

**FINAL OVERSEAS ENVIRONMENTAL IMPACT STATEMENT/  
ENVIRONMENTAL IMPACT STATEMENT**

**UNDERSEA WARFARE TRAINING RANGE**

**VOLUME I**

*Lead Agency:*

**Department of the Navy**

*Action Proponent:*

**United States Fleet Forces Command**

*Cooperating Agency:*

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June 26, 2009

# Final Undersea Warfare Training Range Overseas Environmental Impact Statement/ Environmental Impact Statement

## Volume I

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Abstract: This final overseas environmental impact statement/environmental impact statement has been prepared by the Department of the Navy to address the impacts of the installation and operation of the proposed undersea warfare training range. The potentially affected areas of the preferred site (in the Jacksonville Operating Area) and of the alternative sites (within the Charleston, Cherry Point, and Virginia Capes Operating Areas) have been studied to determine how installation of and operation on the proposed undersea warfare training range would affect the marine and landside environments.

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# EXECUTIVE SUMMARY

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The proposed action is to place undersea cables and transducer nodes in a 1,713-square-kilometer (km<sup>2</sup>) (500-square-nautical-mile [NM<sup>2</sup>]) area of the ocean to create an undersea warfare training range (USWTR) for anti-submarine warfare (ASW) training. The ASW training would involve up to three vessels and two aircraft using the range for any one training event, although events would typically involve fewer units. The instrumented area would be connected to the shore via a single trunk cable. The proposed action would require logistical support for ASW training, including the handling (launch and recovery) of exercise torpedoes (non-explosive) and submarine target simulators.

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## ES.1 Purpose of the Proposed Action

The purpose of the proposed action is to enable the U.S. Navy to train effectively in a shallow water environment (37 to 274 meters [m], or 120 to 900 feet [ft], in depth) at a suitable location for Atlantic Fleet ASW capable units. The 37-to-274-m (120-to-900-ft) depth parameter for the range was derived from collectively assessing depth requirements of the platforms that would be using this range, and approximate the water depth of potential areas of conflict that the Navy has identified.

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## ES.2 Need for the Proposed Action

There are four fundamental reasons why the Department of the Navy (DoN) requires an instrumented undersea warfare training range off the east coast of the U.S.:

- **Worldwide Deployment Involving Littoral Conditions.** Atlantic Fleet units deploy worldwide, and shifts in the military strategic landscape require increased naval capability in the world's shallow, or littoral, seas; such as the Arabian Sea, the South China Sea, and the Korean Sea. Training effectively for these shallow littoral environments requires the availability of realistic conditions in which potential combat situations can be adequately simulated.
- **U.S. World Role.** The role of the U.S. in keeping critical sea lanes open makes it imperative that U.S. military forces be the best trained, prepared, and equipped in the world. ASW is a Navy core capability and is a critical part of that mission. The Navy is the only Department of Defense (DoD) service with an ASW responsibility, and must be trained and capable in littoral water operations to assure access for the U.S. and our allies to strategic areas worldwide.
- **Threat of Modern Diesel Submarines.** The current global proliferation of extremely quiet submarines poses a critical threat to the maritime interests of the

U.S. These silent diesel submarines, easily obtainable by potential adversaries, are capable of extended, silent, submerged operations in confined, congested littoral regions where acoustic conditions make detection significantly more challenging than in deep water. These silent vessels can get well within ‘smart’ (i.e., self-guided) torpedo or anti-ship missile range of U.S. forces before there is a likelihood of their being detected by passive sonar “listening.” For this reason, use of, and training with, active sonar is crucial to today’s ASW, U.S. operational readiness, national defense, and homeland security. Such training is critical to our ability to deliver fighting forces overseas and to protect civilians and cargo in transit on the world’s oceans.

- **Mission Readiness and Fulfillment.** The Navy's primary mission is to maintain, train, equip, and operate combat-ready naval forces capable of resolving conflicts, deterring aggression, and maintaining freedom of the seas. Training with the actual sensors and weapons systems aboard their own ship, submarine, or aircraft, in a complex and appropriate operational setting, and with a realistic scenario is key to maintaining Fleet combat readiness and to survival in actual wartime conditions.

Timely and accurate feedback of training performance to exercise participants and the ability to rapidly reconstruct the training event contribute significantly to the quality of this complex training. These capabilities may only be realized through the use of an instrumented, at-sea training range. At present, the only operational Atlantic instrumented training range is located in a deep-water environment, requiring that results be extrapolated to apply to the critically different conditions of shallow water. Doing so requires speculation and interpretation to evaluate crew and equipment performance, reducing the accuracy of the feedback.

The proposed USWTR would provide an environment:

- that is consistent with real-world threat situations.
- where training exercises can be conducted under safe and controlled conditions.
- with critically important real-time feedback that eliminates the need to repeat training events to validate and confirm results.

In addition, Section 5062 of Title 10 of the U.S. Code (USC) contains a legal mandate for such training as would be provided by the proposed range. Title 10 directs the Chief of Naval Operations (CNO) to organize, train, and equip all naval forces for combat. The CNO fulfills this direction by conducting training activities prior to deployment for actual operations.

## ES.3 Preparation of the Final Overseas Environmental Impact Statement/Environmental Impact Statement (Final OEIS/EIS)

The DoN has prepared this final overseas environmental impact statement/environmental impact statement (OEIS/EIS) to assess the potential environmental effects of installing and operating a USWTR offshore of the east coast of the United States. The final OEIS/EIS has been prepared pursuant to:

- National Environmental Policy Act (NEPA) of 1969, which requires a detailed environmental analysis for major federal actions with the potential to significantly affect the quality of the human environment.
- Council on Environmental Quality (CEQ) regulations in 40 Code of Federal Regulations (CFR) Parts 1500 to 1508, which implement the requirements of NEPA.
- Presidential Executive Order (EO) 12114, which requires environmental documentation for *Environmental Effects Abroad of Major Federal Actions*.
- DoD regulations implementing EO 12114: 32 CFR Part 187, *Environmental Effects Abroad of Major Department of Defense Actions*.
- DoN regulations implementing NEPA (32 CFR Part 775).

The provisions of NEPA apply to major federal actions with effects that occur within U.S. territory. *In this final OEIS/EIS, text that describes the effects that occur within U.S. territory is in italicized font.* EO 12114 applies to major federal actions outside the 50 states, territories, and possessions of the U.S., including marine waters seaward of the U.S. territorial seas. The proposed action involves impacts both within and outside U.S. territory; therefore, the document is being prepared as a final OEIS/EIS under the authorities of both NEPA and EO 12114.

In preparation of this final OEIS/EIS, the DoN evaluated alternative sites for the proposed USWTR. Siting of the USWTR offshore of northeastern Florida is the Navy's preferred alternative.

The National Marine Fisheries Service, a part of the National Oceanic and Atmospheric Administration, is a cooperating agency in the preparation of this final OEIS/EIS.

## ES.4 Proposed Action and Alternatives

### ES.4.1 Proposed Action

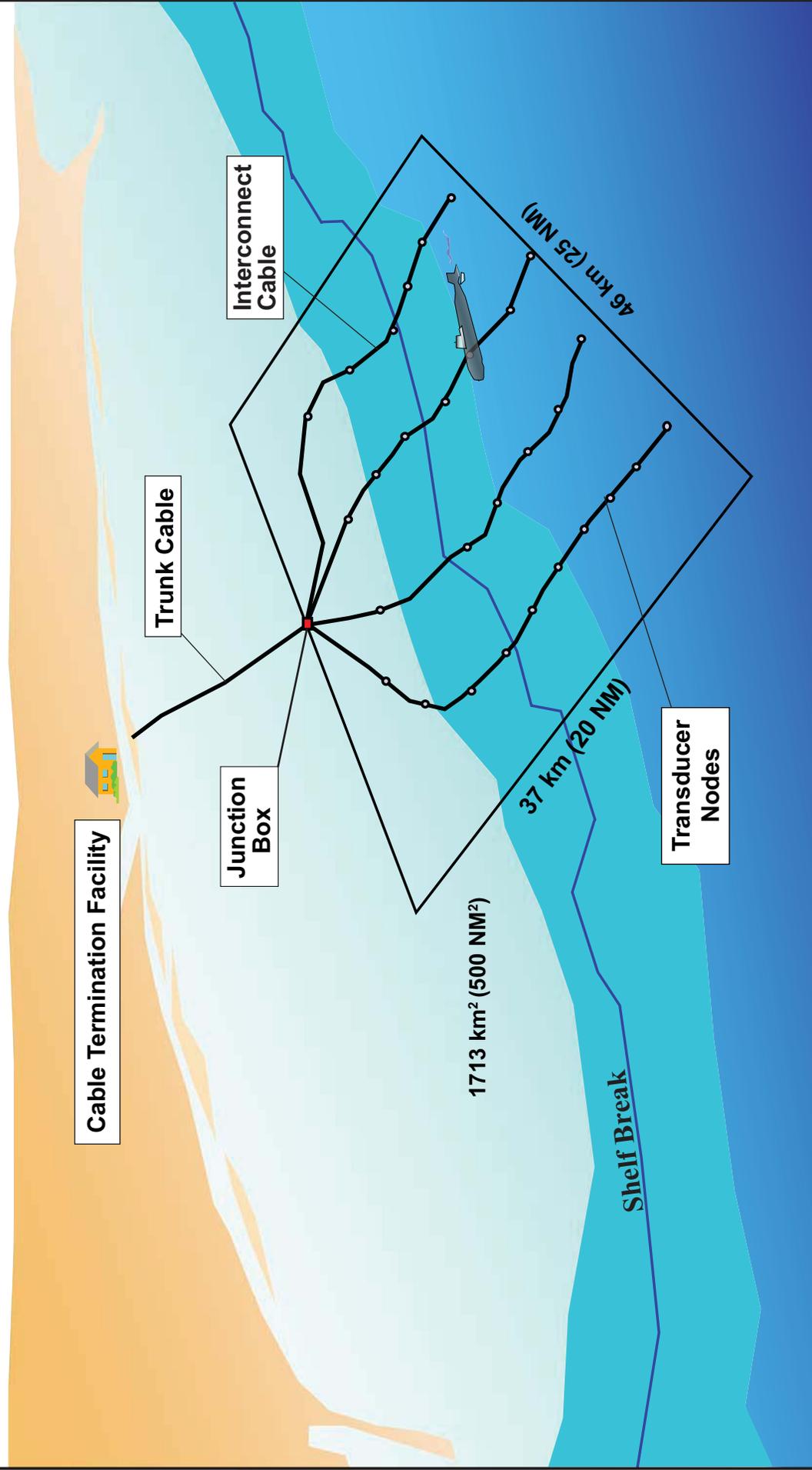
#### ES.4.1.1 Range Installation

The USWTR instrumentation is a system of underwater acoustic transducer devices, called nodes, connected by cable to each other and to a landside facility where the collected range data are used to evaluate the performance of participants in shallow water training exercises. These transducer nodes are capable of both transmitting and receiving acoustic signals from ships and submarines operating within the USWTR, which allows the position of the participants to be determined and stored electronically for both real-time and future evaluation. More specifically:

- The USWTR would consist of no more than 300 transducer nodes spread on the ocean floor over an area of approximately 1,713-km<sup>2</sup> (500-NM<sup>2</sup>). The distance between nodes would vary from 2 to 6 km (1 to 3 NM), depending on water depth.
- The nodes would be connected with commercial fiber optic undersea cable approximately 3.1 centimeters (cm) (1.22 inch [in]) in diameter, such as that used by the telecommunications industry. A total of approximately 1,110 km (600 NM) of cable would be used between nodes.
- The interconnect cable between each node would be buried, if deemed necessary, at specific locations within a range. The decision to bury would be based on activities that interact with the bottom, such as anchoring and extensive use of bottom-dragged fishing gear. The trunk cable connecting the range to the shore facilities would be buried to a depth of approximately 1 m (3 ft). The trunk cable would be installed in conduit via horizontal directional drilling nearshore, and by trenching between the land side end of the conduit and further offshore of the end of the conduit to the junction box. Ocean-bottom burial equipment would be used to cut (hard bottom) or plow (soft sediment) a furrow approximately 10 cm (4 in) wide, into which the cable would be placed.
- *The landside portion of the trunk cable would be buried and terminate in a small building, known as the cable termination facility (CTF), an approximately 37-m<sup>2</sup> (400-ft<sup>2</sup>) structure that would house the power supplies, system electronics, and communications gear necessary to operate the offshore range. From the CTF, secure data (associated computer equipment rendering relevant array information into digital, comprehensible, event information then encrypting it for further transmission) would be forwarded to FACSFAC Jacksonville (for Site A or B) or FACSFAC VACAPES (for Site C or D) and debriefing sites ashore.*

Figure ES-1 is a general illustration of the USWTR instrumentation on land and in the water.

# USWTR Range Concept



Not to Scale

Figure ES-1

Construction would be completed in one to three phases based on the funding profile. If completed in multiple phases, the first phase would be a minimum of 686 km<sup>2</sup> (200 NM<sup>2</sup>), followed by another 686 km<sup>2</sup> (200 NM<sup>2</sup>) and a final increment of 343 km<sup>2</sup> (100 NM<sup>2</sup>). A two phase installation is also possible. Construction would take approximately 6 to 12 months per phase. The OEIS/EIS reflects the anticipated effects of a single installation phase and the entire operational capability of the USWTR.

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#### **ES.4.1.2 Training Range Usage**

The principal type of exercise conducted on the USWTR would be ASW, for which a wide range of platforms (i.e., ships and aircraft), non-explosive exercise weapons, and training-related devices are used. Submarines, surface ships, and aircraft all conduct ASW and would be the principal users of the range. The requirements of threat realism on the USWTR necessitate training with a variety of sensors, non-explosive exercise weapons, target submarine simulators, and other associated hardware. Many of the materials used on the USWTR would be recovered after use; however, some would be left in place. All ordnance used would be non-explosive.

Either individually or as a coordinated force, submarines, surface ships, and aircraft conduct ASW against submarine targets. Submarine targets include both actual submarines and other mobile targets that simulate the operations of an actual submarine. ASW exercises are complex and highly variable. These exercises have been grouped into the four representative scenarios, summarized in Table ES-1, in order to best characterize them for environmental impact analysis purposes.

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#### **ES.4.2 Site Selection Process**

Operational requirements for the USWTR site are set forth in what is called an operational requirements document (ORD) (Subchapter 2.3.1.1). The ORD contains both the operational and physical requirements for the USWTR and is the basis for the site selection process. The first step for the Navy in identifying alternative sites for the USWTR was to define the parameters required for an effective range. While the USWTR would be an underwater training range, as it is to be primarily used for ASW, exercises would typically involve surface and air participants as well. The site selection process evaluated operational and climatological factors, including air station proximity, climatological availability, and shore landing site and infrastructure. The sites were ranked in each category as desirable, satisfactory, or unsatisfactory, and then the results of the evaluations for each site were compared. The site selection process for the USWTR narrowed the potential USWTR sites to four: offshore of northeastern Florida (Jacksonville OPAREA); offshore of central South Carolina (Charleston OPAREA); offshore of southeastern North Carolina (Cherry Point Operating Area [OPAREA]); and offshore of northeastern Virginia (VACAPES OPAREA).

Table ES-1

## USWTR Scenarios

Component	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Exercise Participants	One fixed- or rotary-wing aircraft vs. one submarine target	One ship and one helicopter vs. submarine target	One submarine vs. one submarine target	Two surface ships and two helicopters vs. submarine target
Exercise Weapons Used (all Weapons are Non-explosive)	Lightweight exercise torpedoes (EXTORPs) and lightweight recoverable exercise torpedoes (REXTORPs)	Lightweight and heavyweight EXTORPs (and once per year, a vertical launch antisubmarine rocket [VLA] may be fired from a ship on range) and REXTORPs	Heavyweight EXTORPs	Lightweight and heavyweight EXTORPs (and once per year, a VLA may be fired from a ship on range) and REXTORPs
Active Sound Sensors/ Sources Used	Active sonobuoys, dipping sonar, range pingers, torpedo sonar, underwater communication devices, submarine acoustic countermeasures, and anti-torpedo decoys (NIXIE)	Ships' sonar, active sonobuoys, range pingers, dipping sonar, torpedo sonar, and underwater communication devices, submarine acoustic countermeasures, and NIXIE	Submarine sonar, range pingers, torpedo sonar, and underwater communication devices	Ships' sonar, active sonobuoys, range pingers, dipping sonar, torpedo sonar, and underwater communication devices, submarine acoustic countermeasures, and NIXIE
Other Devices Used	Passive sonobuoys, target simulators, submarine acoustic countermeasures, and expendable bathythermographs (XBTs)	Passive sonobuoys, target simulators, submarine acoustic countermeasures, and XBTs	Submarine acoustic countermeasures, submarine target simulators, and XBTs	Passive sonobuoys, target simulators, submarine acoustic countermeasures, and XBTs
Approximate Duration of Exercise	2 hours (helicopters) 4 – 5 hours (fixed wing)	3 hours	6 hours	3 hours
Frequency of Exercise	355 exercises per year	62 exercises per year	15 exercises per year	38 exercises per year
Comments	Submarine targets can be an actual submarine or submarine target.	Submarine targets can be an actual submarine or submarine target.	One submarine simulates a quiet diesel-electric submarine. The other attempts to detect, locate, and simulate attack.	Submarine targets can be an actual submarine or submarine target.

Subsequently, because of new operational concerns, revised capabilities, and relocation of Fleet assets that have occurred over the last decade, the Charleston OPAREA located offshore of Charleston, South Carolina, was added as a potential alternative site. Figure ES-2 depicts the general locations of the USWTR sites along the east coast of the United States. The alternative sites are now:

- Site A - offshore of northeastern Florida (Jacksonville OPAREA).
- Site B – offshore of central South Carolina (Charleston OPAREA).
- Site C – offshore of southeastern North Carolina (Cherry Point OPAREA).
- Site D – offshore of northeastern Virginia (VACAPES OPAREA).

Based on application of the site evaluation criteria and proximity to Navy fleet concentration areas, Alternative A, USWTR Site A off the coast of northeastern Florida, is the preferred USWTR site alternative. This alternative offers excellent training opportunities based on bathymetric and typical water column characteristics in the area.

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## ES.4.3 Description of Alternatives

### ES.4.3.1 Alternative A

The western edge of the Site A USWTR would be located 93 km (50 NM) east of Florida's northeastern shoreline. Installation of the USWTR at the proposed Site A, as at all proposed sites, would entail the placement of no more than 300 transducer nodes in water depths ranging from approximately 37 to 366 m (120 to 1,200 ft), over an approximate 1,713-km<sup>2</sup> (500-NM<sup>2</sup>) area. The interconnect cable between each node may be buried in the shallower depths at Site A due to potential entanglement concerns related to bottom-trawling fishing gear (there is more intensive bottom trawling in the vicinity of the Sites A and D than in the vicinity of Sites B and C). In deeper waters, the interconnect cable would not be buried. The trunk cable connecting the range to the CTF located on shore would be buried (including within U.S. territory) to a depth of approximately 0.5 to 1 m (1 to 3 ft).

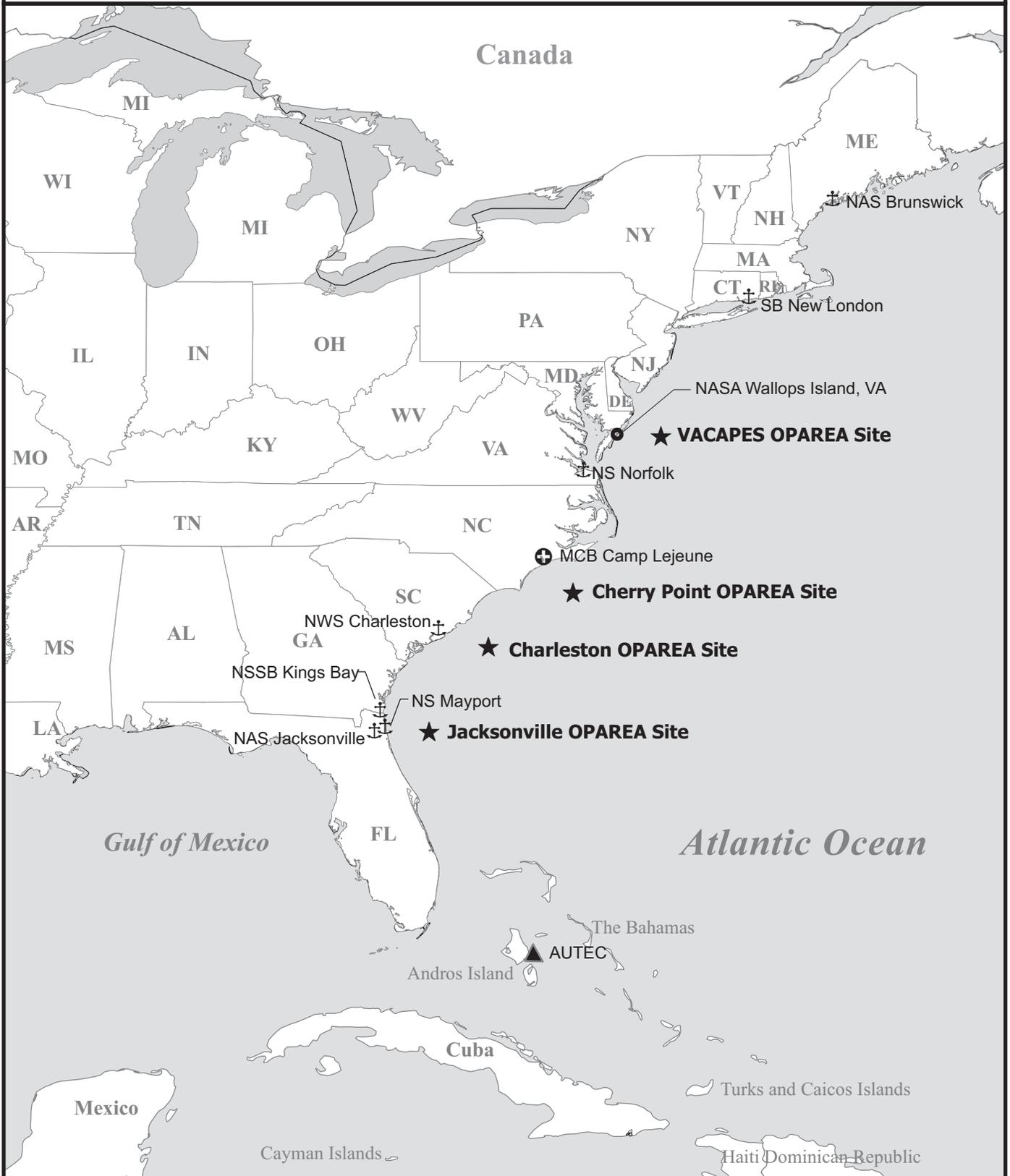
*The trunk cable would either be directly buried in an armored cable or conduit on shore at Naval Station (NS) Mayport. Commercial power and telecommunications connections would be made to the Naval Station Mayport infrastructure. The communications signals would be routed to the range operations center (ROC) at Fleet Area Control and Surveillance Facility Jacksonville (FACSFAC JAX) and electronics would be housed at the terminal end of the communications link.*

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### ES.4.3.2 Alternative B

The western edge of the Site B USWTR would be located approximately 70 km (38 NM) offshore of central South Carolina. The interconnect cable between each of the 300 nodes would

# USWTR Alternative Site Locations



- ★ USWTR Alternative Site Location
- ⚓ Homeport Location
- ⊕ Marine Corps Base Location
- ▲ Deep Water Training Range
- NASA Wallops Island



Figure ES-2



be buried if deemed necessary. The trunk cable connecting the range to the CTF located on shore would be buried (including within U.S. territory) to a depth of approximately 0.5 to 1 m (1 to 3 ft).

*Onshore, Ft. Moultrie on Sullivan's Island provides a possible shore landing site for the cable. The trunk cable would either be directly buried in an armored cable or conduit on shore. Power and telecommunications connections would be made with the Ft. Moultrie National Monument. Data would be sent from the CTF to the ROC at FACSAC JAX or VACAPES and electronics would be housed at the terminal end of the communications link.*

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### **ES.4.3.3 Alternative C**

Under this alternative, the western edge of the USWTR would be located about 86 km (47 NM) offshore of southeastern North Carolina. The interconnect cable between each node might be buried. The trunk cable connecting the range to the CTF located on shore would be buried (including within U.S. territory) to a depth of approximately 0.5 to 1 m (1 to 3 ft).

*Onshore, the Marine Corps Base Camp Lejeune in Jacksonville, North Carolina, provides a possible shore landing site for the cable. The trunk cable would either be directly buried in an armored cable or conduit on shore. Data would be sent from the CTF to the Starling communication site at MCB Camp Lejeune and then to the ROC at FACSAC VACAPES, and electronics would be housed at the terminal end of the communications link.*

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### **ES.4.3.4 Alternative D**

Under Alternative D, the western edge of the USWTR would be located about 63 km (34 NM) east of Virginia's northeastern shoreline. The interconnect cable between each node may be buried in the shallower depths at Site D due to potential entanglement concerns related to bottom-trawling fishing gear. In deeper waters, the interconnect cable would not be buried. The trunk cable connecting the range to the CTF located on shore would be buried (including within U.S. territory) to a depth of approximately 0.5 to 1 m (1 to 3 ft).

*The trunk cable would be installed either directly buried in an armored cable or conduit at the National Aeronautics and Space Administration (NASA) Wallops Flight Facility (WFF). Commercial power and telecommunications connections would be made to the NASA WFF infrastructure. The communications signals would be routed to the ROC at FACSAC VACAPES, and electronics would be housed at the terminal end of the communications link.*

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### **ES.4.3.5 No Action Alternative**

CEQ regulations provide that a No Action Alternative should be included in the analysis of alternatives and associated impacts. This alternative represents existing conditions at the USWTR locations and is used as the baseline alternative against which the magnitude of impact of constructing and operating a shallow water ASW range is evaluated.

Under the No Action Alternative, no USWTR would be installed off the east coast of the U.S. However, under the No Action Alternative, active sonar activities would continue across Navy OPAREAs and adjacent areas in a manner that maximizes research, development, testing and evaluation (RDT&E) and training opportunities; and ASW training would continue to take place. Training involves the use of passive and active sonar during simulated attacks on surface ships or submarines. A detailed analysis of current ASW training impacts is contained in the Navy's Final EIS/OEIS for Atlantic Fleet Active Sonar Training.

Although a No Action Alternative would not prevent the Navy from maintaining ASW readiness, the No Action Alternative is detrimental to training efficiency and effectiveness primarily because it lacks timely feedback of performance data to participating units.

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## **ES.5 Impacts of the Proposed Action and Alternatives**

### **ES.5.1 Physical Environment**

For each of the alternatives, the cable installation would temporarily displace some bottom sediments and increase local sedimentation rates as the material returned to the sea floor. Installation of the cable and transducer nodes would also result in a temporary increase in turbidity that would not pose a significant impact, given its limited duration.

Materials expended during the launch, operation, and recovery of exercise torpedoes (such as control wires, air launch accessories, flex hose, and ballast), expended devices (expendable bathythermographs [XBTs], sonobuoys, and acoustic device countermeasures [ADCs]), and expendable mobile ASW training targets (EMATTs) would be left in place. The expended materials are unlikely to result either in any significant environmental impacts to the sea floor or in a significant degradation of marine water quality. Over a period of years, these materials would degrade, corrode, and become incorporated into the sediments.

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### **ES.5.2 Acoustic Effects**

A screening analysis was conducted to determine whether 1) a given species could occur within the geographic area influenced by the active acoustics on one of the four USWTR sites, and if so, 2) if it possessed some sensory mechanism that would allow it to perceive the sounds generated

on the USWTR. Based on this screening analysis, plankton, invertebrates, seabirds, sea turtles, pinnipeds, and manatees were excluded from acoustic effect analysis.

Although it is expected that some fish species would be able to detect the lower frequency sounds to be generated on the USWTR and individual fish may be affected, discernable effects to local fish populations are not anticipated. There is limited information available that suggests that very intense non-impulsive acoustic sources at close ranges could result in mortality to small fish larvae. Experiments have shown that exposure to loud sound can result in significant threshold shifts (reductions in hearing sensitivity) in certain fish that are classified as hearing specialists (but not those classified as hearing generalists), however these threshold shifts are temporary and it is not evident that they lead to any long term effects.

With regard to human divers, it is unlikely that recreational or commercial divers would be present in the USWTR area. However, if divers were present, the potential for effects on them from active sonar transmissions within the USWTR would be negligible, as Navy training exercises would not be conducted close enough to them to exceed permissible exposure limits. Separate from any concern about acoustic impacts on divers, this is a matter of routine and prudent ship handling to ensure that Navy ships and any diver support ships remain clear of each other.

Mysticete (baleen whales) and odontocete (toothed whales) species studied to date hear in the mid- to high-frequency range and may be found at the USWTR sites. Thus, mysticetes and odontocetes are included for further evaluation from an acoustic perspective.

Potential effects are categorized either as physiological effects, which include permanent threshold shift (PTS) and temporary threshold shift (TTS), or behavioral effects. Categorizing potential impacts as either physiological or behavioral effects allows them to be related to the Marine Mammal Protection Act (MMPA) harassment definitions for military readiness activities:

- MMPA Level A harassment includes any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild. For this OEIS/EIS, the Level A harassment “zone” extends from the source to the distance and exposure at which the slightest amount of injury is predicted to occur (onset PTS).
- MMPA Level B harassment includes all actions that “disturb or are likely to disturb a marine mammal or marine mammal stock in the wild through the disruption of natural behavior patterns...to a point where such behavioral patterns are abandoned or significantly altered.” For this OEIS/EIS, the Level B “zone” begins just beyond the point of slightest injury and extends outward from that point to include all animals that may possibly experience behavioral disturbance (either TTS or behavioral disturbance at levels below TTS).

In this final OEIS/EIS, sound exposure thresholds for TTS and PTS are as presented in the following text box:

**195 dB re 1  $\mu\text{Pa}^2\text{-s}$  received SEL\* for TTS**

**215 dB re 1  $\mu\text{Pa}^2\text{-s}$  received SEL for PTS**

\*SEL = sound exposure level

In this final OEIS/EIS, a risk function is used to determine the probability of behavioral disturbance at exposure levels below those that may cause TTS. The function determines the probability of harassment for animals based upon the maximum received sound pressure level (dB re 1  $\mu\text{Pa}$ ). The function is applied to marine mammal density estimates to determine the proportion of animals that experience behavioral disturbance and which are counted as Level B harassment.

Navy actions on the fixed instrumented range would be repeated in the same geographic area over time. In developing Level B criteria for this document, the Navy conservatively assumed that short-term, non-injurious sound exposure levels (SELs) could result in behavioral pattern disruption in the context of the proposed use of a USWTR. As a result, the actual incidental harassment of marine mammals associated with this action may be less than calculated.

It is important to distinguish the criteria and thresholds proposed for the operation of mid-frequency active sonars at the USWTR from the criteria and thresholds supporting the MMPA letters of authorization issued by the National Marine Fisheries Service (NMFS) for Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) sonar. There are fundamental differences between the sound sources that will operate at USWTR and the SURTASS LFA system. The criteria used in this analysis account for the characteristics associated with operation of active mid-frequency sonars. The Navy issued the Record of Decision for Atlantic Fleet Active Sonar Training (AFAST). This project includes evaluating the potential environmental effects associated with the use of mid- and high-frequency active sonar technology and the improved extended echo ranging (IEER) system during AFAST activities within and adjacent to existing Navy operating Areas (OPAREAs) located along the east coast of the United States and in the Gulf of Mexico.

### ES.5.3.1 Endangered Species

Sound exposure zones were developed based on the impact criteria and thresholds described above. These criteria are also applied to evaluate the potential for harm (injury) or harassment under the Endangered Species Act (ESA). The Navy concludes that the use of the proposed USWTR has the potential to affect certain endangered marine mammals, and consultation with NMFS, in accordance with ESA, is appropriate for this action. The Navy's assessment indicates that the proposed action will not adversely modify or destroy any critical habitats.

The ESA-listed sea turtle species that could occur in each of the four alternative USWTRs are: leatherback turtle; loggerhead turtle, green turtle; Kemp's ridley turtle; and, hawksbill turtle. There could be an incidental take of these species as a result of vessel operations during cable installation and during training exercises on the range.

The ESA-listed marine mammal incidental exposure estimates for the proposed Site A USWTR include the North Atlantic right whale and the humpback whale. The ESA-listed marine mammal incidental exposure estimates for the proposed Site B USWTR include the North Atlantic right whale and the humpback whale. The ESA-listed marine mammal incidental exposure estimates for the proposed Site C USWTR include the North Atlantic right whale. The ESA-listed marine mammal incidental exposure estimates for the proposed Site D USWTR include the North Atlantic right whale, the fin whale, and the sperm whale. Although the effects of the short-term sound exposures are not expected to be significant, the Navy concludes that activities on the range may affect these species and will discuss mitigation measures with NMFS during the ESA consultation process.

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### ES.5.3.2 Marine Mammal Protection Act

The Navy concludes that impacts to species or stocks of marine mammals would be negligible for each of the proposed USWTR alternatives. Species that may be harassed as a result of range installation and use are listed in Table ES-2.

- The overwhelming majority of the acoustic exposures are within the *non-injurious* TTS or behavioral effects zones.
- Species-specific analyses support the conclusion that proposed USWTR installation and operations would have a negligible impact on species or stocks of marine mammals at any of the USWTR alternative sites.

Table ES-2

## Non-ESA-Listed Species of Marine Mammals Evaluated for Incidental Harassment

Species	Site A	Site B	Site C	Site D
Minke Whales	√	√	√	√
Pygmy/dwarf Sperm Whales	√	√	√	√
Beaked Whales*	√	√	√	√
Atlantic White-sided Dolphin				√+
Rough-toothed Dolphin	√	√	√	√
Bottlenose Dolphin	√	√	√	√
Pantropical Spotted Dolphin	√	√	√	√
Atlantic Spotted Dolphin	√	√	√	√
Striped Dolphin	√	√	√	√
Clymene Dolphin	√	√	√	√
Common Dolphin	√	√	√	√
Risso's Dolphin	√	√	√	√
Pilot Whales	√	√	√	√
Harbor Porpoise			√+	√+
Note: * Beaked whale species here are assumed to include Gervais', Blainville's, True's, and Cuvier's beaked whales. + Insufficient data exists to calculate density estimates for these species in the indicated OPAREA; however, rare observations have been made indicating that these species may be present in the OPAREA.				

The Navy will submit an MMPA Letter of Authorization (LOA) request for the preferred alternative. As part of that process, the Navy will consult with NMFS on potential mitigation measures and their potential to reduce the likelihood for behavioral disturbance and incidental harassment of marine mammals. Harassment estimates for this final OEIS/EIS are primarily *without* consideration of mitigation measures.

## ES.5.3 Non-Acoustic Effects

### ES.5.3.1 Ecology

The potential non-acoustic effects on marine organisms at the proposed USWTR sites are discussed together, since impacts are anticipated to be similar at the four sites.

Cable installation may have a temporary impact on benthic organisms, including benthic fish, during the placement of the transducer nodes and interconnect cable and the burial of the trunk cable. As this action would result in a reduction of the quantity and/or quality of some types of

essential fish habitat (EFH), installation of the proposed USWTR may adversely affect EFH at all of the four proposed sites. By letter dated October 16, 2008, the Navy submitted the Biological Assessment to the Office of Protected Resources of NMFS. The Biological Assessment provided an assessment of the potential impacts to species listed under ESA.

Marine mammals are not likely to be impacted during construction, as they do not typically utilize sea floor habitat for extended periods of time. Green, loggerhead, and Kemp's ridley sea turtles are associated with ocean bottom habitats. The construction period for installing cable is of limited duration; thus, there would be an extremely low probability that installation equipment would come into direct contact with any turtle. The Navy concludes that the placement and burial of cable may affect sea turtle species, all of which are protected under the Endangered Species Act (ESA). Further, placement and burial of cable may affect ESA-listed mammal species.

No ordnance would be detonated during training exercises; therefore, the physical force to which marine organisms would be exposed would be limited to that produced by torpedo launching and movement. There is negligible risk that a marine mammal could be struck by a torpedo during ASW training events on the USWTR sites. There would be no adverse effects to marine organisms with respect to chemical releases from sensing devices, countermeasures, and targets. The Navy determined that the deployment of materials such as torpedo control wires, air launch accessories, flex hoses, and EMATTS on the proposed USWTR range may affect ESA-listed species or harass or take species protected under the MMPA. Therefore, the Navy concludes that the construction of the proposed USWTR has the potential to affect certain listed sea turtle species, and consultation with NMFS, in accordance with ESA and MMPA, is appropriate for this action.

With respect to potential vessel strikes, the Navy has adopted protective measures to reduce the potential for collisions with surfaced marine mammals and sea turtles. Based on these standard operating procedures, collisions with marine mammals and sea turtles are not expected. In addition, the Navy has adopted protective measures for North Atlantic right whales during transit of Navy vessels in near-shore areas of the mid-Atlantic. Based on the Navy protective measures and the implementation of mitigation measures during times of anticipated right whale occurrence, Navy vessels are not likely to adversely affect North Atlantic right whales.

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### **ES.5.3.2 Socioeconomic Environment**

Socioeconomic impacts on military usage, commercial fishing, recreational fishing, shipping, and commercial and recreational boating were examined.

The general areas of sites A, B, C, and D are all major areas of military use, primarily by the Navy and Marines. FACSFAC VACAPES would centrally coordinate USWTR utilization to avoid conflicts with military operations in either the Cherry Point or VACAPES OPAREA, whereas FACSFAC JAX would coordinate USWTR utilization related to the Jacksonville

OPAREA and Charleston OPAREA. Therefore, none of the four proposed USWTR sites would have significant negative effects on military activity in the vicinity of the ranges.

It is anticipated that there would be little potential interaction between the trunk cable and fishing gear, including bottom equipment. While recreational fishing is popular in each of the OPAREAs, most recreational fishing and boating occurs within a few miles of shore and is expected to be infrequent in the vicinity of any of the proposed USWTR sites. A delay or immediate hold on exercises would be considered if any vessel or aircraft entered the vicinity of the exercise.

USWTR operational activities would be required to avoid shipping vessels transiting through the range area or recreational boaters within the range. Since the proposed range is in the exclusive economic zone, no disruption to commercial shipping could be imposed. Commercial ship traffic or recreational boating activities within the operations area could require that the Navy delay, interrupt, or alter training exercises.

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### ES.5.3.3 Cultural Resources at Sea

Shipwrecks and/or obstructions are known to occur within the Jacksonville, Charleston, Cherry Point, and VACAPES OPAREAS. Known shipwreck locations would be avoided during installation. If a shipwreck were identified during the survey of the trunk cable corridor or within the range boundaries, its location would be documented so that it could be avoided in the placement of the nodes and the cables. If a shipwreck is found, the Navy would consult with the State Historic Preservation Office pursuant to Section 106 of the National Historic Preservation Act. It is unlikely that materials expended during the proposed USWTR exercises would come into contact with the shipwrecks and adversely affect them.

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### ES.5.3.4 Landside Impacts

*Potential landside impacts were considered for each proposed USWTR site, as follows:*

- **Land use:** *There would be no land use impacts at the proposed USWTR landfall sites. Operation of the CTF would be consistent with the ongoing uses of each site.*
- **Socioeconomics:** *There would be no displacement of persons associated with implementation of landside components of the proposed action at each site. With respect to the executive order (EO) on environmental justice (EO 12898), implementation of the proposed action at any USWTR site would not result in disproportionately high and adverse environmental or health impacts on minority or low-income populations. In regard to EO 13045, implementation of the*

*proposed action at any of the proposed sites would not pose disproportionate environmental health and safety risks to children.*

- ***Wetlands:*** *At each of the proposed USWTR landfall sites, the CTF would be sited to avoid any wetland areas. While installing the landside portion of the trunk cable, if wetlands occur in the proposed route of the trunk cable, directional drilling would be used to avoid wetlands to the maximum extent practicable.*
- ***Threatened and endangered species:*** *At the proposed Site A landfall location, the construction and operation of the USWTR would have no effect on the wood storks observed near NS Mayport, as there are no documented nests in the immediate vicinity of the CTF. With respect to sea turtles, current conservation measures in place at NS Mayport beach would result in no effect to any nesting sea turtles that may occur. Manatees would not be affected.*

*With respect to the Site B landfall location, federally threatened loggerhead sea turtles nest on Sullivan's Island. In nearshore waters, the Florida manatee has been sighted near Charleston Harbor. Conservation measures would be implemented so that there would be no effect to these species. There have been no surveys conducted for seabeach amaranth, Canby's dropwort, or American chaffseed, so their presence in the vicinity of Fort Moultrie National Monument is not known. If Site B is selected as the preferred alternative, a plant survey will be performed prior to installation and the Navy will consult with the United States Fish and Wildlife Service (USFWS) if any threatened or endangered species are found.*

*At the proposed Site C landfall location, conservation measures are already in place to protect the seabeach amaranth, piping plover, and sea turtles that may nest on the beach. Adherence to the conservation measures currently in place would minimize or eliminate the potential for adverse effects on all three species.*

*The landfall location at Site D, Wallops Island, is more than 3.2 km (2 mi) away from the Atlantic coast piping plover breeding area on the northern end of the island and more than 4 km (2.5 mi) from the breeding area at the southern end, so no effects are anticipated.*

- ***Essential fish habitat:*** *A very small area of nearshore EFH would be impacted by the process of burying the trunk cable in the corridor that connects the USWTR with the CTF at NS Mayport, Fort Moultrie, Onslow Beach, or Wallops Island. The maximum area potentially impacted in the process of burying the trunk cable is estimated as a 5-m (16.4-ft) wide path.*
- ***Migratory birds:*** *Although migratory birds utilize beach habitats as foraging habitat, the construction and operation of the USWTR at the landside sites would*

have no significant impact on foraging activities. The construction activities would be temporary and there are ample foraging grounds for migratory birds in the region.

- **Vegetation and soils:** Minimal clearing of existing maritime scrub/shrub vegetation would be required at each proposed site. While there would be short-term impacts such as the disturbance of soil and vegetation during the construction phase, all areas would be returned to pre-disturbance grade and stabilized; thus, there would be no long-term impacts to soils or vegetation in the affected area at each of the proposed USWTR landfill sites.
- **Floodplain management:** Installation of the proposed USWTR landside facilities at the proposed USWTR sites at NS Mayport, Fort Moultrie, Onslow Bay, and Wallops Island would require construction within the floodplain (From the CTF, the trunk cable would be buried in an excavated trench to a point just upland of either sand dunes or an impassable physical feature [such as a highway]. The trunk cable would then run through an underground conduit, which would be installed by horizontal directional drilling. The conduit would extend from the end of the trench, underneath the dunes, beach, and shoreline; to a point approximately 915 m [3,000 ft] offshore of the mean low water line). The Navy has determined that there is no other practicable alternative that would avoid construction in the floodplain (the USWTR trunk cable must come ashore and connect to a CTF near the shoreline). Construction of the proposed landside facilities would not result in impacts to beneficial uses of the floodplain.
- **Cultural resources:** There would be no impacts to cultural resources at landfill for the proposed USWTR Sites A, C, and D. There have been forts on Sullivan's Island since the Revolutionary War and the Ft. Moultrie National Monument is a unit of the Fort Sumter National Monument, so the area in general has cultural and historical significance. It is likely that the actual location of the CTF could be chosen such that impact to these resources could be avoided.
- **Air quality:** There would be no new sources of air pollutants at the landside facility at any of the proposed USWTR sites. Furthermore, the Clean Air Act (CAA) conformity rules would not apply to the landside facilities or in near-shore areas within the 6-km (3-NM) jurisdiction of the CAA, as they would be within an attainment area for all criteria pollutants. Air quality impacts from construction activities would be from fugitive dust generated on site and mobile source emissions from construction vehicles and worker automobiles. These impacts would be minor and would be short-term in nature.
- **Hazardous materials:** Onshore construction and operation of the USWTR landside facilities would not result in significant quantities of hazardous materials being used or generated. Small quantities of standard maintenance and

*repair materials (e.g., solder flux, flux remover, isopropyl alcohol, and petroleum products) may be used as needed and would be disposed of in accordance with all applicable regulations.*

**ES.5.3.5 Coastal Zone Management**

*Federal agency activities affecting a land or water use, or natural resource of a state’s coastal zone must be consistent to the maximum extent practicable with the enforceable policies of the state’s coastal management program. The Navy has reviewed the coastal consistency policies enforced by the states for each of the proposed alternatives. The Navy has determined that implementation of the proposed action at the operationally preferred USWTR Site A would be consistent, to the maximum extent practicable, with the enforceable policies of the state of Florida. A negative determination has been prepared and submitted to the state of Georgia.*

**ES.5.4 Summary of Environmental Impacts**

Table ES-3 provides a summary of the anticipated environmental impacts at each of the four alternative USWTR sites.

Table ES-3

Summary of Environmental Impacts

Environmental Resources		Site A	Site B	Site C	Site D
	Geology, Bathymetry and Substrate, and Water Quality	There would be no significant impact or significant harm.	There would be no significant impact or significant harm.	There would be no significant impact or significant harm.	There would be no significant impact or significant harm.
	Plankton and Benthos	There would be no significant impact or significant harm.  The placement of cables and transducer nodes may potentially result in minor localized damage to the live deep-water corals.	There would be no significant impact or significant harm.  The placement of cables and transducer nodes may potentially result in minor localized damage to the live deep-water corals.	There would be no significant impact or significant harm.  The placement of cables and transducer nodes may potentially result in minor localized damage to the live deep-water corals.	There would be no significant impact or significant harm.  The placement of cables and transducer nodes may potentially result in minor localized damage to the live deep-water corals.

Table ES-3

Summary of Environmental Impacts

Environmental Resources		Site A	Site B	Site C	Site D
Non-Acoustic Environmental Impacts	Fish	There would be no significant impact or significant harm to fish.	There would be no significant impact or significant harm to fish.	There would be no significant impact or significant harm to fish.	There would be no significant impact or significant harm to fish.
	Essential Fish Habitat	Potential minor adverse impacts to benthic substrate EFH, hard bottom substrate EFH, biogenic reef substrate EFH, and nearshore EFH. There would be potential impacts to the North Florida Marine Protected Area (MPA). The Navy is consulting with NMFS to avoid / reduce impacts.	Potential minor adverse impacts to benthic substrate EFH, hard bottom substrate EFH, biogenic reef substrate EFH, and nearshore EFH. Potential significant impact to biogenic reef EFH if <i>Lophelia</i> Reefs are impacted. There would be potential impacts to the Charleston Deep Artificial Reef MPA. The Navy would consult with NMFS to avoid / reduce impacts.	Potential minor adverse impacts to benthic substrate EFH, hard bottom substrate EFH, biogenic reef substrate EFH, and nearshore EFH. Potential significant impact to biogenic reef EFH if <i>Lophelia</i> Reefs are impacted. The Navy would consult with NMFS to avoid / reduce impacts.	Potential minor adverse impacts to benthic substrate EFH, hard bottom substrate EFH, biogenic reef substrate EFH, and nearshore EFH.
Non-Acoustic Environmental Impacts	Sea Turtles and Marine Mammals	In accordance with NEPA, there would be no significant impact to marine mammals or sea turtles in territorial waters from range activities. In accordance with EO 12114, there would be no significant harm to marine mammals or sea turtles in non-territorial waters.	In accordance with NEPA, there would be no significant impact to marine mammals or sea turtles in territorial waters from range activities. In accordance with EO 12114, there would be no significant harm to marine mammals or sea turtles in non-territorial waters.	In accordance with NEPA, there would be no significant impact to marine mammals or sea turtles in territorial waters from range activities. In accordance with EO 12114, there would be no significant harm to marine mammals or sea turtles in non-territorial waters.	In accordance with NEPA, there would be no significant impact to marine mammals or sea turtles in territorial waters from range activities. In accordance with EO 12114, there would be no significant harm to marine mammals or sea turtles in non-territorial waters.
(Cont'd)	Seabirds and Migratory Birds	No significant impact to seabirds or migratory birds would occur.	No significant impact to seabirds or migratory birds would occur.	No significant impact to seabirds or migratory birds would occur.	No significant impact to seabirds or migratory birds would occur.
	Endangered and Threatened	<u>Species</u> There may be an effect to ESA-	<u>Species</u> There may be an effect to ESA-	<u>Species</u> There may be an effect to ESA-	<u>Species</u> There may be an effect to ESA-

Table ES-3

Summary of Environmental Impacts

Environmental Resources		Site A	Site B	Site C	Site D
	Species	<p>listed species. The Navy is consulting with the NMFS to avoid / reduce impacts.</p> <p><u>Critical Habitat</u> To avoid / reduce potential impacts on North Atlantic right whale critical habitat, the Navy is consulting with the NMFS in compliance with ESA.</p>	<p>listed species. The Navy would consult with the NMFS to avoid / reduce impacts.</p> <p><u>Critical Habitat</u> No designated critical habitats occur within the range.</p>	<p>listed species. The Navy would consult with the NMFS to avoid / reduce impacts.</p> <p><u>Critical Habitat</u> No designated critical habitats occur within the range.</p>	<p>listed species. The Navy would consult with the NMFS to avoid / reduce impacts.</p> <p><u>Critical Habitat</u> No designated critical habitats occur within the range.</p>
Acoustic Environmental Impacts	Marine Mammals	<p><u>ESA-listed Species</u> Level B harassment of two species (North Atlantic right whale and humpback whale).</p> <p><u>Non-ESA listed Species</u> B harassment of ten species.</p> <p>Based on best available science, the Navy concludes that exposures to marine mammals would result in short-term effects to individuals exposed and would likely not affect annual rates of recruitment or survival.</p>	<p><u>ESA-listed Species</u> Level B harassment of two species (North Atlantic right whale and humpback whale).</p> <p><u>Non-ESA listed Species</u> Level B harassment of nine species.</p> <p>Based on best available science, the Navy concludes that exposures to marine mammals would result in short-term effects to individuals exposed and would likely not affect annual rates of recruitment or survival.</p>	<p><u>ESA-listed Species</u> Level B harassment of one ESA-listed species (North Atlantic right whale).</p> <p><u>Non-ESA listed Species</u> Level B harassment of eleven species.</p> <p>Based on best available science, the Navy concludes that exposures to marine mammals would result in short-term effects to individuals exposed and would likely not affect annual rates of recruitment or survival.</p>	<p><u>ESA-listed Species</u> Level B harassment of three species (North Atlantic right whale, fin whale, and sperm whale).</p> <p><u>Non-ESA listed Species</u> Level B harassment of twelve species.</p> <p>Based on best available science, the Navy concludes that exposures to marine mammals would result in short-term effects to individuals exposed and would likely not affect annual rates of recruitment or survival.</p>

Table ES-3

Summary of Environmental Impacts

Environmental Resources		Site A	Site B	Site C	Site D
	Fish	There would be no significant impact to fish populations.	There would be no significant impact to fish populations.	There would be no significant impact to fish populations.	There would be no significant impact to fish populations.
	Scuba Diving	Following Navy operating procedures, no impacts to divers would occur.	Following Navy operating procedures, no impacts to divers would occur.	Following Navy operating procedures, no impacts to divers would occur.	Following Navy operating procedures, no impacts to divers would occur.
Socioeconomics		There would be no significant impact.			
Cultural Resources		There would be no significant impact.			
Landside Resources		There would be no significant impact. Prior to installation of the range, the Navy would coordinate with the appropriate resource agency(s) and implement appropriate avoidance/mitigation measures.	There would be no significant impact. Prior to installation of the range, the Navy would coordinate with the appropriate resource agency(s) and implement appropriate avoidance/mitigation measures.	There would be no significant impact. Prior to installation of the range, the Navy would coordinate with the appropriate resource agency(s) and implement appropriate avoidance/mitigation measures.	There would be no significant impact. Prior to installation of the range, the Navy would coordinate with the appropriate resource agency(s) and implement appropriate avoidance/mitigation measures.
Coastal Zone Management		The proposed action is consistent to the maximum extent practicable with the enforceable policies of the Florida coastal zone management program.	The proposed action is consistent to the maximum extent practicable with the enforceable policies of the South Carolina coastal zone management program.	The proposed action is consistent to the maximum extent practicable with the enforceable policies of the North Carolina coastal zone management program.	The proposed action is consistent to the maximum extent practicable with the enforceable policies of the Virginia coastal zone management program.

**ES.5.5 Cumulative Impacts**

*With respect to potential landside cumulative impacts, the construction of USWTR landside facilities at any of the four proposed sites – A, B, C, or D – would have no significant cumulative impacts. At all locations, the cable would be installed in conduit by directional drilling and in a*

*trench to connect to the newly constructed CTF. This minor construction would not impact other uses (military and recreation) at any proposed site. Further, given the limited duration of the new construction activities and the relatively minor area of land disturbance, the cumulative impact of new construction, taken into consideration with other uses of the proposed USWTR areas, would not be significant.*

With respect to marine resources, the combination of potential impacts resulting from implementing the proposed action and other human activities (commercial fishing, vessel traffic, environmental contamination, etc.) or natural occurrences (e.g., climatic fluctuations, toxic algae blooms, etc.) can affect marine resources and their habitats. For North Atlantic right whales, ship strikes are believed to be a significant factor limiting the recovery of this species.

Currently the Navy conducts other Navy training activities at sea that have the potential to cause incremental acoustic effects to marine mammals. These include: naval surface fire support training, mine warfare exercises, sinking exercises of surface targets, and other active sonar training.

With regard to the incremental contribution of the proposed USWTR action, acoustic effects to marine mammals are expected to be primarily temporary behavioral effects. Mitigation measures have been designed and will be implemented during use of the USWTR in order to minimize any potential adverse impacts to marine mammals and to avoid any significant or long-term adverse impacts to the marine environment. The proposed action is not likely to affect annual rate of population growth or survival of marine mammals. Incremental impacts resulting from the proposed construction and use of the USWTR do not contribute significantly to the cumulative effect on marine mammals.

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## ES.6 Mitigation Measures

Effective training on the proposed USWTR dictates that ship, submarine, and aircraft participants utilize their sensors and exercise weapons to their optimum capabilities. Recognizing that such use may cause behavioral disruption of some marine mammal species within the range, the Navy will request an LOA from NMFS. The Navy has developed mitigation measures that would be implemented to protect marine mammals during Navy operations on the proposed USWTR range. These include:

- **Personnel training** in marine mammal spotting and reporting and lookout responsibilities.
- **Implementation of range operating procedures** to maximize the ability of operators to recognize instances when marine mammals are in the vicinity and to take appropriate action.

- **Conservation measures** that would involve long-term monitoring of marine mammals on the USWTR.

Further, consistent with the seasonality and locations where North Atlantic right whales are known to occur, the Navy proactively adopted protective measures in December 2004 to reduce the potential for Navy vessels transiting to and from mid-Atlantic ports to strike migrating right whales. The measures apply to all Navy vessel transits, including those vessels that would transit to and from the proposed USWTR.

*With respect to mitigation measures related to landside facilities, the proposed CTF at each of the four proposed USWTR landfall sites (i.e., Naval Station Mayport, Ft. Moultrie National Monument, Onslow Beach, and Wallops Island) would be sited to avoid existing wetland areas. While installing the landside portion of the trunk cable, directional drilling would be used to avoid wetlands to the maximum extent practicable.*

*No impacts to estuarine wetlands would be anticipated with implementation of the proposed action at the preferred Site A landfall site. Current conservation measures in place at NS Mayport beach would minimize or eliminate the potential for adverse impact to the nesting activities of loggerhead and green sea turtles. It is anticipated that no additional mitigation measures would be required there.*

*With respect to the proposed Site B landfall site at Ft. Moultrie, there would be no effect to the nesting activities of the federally threatened loggerhead sea turtle; installation would not be conducted during nesting months. Consultation with the USFWS would be conducted before initiating any construction activities. Consultation with the National Park Service (NPS) and the South Carolina State Historic Preservation Office would be conducted to avoid impacts to the Ft. Moultrie historic site as a result of the installation of the trunk cable and construction of the CTF.*

*At Site C, the only potential adverse environmental impacts anticipated could be to protected species. Adherence to the conservation measures currently in place, developed through ESA Section 7 consultations between MCB Camp Lejeune and the USFWS, would eliminate the potential for adverse effects on the seabeach amaranth. There would be no effect to the nesting activities of the federally threatened loggerhead sea turtle and green sea turtle; installation would not be conducted during nesting months. Consultation with the USFWS would be conducted before initiating any construction activities. There would be no effect to the nesting activities of the federally endangered piping plover; installation would not be conducted during nesting months. In the latter two cases, mitigation measures would be taken consistent with those developed through ESA Section 7 consultations between MCB Camp Lejeune and the USFWS.*

*At Site D, Wallops Island, it is anticipated that no additional mitigation measures would be required because there would be no effect to threatened or endangered species; wetlands would not be impacted.*

## ES.7 Public Review Process and Response to Comments

Public involvement in the review of draft EISs (DEISs) is stipulated in 40 CFR Part 1503 of the CEQ regulations implementing NEPA and the Navy's NEPA regulations (32 CFR Part 775). These regulations provide for active solicitation of public comment via the scoping process, public comment periods, and public hearings.

The scoping process for this OEIS/EIS was initiated by the publication of the notice of intent (NOI) in the *Federal Register* on May 13, 1996. At that time, the range was called a shallow water training range. Scoping letters were sent to members of Congress and federal, state, and local agencies, as well as members of the general public, notifying them of the beginning of the OEIS/EIS process. In 2005, the range name was updated to undersea warfare training range (USWTR). In October of 2005, the draft OEIS/EIS was published and a public comment period ensued that included three public meetings (Chincoteague, Virginia; Morehead City, North Carolina; and Jacksonville, Florida).

On September 21, 2007, the Navy issued a NOI to prepare a revised draft OEIS/EIS and reopened public scoping for a period that ended on October 22, 2007. The revised draft OEIS/EIS incorporated analysis of an additional alternative site and reflected modification of the methodology used to analyze behavioral impacts on marine mammals. During this time, comments pertaining to issues to be addressed in the revised draft OEIS/EIS, and heretofore not submitted were invited. With the publication of the revised draft OEIS/EIS, the public again had the opportunity to comment during the 45-day public comment period. During this period, a public meeting was held at each of the aforementioned locations and also in North Charleston, South Carolina.

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### ES.7.1 Comments Received to the 2008 Draft OEIS/EIS

Comments received during the public comment period fell into the following major categories:

- Acoustic modeling process and results, including biological assumptions, consideration of the impacts of reverberation, sonar characteristics, and Level A and B harassment thresholds, among others;
- Assessment of fish, sea turtle, seabird, and marine mammal population/distribution;
- Sonar impacts on fish, sea turtles, seabirds, and marine mammals;
- Impacts on North Atlantic right whales;
- Marine mammal strandings and ship strikes;

- Socioeconomic impacts, including potential impacts on commercial and recreational fishing, diving, etc.;
  - Landside impacts;
  - Impacts on marine habitat, including marine life and marine protected areas;
  - Impacts to cultural resources;
  - Cumulative impacts;
  - Solid and hazardous waste issues, including debris, entanglement, and toxicity;
  - Mitigation measures;
  - NEPA compliance and discussion of the proposed action; and,
  - Other regulatory compliance (e.g., MMPA, ESA, etc.).
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## **ES.7.2 Substantive Changes between Draft OEIS/EIS and Final OEIS/EIS**

In this final OEIS/EIS, the Navy addressed comments received during the 2008 public comment period and modified the text as appropriate. The primary text that has been updated in this final OEIS/EIS includes:

- Ecology (Subchapter 3.2)
- Ecological Impacts (Subchapter 4.2)
- Acoustic Effects (Subchapter 4.3)
- Cumulative Impacts (Subchapter 4.8)
- Mitigation Measures (Chapter 6).

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