Final
Environmental Impact Statement/Overseas Environmental Impact Statement
Atlantic Fleet Training and Testing

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

The United States (U.S.) Department of the Navy (Navy) prepared this Environmental Impact Statement (EIS)/Overseas EIS (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities: training and testing. Collectively, the at-sea areas in this EIS/OEIS are referred to as the Atlantic Fleet Training and Testing (AFTT) Study Area (Study Area) (Figure ES-1). The Navy also prepared this EIS/OEIS to comply with the National Environmental Policy Act (NEPA) and Executive Order (EO) 12114.

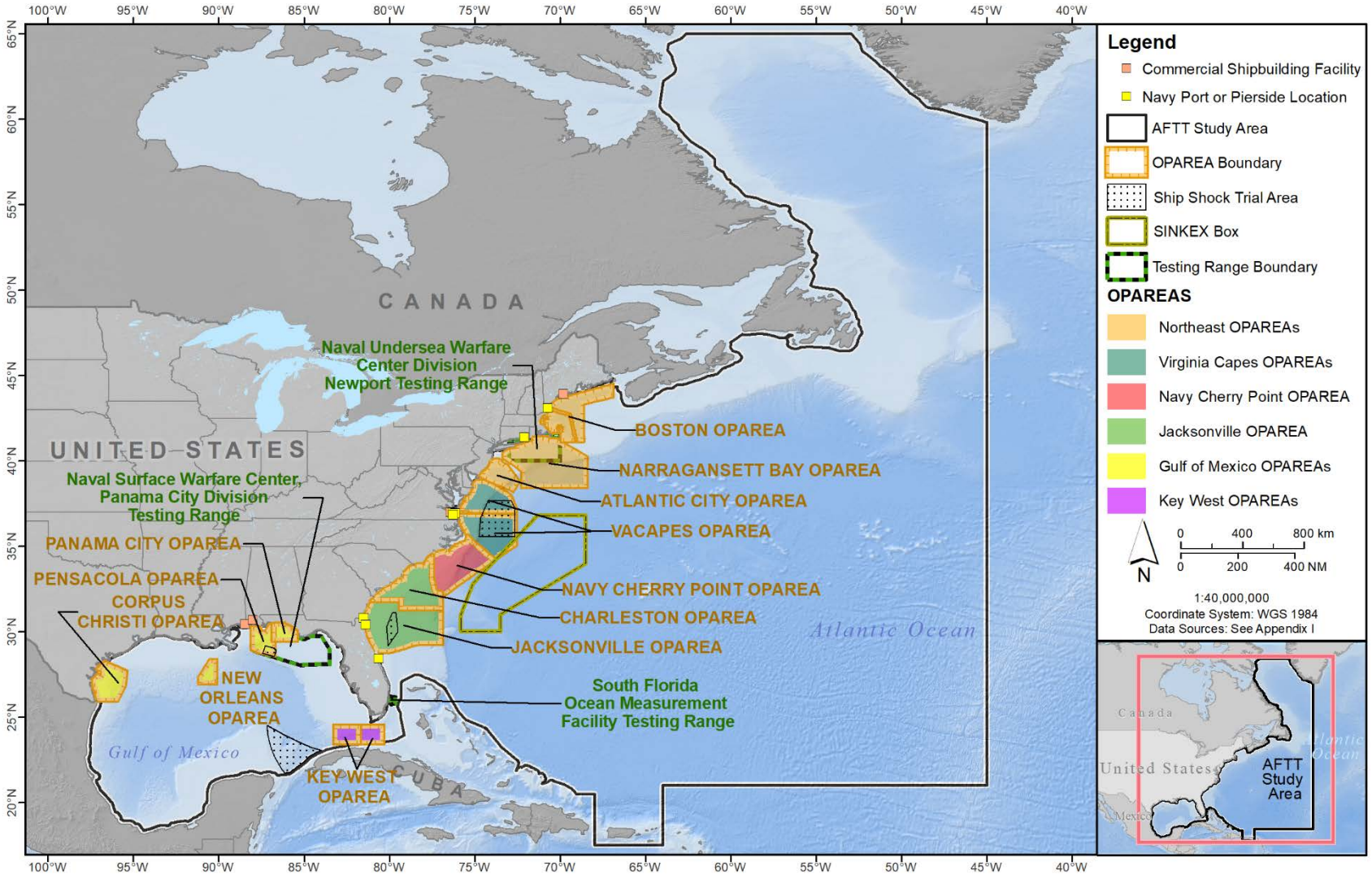
Major conflicts, terrorism, lawlessness, and natural disasters all have the potential to threaten the national security of the United States. United States national security, prosperity, and vital interests are increasingly tied to other nations because of the close relationships between the United States and other national economies. The Navy carries out training and testing activities to be able to protect the United States against its enemies, as well as to protect and defend the rights of the United States and its allies to move freely on the oceans. Training and testing activities that prepare the Navy to fulfill its mission to protect and defend the United States and its allies potentially impact the environment. These activities may trigger legal requirements identified in many U.S. federal environmental laws, regulations, and executive orders.

ES.2 PURPOSE AND NEED

The Navy and National Marine Fisheries Service (NMFS) (as a cooperating agency) have coordinated from the outset and developed this document to meet each agency's distinct NEPA obligations and support the decision making of both agencies. The purpose of the Proposed Action is to ensure that the Navy meets its mission under Title 10 United States Code Section 5062, which is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. This mission is achieved in part by conducting training and testing within the Study Area. NMFS's purpose is to evaluate the Navy's proposed action pursuant to NMFS's authority under the Marine Mammal Protection Act (MMPA), and to make a determination whether to issue incidental take regulations and Letters of Authorization, including any conditions needed to meet the statutory mandates of the MMPA.

ES.3 SCOPE AND CONTENT OF THE ENVIRONMENTAL IMPACT STATEMENT/OVERSEAS ENVIRONMENTAL IMPACT STATEMENT

In this EIS/OEIS, the Navy assessed military readiness activities that could potentially impact human and natural resources, especially marine mammals, sea turtles, and other marine resources. The range of alternatives includes a No Action Alternative and other reasonable courses of action. Direct, indirect, cumulative, short-term, long-term, irreversible, and irretrievable impacts were also analyzed. Data sets used for analysis were considered across the full spectrum of Navy training and testing for the foreseeable future. For the purposes of analysis and presentation within this EIS/OEIS, data was organized and evaluated in 1-year and 5-year increments. Based upon current knowledge and the proposed training and testing, the Navy does not reasonably foresee a change to the Navy's direct and indirect impact conclusions across other time frames (ex., 2, 7, 10 years). The Navy is the lead agency for the Proposed Action and is responsible for the scope and content of this EIS/OEIS.



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

Figure ES-1: Atlantic Fleet Training and Testing Study Area

The NMFS is a cooperating agency pursuant to 40 Code of Federal Regulations (CFR) section 1501.6 because of its expertise and regulatory authority over certain marine resources. Additionally, NMFS plans to use this document as its NEPA documentation for the rule making process under the MMPA.

In accordance with the Council on Environmental Quality Regulations, 40 CFR section 1505.2, the Navy will issue a Record of Decision. The decision will be based on factors analyzed in this EIS/OEIS, including military training and testing objectives, best available science and modeling data, potential environmental impacts, and public interest.

ES.3.1 NATIONAL ENVIRONMENTAL POLICY ACT

Federal agencies are required under NEPA to examine the environmental impacts of their proposed actions within the United States and its territories. An EIS is a detailed public document that provides an assessment of the potential effects that a major Federal action might have on the human environment, which includes the natural environment. The Navy undertakes environmental planning for major Navy actions occurring throughout the world in accordance with applicable laws, regulations, and Executive Orders. Presidential Proclamation 5928, issued December 27, 1988, extended the exercise of U.S. sovereignty and jurisdiction under international law to 12 nautical miles (NM); however, the proclamation expressly provides that it does not extend or otherwise alter existing Federal law or any associated jurisdiction, rights, legal interests, or obligations. Thus, as a matter of policy, the Navy analyzes environmental effects and actions within 12 NM under NEPA (an EIS).

ES.3.2 EXECUTIVE ORDER 12114

This OEIS has been prepared in accordance with Executive Order 12114 (44 Federal Register 1957) and Navy implementing regulations in 32 CFR part 187, *Environmental Effects Abroad of Major Department of Defense Actions*. An OEIS is required when a proposed action and alternatives have the potential to significantly harm the environment of the global commons. The global commons are defined as geographical areas outside the jurisdiction of any nation and include the oceans outside of the territorial limits (more than 12 NM from the coast) and Antarctica but do not include contiguous zones and fisheries zones of foreign nations (32 CFR section 187.3). The EIS and OEIS have been combined into one document, as permitted under NEPA and Executive Order 12114, to reduce duplication.

ES.3.3 MARINE MAMMAL PROTECTION ACT

The MMPA of 1972 (16 US Code [U.S.C.] section 1361 et seq.) established, with limited exceptions, a moratorium on the "taking" of marine mammals in waters or on lands under U.S. jurisdiction. The act further regulates "takes" of marine mammals on the high seas by vessels or persons subject to U.S. jurisdiction. The term "take," as defined in section 3 [16 U.S.C. section 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).

The MMPA directs the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if NMFS finds that the taking will have a negligible impact on the species or stock(s), and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant). The authorization must set forth the permissible methods of taking, other means of effecting the least practicable adverse impact on the species or stock and its habitat, and on the availability of the

species or stock for subsistence uses (where relevant), and requirements pertaining to the monitoring, and reporting of such taking.

The National Defense Authorization Act of Fiscal Year 2004 (Public Law 108-136) amended the definition of harassment and removed the "small numbers" provision as applied to military readiness activities or scientific research activities conducted by or on behalf of the federal government consistent with section 104(c)(3) (16 U.S.C. section 1374 [c][3]). The Fiscal Year 2004 National Defense Authorization Act adopted the definition of "military readiness activity" as set forth in the Fiscal Year 2003 National Defense Authorization Act (Public Law 107-314). A "military readiness activity" is defined as "all training and operations of the Armed Forces that relate to combat" and "the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use." Since the Proposed Action involves conducting 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. section 1362(18)(B)(i) and (ii)].

ES.3.4 ENDANGERED SPECIES ACT

The Endangered Species Act (ESA of 1973 (16 U.S.C. section 1531 et seq.) provides for the conservation of endangered and threatened species, and of the ecosystems on which they depend. The Act defines "endangered" species as a species in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The U.S. Fish and Wildlife Service (USFWS) and NMFS jointly administer the ESA and are responsible for listing species (as threatened or endangered) and for designating critical habitat for listed species. Section 7(a)(2) requires each federal agency to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. When a federal agency's action "may affect" a listed species, that agency is required to consult with the Service (NMFS or USFWS) that has jurisdiction over the species in question [50 CFR section 402.14(a)]. Under the terms of section 7(b)(4) and section 7(o)(2) of the ESA, taking that is incidental to and not intended as part of the agency action is not considered to be a prohibited taking under the act provided that such taking complies with the terms and conditions of an Incidental Take Statement.

ES.3.5 ADDITIONAL ENVIRONMENTAL REQUIREMENTS CONSIDERED

The Navy must comply with all applicable federal environmental laws, regulations, and Executive Orders, including, but not limited to, those listed below. Further information on Navy compliance with these and other environmental laws, regulations, and Executive Orders can be found in Chapter 1 (Purpose and Need), Chapter 3 (Affected Environment and Environmental Consequences) and Chapter 6 (Regulatory Considerations).

- Abandoned Shipwreck Act

- Antiquities Act
- Clean Air Act
- Clean Water Act
- Coastal Zone Management Act
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- National Marine Sanctuaries Act
- Rivers and Harbors Act
- Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*
- Executive Order 12962, *Recreational Fisheries*
- Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- Executive Order 13089, *Coral Reef Protection*
- Executive Order 13158, *Marine Protected Areas*
- Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*
- Executive Order 13547, *Stewardship of the Ocean, Our Coasts, and the Great Lakes*

ES.4 PROPOSED ACTION AND ALTERNATIVES

The U.S. Navy proposes to conduct military readiness training activities (hereinafter referred to as "training") and research, development, testing, and evaluation (hereinafter referred to as "testing") activities in the AFTT Study Area, as represented in (Figure ES-1)**.** These military readiness activities include the use of active sonar and explosives within the in-water areas of the western Atlantic Ocean along the eastern coast of North America, in portions of the Caribbean Sea and the Gulf of Mexico, at select Navy pierside locations, within port transit channels, near select civilian ports, and in bays, harbors, and inshore waterways (e.g., lower Chesapeake Bay). These military readiness activities are generally consistent with those analyzed in the AFTT EIS/OEIS completed in November 2013 and are representative of training and testing that the Navy has been conducting in the AFTT Study Area for decades.

The Navy's entire suite of mitigation measures was developed in coordination with NMFS. The Action Alternatives and mitigation measures meet both the Navy's and NMFS's purpose and need. The Navy will implement mitigation to avoid or reduce potential impacts of training and testing activities on environmental and cultural resources under both action alternatives (Alternative 1 [Preferred Alternative] and Alternative 2).

ES.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Proposed Action would not take place (i.e., the Navy would not conduct proposed training and testing activities in the AFTT Study Area). For NMFS, denial of an application for an incidental take authorization constitutes the NMFS No Action Alternative, which is consistent with NMFS' statutory obligation under the MMPA to grant or deny requests for take incidental to specified activities. The resulting environmental effects from taking no action will be compared with the effects of the Proposed Action.

ES.4.2 ALTERNATIVE 1

Alternative 1 is the Preferred Alternative.

ES.4.2.1 TRAINING

Under this alternative, the Navy proposes to conduct military readiness training activities into the reasonably foreseeable future, as necessary to meet current and future readiness requirements. These military readiness training activities include new activities as well as activities subject to previous analysis that are currently ongoing and have historically occurred in the Study Area. These activities account for force structure (organization of ships, weapons, and personnel) changes and include training with new aircraft, vessels, unmanned/autonomous systems, and weapon systems that will be introduced to the fleets after November 2018. The numbers and locations of all proposed training activities are provided in Table 2.6-1, in Section 2.6.1 (Proposed Training Activities).

Alternative 1 reflects a representative year of training to account for the natural fluctuation of training cycles and deployment schedules that generally limit the maximum level of training from occurring year after year in any five-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 estimated to be necessary to meet training requirements, as discussed below. Both unit-level training and major training exercises are adjusted to meet this representative year.

Under Alternative 1, the Navy assumes that some unit-level training would be conducted using synthetic means (e.g., simulators). Additionally, this alternative assumes that some unit-level active sonar training will be completed through other training exercises by using a representative level of training activity rather than a maximum level of training activity in every year.

The Optimized Fleet Response Plan (which outlines the training activities required to achieve a state of Naval readiness) and various training plans identify the number and duration of training cycles that could occur over a five-year period. Alternative 1 considers fluctuations in training cycles and deployment schedules that do not follow a traditional annual calendar but instead are influenced by in-theater demands and other external factors. Similar to unit-level training, this alternative does not analyze a maximum number of carrier strike group Composite Training Unit Exercises (one type of major exercise) every year, but instead assumes a maximum number of exercises would occur during two years of any five-year period. As a result, Alternative 1 will analyze a maximum of three Composite Training Unit Exercises in any given year and not more than 12 over any five-year period. This alternative does not provide for the conduct of a contingency Composite Training Unit Exercise in the Gulf of Mexico and, hence, incorporates a degree of risk that the Navy will not have sufficient capacity to support the full spectrum of training potentially necessary to respond to a future national emergency crisis.

ES.4.2.2 TESTING

Alternative 1 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 (increase or decrease) of testing activities, as necessary, to meet current and future military readiness requirements. This alternative includes the testing of new platforms, systems, and related equipment that will be introduced after November 2018. The majority of types of testing activities that would be conducted under this alternative are the same as or similar as those conducted currently or in the past. This alternative

includes the testing of some new systems using new technologies and takes into account inherent uncertainties in this type of testing.

Under Alternative 1, the Navy proposes 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. This alternative contains a more realistic annual representation of activities, but includes years of a higher maximum amount of testing to account for these fluctuations. This alternative would not include the contingency for augmenting some weapon system tests, which would increase levels of annual testing of anti-submarine warfare and mine warfare systems, and presumes a typical level of readiness requirements. All proposed testing activities are listed in Table 2.6-2 through Table 2.6-4, in Section 2.6.2 (Testing).

ES.4.3 ALTERNATIVE 2

ES.4.3.1 TRAINING

As under Alternative 1, Alternative 2 includes new and ongoing activities. Under Alternative 2, training activities are based on requirements established by the Optimized Fleet Response Plan. Under this alternative, the Navy would be enabled to meet the highest levels of required military readiness by conducting the majority of its training live at sea, and by meeting unit level training requirements using dedicated, discrete training events, instead of combining them with other training activities as described in alternative 1. The numbers and locations of all proposed training activities are provided in Table 2.6 1, in Section 2.6.1 (Proposed Training Activities).

Alternative 2 reflects the maximum number of training activities that could occur within a given year, and assumes that the maximum level of activity would occur every year over any 5-year period. This allows for the greatest capacity for the Navy to maintain readiness when considering potential changes in the national security environment, fluctuations in training and deployment schedules, and potential in-theater demands. Both unit-level training and major training exercises are assumed to occur at a maximum level every year.

Additionally, this alternative will analyze three Composite Training Unit Exercises each year along with a contingency Composite Training Unit Exercise in the Gulf of Mexico each year, for a total number of Composite Training Unit Exercises to 20, including the Gulf of Mexico contingency Composite Training Unit Exercise, over any five-year period.

ES.4.3.2 TESTING

Alternative 2 entails a level of testing activities to be conducted into the reasonably foreseeable future, and includes the testing of new platforms, systems, and related equipment that will be introduced after November 2018. The majority of testing activities that would be conducted under this alternative are the same as or similar to those conducted currently or in the past.

Alternative 2 would include the testing of some new systems using new technologies, taking into account the potential for delayed or accelerated testing schedules, variations in funding availability, and innovation in technology development. To account for these inherent uncertainties in testing, this alternative assumes that the maximum annual testing efforts predicted for each individual system or program could occur concurrently in any given year. This alternative also includes the contingency for augmenting some weapon systems tests in response to potential increased world conflicts and changing Navy leadership priorities as the result of a direct challenge from a naval opponent that possesses near-peer capabilities. Therefore, this alternative includes the provision for higher levels of annual testing of

certain anti-submarine warfare and mine warfare systems to support expedited delivery of these systems to the fleet. All proposed testing activities are listed in Table 2.6-2 through Table 2.6-4, in Section 2.6.2 (Proposed Testing Activities).

ES.5 SUMMARY OF ENVIRONMENTAL EFFECTS

Environmental effects which might result from implementing the Navy's Proposed Action or alternatives have been analyzed in this EIS/OEIS. Resource areas analyzed include air quality, sediments and water quality, vegetation, invertebrates, habitats, fishes, marine mammals, reptiles, birds and bats, cultural resources, socioeconomics, and public health and safety. Table ES 5-1 provides a comparison of the potential environmental impacts of the No Action Alternative, Alternative 1 (Preferred Alternative), and Alternative 2.

This EIS/OEIS covers similar types of Navy training and testing activities in the same study area analyzed in the 2013 AFTT Final EIS/OEIS. The Navy has re-evaluated impacts from these ongoing activities in existing ranges and operating areas (OPAREAs) offshore of the eastern and gulf coasts. The Navy analyzed new or changing military readiness activities into the reasonably foreseeable future based on evolving operational requirements, including those associated with new platforms and systems not previously analyzed, and new inshore water training locations. Additionally, the Navy thoroughly reviewed and incorporated the best available science relevant to analyzing the environmental impacts of the proposed activities. Changes from the 2013 AFTT Final EIS/OEIS include the following:

ES.5.1 SONAR AND EXPLOSIVES

The Navy's refined analysis of anti-submarine warfare activities results in reduced levels of active sonar being analyzed. The new presentation of anti-submarine warfare activities more accurately reflects the variability in the number of certification related events (e.g., Composite Training Exercise) conducted per year due to varying deployment schedules and ship availabilities. This new analysis also better accounts for a portion of unit level surface ship tracking exercise requirements being met during coordinated/integrated anti-submarine warfare training and major training exercises, or through synthetic training. These refinements to the analysis result in fewer hours of acoustic sources, such as hull-mounted mid-frequency active acoustic systems, when estimating marine mammal exposures from training events.

This EIS/OEIS supports the Navy's increased focus on live training to meet evolving surface warfare challenges. This results in a proposed increase in levels of Air-to-Surface Warfare activities and an increased reliance on non-explosive and explosive munitions usage of rockets, missiles, and bombs.

The number of Sinking Exercises proposed by the Navy has been reduced to reflect expected availability of Sinking Exercise targets.

Increases in training for maritime security operations (e.g., drug interdiction, anti-piracy) are proposed to ensure Sailors are prepared to meet this important mission area.

The sonar bin list has been updated/refined to reflect new active sonar sources, such as high-frequency imaging sonars and broadband sound sources proposed for testing and experimentation. Similarly, specific existing bins were refined to better reflect testing realism in the analysis.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2

Resource Category	*Summary of Impacts*
Section 3.1-Air Quality	The Navy considered all potential stressors that air quality could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. The No Action Alternative would not measurably improve air quality in the Study Area because of the discontinuous nature of the events that constitute the Proposed Action and the fact that most of the air emissions that are generated occur at sea over a wide geographic area. The elimination of the air emissions associated with activities in the lower Chesapeake Bay and its tributaries may be beneficial to local air quality in this region because it is the area of highest activity in state waters. It should be noted that the air quality in this area already surpasses the National Ambient Air Quality Standards. **Alternative 1 (Preferred Alternative):** • Criteria Pollutants: The emission of criteria pollutants resulting from training and testing activities in the Study Area would not cause a violation or contribute to an ongoing violation of the National Ambient Air Quality Standards. **Alternative 2:** • Criteria Pollutants: The emission of criteria pollutants resulting from training and testing activities associated with Alternative 2 would increase slightly over emissions from Alternative 1; however, they would not cause a violation or contribute to an ongoing violation of the National Ambient Air Quality Standards.
Section 3.2-Sediments and Water Quality	The Navy considered all potential stressors that sediments and water quality could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative there would be no adverse impacts on sediments and water quality from training and testing activities. It is reasonable to assume that ceasing all training and testing activities involving the use of explosives and explosives byproducts, metals, chemicals other than explosives, and other military expended materials would decrease the amounts of these materials in marine waters and sediments. The effect, however, would likely not be measureable due to the slow, sometimes decades-long corrosion of metals on the seafloor. **Alternative 1 (Preferred Alternative):** • Explosives and explosives byproducts: Impacts from explosives and explosives byproducts would be short term and local. Impacts from unconsumed explosives and constituent chemical compounds would be minimal and limited to the area adjacent to the munition. Explosives and constituent compounds could persist in the environment depending on the integrity of the undetonated munitions casing and the physical conditions on the seafloor where the munition resides. Chemical and physical changes to sediments and water quality, as measured by the concentrations of contaminants or other anthropogenic compounds, may be detectable and would be below applicable regulatory standards for determining effects on biological resources and habitats.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.2-Sediments and Water Quality (continued)	• Chemicals other than explosives: Impacts from other chemicals not associated with explosives would be both short term and long term depending on the chemical and the physical conditions on the seafloor where the source of the chemicals resides. Impacts would be minimal and localized to the immediate area surrounding the source of the chemical release. • Metals: Impacts from metals would be minimal, long-term, and dependent on the metal and the physical conditions on the seafloor where the metal object (e.g., non-explosive munition) resides. Impacts would be localized to the area adjacent to the metal object. Concentrations of metal contaminants near the expended material or munition may be measurable and are likely to be similar to the concentrations of metals in sediments from nearby reference locations. • Other materials: Impacts from other expended materials not associated with munitions would be both short term and long term depending on the material and the physical conditions (e.g., substrate, temperature, currents) on the seafloor where the material resides. Impacts would be localized to the immediate area surrounding the material. Chemical and physical changes to sediments and water quality, as measured by the concentrations of contaminants or other anthropogenic compounds near the expended material, are not likely to be detectable and would be similar to the concentrations of chemicals and material residue from nearby reference locations. **Alternative 2:** • Explosives and explosives byproducts: Impacts from explosives under Alternative 2 for training and testing activities would be identical (less than 1 percent difference in any location or overall) to those of Alternative 1. • Chemicals other than explosives: Impacts from other chemicals not associated with explosives under Alternative 2 would increase slightly compared to those of Alternative 1 because of a small increase in expended materials, but the difference in impacts would be undetectable. • Metals: Impacts from other chemicals not associated with explosives under Alternative 2 would increase slightly compared to those of Alternative 1 because of a small increase in expended materials, but the difference in impacts would be undetectable. • Other military expended materials: Impacts from other chemicals not associated with explosives under Alternative 2 would increase slightly compared to those of Alternative 1 because of a small increase in expended materials, but the difference in impacts would be undetectable.
Section 3.3-Vegetation	The Navy considered all potential stressors that vegetation could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. Various stressors would not be introduced into the marine environment. Therefore, baseline conditions of the existing environment would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.3-Vegetation (continued)	**Alternative 1 (Preferred Alternative):** • Acoustics: There is no evidence that underwater acoustic stressors impact marine vegetation. Acoustic stressors, therefore, are not analyzed for vegetation. • Energy: Energy stressors are not applicable to vegetation because vegetation have a limited sensitivity to energy stressors and therefore will not be analyzed further in vegetation. • Explosives: Explosives could affect vegetation by destroying individual plants or damaging parts of plants; however, there would be no persistent or large-scale effects on the growth, survival, distribution or structure of vegetation due to relatively fast growth, resilience, and abundance of the most affected species (e.g., phytoplankton, seaweed). • Physical Disturbance and Strikes: Physical disturbance and strike could affect vegetation by destroying individual plants or damaging parts of plants; however, there would be no persistent or large-scale effects on the growth, survival, distribution or structure of vegetation due to relatively fast growth, resilience, and abundance of the most affected species (e.g., phytoplankton, seaweed). • Entanglement: Entanglement stressors are not applicable to vegetation due to the sedentary nature of vegetation and is not analyzed further in this section. • Ingestion: Ingestion stressors are not applicable because all vegetation analyzed uses photosynthesis vice ingestion to obtain necessary nutrients. Therefore, the ingestion stressor is not analyzed for vegetation. • Secondary Stressors: Project effects on secondary stressors such as sediment, water, or air quality would be minor, temporary, and localized and could have short-term, small-scale secondary effects on vegetation; however, there would be no persistent or large-scale effects on the growth, survival, distribution, or structure of vegetation due to relatively fast growth, resilience, and abundance of the most affected species (e.g., phytoplankton, seaweed). **Alternative 2:** • Explosives: Impacts from explosives under Alternative 2 for training and testing activities would be virtually identical (less than 1 percent difference in any location or overall) to those of Alternative 1. • Physical Disturbance and Strikes: Compared to Alternative 1, under Alternative 2, training and testing activities would be similarly distributed across ranges and facilities, but the number of activities would increase by a small percent. The net impact on vegetation is still expected to be nearly identical to that of Alternative 1. • Secondary Stressors: The difference in project effects on secondary stressors between Alternative 1 and 2 is inconsequential.
Section 3.4-Invertebrates	The Navy considered all potential stressors that invertebrates could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. Various stressors (e.g., military expended materials other than munitions) would not be introduced into the marine environment. Therefore, baseline conditions of the existing environment would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.4-Invertebrates (continued)	**Alternative 1 (Preferred Alternative):** • Acoustics: Invertebrates could be exposed to noise from the proposed training and testing activities. However, available information indicates that invertebrate sound detection is primarily limited to low-frequency (less than 1 kilohertz [kHz]) particle motion and water movement that diminishes rapidly with distance from a sound source. The expected impact of noise on invertebrates is correspondingly diminished and mostly limited to offshore surface layers of the water column where only zooplankton, squid, and jellyfish are prevalent mostly at night when training and testing occur less frequently. Invertebrate populations are typically lower offshore, where most training and testing occurs, than inshore due to the scarcity of habitat structure and comparatively lower nutrient levels. Exceptions occur at nearshore and inshore locations where occasional pierside sonar, air gun, or pile driving actions occur near relatively resilient soft bottom or artificial substrate communities. Because the number of individuals affected would be small relative to population numbers, population-level impacts are unlikely. • Explosives: Explosives produce pressure waves that can harm invertebrates in the vicinity of where they typically occur: mostly offshore surface waters where zooplankton, squid, and jellyfish are prevalent mostly at night when training and testing with explosives do not typically occur. Invertebrate populations are generally lower offshore than inshore due to the scarcity of habitat structure and comparatively lower nutrient levels. Exceptions occur where explosives are used on the bottom within nearshore or inshore waters on or near sensitive live hard bottom communities. Soft bottom communities are resilient to occasional disturbances. Due to the relatively small number of individuals affected, population-level impacts are unlikely. • Energy: The proposed activities would produce electromagnetic energy that briefly affects a very limited area of water, based on the relatively weak magnetic fields and mobile nature of the stressors. Whereas some invertebrate species can detect magnetic fields, the effect has only been documented at much higher field strength than what the proposed activities generate. High-energy lasers can damage invertebrates. However, the effects are limited to surface waters where relatively few invertebrates species occur (e.g., zooplankton, squid, jellyfish), mostly at night when actions do not typically occur, and only when the target is missed. Due to the relatively small number of individuals that may be affected, population-level impacts are unlikely. • Physical Disturbance and Strikes: Invertebrates could experience physical disturbance and strike impacts from vessels and in-water devices, military expended materials, seafloor devices, and pile driving. Most risk occurs offshore (where invertebrates are less abundant) and near the surface where relatively few invertebrates occur during the day when actions are typically occurring. The majority of expended materials are used in areas far from nearshore and inshore bottom areas where invertebrates are the most abundant. Exceptions occur for actions taking place within inshore and nearshore waters over primarily soft bottom communities, such as related to vessel transits, inshore and nearshore vessel training, nearshore explosive ordnance disposal training, operation of bottom-crawling seafloor devices, and pile driving. Invertebrate communities in affected soft bottom areas are naturally resilient to occasional disturbances. Accordingly, population-level impacts are unlikely.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.4-Invertebrates (continued)	• Entanglement: Invertebrates could be entangled by various expended materials (wires, cables, decelerators/parachutes, biodegradable polymer). Most entanglement risk occurs in offshore areas where invertebrates are relatively less abundant. The risk of entangling invertebrates is minimized by the typically linear nature of the expended structures (e.g., wires, cables), although decelerators/parachutes have mesh that could pose a risk to those invertebrates that are large and slow enough to be entangled (e.g., jellyfish). Deep-water coral could also be entangled by drifting decelerators/parachutes, but a co-occurrence is highly unlikely given the extremely sparse coverage of corals in the deep ocean. Accordingly, population-level impacts are unlikely. • Ingestion: Small expended materials and material fragments pose an ingestion risk to some invertebrates. However, most military expended materials are too large to be ingested, and many invertebrate species are unlikely to consume an item that does not visually or chemically resemble its natural food. Exceptions occur for materials fragmented by explosive charges or weathering, which could be ingested by filter- or deposit-feeding invertebrates. Ingestion of such materials would likely occur infrequently, and only invertebrates located very close to the fragmented materials would potentially be affected. Furthermore, the vast majority of human deposited ingestible materials in the ocean originate from non-military sources. Accordingly, population-level impacts are unlikely. • Secondary Stressors: Secondary impacts on invertebrates are possible via changes to habitats (sediment or water) and to prey availability due to explosives, explosives byproducts, unexploded munitions, metals, and toxic expended material components. Other than bottom-placed explosives, the impacts are mostly in offshore waters where invertebrates are less abundant. The impacts of occasional bottom-placed explosives are mostly limited to nearshore soft bottom habitats that recover quickly from disturbance. Following detonation, concentrations of explosive byproducts are rapidly diluted to levels that are not considered toxic to marine invertebrates. Furthermore, most explosive byproducts are common seawater constituents. Contamination leaching from unexploded munitions is likely inconsequential because the material has low solubility in seawater and is slowly delivered to the water column. Heavy metals and chemicals such as unspent propellants can reach harmful levels around stationary range targets but are not likely in open waters where proposed action targets are typically mobile or temporarily stationary. Accordingly, overall impacts of secondary stressors on widespread invertebrate populations are not likely. Impacts due to decreased availability of prey items (fish and other invertebrates) would likely be undetectable. **Alternative 2:** • Acoustics: Potential impacts to invertebrates would be similar to those discussed for training and testing activities under Alternative 1. The only difference in sonar and other transducer use between Alternatives 1 and 2 is that the number of sonar hours used would be greater under Alternative 2. Air guns and pile driving impacts would be the same under Alternative 2. Potential impacts resulting from vessel noise would be similar to those discussed for activities under Alternative 1. Vessel use in the Study Area would increase by a very small amount (about one percent). The only difference in weapons noise impacts between Alternatives 1 and 2 is that the number of munitions used would be greater under Alternative 2. While the types of

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.4-Invertebrates (continued)	expected impacts to any individual invertebrate or group of invertebrates capable of detecting sounds produced during training and testing activities would remain the same, more animals could be affected. • Explosives: The locations, number of events, and potential effects associated with explosives would be the same under Alternatives 1 and 2. • Energy: The locations, number of events, and potential effects associated with energy stressors would be the same under Alternatives 1 and 2. • Physical Disturbance and Strikes: Under Alternative 2, potential physical disturbance and strike impacts to invertebrates associated with training and testing activities would be similar to those discussed for activities under Alternative 1. The total area affected for all training and testing activities combined would increase by less than 1 acre under Alternative 2. There would be a very small increase in vessel and in-water device use in the Study Area. However, the difference would not result in substantive changes to the potential for or types of impacts on invertebrates. • Entanglement: There would be a small increase in the number of military expended materials associated with Alternative 2 activities. However, the increase is negligible and the potential impacts from wires and cables, decelerators/parachutes, and biodegradable polymer under Alternative 2 would be similar to that of Alternative 1. • Ingestion: Under Alternative 2, the locations and types of military expended materials used would be the same as those of Alternative 1. There would be an increase in the number of some items expended, such as targets, sonobuoys, bathythermograph equipment, and small decelerators/parachutes. This relatively small increase in the total number of items expended would not be expected to result in substantive changes to the type or degree of impacts to invertebrates. • Secondary Stressors: Secondary impacts on invertebrates resulting from Alternative 2 activities would be nearly identical to those for Alternative 1.
Section 3.5-Habitats	The Navy considered all potential stressors that habitats could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. Various ingestion stressors (e.g., military expended materials other than munitions) would not be introduced into the marine environment. Therefore, baseline conditions of the existing environment would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities. **Alternative 1 (Preferred Alternative):** • Acoustics: Acoustic stressors are not applicable to habitats, due to the fact that habitats do not have hearing capabilities, and are not analyzed in this section. • Explosives: Most explosives would detonate in air or at or near the water surface. Some explosives would be placed on the bottom. Explosive detonations on or near the bottom would produce percussive energy that could impact bottom habitat. While hard bottom would mostly reflect the energy, a crater would form in soft bottom. On substrates other than clay, the effects would be temporary, whereas craters in clay may be persistent. Craters in soft bottom, where substrate moves around

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.5-Habitats (continued)	with the tides and currents, would only last for days to weeks. The surface area of bottom substrate affected would be a tiny fraction of the total training and testing area available in the Study Area. • Energy: Energy stressors are not applicable to habitats because of the lack of sensitivity of habitats and are not analyzed in this section. • Physical Disturbance and Strikes: Most seafloor devices would be placed in areas that would result in minor and temporary bottom substrate impacts. Once on the seafloor and over time, military expended material would be buried by sediment, corroded from exposure to the marine environment, or colonized by benthic organisms. The surface area of bottom substrate affected over the short-term would be a tiny fraction of the total training and testing area available in the Study Area. • Entanglement: Entanglement stressors are not applicable because habitats do not have the ability to become "entangled" by materials. The potential for expended material to cover a substrate is discussed under the physical disturbance and strike stressor. • Ingestion: Ingestion stressors are not applicable because habitats lack the ability to ingest; therefore, ingestion stressors are not analyzed for habitats. • Secondary Stressors: Secondary stressors are not applicable to habitats, as they are not susceptible to impacts from secondary stressors, and are not analyzed further. **Alternative 2:** • Explosives: Explosive activities would be nearly identical under Alternative 2 as those analyzed under Alternative 1, as only the frequency and duration of activities would differ. In-water explosions under Alternative 2 training and testing activities would be limited to local and short-term impacts on marine habitat structure in the AFTT Study Area. • Physical Disturbance and Strikes: Most seafloor devices would be placed in areas that would result in minor and temporary bottom substrate impacts. Once on the seafloor and over time, military expended material would be buried by sediment, corroded from exposure to the marine environment, or colonized by benthic organisms. The surface area of bottom substrate affected over the short-term would be a tiny fraction of the total training and testing area available in the Study Area.
Section 3.6-Fishes	The Navy considered all potential stressors that fishes could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. The combined impacts of all stressors for fishes would not be introduced into the marine environment. Therefore, baseline conditions of the existing environment would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities and no impacts on fish population would occur. **Alterantive1 (Preferred Alternative):** • Acoustics: The use of sonar and other transducers, air guns, pile driving, vessel noise, aircraft noise, and weapons noise could result in impacts on fishes in the Study Area. Some sonars and other transducers, vessel noise, and weapons noise could

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.6-Fishes (continued)	result in hearing loss, masking, physiological stress, or behavioral reactions. Aircraft noise would not likely result in impacts other than brief, mild behavioral responses in fishes that are close to the surface. Air guns and pile driving have the potential to result in the same effects in addition to mortality or injury. Most impacts, such as masking or behavioral reactions, are expected to be temporary and infrequent as most activities involving acoustic stressors would be at low levels of noise, temporary, localized, and infrequent. More severe impacts such as mortality or injury could lead to permanent or long-term consequences for individuals but, overall, long-term consequences for fish populations are not expected. • Explosives: The use of explosives could result in impacts on fishes within the Study Area. Sound and energy from explosions is capable of causing mortality, injury, hearing loss, masking, physiological stress, or behavioral responses. The time scale of individual explosions is very limited, and training and testing activities involving explosions are dispersed in space and time. Therefore, repeated exposure of individual fishes are unlikely. Most effects such as hearing loss or behavioral responses are expected to be short-term and localized. More severe impacts such as mortality or injury could lead to permanent or long-term consequences for individuals but, overall, long-term consequences for fish populations are not expected. • Energy: The use of electromagnetic devices may elicit brief behavioral or physiological stress responses only in those exposed fishes with sensitivities to the electromagnetic spectrum. This behavioral impact is expected to be temporary and minor. Similar to regular vessel traffic that is continuously moving and covers only a small spatial area during use, electromagnetic fields would be continuously moving and cover only a small spatial area during use, so population-level impacts are unlikely. • Physical Disturbance and Strikes: Vessel strikes, in-water device strikes, military expended material strikes, and seafloor device strikes present a risk for collision with fishes, particularly near coastal areas, seamounts, and other bathymetric features where densities are higher. While the potential for physical disturbance and strikes of fishes can occur anywhere vessels are operated or training and testing activities occur, most fishes are highly mobile and have sensory capabilities which enable the detection and avoidance of vessels, expended materials, or objects in the water column or on the seafloor. • Entanglement: Fishes could be exposed to multiple entanglement stressors associated with Navy training and testing activities. The potential for impacts is dependent on the physical properties of the expended materials and the likelihood that a fish would encounter a potential entanglement stressor and then become entangled in it. Physical characteristics of wires and cables, decelerators/parachutes, and biodegradable polymers, combined with the sparse distribution of these items throughout the Study Area, indicates a very low potential for fishes to encounter and become entangled in them. Because of the low numbers of fish potentially impacted by entanglement stressors, population-level impacts are unlikely. • Ingestion: The likelihood that expended items would cause a potential impact on a given fish species depends on the size and feeding habits of the fish and the rate at which the fish encounters the item and the composition of the item. Military expended materials from munitions present an ingestion risk to fishes that forage in the water column and on the seafloor. Military expended materials other than munitions present an ingestion risk for fishes foraging at or near the surface while these materials are buoyant, and on the seafloor when the materials sink. Because of the low numbers of fish potentially impacted by ingestion stressors, population-level impacts are unlikely.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.6-Fishes (continued)	• Secondary Stressors: Effects on sediment or water quality would be minor, temporary, and localized and could have short-term, small-scale secondary effects on fishes; however, there would be no persistent or large-scale effects on the growth, survival, distribution, or population-level of fishes. **Alternative 2:** • Acoustics: Potential impacts to fishes would be similar to those discussed for training activities under Alternative 1. The only difference in sonar and other transducer use between Alternatives 1 and 2 is that the number of sonar hours used would be greater under Alternative 2. Air guns and pile driving impacts would be the same under Alternative 2. Potential impacts resulting from vessel noise would be similar to those discussed for activities under Alternative 1. Vessel use in the Study Area would increase by a very small amount (about one percent). The only difference in weapons noise impacts between Alternatives 1 and 2 is that the number of munitions used would be greater under Alternative 2, however, the types and severity of impacts would not be discernible from those described under Alternative 1. • Explosives: The locations, number of events, and potential effects associated with explosives would be the same under Alternatives 1 and 2. • Energy: The locations, number of events, and potential effects associated with energy stressors would be the same under Alternatives 1 and 2. • Physical Disturbance and Strikes: Under Alternative 2, potential physical disturbance and strike impacts to fishes associated with training and testing activities would be similar to those discussed for activities under Alternative 1. There would be a very small increase in vessel and in-water device use in the Study Area. However, the difference would not result in substantive changes to the potential for or types of impacts on fishes. • Entanglement: There would be a small increase in the number of military expended materials associated with Alternative 2 activities. However, the increase is negligible and the potential impacts from wires and cables, decelerators/parachutes, and biodegradable polymer under Alternative 2 would be similar to that of Alternative 1.
Section 3.7-Marine Mammals	The Navy considered all stressors that marine mammals could be exposed to from the Proposed Action. The following conclusions have been reached for the following stressors under the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. Various secondary stressors would not be introduced into the marine environment. Therefore, baseline conditions of the existing environment would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities. **Alternative 1 (Preferred Alternative):** • Acoustics: Navy training and testing activities have the potential to expose marine mammals to multiple acoustic stressors. Exposure to sound-producing activities presents risks to marine mammals that could include temporary or permanent hearing threshold shift, auditory masking, physiological stress, or behavioral responses. Because individual animals would typically only experience a small number of behavioral responses or temporary hearing threshold shifts per year from exposure to acoustic

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.7-Marine Mammals (continued)	stressors and are unlikely to incur substantive costs to the individual, population level effects are unlikely. • Explosives: Explosions underwater or near the surface present a risk to marine mammals located in close proximity to the explosion, because the resulting shock waves can cause injury or result in the death of an animal. Beyond the zone of injury, the impulsive, broadband noise introduced into the marine environment may cause temporary or permanent hearing threshold shift, auditory masking, physiological stress, or behavioral responses. Because most estimated impacts from explosions are behavioral responses or temporary threshold shifts (TTS) and because the number of marine mammals potentially impacted by explosives are small compared to each species' respective abundance, population level effects are unlikely. • Energy: Navy training and testing activities have the potential to expose marine mammals to multiple energy stressors. The likelihood and magnitude of energy impacts depend on the proximity of marine mammals to energy stressors. Based on the relatively weak strength of the electromagnetic field created by Navy activities, a marine mammal would have to be in close proximity for there to be any effect, and impacts on marine mammal migrating behaviors and navigational patterns are not anticipated. Potential impacts from high-energy lasers would only result for marine mammals directly struck by the laser beam. Statistical probability analyses demonstrate with a high level of certainty that no marine mammals would be struck by a high-energy laser. Energy stressors associated with Navy training and testing activities are temporary and localized in nature and, based on patchy distribution of animals, no impacts to individual marine mammals and marine mammal populations are anticipated. • Physical Disturbance and Strike: Marine mammals would potentially be exposed to multiple physical disturbance and strike stressors associated with Navy training and testing activities. The potential for impacts relies heavily on the probability that marine mammals would be in close proximity to a physical disturbance and strike stressor (e.g., a vessel or a non-explosive munition). Historical data on Navy ship strike records demonstrate a low occurrence of interactions with marine mammals over the last 10 years. Since the Navy does not anticipate a change in the level of vessel use compared to the last decade, the potential for striking a marine mammal remains low. Physical disturbance due to vessel movement and in-water devices, but any stress response of avoidance behavior would not be severe enough to have long-term fitness consequences for individual marine mammals. The use of in-water devices during Navy activities involves multiple types of vehicles or towed devices traveling on the water surface, through the water column, or along the seafloor, all of which having the potential to disturb or physically strike marine mammals. No recorded or reported instances of marine mammal strikes have resulted from in-water devices; therefore, impacts to individuals or long-term consequences to marine mammal populations are not anticipated. Potential physical disturbance and strike impacts from military expended materials and seafloor devices are determined through statistical probability analyses. Results for each of these physical disturbance and strike stressors suggests a very low potential for marine mammals to be struck by any of these items. Long-term consequences to marine mammal populations from physical disturbance and strike stressors associated with Navy training and testing activities are not anticipated. • Entanglement: Marine mammals could be exposed to multiple entanglement stressors associated with Navy training and testing activities. The potential for impacts is dependent on the physical properties of the expended materials and the likelihood that a marine mammal would encounter a potential entanglement stressor and then become entangled in it. Physical characteristics of

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.7-Marine Mammals (continued)	wires and cables, decelerators/parachutes, and biodegradable polymers combined with the sparse distribution of these items throughout the Study Area indicate a very low potential for marine mammals to encounter and become entangled in them. Long-term impacts to individual marine mammals and marine mammal populations from entanglement stressors associated with Navy training and testing activities are not anticipated. • Ingestion: Navy training and testing activities have the potential to expose marine mammals to multiple ingestion stressors and associated impacts. The likelihood and magnitude of impacts depend on the physical properties of the military expended items, the feeding behaviors of marine mammals that occur in the Study Area, and the likelihood that a marine mammal would encounter and incidentally ingest the items. Adverse impacts from ingestion of military expended materials would be limited to the unlikely event that a marine mammal would be harmed by ingesting an item that becomes embedded in tissue or is too large to be passed through the digestive system. The likelihood that a marine mammal would encounter and subsequently ingest a military expended item associated with Navy training and testing activities is considered low. Long-term consequences to marine mammal populations from ingestion stressors associated with Navy training and testing activities are not anticipated. • Secondary Stressors: Marine mammals could be exposed to multiple secondary stressors (indirect stressors to habitat or prey) associated with Navy training and testing activities in the Study Area. In-water explosions have the potential to injure or kill prey species that marine mammals feed on within a small area affected by the blast; however, impacts would not substantially impact prey availability for marine mammals. Explosion byproducts and unexploded munitions would have no meaningful effect on water or sediment quality; therefore, they are not considered to be secondary stressors for marine mammals. Metals are introduced into the water and sediments from multiple types of military expended materials. Available research indicates metal contamination is very localized and that bioaccumulation resulting from munitions would not occur. Several Navy training and testing activities introduce chemicals into the marine environment that are potentially harmful in concentration; however, through rapid dilution, toxic concentrations are unlikely to be encountered by marine mammals. Furthermore, bioconcentration or bioaccumulation of chemicals introduced by Navy activities at levels that would significantly alter water quality and degrade marine mammal habitat has not been documented. The Navy's use of marine mammals is not likely to increase the risk of transmitting diseases or parasites to wild marine mammals. Secondary stressors from Navy training and testing activities in the Study Area are not expected to have short-term impacts on individual marine mammals or long-term impacts on marine mammal populations. **Alternative 2:** • Acoustics: Potential impacts to marine mammals would be similar to those discussed for training activities under Alternative 1. The only difference in sonar and other transducer use between Alternatives 1 and 2 is that the number of sonar hours used would be greater under Alternative 2. Air guns and pile driving impacts would be the same under Alternative 2. Potential impacts resulting from vessel noise would be similar to those discussed for activities under Alternative 1. Vessel use in the Study Area would increase by a very small amount (about one percent). The only difference in weapons noise impacts between Alternatives 1 and 2 is that the number of munitions used would be greater under Alternative 2. While the types of expected impacts to on any individual marine mammal would remain the same, more animals could be affected.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	***Summary of Impacts***
Section 3.7-Marine Mammals (continued)	• Explosives: The locations, number of events, and potential effects associated with explosives would be the same under Alternatives 1 and 2. • Energy: The locations, number of events, and potential effects associated with energy stressors would be the same under Alternatives 1 and 2. • Physical Disturbance and Strikes: Under Alternative 2, potential physical disturbance and strike impacts to marine mammals associated with training and testing activities would be similar to those discussed for activities under Alternative 1. There would be a very small increase in vessel and in-water device use in the Study Area. However, the difference would not result in substantive changes to the potential for or types of impacts on marine mammals. • Entanglement: There would be a small increase in the number of military expended materials associated with Alternative 2 activities. However, the increase is negligible and the potential impacts from wires and cables, decelerators/parachutes, and biodegradable polymer under Alternative 2 would be similar to that of Alternative 1. • Ingestion: Under Alternative 2, the locations and types of military expended materials used would be the same as those of Alternative 1. There would be an increase in the number of some items expended, such as targets, sonobuoys, bathythermograph equipment, and small decelerators/parachutes. This relatively small increase in the total number of items expended would not be expected to result in substantive changes to the type or degree of impacts to marine mammals. • Secondary Stressors: Secondary impacts on marine mammals resulting from Alternative 2 activities would be nearly identical to those from Alternative 1.
Section 3.8-Reptiles	The Navy considered all potential stressors that reptiles could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, training and testing activities associated with the Proposed Action will not be conducted within the AFTT Study Area. Under this alternative, there would be no potential for impacts on sea turtles. The cessation of some stressors would be more beneficial than others. For instance, because of the localized and short-term duration of any potential impact from an electromagnetic field on a sea turtle, the potential benefits to sea turtles is not likely measureable. The removal of fast vessel movement training activities, however, would likely decrease behavioral impacts and responses to vessels, but again, the impact is likely short-term, with normal behaviors resuming within minutes of a passing vessel. Vessel strike risk would be reduced, which would likely increase survivability and individual fitness for a small number of sea turtles or crocodilians. Further, the synergistic effects of multiple stressors would not occur, thereby providing benefits to sea turtles and crocodilians by removing short-term and long-term potential impacts. The implementation of the No Action Alternative would remove risks of impacts associated with training and testing activities; however, monitoring data accumulated through range sustainment programs would cease. These data provide foundational data for the research and regulatory communities to assess ongoing threats and conservation status of various species.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.8-Reptiles (continued)	**Alternative 1 (Preferred Alternative):** • Acoustics: Navy training and testing activities have the potential to expose reptiles to multiple types of acoustic stressors, including sonars, other transducers, air guns, pile driving, and vessel, aircraft, and weapons noise. Reptiles could be affected by only a limited portion of acoustic stressors because reptiles have limited hearing abilities. Exposures to sound-producing activities present risks that could range from hearing loss, auditory masking, physiological stress, and changes in behavior; however, no injurious impacts are predicted due to exposure to any acoustic stressor. Because the number of sea turtles potentially impacted by sound-producing activities is small, population level effects are unlikely. Few, if any impacts on crocodilians or terrapins are anticipated from acoustic stressors because of the location of training activities relative to crocodilian and terrapin habitats. • Explosives: Explosions in the water or near the water's surface present a risk to reptiles located in close proximity to the explosion, because the shock waves produced by explosives could cause injury or result in the death. If further away from the explosion, impulsive, broadband sounds introduced into the marine environment may cause hearing loss, auditory masking, physiological stress, or changes in behavior. Sea turtles would be exposed to explosive stressors in the nearshore and offshore portions of the Study Area, while crocodilians and terrapins would be exposed to explosive stressors at two inshore training and testing locations. One loggerhead sea turtle mortality is predicted. Because the number of sea turtles potentially impacted by explosives is small, population-level effects are unlikely. It is unlikely that crocodilians and terrapins would be in close proximity to inshore explosions because they would likely, if present, flee the area in response to other stressors (e.g., vessel noise, visual stimulus). Also, the types of explosives are small limpet mine charges, which limits the area where crocodilians and terrapins could be exposed to injurious impacts from explosives. Because inshore explosives training activities would impact few, if any, crocodilians or terrapins, population-level effects are unlikely. • Energy: Navy training and testing activities have the potential to expose reptiles to multiple energy stressors in offshore and inshore training and testing locations. The likelihood and magnitude of energy impacts depends on the proximity of a reptile to energy stressors. Based on the relatively weak strength of the electromagnetic field created by Navy activities, impacts on sea turtles migrating behaviors and navigational patterns are not anticipated. Potential impacts from high-energy lasers would only result for sea turtles directly struck by the laser beam. Statistical probability analyses demonstrate with a high level of certainty that no sea turtles would be struck by a high-energy laser. Activities that generate electromagnetic fields would occur in inshore habitats potentially inhabited by crocodilians and terrapins; however, no measureable impacts on individuals would be expected to occur. Activities using high-energy lasers would not occur in inshore training and testing locations Energy stressors associated with Navy training and testing activities are temporary and localized in nature, and based on patchy distribution of animals, no impacts on individual reptile or reptile populations are anticipated. • Physical Disturbance and Strikes: Vessels, in-water devices, and seafloor devices present a risk for collision with sea turtles, particularly in coastal areas where densities are higher. Strike potential by expended materials is statistically small. Because of the low numbers of sea turtles potentially impacted by activities that may potentially cause a physical disturbance and strike, population level effects are unlikely. Activities that use vessels, in-water devices, and seafloor devices would occur in habitats

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.8-Reptiles (continued)	used by crocodilians and terrapins. Activities that expend materials would also occur in inshore habitats inhabited by crocodilians and terrapins; however, interactions with materials would not likely occur, and no impacts on individual crocodilians and terrapins are expected if a reptile encountered expended material. Because of the low numbers of crocodilians and terrapins potentially impacted by activities that may potentially cause a physical disturbance and strike, population-level effects are unlikely. • Entanglement: Sea turtles could be exposed to multiple entanglement in inshore and offshore training and testing locations. The potential for impacts is dependent on the physical properties of the expended materials and the likelihood that a sea turtle would encounter a potential entanglement stressor and then become entangled in it. Physical characteristics of wires and cables, decelerators/parachutes, and biodegradable polymers combined with the sparse distribution of these items throughout the Study Area indicates a very low potential for sea turtles to encounter and become entangled in them. Long-term impacts on individual sea turtles and sea turtle populations from entanglement stressors associated with Navy training and testing activities are not anticipated. Entanglement stressors are not anticipated to impact crocodilians or terrapins because activities that expend materials that present a potential entanglement risk would not co-occur with crocodilian or terrapins habitats. • Ingestion: Navy training and testing activities have the potential to expose reptiles to multiple ingestion stressors and associated impacts in inshore and offshore training and testing locations. The likelihood and magnitude of impacts depends on the physical properties of the military expended items and the feeding behaviors of the particular species of reptiles that occur in specific areas where potentially ingestible items are used. Adverse impacts from ingestion of military expended materials would be limited to the unlikely event that a sea turtle, crocodilian, or terrapin would be harmed by ingesting an item that becomes embedded in tissue or is too large to be passed through the digestive system. The likelihood that a reptile would encounter and subsequently ingest a military expended item associated with Navy training and testing activities is considered low. Long-term consequences to reptile populations from ingestion stressors associated with Navy training and testing activities are not anticipated. • Secondary Stressors: Reptiles could be exposed to multiple secondary stressors (indirect stressors to habitat or prey) associated with Navy training and testing activities in the Study Area. In-water explosions have the potential to injure or kill prey species that sea turtles feed on within a small area affected by the blast; however, impacts would not substantially. impact prey availability for sea turtles, crocodilians, or terrapins. Explosion byproducts and unexploded munitions would have no meaningful effect on water or sediment quality; therefore they are not considered to be secondary stressors for reptiles. Metals are introduced into the water and sediments from multiple types of military expended materials. Available research indicates metal contamination is very localized and that bioaccumulation resulting from munitions would not occur. Several Navy training and testing activities introduce chemicals into the offshore and inshore environments that are potentially harmful in concentration; however, through rapid dilution, toxic concentrations are unlikely to be encountered by sea turtles, crocodilians, or terrapins. Furthermore, bioconcentration or bioaccumulation of chemicals introduced by Navy activities to levels that would significantly alter water quality and degrade sea turtle habitat has not been documented. Secondary stressors from Navy training and testing activities in the Study Area are not expected to have short-term impacts on individual sea turtles

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.8-Reptiles (continued)	or long-term impacts on sea turtle populations. Secondary stressors discussed above would overlap with crocodilian and terrapin habitats at inshore training locations. As with sea turtles, toxic concentrations of chemicals and munitions constituents are unlikely to be encountered by crocodilians and terrapins; therefore, bioconcentration or bioaccumulation of chemicals introduced by Navy activities would not likely alter water quality, degrade habitats, or reduce prey availability. Any indirect stressors to habitat or prey from training and testing activities are anticipated to be negligible, and no population-level impacts are anticipated. **Alternative 2:** • Acoustics: Potential impacts to reptiles would be similar to those discussed for training activities under Alternative 1. The only difference in sonar and other transducer use between Alternatives 1 and 2 is that the number of sonar hours used would be greater under Alternative 2. Air guns and pile driving impacts would be the same under Alternative 2. Potential impacts resulting from vessel noise would be similar to those discussed for activities under Alternative 1. Vessel use in the Study Area would increase by a very small amount (about one percent). The only difference in weapons noise impacts between Alternatives 1 and 2 is that the number of munitions used would be greater under Alternative 2. While the types of expected impacts to any individual reptile would remain the same, more animals could be affected. • Explosives: The locations, number of events, and potential effects associated with explosives would be the same under Alternatives 1 and 2. • Energy: The locations, number of events, and potential effects associated with energy stressors would be the same under Alternatives 1 and 2. • Physical Disturbance and Strike: Under Alternative 2, potential physical disturbance and strike impacts to reptiles would be similar to those discussed for activities under Alternative 1. There would be a very small increase in vessel and in-water device use in the Study Area. However, the difference would not result in substantive changes to the potential for or types of impacts on reptiles. • Entanglement: There would be a small increase in the number of military expended materials associated with Alternative 2 activities. However, the increase is negligible and the potential impacts from wires and cables, decelerators/parachutes, and biodegradable polymers under Alternative 2 would be similar to that of Alternative 1. • Ingestion: Under Alternative 2, the locations and types of military expended materials used would be the same as those of Alternative 1. There would be an increase in the number of some items expended, such as targets, sonobuoys, bathythermograph equipment, and small decelerators/parachutes. This relatively small increase in the total number of items expended would not be expected to result in substantive changes to the type or degree of impacts to reptiles. • Secondary Stressors: Secondary impacts on reptiles resulting from Alternative 2 training and testing activities would be nearly identical to those from Alternative 1.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.9-Birds and Bats	The Navy considered all potential stressors that birds and bats could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. Various stressors would not be introduced into the marine environment. Therefore, baseline conditions of the existing environment would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities. **Alternative 1 (Preferred Alternative):** • Acoustics: Navy training and testing activities have the potential to expose birds and bats to a variety of acoustic stressors. The exposure to underwater sounds by birds depends on the species and foraging method. Pursuit divers may remain underwater for minutes, increasing the chance of underwater sound exposure. The exposure to in-air sounds by birds and bats depends on the activity (in flight or on the water surface) and the proximity to the sound source. Because birds are less susceptible to both temporary and permanent threshold shift than mammals, unless very close to an intense sound source, responses by birds to acoustic stressors would likely be limited to short-term behavioral responses. Some birds may be temporarily displaced and there may be temporary increases in stress levels. Although individual birds may be impacted, population level impacts are not expected. Unlike other mammals, bats are not susceptible to temporary and permanent threshold shifts. Bats may be temporarily displaced during foraging, but would return shortly after the training or testing is complete. Although individual bats may be impacted, population level impacts are not expected. • Explosives: Navy training and testing activities have the potential to expose birds and bats to explosions in the water, near the water surface, and in air. Sounds generated by most small underwater explosions are unlikely to disturb birds and bats above the water surface. However, if a detonation is sufficiently large or is near the water surface, birds and bats above the pressure released at the air-water interface could be injured or killed. Detonations in air could injure birds and bats while either in flight or at the water surface; however, detonations in air during anti-air warfare training and testing would typically occur at much higher altitudes where seabirds, migrating birds, and bats are less likely to be present. Detonations may attract birds to possible fish kills, which could cause bird mortalities or injuries if there are multiple detonations in a single event. An explosive detonation would likely cause a startle reaction, as the exposure would be brief and any reactions are expected to be short-term. Although a few individuals may experience long-term impacts and potential mortality, population-level impacts are not expected. • Energy: The impact of energy stressors on birds and bats is expected to be negligible based on (1) the limited geographic area in which they are used, (2) the rare chance that an individual bird or bat would be exposed to these devices in use, and (3) the tendency of birds and bats to temporarily avoid areas of activity when and where the devices are in use. The impacts of energy stressors would be limited to individual cases where a bird or bat might become temporarily disoriented and change flight direction, or be injured. Although a small number of individuals may be impacted, the impact at the population level would be negligible.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.9-Birds and Bats (continued)	• Physical Disturbance and Strikes: There is the potential for individual birds to be injured or killed by physical disturbance and strikes during training and testing. However, there would not be long-term species or population level impacts due to the vast area over which training and testing activities occur and the small size of birds and their ability to flee disturbance. Impacts to bats would be similar to, but less than, those described for birds since bat occurrence in the Study Area is relatively scant compared to birds and because bats are most active from dusk through dawn. • Entanglement: Entanglement stressors have the potential to impact birds. However, the likelihood is low because the relatively small quantities of materials that could cause entanglement would be dispersed over very wide areas, often in locations or depth zones outside the range or foraging abilities of most birds. A small number of individuals may be impacted, but no effects at the population level would be expected. The possibility that an individual of an ESA-listed bird species would become entangled is remote due to their rarity and limited overlap with Navy activities. Since bats considered in this analysis do not occur in the water column and rarely occur at the water surface in the Study Area, few, if any, impacts to bats are anticipated from entanglement stressors. • Ingestion: It is possible that persistent expended materials could be accidentally ingested by birds while they were foraging for natural prey items, though the probability of this event is low as (1) foraging depths of diving birds is generally restricted to the surface of the water or shallow depths, (2) the material is unlikely to be mistaken for prey, and (3) most of the material remains at or near the sea surface for a short length of time. No population-level effect to any bird species would be anticipated. Since bats considered in this analysis do not occur in the water column and rarely feed at the water surface in the Study Area, few, if any, impacts to bats are anticipated from ingestion stressors. • Secondary Stressors: There would be relatively localized, temporary impacts from water quality (turbidity) which may alter foraging conditions, but no impacts on prey availability. Since bats considered in this analysis do not occur in the water column and rarely occur at the water surface in the Study Area, few, if any, impacts to bats are anticipated from secondary stressors. **Alternative 2:** • Acoustics: Alternative 2 has an increase in sonar use compared to Alternative 1; however, potential impacts from Alternative 2 activities would be similar to those as Alternative 1. Air guns and pile driving impacts would be the same under Alternative 2. Potential impacts resulting from vessel noise would be similar to those discussed for activities under Alternative 1. Vessel use in the Study Area would increase by a very small amount. The only difference in weapons noise impacts between Alternatives 1 and 2 is that the number of munitions used would be greater under Alternative 2. While individual birds or bats may be impacted by training or testing activities, population level impacts are not expected.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.9-Birds and Bats (continued)	• Explosives: There would be a minor increase in explosives use under Alternative 2 compared to Alternative 1; however, the types of potential impacts and locations of impacts would be the same as those described under Alternative 1. Most impacts to individual birds and bats, if any, are expected to be minor and limited. Although a few individuals may experience long-term impacts and potential mortality, population-level impacts are not expected, and explosives will not have a significant adverse effect on populations of migratory bird species. • Energy: The number and distribution of training and testing activities using in-water electromagnetic devices under Alternative 2 would differ slightly from Alternative 1; however, the difference is inconsequential and the impacts would be essentially the same as for Alternative 1. The use of high energy lasers under Alternative 2 would be the same as under Alternative 1; therefore, impacts would be the same. • Physical Disturbance and Strikes: Under Alternative 2, potential impacts to birds or bats resulting from training and testing activities would be slightly greater but would still be inconsequential due to the relatively small number of individuals affected and the lack of population-level effects. • Entanglement: Under Alternative 2, increases in sonobuoy component release and the number of decelerators/parachutes that would be expended would proportionally increase the possibility of entanglement relative to Alternative 1. However, the likelihood of injury or mortality is still considered negligible, and the potential impacts from Alternative 2 activities would be the same as for Alternative 1. • Ingestion: Activities under Alternative 2 would generate the same types of ingestible materials generated under Alternative 1. While the quantities and locations of some expended materials would change slightly, the vast majority would be the same as under Alternative 1. Therefore, the implementation of Alternative 2 would have similar impacts to those of training and testing activities under Alternative 1. • Secondary Stressors: Potential impacts from secondary stressors under Alternative 2 would be the same as Alternative 1.
Section 3.10-Cultural Resources	The Navy considered all potential stressors that cultural resources could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities. Baseline conditions of the existing environment would either remain unchanged or would improve slightly after cessation of ongoing training and testing activities. **Alternative 1 (Preferred Alternative):** • Explosive: Explosive stressors resulting from underwater explosions creating shock waves and cratering of the seafloor would not result in adverse effects to known submerged cultural resources. Therefore, no submerged cultural resources are expected to be affected. • Physical Disturbance and Strikes: Physical disturbance and strike stressors resulting from in water devices, military expended materials, seafloor devices, pile driving, and vibration from sonic booms during training and testing activities would not result in

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.10-Cultural Resources (continued)	adverse effects to known or unknown submerged cultural resources. Therefore, no submerged cultural resources are expected to be affected. **Alternative 2:** • Explosive: Under Alternative 2, training activities (including the use of explosives) would remain the same as those described under Alternative 1; therefore, potential impacts are expected to be the same as Alternative 1. • Physical Disturbance and Strikes: Under Alternative 2, the number of training activities using in-water devices is the same as under Alternative 1; therefore, potential impacts are expected to be the same as Alternative 1.
Section 3.11 – Socioeconomic Resources	The Navy considered all potential stressors that socioeconomics could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, training and testing activities associated with the Proposed Action will not be conducted within the AFTT Study Area. Therefore, training and testing activities would not limit accessibility to air and sea space (although other Navy activities would still use established ranges, warning areas, and danger zones), generate airborne noise, or cause physical disturbances and strikes. No impacts on socioeconomic resources from these stressors would occur. Ceasing the proposed training and testing activities may reduce the number and types of jobs available in locations where the Navy is a vital or even the primary economic driver sustaining local communities. The secondary effects from reducing personnel who support Navy training and testing activities could include a decline in local business and a decrease in the need for infrastructure, such as schools. If jobs are relocated, a smaller population may no longer be able to sustain the local economy that developed to support the larger population. While more complex studies at the local level would need to be conducted to quantify potential socioeconomic impacts from ceasing training and testing activities, it is highly likely that many coastal communities would be impacted to varying degrees. **Alternative 1 (Preferred Alternative)** • Accessibility: Limits on accessibility to marine areas used by the public (e.g., fishing areas) in the Navy training and testing areas would be temporary and of short duration (hours). Restrictions would be lifted, and conditions would return to normal upon completion of training and testing activities. Minimal impacts on commercial and recreational fishing and tourism may occur; however, limits on accessibility would not result in a direct loss of income, revenue or employment, resource availability, or quality of experience. No impacts on sources for energy production and distribution, mineral extraction, commercial transportation and shipping, and aquaculture are anticipated. • Airborne Acoustics: Because the majority of Navy training and testing activities are conducted far from where tourism and recreational activities are concentrated, the impact of they are in the general vicinity of airborne noise would be negligible. The public may intermittently hear noise from transiting ships or aircraft overflights if a training or testing activity, but these occurrences would be infrequent. The infrequent exposure to airborne noise would not result in a direct loss of income, revenue or employment, resource availability, or quality of experience. No impacts on sources for energy production and distribution, mineral extraction, commercial transportation and shipping, and aquaculture are anticipated.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.11 – Socioeconomic Resources (continued)	• Physical Disturbance and Strikes: Because the majority of Navy training and testing activities are conducted farther from shore than where most recreational activities are concentrated, the potential for a physical disturbance or strike affecting recreational fishing or tourism is negligible. In locations where Navy training or testing occurs in nearshore areas (e.g., pierside), the Navy coordinates with civilian organizations to assure safe and unimpeded access and use of those areas. Based on the Navy's standard operating procedures and the large expanse of the testing and training ranges, the likelihood of a physical disturbance or strike disrupting sources for energy production and distribution, mineral extraction, commercial transportation and shipping, commercial and recreational fishing, aquaculture, and tourism would be negligible. Therefore, direct loss of income, revenue or employment, resource availability, or quality of experience would not be expected. **Alternative 2:** • Accessibility: Limits on accessibility to marine areas used by the public could increase under Alternative 2 due to an increase in some training and testing activities. However, the difference in potential impacts to access would be inconsequential. • Airborne Acoustics: The number of activities that could generate airborne noise detectable by the public would increase under Alternative 2. However, the difference in acoustic impacts would be inconsequential. • Physical Disturbance and Strike: Under Alternative 2, potential physical disturbance and strike impacts associated with training and testing activities would be similar to those discussed for activities under Alternative 1. There would be a very small increase in vessel and in-water device use in the Study Area. However, the difference would not result in substantive changes to the potential for or types of impacts.
Section 3.12 – Public Health and Safety	The Navy considered all potential stressors that public health and safety could be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives: **No Action Alternative:** • Under the No Action Alternative, the Navy would not conduct the proposed training and testing activities in the AFTT Study Area. There would be no appreciable change in potential impacts on public health and safety under the No Action Alternative, as these activities (currently or as proposed) would be unlikely to affect public health and safety. However, diminished military readiness under the No Action Alternative would adversely affect public health and safety. **Alternative 1 (Preferred Alternative):** • In-Water Energy: Because of the Navy's standard operating procedures, impacts on public health and safety would be unlikely. • In-Air Energy: Because of the Navy's standard operating procedures, impacts on public health and safety would be unlikely. • Physical Interactions: Because of the Navy's standard operating procedures, impacts on public health and safety would be unlikely. • Secondary Stressors (sediments and water quality): Because water and sediment quality impacts would be minimal and temporary, and the Navy would not exceed state or federal water quality standards, impacts on public health and safety would be unlikely.

Table ES.5-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)

Resource Category	*Summary of Impacts*
Section 3.12 – Public Health and Safety (continued)	**Alternative 2:** • In-Water Energy: sonar and explosives would occur in the same locations and the Navy would implement standard operating and safety procedures. Therefore, potential for impacts on public health and safety would be the same as Alternative 1. • In-Air Energy: electromagnetic energy and lasers training and testing activities occur in the same locations and numbers as described under Alternative 1. Therefore, potential impacts on public health and safety would ne same as Alternative 1. • Physical Interactions: the Navy would increase the number of, and adjust the locations of some at-sea training and testing activities. The Navy would implement standard operating procedures, and therefore, the potential for impacts on public health and safety would the same as Alternative 1. • Secondary Stressors (sediments and water quality): Potential impacts to water quality would be temporary and minimal, same as Alternative 1.

The majority of platforms, weapons and systems that were proposed for testing during the 2013-2018 timeframe are the same or very similar to those proposed for testing in the future. However, the Navy projects testing of some platforms, weapons and systems will increase, while others will decrease, as compared to the testing requirements that were proposed for the 2013-2018 timeframe. In comparison, the Navy is projecting a net increase in testing systems that use sonar and a net decrease for explosives use, as proposed under Alternative 1, of this EIS/OEIS.

ES.5.2 ACOUSTIC AND EXPLOSIVE ANALYSIS

Improvements have been made to modeling explosive sources to optimize the analysis process and data handling. Statistical variability in the abundance of marine species were added to the marine species distribution process. The availability of additional systematic survey data as well as improvements to habitat modeling methods used to estimate species density resulted in substantial improvements to the species distribution. Marine species criteria and thresholds were also updated based on NMFS marine mammal criteria for permanent and temporary threshold shift for sonar and other transducers, pile driving, air guns and explosives. The Navy also used the best available science from the large number of behavioral response studies that have been conducted to-date to develop updated behavioral response functions.

ES.6 CUMULATIVE IMPACTS

Cumulative impacts were analyzed for each resource addressed in Chapter 3 (Affected Environment and Environmental Consequences) for the Action Alternatives in combination with past, present, and reasonably foreseeable future actions. Analysis was not separated by Alternative because the data available for the cumulative effects analysis was mostly qualitative in nature and, from a landscape-level perspective, these qualitative impacts are expected to be generally similar.

In accordance with Council on Environmental Quality guidance (Council on Environmental Quality 1997), the cumulative impacts analysis focused on impacts that are “truly meaningful.” The level of analysis for each resource was commensurate with the intensity of the impacts identified in Chapter 3 (Affected Environment and Environmental Consequences).

ES.6.1 PROJECT AND OTHER ACTIVITIES ANALYZED FOR CUMULATIVE IMPACTS

Cumulative analysis includes consideration of past, present, and reasonably foreseeable future actions. For past actions, the cumulative impacts analysis only considers those actions or activities that have had ongoing impacts that may be additive to impacts of the Proposed Action. Likewise, present and reasonably foreseeable future actions selected for inclusion in the analysis are those that may have effects additive to the effects of the Proposed Action as experienced by specific environmental receptors.

The cumulative impacts analysis is not bounded by a specific future timeframe. The Proposed Action includes general types of activities addressed by this EIS/OEIS that are expected to continue indefinitely, and the associated impacts could occur indefinitely. Likewise, some reasonably foreseeable future actions and other environmental considerations addressed in the cumulative impacts analysis are expected to continue indefinitely (e.g., oil and gas production, maritime traffic, commercial fishing). While Navy training and testing requirements change over time in response to world events, it should be recognized that available information, uncertainties, and other practical constraints limit the ability to analyze cumulative impacts for the indefinite future.

ES.6.2 RESOURCE-SPECIFIC CUMULATIVE IMPACT CONCLUSIONS

In accordance with Council on Environmental Quality guidance (Council on Environmental Quality, 1997), the following cumulative impacts analysis focuses on impacts that are "truly meaningful." The level of analysis for each resource is commensurate with the intensity of the impacts identified in Chapter 3 (Affected Environment and Environmental Consequences) and/or the level to which impacts from the Proposed Action are expected to mingle with similar impacts from existing activities. A full analysis of potential cumulative impacts is provided for marine mammals and reptiles. Rationale is also provided for an abbreviated analysis of the following resources: air quality, sediments and water quality, vegetation, invertebrates, habitat, fishes, birds and bats, cultural resources, socioeconomics, and public health and safety.

ES.6.2.1 AIR QUALITY

The majority of emissions resulting from the Proposed Action would be released outside of state waters and would quickly disperse in the ocean environment. These emissions would largely disperse rather than concentrate due to meteorological and air chemistry processes, and these emissions could mix with emissions from other vessel traffic and oil and gas production activities. Additionally, activities occurring in state waters would likely impact onshore areas to a greater extent than more distant activities. The incremental additive impacts from combined emissions occurring beyond state water boundaries would be minor, localized, intermittent, and unlikely to contribute to future degradation of the ocean atmosphere in a way that would harm ocean ecosystems or nearshore communities. Thus, based on the analysis presented in Section 3.1 (Air Quality) and given the meteorology of the Study Area, the frequency and isolation of proposed training and testing activities (Tables 2.6-1 through 2.6-4), and the quantities of expected emissions, it is anticipated that the incremental contribution of the Proposed Action beyond state waters, when added to the impacts of all other past, present and reasonably foreseeable future actions will not result in measurable additional impacts on air quality in the Study Area or beyond.

Activities occurring within state waters can be considered as localized with greater frequency and higher probability of combining with past, present and reasonably foreseeable future actions in and adjacent to the areas where the training or testing activity is occurring. With the exception of areas around Jacksonville, Florida where training would occur on the St. Johns River and Naval Station Mayport, these areas are all in attainment. The Jacksonville (Florida)-Brunswick (Georgia) Interstate Air Quality Control Region currently contains a small area designated as nonattainment for sulfur dioxide. An analysis of the emissions from the Proposed Action activities occurring in the Jacksonville, Florida area demonstrated that emissions are well below General Conformity thresholds (Section 3.1 Air Quality). It is anticipated that the incremental contribution of the Proposed Action in the state waters in the Jacksonville, Florida area, when added to the impacts of all other past, present and reasonably foreseeable future actions, would not result in measurable additional impacts on air quality in the Jacksonville (Florida)-Brunswick (Georgia) Interstate Air Quality Control Region. A Record of Non Applicability for Clean Air Act Conformity was prepared and is included in Appendix C, Air Quality Emissions Calculations and Record of Non-Applicability.

The area of greatest emissions in state waters is near the Virginia Capes Operational Area, specifically in the lower Chesapeake Bay, the York River, the James River, and their attendant tributaries. Training activities using small riverine boats and other vessels in this area were not analyzed in prior NEPA documents and account for approximately 2,600 tons per year of nitrogen oxide emissions. This represents about 21% of nitrogen oxide emissions for non-road and miscellaneous area sources in the

Hampton Roads Intrastate Air Quality Control Region, which covers Isle of Wight, James City, Nansemond, Southampton, and York counties and the cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Portsmouth, Suffolk, Virginia Beach, and Williamsburg (U.S. Environmental Protection Agency, 2016). While the riverine training activities account for a substantial percentage of nonroad emissions in the region, the area is in attainment for all criteria pollutants and the level of activity has not changed appreciably over time. It is anticipated that these emissions, when added to the impacts of all other past, present and reasonably foreseeable future actions, would not result in measurable additional impacts on air quality in the Study Area or beyond.

ES.6.2.2 SEDIMENTS AND WATER QUALITY

It is possible that Navy stressors would combine with non-Navy stressors, particularly in nearshore areas and bays, such as Narragansett Bay or the Lower Chesapeake Bay, to exacerbate already impacted sediments and water quality. Although impacts may temporarily intermingle with other inputs in areas with degraded existing conditions, most of the Navy impacts to water quality and turbidity are expected to be negligible, isolated, and short-term, with disturbed sediments and particulate matter quickly dispersing within the water column or settling to the seafloor and turbidity conditions returning to background levels. The Proposed Action could incrementally contribute persistent metal and plastic materials primarily to the offshore ocean ecosystems. However, these relatively minute concentrations of Navy stressors are not likely to combine with other past, present, or reasonably foreseeable activities in a way that would cumulatively threaten the water and sediment quality within the Study Area.

ES.6.2.3 VEGETATION

The effects of other past, present, and reasonably foreseeable actions on vegetation occur primarily in the coastal and inshore waters and are associated with coastal development, maritime commerce, and the discharge of sediment and other pollutants. The Proposed Action is not expected to substantially contribute to losses of vegetation that would interfere with recovery in these regions. The incremental contribution of the Proposed Action would be insignificant as most of the proposed activities would occur in the open ocean and other areas where seagrasses and other attached marine vegetation do not grow; impacts would be localized; recovery would occur quickly; and none of the alternatives would compound impacts that have been historically significant to marine vegetation (loss of habitat due to development; nutrient loading; shading; turbidity; or changes in salinity, pH, or water temperature). Although vegetation is impacted by stressors throughout the Study Area, the Proposed Action is not likely to incrementally contribute to population- or ecosystem-level changes in the resource, and it is anticipated that the incremental contribution of the Proposed Action when added to the impacts of all other past, present and reasonably foreseeable future actions would not result in measurable additional impacts on vegetation in the Study Area or beyond.

ES.6.2.4 INVERTEBRATES

Although marine invertebrates are impacted by other stressors in the ocean environment, the Proposed Action is not likely to incrementally contribute to population-level stress and decline of the resource. As impacts would be isolated, localized, and not likely to overlap with other relevant stressors, it is anticipated that the incremental contribution of the Proposed Action when added to the impacts of all other past, present and reasonably foreseeable future actions would not result in measurable additional impacts on invertebrates in the Study Area or beyond.

ES.6.2.5 HABITATS

Although it is anticipated that damage to abiotic soft bottom habitat resulting from the Proposed Action would be limited and would recover, many other activities in the ocean are also impacting ocean bottom habitat. However, it is not likely that past, present, and future impacts would overlap Proposed Action activities in place or time before the craters or other impressions in soft bottom substrate fill in. Based on the analysis presented in Section 3.5 (Habitats) and the reasons summarized above, it is anticipated that the incremental contribution of the Proposed Action, when added to the impacts of all other past, present and reasonably foreseeable future actions, would not result in measurable additional impacts on habitats, including National Marine Sanctuaries, in the Study Area or beyond.

ES.6.2.6 FISHES

The aggregate impacts of past, present, and other reasonably foreseeable future actions contributing multiple water quality, noise, and physical risks to fishes will likely continue to have significant effects on individual fishes and fish populations. However, Navy training and testing activities are generally isolated from other activities in space and time and the majority of the proposed training and testing activities occur over a small spatial scale relative to the entire Study Area, have few participants, and are of a short duration. Thus, although it is possible that the Proposed Action could contribute incremental stressors to a small number of individuals, which would further compound effects on a given individual already experiencing stress, it is not anticipated that the Proposed Action has the potential to put additional stress on entire populations. Therefore, it is anticipated that the incremental contribution of the Proposed Action, when added to the impacts of all other past, present and reasonably foreseeable future actions, would not result in measurable additional significant impacts on fishes in the Study Area or beyond.

ES.6.2.7 MARINE MAMMALS

The aggregate impacts of past, present, and other reasonably foreseeable future actions continue to have significant impacts on some marine mammal species in the Study Area. The Proposed Action could contribute incremental stressors to individuals, which would both further compound effects on a given individual already experiencing stress and, in turn, have the potential to further stress populations, some of which may already be in significant decline or in the midst of stabilization and recovery. However, with the implementation of standard operating procedures reducing the likelihood of overlap in time and space with other stressors and the implementation of mitigation measures reducing the likelihood of impacts, the incremental stressors anticipated from the Proposed Action are not anticipated to be significant.

ES.6.2.8 REPTILES

The aggregate impacts of past, present, and other reasonably foreseeable future actions continue to have significant impacts on all reptile species in the Study Area. The Proposed Action could contribute incremental stressors to individuals, which would further compound effects on a given individual already experiencing stress and, in turn, has the potential to further stress populations in significant decline or recovery efforts thereof. However, with the implementation of standard operating procedures reducing the likelihood of overlap in time and space with other stressors and the implementation of mitigation measures reducing the likelihood of impacts, the incremental stressors anticipated from the Proposed Action are not anticipated to be significant.

ES.6.2.9 BIRDS AND BATS

Although other past, present, and reasonably foreseeable actions individually and collectively cause widespread disturbance and mortality of bird and bat populations across the ocean landscape, the Proposed Action is not expected to substantially contribute to their diminishing abundance, induce widespread behavioral or physiological stress, or interfere with recovery from other stressors. It is anticipated that the incremental contribution of the Proposed Action, when added to the impacts of all other past, present and reasonably foreseeable future actions, would not result in significant impacts on birds and bats in the Study Area or beyond.

ES.6.2.10 CULTURAL RESOURCES

As discussed in Section 3.10 (Cultural Resources), stressors, including explosive and physical disturbance and strike stressors associated with the Proposed Action would not affect submerged prehistoric sites and submerged historic resources in accordance with Section 106 of the National Historic Preservation Act because mitigation measures have been implemented to protect and avoid these resources (Chapter 5, Mitigation). Furthermore, consultation with the appropriate State Historic Preservation Office will continue, as needed, for cultural resources located within state territorial waters (within 3 NM, with the exception of Texas, Puerto Rico, and Florida [Gulf Coast only], which have a 9 NM limit). The Proposed Action is not expected to result in impacts on cultural resources in the Study Area and likewise would not contribute incrementally to cumulative impacts on cultural resources.

ES.6.2.11 SOCIOECONOMICS

The analysis in Section 3.11 (Socioeconomics) indicates that the Proposed Action is not expected to result in impacts to socioeconomic resources in the Study Area and likewise would not contribute incrementally to cumulative socioeconomic impacts.

ES.6.2.12 PUBLIC HEALTH AND SAFETY

All Proposed Actions would be accomplished by technically qualified personnel and would be conducted in accordance with applicable Navy, state, and federal safety standards and requirements. The analysis presented in Section 3.12 (Public Health and Safety) indicates that the Proposed Action is not expected to result in impacts on public health and safety and likewise would not contribute incrementally to or combine with other impacts on health and safety within the Study Area.

ES.6.3 SUMMARY OF CUMULATIVE IMPACTS

The Action Alternatives would contribute incremental effects on the ocean ecosystem, which is already experiencing and absorbing a multitude of stressors to a variety of receptors. In general, it is not anticipated that the implementation of the Proposed Action would have meaningful contribution to the ongoing stress or cause significant collapse of any particular marine resource, but it would further cause minute impacts on resources that are already experiencing various degrees of interference and degradation. It is intended that the mitigation measures described in Chapter 5 (Mitigation) will further reduce the potential impacts of the Proposed Action in such a way that they are avoided to the maximum extent practicable and to ensure that impacts do not become cumulatively significant to any marine resource.

Marine mammals and sea turtles are the primary resources of concern for cumulative impacts analysis, however, the incremental contributions of the Proposed Action are not anticipated to meaningfully contribute to the decline of these populations or interfere with the recovery efforts thereof due to the implementation of standard operating procedures that reduce the likelihood of overlap in time and

space and mitigation measures as described in Chapter 5 (Mitigation) that reduce the likelihood of impacts to both resources.

The aggregate impacts of past, present, and other reasonably foreseeable future actions have resulted in significant impacts on some marine mammal and all sea turtle species in the Study Area; however, the decline of these species is chiefly attributable to other stressors in the environment, including the synergistic effect of bycatch, entanglement, vessel traffic, ocean pollution, and coastal zone development. The analysis presented in Chapter 4 (Cumulative Impacts) and Chapter 3 (Affected Environment and Environmental Consequences) indicate that the incremental contribution of the Proposed Action to cumulative impacts on air quality, sediments and water quality, vegetation, invertebrates, marine habitats, fishes, birds and bats, cultural and socioeconomic resources, and public health and safety would not significantly contribute to cumulative stress on those resources.

ES.7 MITIGATION

The Navy has been mitigating impacts from military readiness activities on environmental and cultural resources throughout areas where it trains and tests for more than two decades. In coordination with the appropriate regulatory agencies, the Navy developed mitigation measures for the Proposed Action that will effectively avoid or reduce potential impacts and that are practical to implement. Chapter 5 (Mitigation) presents full descriptions of mitigation measures to be implemented, discussions of how the Navy developed and assessed each measure, and discussions of measures considered but eliminated.

Mitigation measures that the Navy will implement under the Proposed Action are organized into two categories: procedural mitigation measures and mitigation areas. The Navy will implement procedural mitigation whenever and wherever training or testing activities involving applicable acoustic, explosive, and physical disturbance and strike stressors occur within the Study Area. Procedural mitigation generally involves: (1) the use of one or more trained Lookouts to observe for specific biological resources (e.g., marine mammals, sea turtles) within a mitigation zone (i.e., area around a stressor), (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 certain recommencement conditions have been met. Table ES.7-1 contains a brief summary of the mitigation zones and other procedural mitigation measures that the Navy will implement under the Proposed Action. Additional information on procedural mitigation measures is presented in Section 5.3 (Procedural Mitigation to be Implemented).

Mitigation areas are geographic locations within the Study Area where the Navy will implement mitigation measures to: (1) avoid or reduce 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, to 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. Table ES.7-2 contains a summary of the mitigation areas that the Navy will implement under the Proposed Action. Figure ES-2 displays the mitigation areas in the Study Area. Additional information on mitigation areas is presented in Section 5.4 (Mitigation Areas to be Implemented).

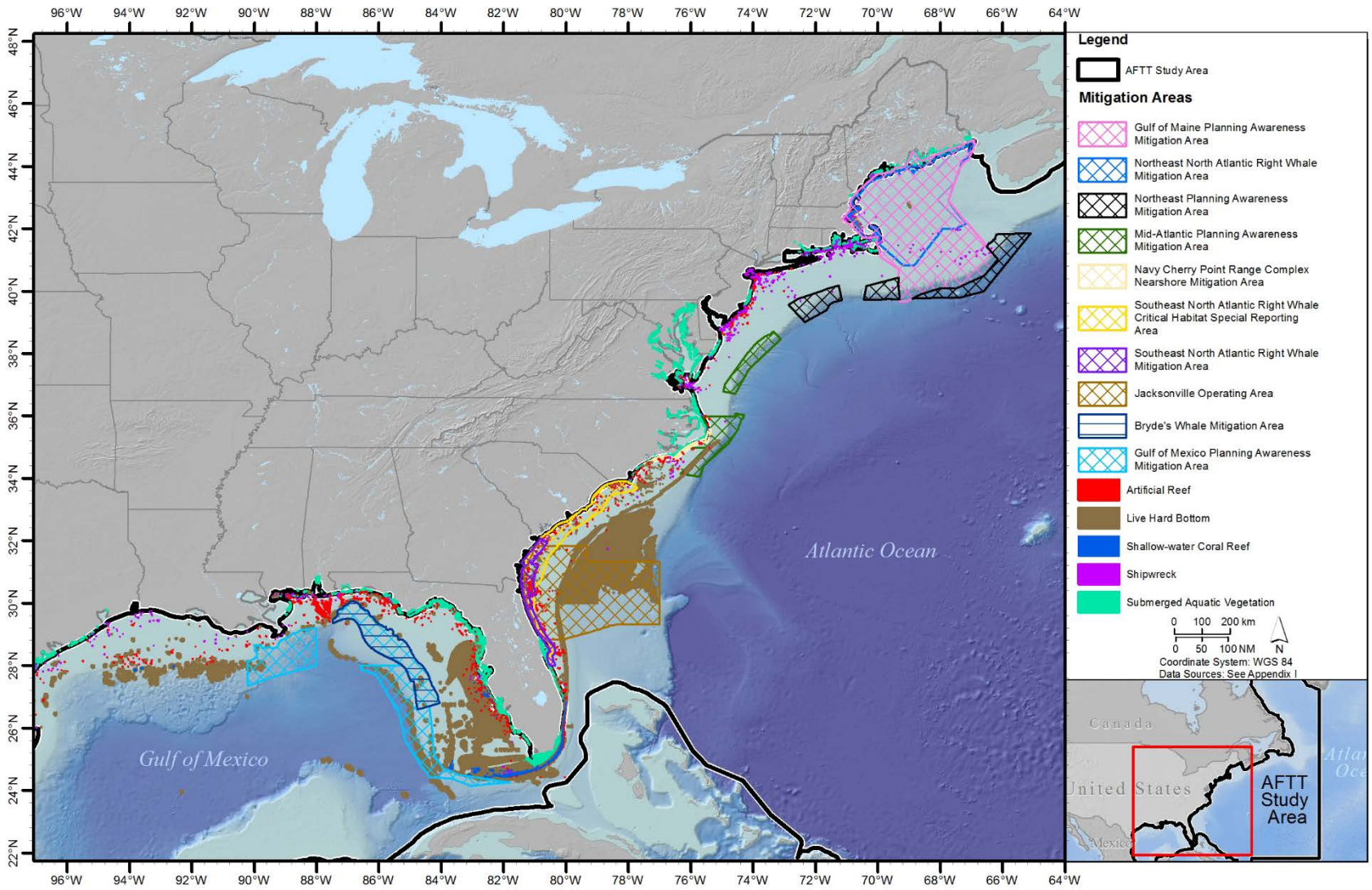
Table ES.7-1: Summary of Procedural Mitigation

Stressor or Activity	*Mitigation Zones Sizes and Other Requirements*	*Protection Focus*
Environmental Awareness and Education	• Afloat Environmental Compliance Training program for applicable personnel	Marine mammals, Sea turtles
Active Sonar	Depending on sonar source: • 1,000 yd. power down, 500 yd. power down, and 200 yd. shut down • 200 yd. shut down	Marine mammals, Sea turtles
Air Guns	• 150 yd.	Marine mammals, Sea turtles
Pile Driving	• 100 yd.	Marine mammals, Sea turtles
Weapons Firing Noise	• 30° on either side of the firing line out to 70 yd.	Marine mammals, Sea turtles
Aircraft Overflight Noise	• Distance from shore in the Virginia Capes Range Complex and Fisherman Island National Wildlife Refuge during explosive mine neutralization activities involving Navy divers (piping plovers and other nesting birds) • Distance from shore in the Dry Tortugas Islands for supersonic flights (Fort Jefferson and roseate terns)	Birds, Cultural resources
Explosive Sonobuoys	• 600 yd.	Marine mammals, Sea turtles
Explosive Torpedoes	• 2,100 yd.	Marine mammals, Sea turtles
Explosive Medium-Caliber and Large-Caliber Projectiles	• 1,000 yd. (large-caliber projectiles) • 600 yd. (medium-caliber projectiles during surface-to-surface activities) • 200 yd. (medium-caliber projectiles during air-to-surface activities)	Marine mammals, Sea turtles
Explosive Missiles and Rockets	• 2,000 yd. (21–500 lb. net explosive weight) • 900 yd. (0.6–20 lb. net explosive weight)	Marine mammals, Sea turtles
Explosive Bombs	• 2,500 yd.	Marine mammals, Sea turtles
Sinking Exercises	• 2.5 NM	Marine mammals, Sea turtles
Explosive Mine Countermeasure and Neutralization Activities	• 2,100 yd. (6–650 lb. net explosive weight) • 600 yd. (0.1–5 lb. net explosive weight)	Marine mammals, Sea turtles
Explosive Mine Neutralization Activities Involving Navy Divers	• 1,000 yd. (21–60 lb. net explosive weight for positive control charges and charges using time-delay fuses) • 500 yd. (0.1–20 lb. net explosive weight for positive control charges)	Marine mammals, Sea turtles
Maritime Security Operations – Anti-Swimmer Grenades	• 200 yd.	Marine mammals, Sea turtles
Line Charge Testing	• 900 yd.	Marine mammals, Sea turtles, Gulf sturgeon
Ship Shock Trials	• 3.5 NM	Marine mammals, Sea turtles
Vessel Movement	• 500 yd. (whales) • 200 yd. (other marine mammals) • Vicinity (sea turtles) • North Atlantic right whale Dynamic Management Area Awareness notification messages	Marine mammals, Sea turtles
Towed In-Water Devices	• 250 yd. (marine mammals) • Vicinity (sea turtles)	Marine mammals, Sea turtles
Small-, Medium-, and Large-Caliber Non-Explosive Practice Munitions	• 200 yd.	Marine mammals, Sea turtles
Non-Explosive Missiles and Rockets	• 900 yd.	Marine mammals, Sea turtles
Non-Explosive Bombs and Mine Shapes	• 1,000 yd.	Marine mammals, Sea turtles

Notes: lb. = pound; NM = nautical miles; yd. = yard

Table ES.7-2: Summary of Mitigation Areas

Summary of Mitigation Area Requirements
Mitigation Areas for Shallow-water Coral Reefs
• The Navy will not conduct precision anchoring (except in designated anchorages), explosive or non-explosive mine countermeasure and neutralization activities, explosive or non-explosive mine neutralization activities involving Navy divers, 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, or explosive or non-explosive bombing or mine laying activities. • The Navy will not place mine shapes, anchors, or mooring devices on the seafloor. • Within the Key West Range Complex, 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, the Navy will implement additional measures for shallow-water coral reefs, such as using real-time positioning and remote sensing information to avoid shallow-water coral reefs during deployment, installation, and recovery of anchors and mine-like objects, and during deployment of bottom-crawling unmanned underwater vehicles.
Mitigation Areas for Live Hard Bottom, Artificial Reefs, Submerged Aquatic Vegetation, and Shipwrecks
• The Navy will not conduct precision anchoring (except in designated anchorages), explosive mine countermeasure and neutralization activities, or explosive mine neutralization activities involving Navy divers, and will not place mine shapes, anchors, or mooring devices on the seafloor. • Within the Key West Range Complex, 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, the Navy will implement additional measures for live hard bottom, such as using real-time positioning and remote sensing information to avoid live hard bottom during deployment, installation, and recovery of anchors and mine-like objects, and during deployment of bottom-crawling unmanned underwater vehicles.
Northeast North Atlantic Right Whale Mitigation Area
• 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. • The Navy will minimize use of active sonar to the maximum extent practicable and will not use explosives that detonate in the water. • 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. • 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.
Gulf of Maine Planning Awareness Mitigation Area
• 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. • The Navy will not conduct major training exercises and will not conduct >200 hours of hull-mounted mid-frequency active sonar per year.
Northeast Planning Awareness Mitigation Areas and Mid-Atlantic Planning Awareness Mitigation Areas
• The Navy will avoid conducting major training exercises to the maximum extent practicable. • The Navy will not conduct more than four major training exercises per year.
Southeast North Atlantic Right Whale Mitigation Area (November 15 – April 15)
• 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. • The Navy will not use active sonar except as necessary for navigation training, object detection training, and dipping sonar. • The Navy will not expend explosive or non-explosive ordnance. • 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.
Jacksonville Operating Area (November 15 – April 15)
• 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 their visual observation of applicable mitigation zones and to aid in the implementation of procedural mitigation.
Southeast North Atlantic Right Whale Critical Habitat Special Reporting Area (November 15 – April 15)
• The Navy 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.



Notes: AFTT: Atlantic Fleet Training and Testing

Figure ES-2: Summary of Mitigation Areas in the Study Area

ES.8 OTHER CONSIDERATIONS

ES.8.1 CONSISTENCY WITH REGULATORY CONSIDERATIONS

Based on an evaluation of consistency with statutory obligations, the Navy's proposed training and testing activities would not conflict with the objectives or requirements of federal, state, regional, or local plans, policies, or legal requirements. The Navy will consult with regulatory agencies as appropriate during the NEPA process and prior to implementation of the Proposed Action to ensure all legal requirements are met.

ES.8.2 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

In accordance with NEPA, this EIS/OEIS provides an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. The Proposed Action may result in both short- and long-term environmental effects. However, the Proposed Action would not be expected to result in any impacts that would reduce environmental productivity, permanently narrow the range of beneficial uses of the environment, or pose long-term risks to health, safety, or the general welfare of the public.

ES.8.3 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

For the alternatives including the Proposed Action, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary or, if long lasting, are negligible. No habitat associated with threatened or endangered species would be lost as result of implementation of the Proposed Action. Since there would be no building or facility construction, the consumption of materials typically associated with such construction (e.g., concrete, metal, sand, fuel) would not occur. Energy typically associated with construction activities would not be expended and irreversibly lost.

Implementation of the Proposed Action would require fuels used by aircraft and vessels. Since fixed- and rotary-wing flight and ship activities could increase, relative total fuel use could increase. Therefore, if total fuel consumption increased, this nonrenewable resource would be considered irretrievably lost.

ES.8.4 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL OF ALTERNATIVES

Resources that will be permanently and continually consumed by project implementation include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. Prevention of the introduction of potential contaminants is an important component of standard procedures followed by the Navy. To the extent practicable, considerations in the prevention of introduction of potential contaminants are included.

Sustainable range management practices are in place that protect and conserve natural and cultural resources and preserve access to training areas for current and future training requirements while addressing potential encroachments that threaten to impact range and training area capabilities.

ES.9 PUBLIC INVOLVEMENT

The first step in the NEPA process for an EIS is to prepare a Notice of Intent to develop an EIS. The Navy published a Notice of Intent for this EIS/OEIS in the Federal Register and several newspapers on November 12, 2015. In addition, Notice of Intent and Scoping Notification Letters were distributed to

federal, state, and local elected officials and government agencies. The Notice of Intent provided an overview of the Proposed Action and the scope of the EIS/OEIS, and initiated the scoping process.

ES.9.1 SCOPING PROCESS

Scoping is an early and open process for developing the "scope" of issues to be addressed in an EIS and for identifying significant issues related to a proposed action. During scoping, the public helps define and prioritize issues by providing comments.

Notice of Intent and Scoping Notification letters were distributed at the beginning of the scoping period (November 12, 2015) to federally recognized tribes; state-elected officials; and federal, regional, and state agencies. On the same day, postcards were mailed to 647 recipients on the project mailing list, including individuals, non-profit organizations, and for-profit organizations. The postcards provided information on the Proposed Action, methods for commenting, and the project website address to obtain more information.

To announce the scoping period, advertisements were placed in twenty-three newspapers throughout the AFTT Study Area. The advertisements included a description of the Proposed Action, the address of the project website, the duration of the comment period, and information on how to provide comments.

A project video was developed to support the scoping phase and provide information to the public on the types of training and testing the Navy conducts and its importance. The project video was uploaded to the project website.

ES.9.2 SCOPING COMMENTS

The Scoping comments could be submitted via the project website or by mail. The Navy received comments from Federal Agencies, State Agencies, Non-governmental Organizations, individuals and community groups. A total of 72 scoping comments were received. The comments requested the Navy analyze environmental issues from physical and biological resources, such as sonar impacts on marine mammals, to human resources, such as public health and safety. A sampling of some of the specific concerns follows.

- A True No Action Alternative Analysis
- Time-Area Management and Mitigation Areas
- Cumulative Impact Analysis
- Range of Alternatives
- Impacts of Training and Testing to Marine Mammals
- Impacts of Training and Testing to Marine Life

ES.9.3 PUBLIC COMMENTS

A Notification of the availability of the AFTT Draft EIS/OEIS for public review and comment was posted in the Federal Register on June 29, 2017. In addition, stakeholder letters were sent to Federal Agencies, State Agencies, Non-governmental Organizations, individuals and community groups. The letters provided a description of the Proposed Action, address of the project website, duration of the comment period, and information on the public meetings. A Notification of Availability of the AFTT Draft EIS/OEIS and public meetings advertisements were placed in twenty-three newspapers located throughout the AFTT study areas. Additional public efforts included the development of six informational videos that

were developed and posted on the project website (www.aftteis.com), mailing of more than 500 postcards, six press releases, and five public meetings. Electronic copies of the AFTT Draft EIS/OEIS were also provided to 29 public libraries located throughout the AFTT study area. Comments were received via public comment meetings, internet, and mail from 7 federal agencies, 31 state agencies, 7 local/regional government agencies, 5 non-governmental organizations, 2 tribal governments, 1 commercial group, and 63 private individuals.

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