Final
Supplemental 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 (including both the U.S. Navy and the U.S. Marine Corps) in cooperation with the U.S. Coast Guard as a Joint Lead Agency (hereinafter jointly referred to as the Action Proponents) have prepared this Supplement to the 2018 *Final Atlantic Fleet Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement* (EIS/OEIS) (U.S. Department of the Navy, 2018) (hereinafter referred to as the 2018 Final EIS/OEIS).

The Action Proponents propose to conduct training activities and research, development, testing, and evaluation (hereinafter referred to as "testing") activities in the Atlantic Fleet Training and Testing Study Area (Figure ES-1). Training and testing activities, also referred to as "military readiness activities," prepare the Action Proponents to fulfill their mission to protect and defend the United States and its allies, but have the potential to affect the environment. The Study Area includes areas of the western Atlantic Ocean along the east coast of North America, Gulf of America (formerly Gulf of Mexico)[1], and portions of the Caribbean Sea. It also includes Navy and Coast Guard pierside locations and port transit channels, bays, harbors, inshore waterways, and civilian ports where training and testing activities occur as well as transits between homeports and operating areas.

ES.2 PURPOSE AND NEED

The Action Proponents and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) (as a cooperating agency under the provisions of the National Environmental Policy Act [NEPA]) have coordinated from the outset and have developed this document to meet each agency's separate and distinct obligations and to support the independent decision making of all agencies. The purpose of the Proposed Action is to ensure the U.S. Naval Services, including the Coast Guard, are able to organize, train, and equip service members and personnel to meet their respective national defense missions as prescribed by Congress. This mission is achieved in part by conducting military readiness activities within the Study Area in accordance with established Department of the Navy military readiness requirements.

The Action Proponents have submitted a request to NMFS for several authorizations to "take" marine mammals incidental to military readiness activities in the Study Area to comply with the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). The purpose of the NMFS action is to evaluate the Action Proponents' request for authorizations to take marine mammals, pursuant to section 101(a)(5)(A) of the Marine Mammal Protection Act (16 United States Code [U.S.C.] 1371) and its implementing regulations administered by NMFS, and decide whether to promulgate regulations and issue Letters of Authorization, including any conditions necessary to meet the statutory mandates of the MMPA. NMFS needs to render a decision regarding the request for authorization due to NMFS' responsibilities under the MMPA and its implementing regulations.

[1] On January 20, 2025, the President of the United States issued Executive Order (EO) 14172 *Restoring Names that Honor American Greatness*, which renamed the "Gulf of Mexico" to the "Gulf of America." Consistent with EO 14172, prior references to the Gulf of Mexico have been changed to the Gulf of America. Likewise, references to the Gulf of Mexico (GOMEX) Range Complex (RC) have been changed to "Gulf Range Complex." The locations and descriptions of these geographic areas remain unchanged.

ES.3 SCOPE AND CONTENT

In this Supplemental EIS/OEIS, the Action Proponents have analyzed military readiness activities that could potentially affect human and natural resources, especially marine mammals, sea turtles, and other marine resources. Since the completion of the 2018 Final EIS/OEIS, the best available science has been updated, the regulatory environment has changed, the Study Area has changed, and the Proposed Action has been refined. All of this has been incorporated into this Supplemental EIS/OEIS analysis.

NMFS special expertise and authorities are based on their responsibilities under section 101(a)(5)(A) of the MMPA and section 7 of the ESA. Additionally, NMFS is a cooperating agency because the Proposed Action and alternatives involve activities that have the potential to affect protected resources under the agency's jurisdiction and for which they have special expertise, including marine mammals, and threatened and endangered species. NMFS intends to adopt the Final Supplemental EIS/OEIS and issue a separate Record of Decision if, after independent review and analysis, NMFS determines the Final Supplemental EIS/OEIS to be sufficient to support its separate Proposed Action and purpose and need and its decision to promulgate the regulations and issue the requested Letters of Authorizations, if appropriate.

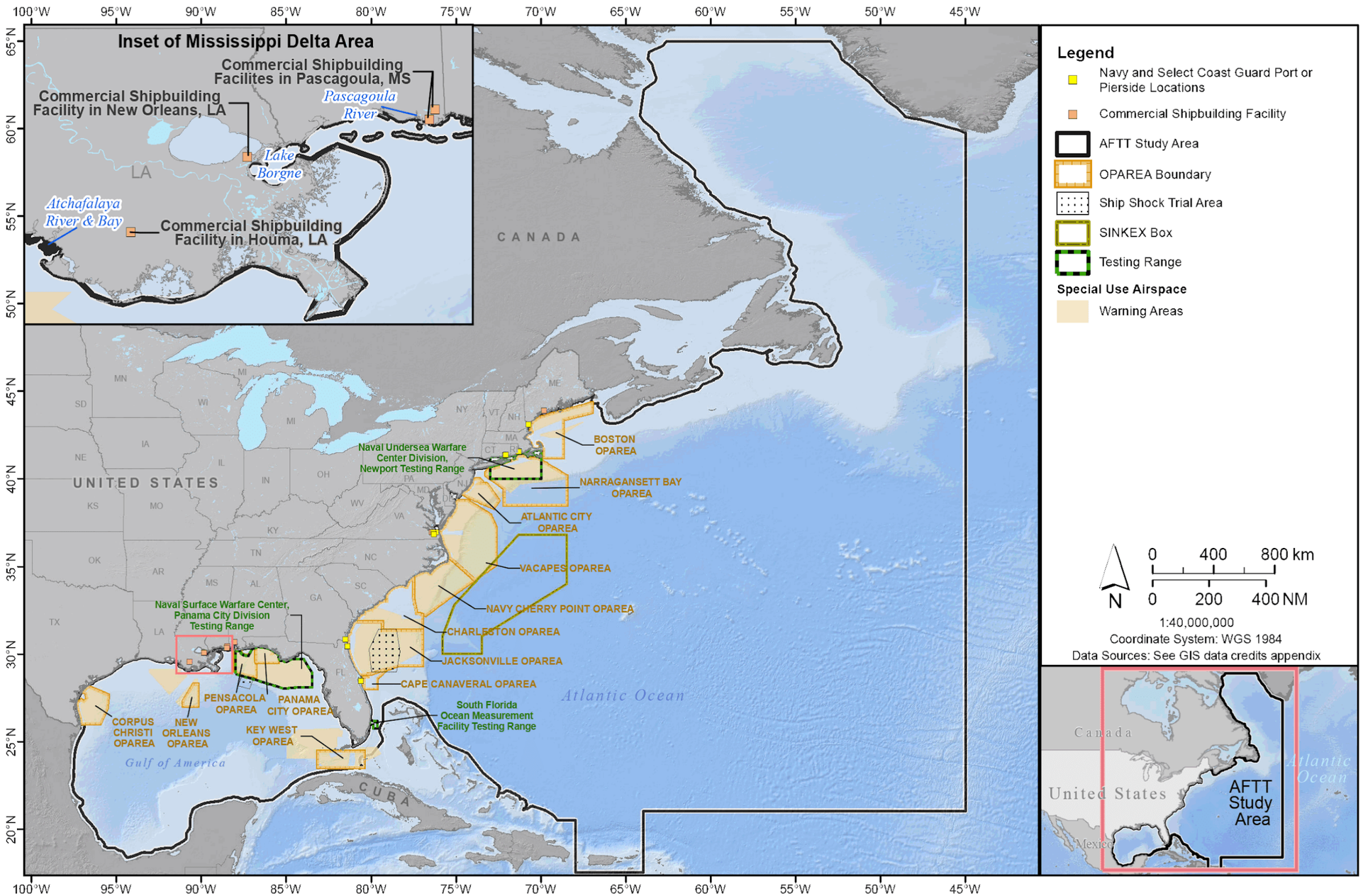
ES.4 PROPOSED ACTION AND ALTERNATIVES

Proposed activities in this Supplemental EIS/OEIS are consistent with those analyzed in the 2018 Final EIS/OEIS and are representative of the activities that the Action Proponents have been conducting in the Study Area for decades.

The range of alternatives considered in this Supplemental EIS/OEIS includes the No Action Alternative and two alternatives to the Proposed Action. This Supplemental EIS/OEIS updates the 2018 analysis of direct, indirect, and cumulative impacts that may result from the Proposed Action. Activities that comprise the Proposed Action are necessary to meet military readiness requirements beyond 2025 and into the reasonably foreseeable future. These activities are analyzed for their potential effects on the environment in the following chapters of this Supplemental EIS/OEIS. The type and level of activities analyzed in this Supplemental EIS/OEIS are described in Appendix A (Activity Descriptions). The Action Proponents submitted a request to NMFS for several authorizations under the MMPA to "take" marine mammals incidental to military training and testing activities in the Study Area. NMFS' issuance of the requested MMPA incidental take authorizations is a major federal action under NEPA (42 U.S.C. 4332). NMFS' Proposed Action is to promulgate regulations and issue Letters of Authorization under the MMPA of 1972, as amended (16 U.S.C. 1361 et seq.) and its implementing regulations, and would be a direct outcome of responding to the Action Proponents' request for incidental take authorizations.

ES.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative analyzed in this Supplemental EIS/OEIS, the Action Proponents would not conduct the proposed military readiness activities in the Study Area. Consequently, the No Action Alternative of not conducting the proposed live, at-sea training and testing in the Study Area is inherently unreasonable in that it does not meet the Action Proponents' purpose and need (see Section 1.4, Purpose and Need). From NMFS' perspective, pursuant to its obligation to grant or deny requests for authorization to take marine mammals under the MMPA, the No Action Alternative involves NMFS denying the Action Proponents' application for incidental take authorizations under section 101(a)(5)(A) of the MMPA. If NMFS were to deny the Action Proponents' application, they would not be authorized to incidentally take marine mammals, and the Navy would not conduct the proposed training and testing activities proposed in the Supplemental EIS/OEIS. Thus, NMFS assumes that there would be no take of marine mammals.



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

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

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ES.4.2 ALTERNATIVE 1

Alternative 1 is the Action Proponents' Preferred Alternative. It reflects a representative year of training and testing to account for the natural fluctuations of training cycles, testing programs, and deployment schedules that generally limit the maximum level of training and testing that could occur in the reasonably foreseeable future.

ES.4.2.1 TRAINING

Under this alternative, the Action Proponents propose to conduct training into the reasonably foreseeable future, as necessary to meet current and future readiness requirements. These training activities include one new activity as well as activities subject to previous analysis that are currently ongoing and have historically occurred in the Study Area. The requirements for the types of activities to be conducted, as well as the intensity at which they need to occur, have been validated by senior Action Proponent leadership. The numbers and locations of all proposed training activities are provided in Table 2.2-1 (Current and Proposed Navy and Marine Corps Training Activities) and Table 2.2-2 (Current and Proposed U.S. Coast Guard Training Activities).

Alternative 1 reflects a representative year of training that (1) accounts for the natural fluctuation of training cycles and deployment schedules that influence the number of Composite Training Unit Exercises that would occur in any 7-year period, and (2) assumes that some unit-level training requirements are met during integrated, coordinated, and major training exercises vice discrete unit-level training events.

Using a representative level of activity rather than a maximum level of training activity in every year reduces the amount of hull-mounted mid-frequency active sonar estimated to be necessary to meet training requirements. But by using this framework, the Action Proponents also accept a degree of risk that if global events necessitated a rapid expansion of military training, they may not have sufficient capacity in their MMPA and ESA authorizations to carry out those training requirements.

ES.4.2.2 TESTING

Under Alternative 1, the Action Proponents propose 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 includes the testing of new platforms, systems, and related equipment that will be introduced beginning in November 2025. The majority of testing activities that would be conducted under this alternative are similar to 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. The numbers and locations of all proposed testing activities are listed in Table 2.2-3 (Naval Air Systems Command Current and Proposed Testing Activities), Table 2.2-4 (Naval Sea Systems Command Current and Proposed Testing Activities), and Table 2.2-5 (Current and Proposed Office of Naval Research Testing Activities).

ES.4.3 ALTERNATIVE 2

ES.4.3.1 TRAINING

Under Alternative 2, the Action Proponents propose to conduct military readiness activities to meet current and future readiness requirements by (1) conducting a total of four carrier strike group Composite Training Unit Exercises every year, and (2) meeting all unit-level training requirements using dedicated, discrete training events, instead of achieving them in conjunction with integrated, coordinated, and major training exercises as described for Alternative 1. The numbers and locations of

all proposed training activities are listed in Table 2.2-1 (Current and Proposed Navy and Marine Corps Training Activities) and Table 2.2-2 (Current and Proposed U.S. Coast Guard 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 7-year period. This allows for the greatest capacity for the Action Proponents 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.

ES.4.3.2 TESTING

Like Alternative 1, 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 beginning in November 2025. 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 and includes the contingency for augmenting some weapon systems tests in response to potential increased world conflicts. The numbers and locations of all proposed testing activities are listed in Table 2.2-3 (Naval Air Systems Command Current and Proposed Testing Activities), Table 2.2-4 (Naval Sea Systems Command Current and Proposed Testing Activities), and Table 2.2-5 (Current and Proposed Office of Naval Research Testing Activities).

ES.5 SUMMARY OF ENVIRONMENTAL EFFECTS

Environmental effects from the Proposed Action and alternatives have been analyzed for potential impacts to air quality, sediments and water quality, habitats, vegetation, invertebrates, fishes, marine mammals, reptiles, and birds and bats. Cultural resources, socioeconomics, and public health and safety were not carried forward for detailed analysis. See Section 3.0.3.2 (Resources and Issues Eliminated from Further Consideration) for additional information. Table ES-1 provides a summary of the environmental impacts for each alternative.

The majority of platforms, weapons, and systems that use sonar and explosives for training and testing are the same or very similar to those analyzed in the 2018 Final EIS/OEIS. Some platforms, weapons, and systems will increase under the current Proposed Action, while others will decrease. Overall, for training, the Action Proponents project a net decrease in the use of sonar and a slight net increase in the use of explosives. For testing, the Action Proponents project a net increase in the use of sonar and a significant net decrease in the use of explosives.

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

Resource Category	*Summary of Impacts*
All Resources	**No Action Alternative:** • Under the No Action Alternative, training and testing activities associated with the Proposed Action will not be conducted within the Study Area. Under this alternative, there would be no potential for impacts for any resource.
Section 3.1, Air Quality	**Alternative 1 (Preferred Alternative):** • Military readiness activities associated with Alternative 1 would not contribute to an exceedance of an ambient air quality standard or interfere with the attainment of the National Ambient Air Quality Standards at any location within the Study Area. • Alternative 1 would result in minor decreases in greenhouse gas (GHG) emissions within the Study Area compared to those estimated for the Preferred Alternative in the 2018 Final EIS/OEIS. **Alternative 2:** • Military readiness activities associated with Alternative 2 would not contribute to an exceedance of an ambient air quality standard or interfere with the attainment of the National Ambient Air Quality Standards at any location within the Study Area. • Alternative 2 would result in minor decreases in GHG emissions within the Study Area compared to those estimated for the Preferred Alternative in the 2018 Final EIS/OEIS.
Section 3.2, Sediment and Water Quality	**Alternative 1 (Preferred Alternative):** • Explosives and explosives byproducts: Chemical and physical changes to sediment and water quality, as measured by the concentrations of explosives byproduct compounds, would not result in harmful effects on biological resources and habitats. • Metals: The effects of releases from expended material or munitions to sediment and water quality may be measurable within the area adjacent to the metal object, but concentrations would be below applicable regulatory standards or guidelines for adverse effects' levels on biological resources and habitats. • Chemicals and other materials not associated with explosives: Chemical and physical changes to sediment and water quality, as measured by the concentrations of contaminants associated with the expended material, would likely be indistinguishable from conditions at reference locations. **Alternative 2:** • Explosives and explosives byproducts: Impacts to sediment and water quality from releases of explosives and explosives byproducts to the marine environment during military readiness activities under Alternative 2 would be similar to Alternative 1. • Metals: Impacts to sediment and water quality from metals releases to the marine environment during military readiness activities under Alternative 2 would be similar to Alternative 1. • Chemicals and other military not associated with explosives: Impacts to sediment and water quality from releases of chemicals other than explosives and other materials to the marine environment during military readiness activities under Alternative 2 would be similar to Alternative 1.

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

Resource Category	*Summary of Impacts*
Section 3.3, Habitats	**Alternative 1 (Preferred Alternative):** • Explosives: Based on the relative footprint and location of underwater explosives use and impacts, the effects of explosives on abiotic habitats would not result in significant changes in bottom habitat. • Physical disturbance and strike: Based on the relative amount and location of vessels and in-water devices and the general description of impacts, there would be (1) avoidance of artificial structures and hard bottom habitats; (2) quick recovery of soft bottom habitats that would likely be impacted; and (3) the short-term and localized disturbances of the water column (suspended sediment) and substrate (scarring) in very shallow water. Impacts would be negligible. The total bottom area affected by all military expended materials in all training areas would be about 72 and 77 acres annually for training and testing, respectively, representing less than one-thousandth of one percent of available bottom habitat in any range complex. Pile driving impacts would be extremely limited since the number of piles is relatively small and the duration is short term. The activity would also occur in a highly disturbed estuarine habitat with mostly artificial shoreline. The Action Proponents will implement mitigation tailored to reducing the impact of physical disturbance and strike on sensitive habitats. **Alternative 2:** • Explosives: Impacts from explosives in water under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Physical disturbance and strikes: Impacts from vessels and in-water device activities, military expended materials, seafloor devices, and pile driving under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. The increase in bottom area affected from Alternative 1 to 2 for military expended materials is only 0.026 acres.
Section 3.4, Vegetation	**Alternative 1 (Preferred Alternative):** • Explosives: The effects of explosives under Alternative 1 on marine vegetation are not expected to result in detectable changes in growth, survival, or propagation, or result in population-level impacts. • Physical disturbance and strikes: The Action Proponents will implement mitigation tailored to reducing the impact of physical disturbance and strike on sensitive habitats that feature vegetation. The mitigation area restrictions for vegetation are mapped in Section 3.3 (Habitats) because they primarily address impacts on the seafloor habitat of vegetation and other biological resources. **Alternative 2:** • Explosives: Impacts from explosives in water under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Physical disturbance and strikes: Impacts from physical disturbance and strike (vessels and in-water device activities, military expended materials, seafloor devices, and pile driving) on sensitive habitats under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing.

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

Resource Category	*Summary of Impacts*
Section 3.5, Invertebrates	**Alternative 1 (Preferred Alternative):** • Acoustics: Expected impact of noise would be mostly limited to offshore surface layers of the water column where zooplankton, squid, and jellyfish are prevalent at night when training and testing occur less frequently. Invertebrate populations are typically lower offshore, where most training and testing occurs, due to the scarcity of habitat structure and comparatively lower nutrient levels. At nearshore and Study Area inshore locations where occasional pierside sonar, air gun, or pile driving actions occur, the invertebrate communities are relatively resilient and occupy 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. While the greatest potential impacts would be near the detonation locations, the majority of explosive use occurs offshore, where invertebrate populations are generally lower than inshore due to the scarcity of habitat structure and comparatively lower nutrient levels. In addition, relatively few invertebrates occur near the surface during the day, when training and testing activities typically occur. Exceptions to this general pattern occur where explosives are used on the bottom within nearshore or inshore waters on or near sensitive live hard bottom communities that are not mapped or otherwise protected. 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 invertebrate species occur (zooplankton, squid, jellyfish) and mostly at night when actions do not typically occur. Additionally, high-energy lasers have an automatic cutoff safety feature that shuts down the laser if the target is lost. 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. While the greatest potential impacts would be near the location of these activities, the majority of vessel transits and in-water device use occurs offshore, where invertebrate populations are generally lower than inshore due to the scarcity of habitat structure and comparatively lower nutrient levels. In addition, relatively few invertebrates occur near the surface during the day, when training and testing activities typically occur. Exceptions to this general pattern occur for actions taking place within inshore and nearshore waters over primarily soft bottom communities, such as 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. • Entanglement: Invertebrates could be entangled by various expended materials (wires, cables, decelerators/parachutes). While entanglement from expended materials is possible, most of these materials are deposited in offshore areas where invertebrate

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

Resource Category	*Summary of Impacts*
Section 3.5, Invertebrates (continued)	populations are generally lower than inshore due to the scarcity of habitat structure and comparatively lower nutrient levels. The risk of entangling invertebrates is minimized by the typically linear and rigid nature of the expended structures (wires, cables), although decelerators/parachutes have mesh that could pose a risk to those invertebrates that are large and slow enough to be entangled (jellyfish). 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. Accordingly, population-level impacts are unlikely. **Alternative 2:** • Acoustics: Impacts from acoustics under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Explosives: Impacts from explosives in water under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Energy: Impacts from energy (in-water electromagnetic devices and high-energy lasers) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Physical disturbance and strikes: Impacts from physical disturbance and strikes (vessels and in-water device activities, military expended materials, seafloor devices, and pile driving) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. There would be no pile driving associated with testing activities under this alternative. • Entanglement: Impacts from entanglement (wires and cables, decelerators/parachutes, and biodegradable polymers) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Ingestion: Impacts from ingestion (military expended materials – munitions and military expended materials other than munitions) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing.
Section 3.6, Fishes	**Alternative 1 (Preferred Alternative):** • Acoustics: The use of each acoustic substressor (sonar and other transducers, air guns, pile driving, vessel noise, aircraft noise, and weapons noise) could result in impacts on fishes. Some sonars, vessel and weapons noise could result in masking, physiological responses, 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. Each of these substressors would be unlikely to result in temporary

Table ES.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)	threshold shift. Air guns and pile driving have the potential to result in mortality, injury, or hearing loss at very short ranges (tens of meters) in addition to the effects listed above. Most impacts are expected to be temporary and infrequent as most activities involving acoustic stressors would be temporary, localized, and infrequent resulting in short-term, and mild to moderate impacts. More severe impacts (mortality) could lead to permanent effects 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 can cause mortality, injury, hearing loss, masking, physiological stress, or behavioral responses. The time scale of individual explosions is very limited, and military readiness activities involving explosions are dispersed in space and time, therefore, repeated exposure of individuals is unlikely. Most effects such as hearing loss or behavioral responses are expected to be short term and localized. More severe impacts (mortality) could lead to permanent effects 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 that are able to detect electromagnetic properties. The impacts are expected to be temporary, minor, and limited to highly localized areas. Population-level impacts are unlikely. Exposure to energy stressors from military readiness activities would not result in significant impacts to fish. In-air electromagnetic devices are not applicable to fishes because of the lack of transmission of electromagnetic radiation across the air/water interface and the typical distance between fishes and in-air sources. • Physical disturbance and strikes: The use of vessels, in-water devices, military expended materials, and seafloor devices present a risk for collision, stress response, or impacts caused by sediment disturbance, particularly near coastal areas and bathymetric features where fish densities are higher. Most fishes are mobile and have sensory capabilities that enable them to detect and avoid vessels and other items. Behavioral and stress responses would be temporary. Exposure to physical disturbance and strike stressors from military readiness activities would not result in significant impacts to fish. • Entanglement: Fishes could be exposed to multiple entanglement stressors. 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, suggests a 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. Exposure to entanglement stressors from military readiness activities would not result in significant impacts to fish. • Ingestion: Military expended materials from munitions, military expended materials other than munitions, and biodegradable polymers present an ingestion risk to fishes that forage at the surface, in the water column, and on the seafloor. The likelihood that expended items would be ingested and cause an adverse effect would depend on the size and feeding habits of a fish, the rate at which a fish would encounter items, and the composition and physical characteristics of the item. Because of the low

Table ES.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)	numbers of fish potentially impacted by ingestion stressors, population-level impacts are unlikely. Exposure to ingestions stressors from military readiness activities would not result in significant impacts to fish. **Alternative 2:** • Acoustics: Impacts from acoustics (sonar and other transducers, air guns, pile driving, vessel noise, aircraft noise, and weapons noise) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Explosives: Impacts from explosives in water under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Energy: Impacts from energy (in-water electromagnetic devices and high-energy lasers) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Physical disturbance and strikes: Impacts from physical disturbance and strikes (vessels and in-water device activities, military expended materials, seafloor devices, and pile driving) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Entanglement: Impacts from entanglement (wires and cables, decelerators/parachutes, and biodegradable polymers) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions are the same for both training and testing. There would be no use of biodegradable polymers associated with training activities under this alternative. • Ingestion: Impacts from ingestion (military expended materials – munitions and military expended materials other than munitions) under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions are the same for both training and testing.
Section 3.7, Marine Mammals	**Alternative 1 (Preferred Alternative):** • Acoustics: Marine mammals may be exposed to multiple acoustic stressors, including sonars and other transducers (hereafter called sonars), air guns, pile driving, vessel noise, aircraft noise, and weapons noise. The potential for exposure varies for each marine mammal population present in the Study Area. Exposures to sound-producing activities may cause auditory masking, physiological stress, or minor behavioral responses. Exposure to some sonars, air guns, and pile driving may also affect hearing (temporary threshold shift [TTS] or auditory injury [AINJ]) and cause significant behavioral reactions. The number of auditory and significant behavioral impacts are estimated for each stock. Susceptibility to these impacts differs among marine mammal auditory and behavioral groups. Although individual marine mammals would be impacted, no impacts to marine mammal populations are anticipated. • Explosives: The potential for exposure to explosives (in the water or near the water surface) varies for each marine mammal population present in the Study Area. The impulsive, broadband sounds introduced into the marine environment may cause auditory effects (TTS or AINJ), auditory masking, physiological stress, and behavioral responses. Explosions in the water or near

Table ES.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)	the water's surface present a risk to marine mammals located near the explosion, because the resulting shock waves can injure or kill an animal. The number of auditory (TTS and AINJ), non-auditory injury (injury and mortality), and significant behavioral impacts are estimated for each stock. Susceptibility to these impacts differs among marine mammal species and auditory groups. Although individual marine mammals would be impacted, no impacts to marine mammal populations are anticipated. • Energy: 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. Our analysis demonstrates with a high level of certainty that no marine mammals would be struck by a high-energy laser. Energy stressors 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 strikes: Historical data on Action Proponents' ship strike records demonstrate a low occurrence of interactions with marine mammals over the last 15 years. Since the Action Proponents do not anticipate a higher level of vessel use compared to the last decade, the potential for striking a marine mammal remains low. Physical disturbance of marine mammals due to vessel movement and in-water devices may also occur, but any stress response of avoidance behavior would not be severe enough to have long-term fitness consequences for individual marine mammals. Results for each of these physical disturbance and strike stressors suggest 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 military readiness activities are not anticipated. Further, activity-based mitigation would help reduce the potential for impacts from physical disturbance and strike stressors on marine mammals. • Entanglement: Physical characteristics of 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 training and testing activities are not anticipated. • Ingestion: 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 military readiness activities is considered low. Long-term consequences to marine mammal populations from ingestion stressors associated with military readiness activities are not anticipated.

Table ES.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)	**Alternative 2:** • Acoustics: Impacts from acoustics are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. The only difference in sonar and other transducer uses between Alternatives 1 and 2 is that the number of sonar hours used would be greater under Alternative 2. • Explosives: Under Alternative 2, there would be an increase in use of some explosive bins compared to Alternative 1. This would increase impacts to some stocks. Still, impacts from explosives in water under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions are the same for both training and testing. • Energy: Impacts under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Physical disturbance and strikes: Impacts from vessels and in-water device activities, military expended materials, and seafloor device activities under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Entanglement: Impacts from wires and cables, decelerators/parachutes, and biodegradable polymers under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Ingestion: Impacts from military expended materials – munitions and military expended materials other than munitions under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing.
Section 3.8, Reptiles	**Alternative 1 (Preferred Alternative):** • Acoustics: 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, while non-auditory injury, and mortality are unlikely to occur under realistic conditions. Sea turtles would be exposed to acoustic stressors in the nearshore and offshore portions of the Study Area, while crocodilians and terrapins would be exposed at inshore locations. Most activities involving acoustic stressors would be temporary and localized. Effects such as hearing loss or behavioral responses are expected to have a minor to moderate impact on individuals. Overall, long-term consequences for reptile populations are not expected. • 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 death. If further away from the explosion, impulsive, broadband sounds introduced into the marine environment may cause hearing loss, masking, physiological stress, or changes in behavior. Sea turtles would be exposed to explosive stressors in the nearshore and offshore portions of the

Table ES.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)	Study Area, while crocodilians and terrapins would be exposed to explosive stressors at inshore locations. The time scale of individual explosions is very limited, and military readiness activities involving explosions are dispersed in space and time. Effects such as hearing loss or behavioral responses are expected to have a minor to moderate impact on individuals. More severe impacts (e.g., injury and mortality) could lead to permanent effects and have a moderate impact on individuals. Overall, long-term consequences for reptile populations are not expected. • Energy: All life stages of some sea turtles have been documented to orient to Earth's magnetic field for directional swimming, positioning within ocean currents, and imprinting on the magnetic field of their natal beaches when they are hatchlings for when they return to nest at maturity. Crocodilians and terrapins can also detect electromagnetic fields but these species stay predominantly inshore during their lifetime compared to sea turtles. Crocodilian and terrapin directional orientation and natal nesting grounds are likely more reliant on environmental cues (visual, shoreline shape, currents). Use of in-water electromagnetic devices has the potential to mask navigation of reptiles. Because use of these devices would be away from nearshore waters where crocodilians and terrapins may be present, masking is more likely to be a risk for sea turtles. The magnetic fields generated by electromagnetic devices used in military readiness activities are of relatively miniscule strength. Reactions to magnetic fields and electrical pulses may include no reaction, avoidance, habituation, changes in activity level, or attraction, but the range of effects would be small and only occur near the source. High-energy lasers are directed at surface targets and would only impact reptiles very near the surface if the laser missed its target. Because high-energy lasers would only be used in open ocean areas, this stressor is not anticipated to impact crocodilians and terrapins as they would not occur where high-energy lasers are used. The potential for a sea turtle to be struck by a high-energy laser is low because laser platforms are typically helicopters and ships and sea turtles at sea would likely move away or submerge in response to other stressors, such as ship or aircraft noise. It is expected that some sea turtles would not exhibit a response to an oncoming vessel or aircraft, increasing the risk of contact with the laser beam if the target was missed for those individual animals. Due to the relatively small number of individuals that may be affected, population-level impacts are unlikely. • Physical disturbance and strikes: Vessels, in-water devices, military expended materials, and seafloor devices present a risk for collision with reptiles, particularly where densities are higher. Foraging behavior of sea turtle species such as Kemp's ridley and loggerheads that spend extended periods foraging at depth, limits surface time when they would be at most risk of a vessel strike. However, all sea turtles spend time basking and resting on the surface so there is a potential risk of a strike to all sea turtle species. Crocodilians demonstrate avoidance behaviors of vessels in nearshore waters but are at increased risk within narrow channels where avoidance is restricted. Terrapins have been observed to not react at all to approaching vessels which increases their risk of a vessel strike. Most in-water devices, such as unmanned underwater vehicles, move slowly or are closely monitored by observers. However, detecting the presence of reptiles is more difficult than larger marine wildlife. Strike potential by expended materials is statistically small. Materials will slow in their velocity as they approach the bottom of the

Table ES.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)	water so reptiles are likely to avoid the falling material or if awoken, would startle away with a negligible risk of injury. Strike and disturbance of reptiles from seafloor devices is possible but unlikely as they would encounter the seafloor device and avoid it. Because of the low numbers of reptiles potentially impacted by activities that may potentially cause a physical disturbance and strike, population-level effects are unlikely. Further, activity-based mitigation would help reduce the potential for impacts from physical disturbance and strike stressors on reptiles. • Entanglement: Sea turtles could be exposed to multiple entanglement stressors within the inshore and offshore training and testing locations. Entanglement stressors are not anticipated to impact crocodilians or terrapins because activities that expend materials that present a potential entanglement risk would not occur within crocodilian or terrapin habitats. The potential for impacts to sea turtles is dependent on the physical properties of the expended materials and the likelihood that a sea turtle would encounter a potential 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 reptiles and reptile populations from entanglement stressors associated with military readiness activities are not anticipated. • Ingestion: Military readiness activities have the potential to expose reptiles to multiple ingestion stressors and associated impacts within the inshore and offshore training and testing locations. The type of impact depends on the area of operation as well as the military expended items and reptile behaviors, particularly feeding behavior. Sea turtles have been documented to ingest materials such as plastics while foraging and leatherbacks, for example, have been observed mistaking materials like plastic bags for possibly prey species (jellyfish). Crocodilians have the potential to ingest military expended materials and/or military expended materials other than munitions, but ingestion of non-prey items is generally not a concern for these species. Diamondback terrapins, specifically larger mature females, have been documented ingesting non-prey items and thus would be at risk. Adverse impacts from ingestion of military expended materials would be limited to the unlikely event that a reptile would be harmed by ingesting an item that becomes embedded in tissue or is too large to be passed through the digestive system. There are also various ingestion pathways other than direct consumption of materials. This could be through small materials floating in the water, adherence to aquatic vegetation, or trophic transfer by consuming contaminated filter-feeding prey. The likelihood that a reptile would encounter and subsequently ingest a military expended item associated with military readiness activities is considered low and long-term consequences to reptile populations are not anticipated. **Alternative 2:** • Acoustics: Impacts from acoustics are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. The only difference in sonar use between Alternatives 1 and 2 is that the number of sonar hours used would be greater under Alternative 2. • Explosives: Impacts from explosives under Alternative 2 would increase for reptiles but are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing.

Table ES.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)	• Energy: Impacts from in-water electromagnetic devices and high-energy lasers under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Physical disturbance and strikes: Impacts from physical disturbance and strike under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Entanglement: Impacts from wires and cables, decelerators/parachutes, and biodegradable polymer under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Ingestion: Impacts from military expended materials – munitions and military expended materials other than munitions under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing.
Section 3.9, Birds and Bats	**Alternative 1 (Preferred Alternative):** • Acoustics: 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 would not occur. Unlike other mammals, bats are not susceptible to temporary and permanent threshold shifts. Though bats are less likely than birds to be exposed to noise from the proposed activities, because of their infrequent presence above open water, they too may be temporarily displaced during foraging but would return shortly after the noise ceases. Although individual bats may be impacted, population-level impacts would not occur. • Explosives: Birds and bats could be exposed to in-air and underwater explosions. Sounds generated by most small underwater explosions are unlikely to disturb birds or bats above the water surface. However, if a detonation is sufficiently large or is near the water surface, birds and bats above the water surface could be injured or killed. Detonations in air could injure birds or bats while either in flight or birds 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 can result in fish kills, which may attract birds. If this occurred during training or testing where multiple detonations take place, bird mortalities or injuries are possible. 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 would not occur. • 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 while 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 or be injured. Although a small number of individuals may be impacted, no population-level impacts would occur.

Table ES.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 are 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 bats rarely occur in the Study Area compared to birds and because bats are most active from dusk through dawn when training and testing is limited. • Entanglement: Entanglement stressors have the potential to impact birds. However, the likelihood would be 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 occur. Since bats do not occur in the water column and rarely occur at the water surface in the Study Area, no 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 occur. Since bats do not occur in the water column and rarely feed at the water surface in the Study Area, no impacts to bats are anticipated from ingestion stressors. **Alternative 2:** • Acoustics: Impacts under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Explosives: Impacts under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Energy: Impacts under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Physical disturbance and strikes: Impacts under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Entanglement: Impacts under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing. • Ingestion: Impacts under Alternative 2 are not meaningfully different from Alternative 1 and therefore the conclusions for significance are the same for both training and testing.

Notes: AINJ = auditory injury; GHG = greenhouse gas; TTS = temporary threshold shift

ES.6 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 Action Proponents developed mitigation measures to avoid or reduce potential impacts under whichever action alternative is selected. Chapter 5 (Mitigation) presents full descriptions of the activity-based and geographic mitigation requirements, descriptions of the development and assessment processes, and discussions of measures considered but eliminated. Figure ES-2 displays the geographic mitigation areas in the Study Area. Additional information on mitigation areas is presented in Section 5.7 (Geographic Mitigation).

ES.7 PUBLIC INVOLVEMENT

The Navy published a Notice of Intent for this Supplemental EIS/OEIS in the *Federal Register* (88 *Federal Register* 80286) and several newspapers on November 17, 2023. 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 Supplemental EIS/OEIS, and initiated the scoping process. The public comment period on the Draft Supplemental EIS/OEIS began with the issuance of the Notice of Availability and a Notice of Public Meetings in the *Federal Register* (89 *Federal Register* 77113) on September 20, 2024 (Appendix N, Federal Register Notices). Three in-person public meetings were held October 8, 2024, in New Bedford, Massachusetts; October 10, 2024, in Silver Spring, Maryland; and October 16, 2024, in Metairie, Louisiana. Additionally, two virtual public meetings were held on October 22, 2024, and October 24, 2024, and a recording of the October 24 meeting was posted to the project website.

ES.7.1 SCOPING PROCESS

Notice of Intent and Scoping Notification letters were distributed at the beginning of the scoping period (November 17, 2023) to federally recognized tribes; state-elected officials; and federal, regional, and state agencies. On the same day, emails were sent to recipients on the project mailing list, including individuals, non-profit organizations, and for-profit organizations. The email 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 23 newspapers throughout the 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.

ES.7.2 SCOPING COMMENTS

The Action Proponents received comments from federal agencies, state agencies, non-governmental organizations, and individuals. A total of 15 scoping comments were received. The comments provided agency input, urged consideration of protected species, and provided general support for the Proposed Action.

ES.7.3 NOTIFICATION OF AVAILABILITY OF THE DRAFT SUPPLEMENTAL EIS/OEIS

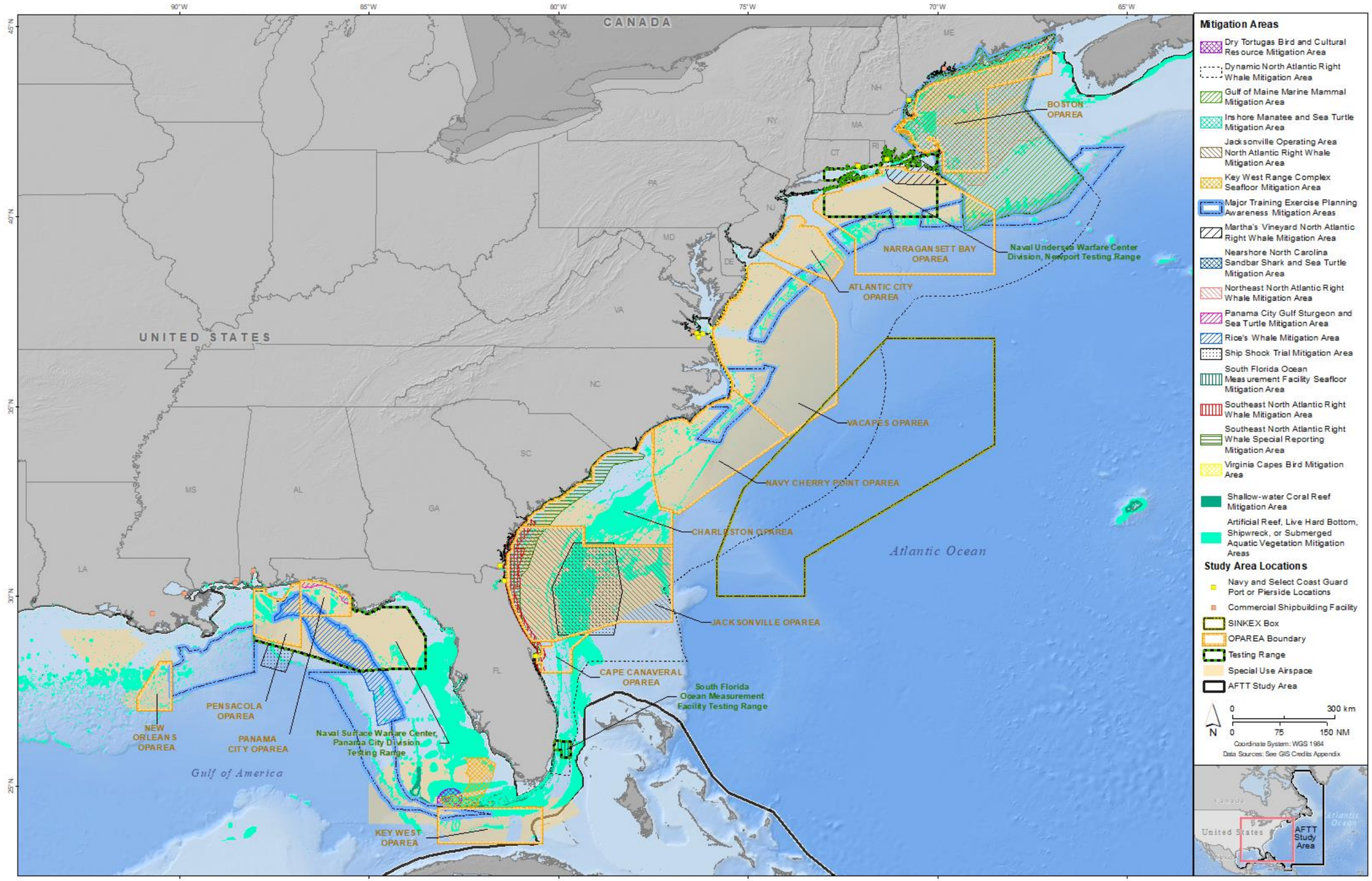
The Draft Supplemental EIS/OEIS was made available on the project website at https://www.nepa.navy.mil/aftteis/. Electronic copies of the Draft Supplemental EIS/OEIS and hard

copies of the Executive Summary were also delivered to 10 libraries (Appendix M, Public Involvement and Distribution, Table M.3-3).

ES.7.4 PUBLIC COMMENTS

Comments on the Draft Supplemental EIS/OEIS were received from three federal agencies, five state agencies, one non-governmental organization, and two private individuals for a total of 11 comment submissions. Substantive comments on the draft were addressed in this final version.

Longer comments were subdivided to address each topic or point raised. See Appendix M, Public Involvement and Distribution, for more details on public comments received and Action Proponent responses.



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

Figure ES-2: Mitigation Areas in the Study Area

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References

U.S. Department of the Navy. (2018). *Atlantic Fleet Training and Testing Final Environmental Impact Statement/Overseas Environmental Impact Statement*. Norfolk, VA: Naval Facilities Engineering Command Atlantic.

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