive mine neutralization activities involving Navy divers in the mitigation area. – To the maximum extent practicable, the Navy will 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.

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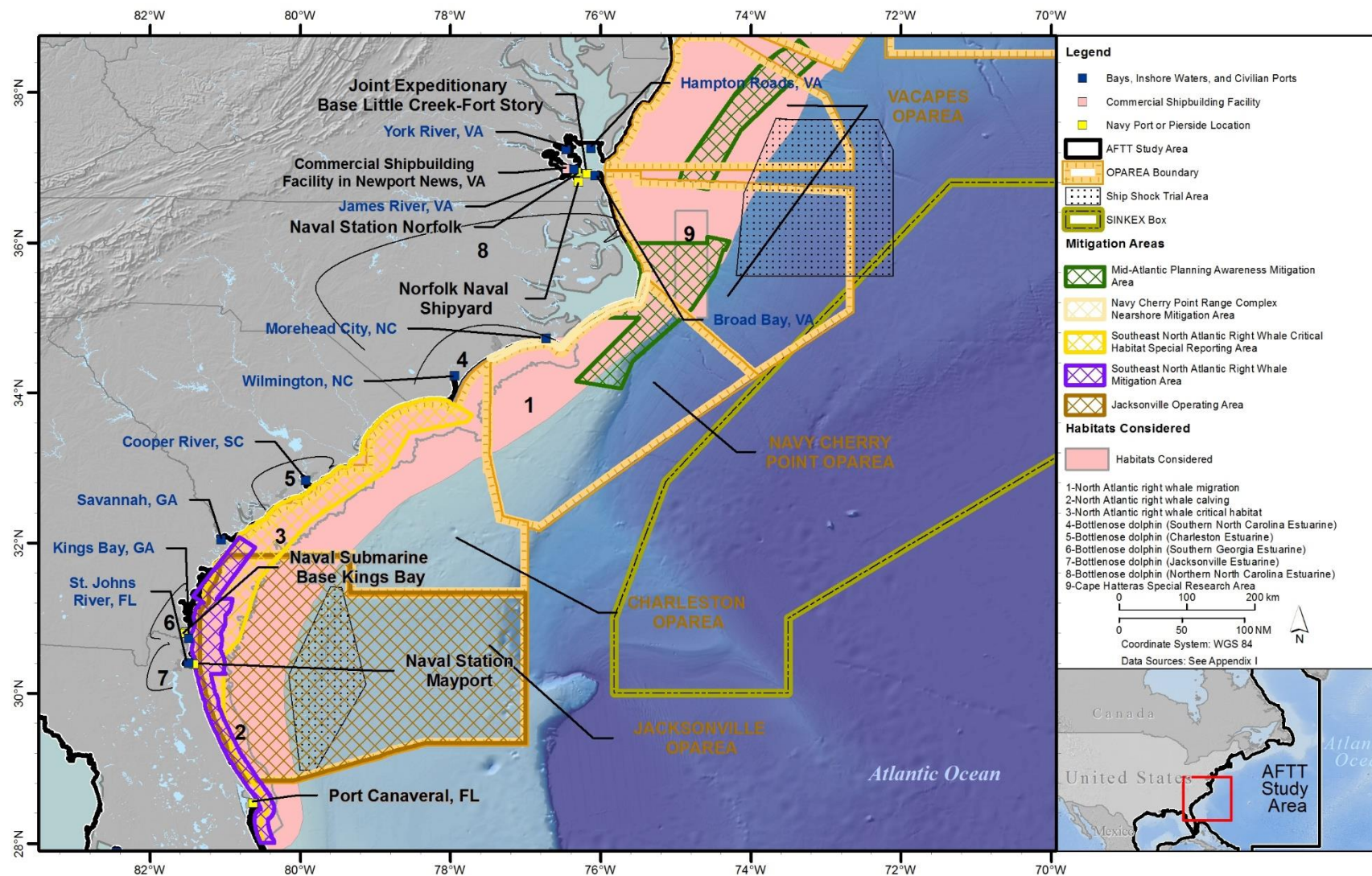


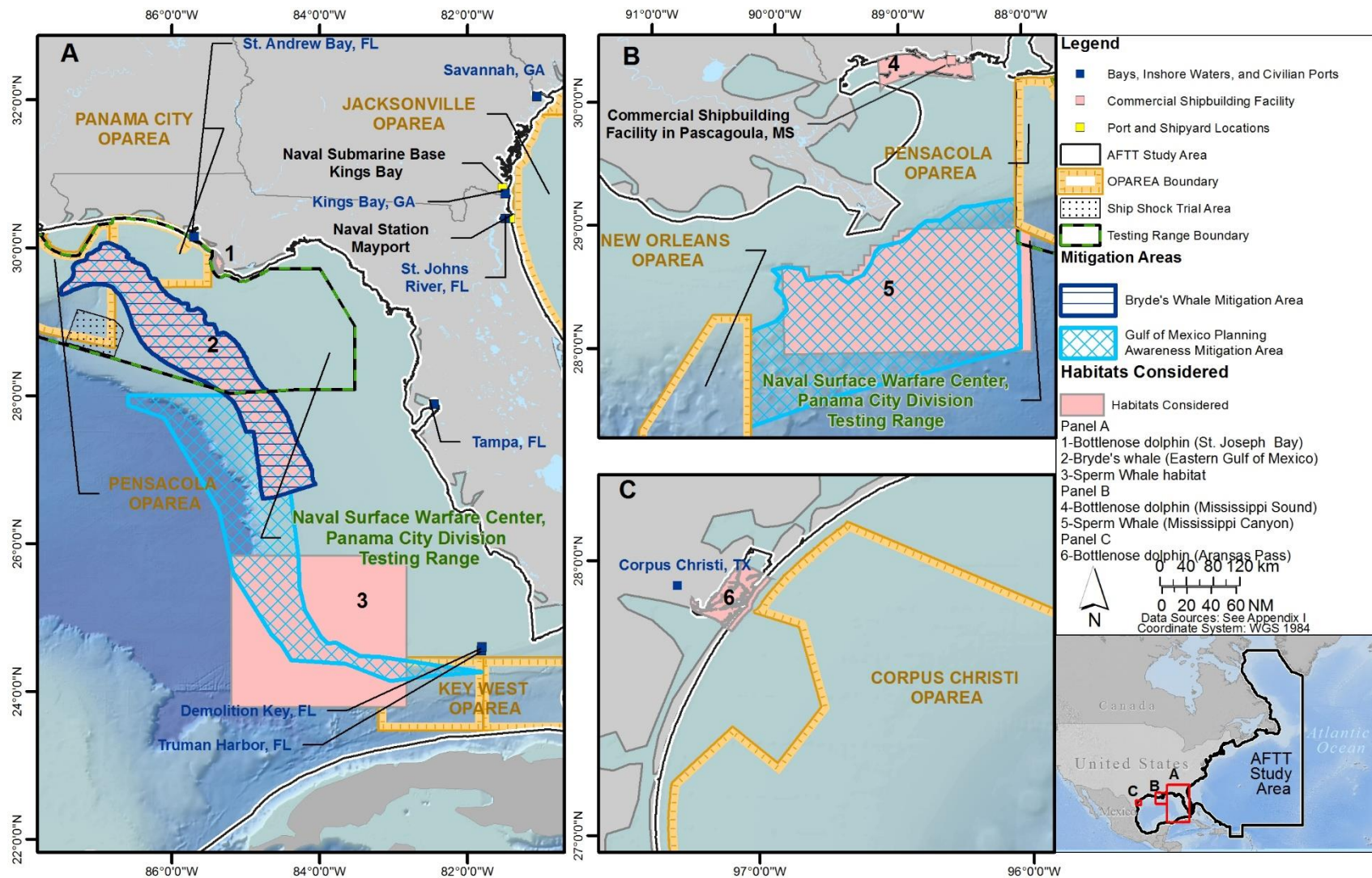
Figure 11.2-2: Mitigation Areas and Habitats Considered off the Mid-Atlantic and Southeastern United States

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Table 11.2-4: Mitigation Areas in the Gulf of Mexico

<i>Mitigation Area Description</i>
<p><u>Stressor or Activity</u></p> <ul style="list-style-type: none"> • Sonar • Explosives
<p><u>Mitigation Area Requirements (year-round)</u></p> <ul style="list-style-type: none"> • Bryde’s Whale Mitigation Area: <ul style="list-style-type: none"> – The Navy will 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. – The Navy will not conduct >200 hours of hull-mounted mid-frequency active sonar per year within the mitigation area. – The Navy will not use explosives (except during mine warfare activities) within the mitigation area. • Gulf of Mexico Planning Awareness Mitigation Areas: <ul style="list-style-type: none"> – The Navy will not conduct any major training exercises within the mitigation areas (all or a portion of the exercise) under the Proposed Action. – If the Navy needs to conduct a major training exercise within the mitigation areas in support of training requirements driven by national security concerns, it will confer with NMFS to verify that potential impacts are adequately addressed in the Navy’s Final EIS/OEIS and associated consultation documents.

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Notes: AFTT: Atlantic Fleet Training and Testing; OPAREA: Operating Area

Figure 11.2-3: Mitigation Areas and Habitats Considered in the Gulf of Mexico

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11.3 MITIGATION SUMMARY

The Navy's mitigation measures are summarized in Table 11.3-1 and 11.3-2. Figure 11.3-1 depicts the mitigation areas that the Navy developed for marine mammals in the Study Area.

Stressor or Activity	Mitigation Zones Sizes and Other Requirements
Environmental Awareness and Education	<ul style="list-style-type: none"> o Afloat Environmental Compliance Training program for applicable personnel
Active Sonar	Depending on sonar source: <ul style="list-style-type: none"> o 1,000 yd. power down, 500 yd. power down, and 200 yd. shut down o 200 yd. shut down
Air Guns	<ul style="list-style-type: none"> o 150 yd.
Pile Driving	<ul style="list-style-type: none"> o 100 yd.
Weapons Firing Noise	<ul style="list-style-type: none"> o 30° on either side of the firing line out to 70 yd.
Explosive Sonobuoys	<ul style="list-style-type: none"> o 600 yd.
Explosive Torpedoes	<ul style="list-style-type: none"> o 2,100 yd.
Explosive Medium-Caliber and Large-Caliber Projectiles	<ul style="list-style-type: none"> o 1,000 yd. (large-caliber projectiles) o 600 yd. (medium-caliber projectiles during surface-to-surface activities) o 200 yd. (medium-caliber projectiles during air-to-surface activities)
Explosive Missiles and Rockets	<ul style="list-style-type: none"> o 2,000 yd. (21–500 lb. net explosive weight) o 900 yd. (0.6–20 lb. net explosive weight)
Explosive Bombs	<ul style="list-style-type: none"> o 2,500 yd.
Sinking Exercises	<ul style="list-style-type: none"> o 2.5 NM
Explosive Mine Countermeasure and Neutralization Activities	<ul style="list-style-type: none"> o 2,100 yd. (6–650 lb. net explosive weight) o 600 yd. (0.1–5 lb. net explosive weight)
Explosive Mine Neutralization Activities Involving Navy Divers	<ul style="list-style-type: none"> o 1,000 yd. (21–60 lb. net explosive weight for positive control charges and charges using time-delay fuses) o 500 yd. (0.1–20 lb. net explosive weight for positive control charges)
Maritime Security Operations – Anti-Swimmer Grenades	<ul style="list-style-type: none"> o 200 yd.
Line Charge Testing	<ul style="list-style-type: none"> o 900 yd.
Ship Shock Trials	<ul style="list-style-type: none"> o 3.5 NM
Vessel Movement	<ul style="list-style-type: none"> o 500 yd. (whales) o 200 yd. (other marine mammals) o North Atlantic right whale Dynamic Management Area notification messages
Towed In-Water Devices	<ul style="list-style-type: none"> o 250 yd.
Small-, Medium-, and Large-Caliber Non-Explosive Practice Munitions	<ul style="list-style-type: none"> o 200 yd.
Non-Explosive Missiles and Rockets	<ul style="list-style-type: none"> o 900 yd.
Non-Explosive Bombs and Mine Shapes	<ul style="list-style-type: none"> o 1,000 yd.

Table 11.3-1: Summary of Mitigation Areas

<i>Summary of Mitigation Area Requirements</i>
<i>Northeast North Atlantic Right Whale Mitigation Area</i>
<ul style="list-style-type: none"> o The Navy will 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. o The Navy will minimize use of active sonar to the maximum extent practicable and will not use explosives that detonate in the water. o The Navy will conduct non-explosive torpedo testing during daylight hours 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 will maintain a speed of no more than 10 knots; during firing, ships will maintain a speed of no more than 18 knots except brief periods of time during vessel target firing. o Vessels will obtain the latest North Atlantic right whale sightings data and implement speed reductions after they observe a North Atlantic right whale, if within 5 NM of a sighting reported within the past week, and when operating at night or during periods of reduced visibility.
<i>Gulf of Maine Planning Awareness Mitigation Area</i>
<ul style="list-style-type: none"> o The Navy will 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. o The Navy will not conduct major training exercises and will not conduct >200 hours of hull-mounted mid-frequency active sonar per year.
<i>Northeast Planning Awareness Mitigation Areas and Mid-Atlantic Planning Awareness Mitigation Areas</i>
<ul style="list-style-type: none"> o The Navy will avoid conducting major training exercises to the maximum extent practicable. o The Navy will not conduct more than four major training exercises per year.
<i>Southeast North Atlantic Right Whale Mitigation Area (November 15 – April 15)</i>
<ul style="list-style-type: none"> o The Navy will 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. o The Navy will not use active sonar except as necessary for navigation training, object detection training, and dipping sonar. o The Navy will not expend explosive or non-explosive ordnance. o Vessels will obtain the latest North Atlantic right whale sightings data; will implement speed reductions after they observe a North Atlantic right whale, if within 5 NM of a sighting reported within the past 12 hours, and when operating at night or during periods of reduced visibility; and will minimize north-south transits to the maximum extent practicable.
<i>Jacksonville Operating Area (November 15 – April 15)</i>
<ul style="list-style-type: none"> o Navy units conducting training or testing activities in the Jacksonville Operating Area will 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 will use the reported sightings information to assist visual observations of applicable mitigation zones and to aid in the implementation of procedural mitigation.
<i>Southeast North Atlantic Right Whale Critical Habitat Special Reporting Area (November 15 – April 15)</i>
<ul style="list-style-type: none"> o The Navy will 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.
<i>Navy Cherry Point Range Complex Nearshore Mitigation Area (March – September)</i>
<ul style="list-style-type: none"> o The Navy will not conduct explosive mine neutralization activities involving Navy divers in the mitigation area. o To the maximum extent practicable, the Navy will 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.
<i>Bryde's Whale Mitigation Area</i>
<ul style="list-style-type: none"> o The Navy will 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. o The Navy will not conduct >200 hours of hull-mounted mid-frequency active sonar per year and will not use explosives (except during explosive mine warfare activities).
<i>Gulf of Mexico Planning Awareness Mitigation Areas</i>
<ul style="list-style-type: none"> o The Navy will not conduct any major training exercises under the Proposed Action.

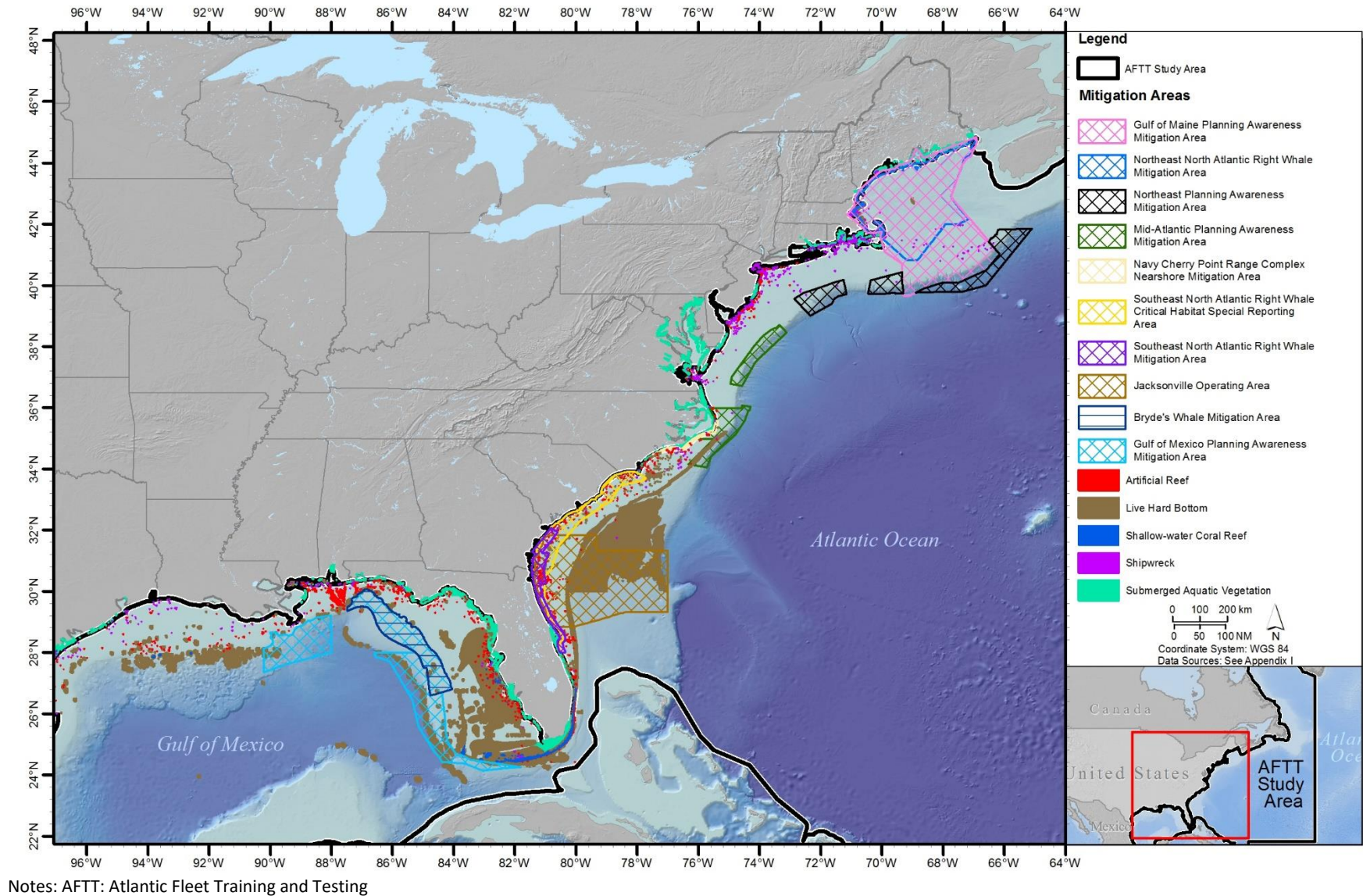


Figure 11.3-1: Mitigation Areas for Marine Mammals in the Study Area

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12 ARCTIC PLAN OF COOPERATION

Subsistence use is the traditional exploitation of marine mammals by native peoples (i.e., for their own consumption). In terms of this LOA extension request, none of the proposed training or testing activities in the Study Area occurs in or near the Arctic. As stated in the original LOA application, based on the Navy discussions and conclusions in Chapter 7 (Impacts on Marine Mammal Species or Stocks) and Chapter 8 (Impacts on Subsistence Use), there are no anticipated impacts on any species or stocks migrating through the Study Area that might be available for subsistence use. This statement remains the same with regards to the full seven years being addressed in this LOA extension request.

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13 MONITORING AND REPORTING

As stated in the original LOA application, the Navy is committed to demonstrating environmental stewardship while executing its national defense mission and complying with the suite of Federal environmental laws and regulations. As a complement to the Navy's commitment to avoiding and reducing impacts of the Proposed Action through mitigation (Chapter 11, Mitigation Measures), the Navy will undertake reporting efforts to track compliance with take authorizations and help investigate the effectiveness of implemented mitigation measures. Taken together, mitigation and monitoring comprise the Navy's integrated approach for reducing and understanding environmental impacts from the Proposed Action. The Navy's overall monitoring approach will seek to leverage and build on existing research efforts whenever possible.

As outlined in the original LOA application, the Navy's monitoring and reporting will consist of: (1) adaptive management, (2) an Integrated Comprehensive Monitoring Program, (3) a strategic planning process, and (4) annual monitoring, and exercise and testing reports. The monitoring and reporting requirements annotated in the November 14, 2018 Final Rule (*83 Federal Register 57076*) will remain the same for this LOA extension request.

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14 SUGGESTED MEANS OF COORDINATION

As stated in the original LOA application, the Navy provides a significant amount of funding and support to marine research. Over the past 5 years the U.S. Navy has provided over \$100 million to universities, research institutions, Federal laboratories, private companies, and independent researchers around the world to study marine mammals, including approximately 70 percent of all United States research concerning the effects of human-generated sound on marine mammals and 50 percent of such research conducted worldwide. This research is directly applicable to the AFTT activities analysis, particularly with respect to the investigations of the potential impacts of underwater noise sources on marine mammals and other protected marine resources.

Overall, the U.S. Navy will continue to support and fund ongoing marine mammal research and long-term monitoring programs throughout the AFTT Study Area and as discussed in the November 14, 2018 Final Rule (*83 Federal Register 57076*). These efforts include mitigation and monitoring programs; data sharing with NMFS and via the literature for research and development efforts; and future research as described previously.

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