

DEPARTMENT OF DEFENSE

Department of the Navy

Record of Decision for the Final Environmental Impact Statement (EIS)/ Overseas Environmental Impact Statement (OEIS) for Virginia Capes (VACAPES) Range Complex Training

AGENCY: Department of the Navy, Department of Defense

ACTION: Notice of Record of Decision

SUMMARY: The United States (U.S.) Department of the Navy, after carefully weighing the operational and environmental consequences of the proposed action, announces its decision to conduct U.S. Navy (Navy) Atlantic Fleet training; research, development, testing, and evaluation (RDT&E) activities; and associated range capabilities enhancements in the VACAPES Operating Area (OPAREA) and associated airspace, hereafter referred to as the VACAPES Range Complex. The VACAPES Study Area includes the area from the mean high tide line east (seaward) to the 3 nautical-mile boundary of the States of Delaware, Maryland, Virginia and North Carolina. The VACAPES Study area also includes 420 square nautical miles of the lower Chesapeake Bay, where proposed Mine Warfare (MIW) training would occur.

Section 5062 of Title 10 of the U.S. Code directs the Chief of Naval Operations to train all naval forces for combat. The Chief of Naval Operations meets that direction, in part, by conducting at-sea training exercises and ensuring naval forces have access to ranges, OPAREAs and airspace where the Navy can develop and maintain skills for wartime missions and conduct RDT&E of naval weapons systems.

The Navy has decided to implement the Preferred Alternative, which includes the following: (1) training operations currently conducted (*i.e.*, those described in the No Action Alternative); (2) increasing or modifying training operations; (3) new training activities to accommodate changes in mission areas and force structure; (4) reducing use of High Explosive munitions during at-sea Bombing Exercises (BOMBEXs) by ninety-six percent (96%); and (5) designating additional MIW training areas within the VACAPES Study Area to provide additional support during training events. Exercises and training do not include combat operations, operations in direct support of combat, or other activities conducted primarily for

purposes other than training. The proposed action will not make major changes to VACAPES Range Complex facilities, operations, training, or RDT&E capacities. Rather, the actions proposed are incremental increases over the current activities that would result in relatively small-scale, but critical, enhancements that are necessary if the Navy is to maintain a state of military readiness commensurate with its national defense mission.

FOR FURTHER INFORMATION: Naval Facilities Engineering Command Atlantic, Code EV22 (VACAPES Range Complex Project Manager), 6506 Hampton Boulevard, Norfolk, Virginia, 23508-1278, telephone number (757) 322-8155.

INTRODUCTORY STATEMENT: Pursuant to section 4321 *et seq.* of Title 42 of the U.S. Code (Section 101 *et seq.* of the National Environmental Policy Act of 1969 [NEPA]); the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] Parts 1500-1508); Department of Defense (DoD) Instruction 4715.9, Environmental Planning and Analysis; and the applicable Navy environmental regulations that implement these laws and regulations, the Navy announces its decision to conduct Navy Atlantic Fleet training; RDT&E activities; and associated range capabilities enhancements in the VACAPES Range Complex. The Navy considered applicable Executive Orders (EOs), including an analysis of the environmental effects of its actions outside the U.S. or its territories under EO 12114, *Environmental Effects Abroad of Major Federal Actions*, and the requirements of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*.

The proposed action addresses the Navy's need to maintain baseline training operations at current levels; accommodate future increases in operational training tempo in the VACAPES Range Complex as necessary to support the deployment of naval forces; achieve and sustain readiness in ships and squadrons so that the Navy can quickly surge significant combat power in the event of a national crisis or contingency operation and to be consistent with the Fleet Readiness Training Plan (F RTP), which describes the Navy's training cycle that requires naval forces to prepare for deployment and to maintain a high level of proficiency and readiness while deployed; support the acquisition, testing, training, and introduction into the Fleet of advanced platforms and weapons systems; and implement investments to optimize range capabilities required to adequately support required training.

Actions analyzed in the Final EIS/OEIS are required to enable the Navy to meet its statutory responsibilities under sections 5013 and 5062 of Title 10 of the U.S. Code to organize, train, equip, and maintain combat-ready naval forces and to successfully fulfill its current and future global mission of winning wars, deterring aggression, and maintaining freedom of the seas. Activities involving RDT&E for DoD or other federal agency systems are an integral part of this readiness mandate.

The proposed action will be accomplished as set forth in Alternative 2, described in the Final EIS/OEIS as the Preferred Alternative. Exercises and training do not include combat operations, operations in direct support of combat, or other activities conducted primarily for purposes other than training. The Preferred Alternative, which includes the following: (1) training operations currently conducted (*i.e.*, those described in the No Action Alternative); (2) increasing or modifying training operations; (3) new training activities to accommodate changes in mission areas and force structure; (4) reducing use of High Explosive munitions during at-sea BOMBEXs by ninety-six percent (96%); and (5) designating additional MIW training areas within the VACAPES Study Area to provide additional support during training events. The proposed action will not make major changes to VACAPES Range Complex facilities, operations, training, or RDT&E capacities. Rather, the actions proposed are incremental increases over the current activities that would result in relatively small-scale, but critical, enhancements that are necessary if the Navy is to maintain a state of military readiness commensurate with its national defense mission.

1. Overview of the VACAPES Final EIS/OEIS

a. Today's Navy: The U.S. maintains its military forces to ensure the freedom and safety of all Americans both at home and abroad. The Preamble of the U.S. Constitution established the principle that the people of the U.S. will provide for the common defense. Article 1, Section 8 states, "The Congress shall have power to provide for the common defense...provide and maintain a navy," and "to make rules for the government and regulation of the land and naval forces." To implement these constitutionally mandated duties, Congress provided section 5062 of Title 10 of the U.S. Code, which states, "The U.S. Navy shall be organized, trained and equipped primarily for prompt and sustained combat incident to operations at sea."

The Navy and Marine Corps generally organize their deployed forces into strike groups. The number and composition of

individual units comprising a strike group is tailored to meet specific missions and expected threats. A Carrier Strike Group (CSG), consisting of an aircraft carrier and its embarked airwing, several surface combatant ships and submarines, can project power ashore via aircraft or missiles. An Expeditionary Strike Group (ESG), consisting of amphibious ships, surface combatant ships, submarines, and an embarked Marine Expeditionary Unit (MEU) can project power ashore via amphibious landing of men, armor and materiel. Traditionally, a CSG or ESG operates on a two to three year cycle that begins with major maintenance and work-up training before culminating in a six to eight month deployment. A Surface Strike Group (SSG), consisting of one to three surface combatant ships for Maritime Security operations, is specially organized to conduct a typically short-term, limited objective.

The President and Secretary of Defense determine when and where naval forces will be deployed. While the Navy always has several strike groups deployed to provide global naval presence and engagement, the 21st Century security environment has spawned more frequent requests from combatant commanders for additional Navy forces ranging in size from individual units to strike groups. Emergent missions have included major combat, maritime and theater security, homeland defense, support of civil authorities, maritime security/force protection and humanitarian assistance/disaster relief operations. This rapid response of forces to supplement naval forces on routine deployment is referred to as "surge". Surge refers to the capability to quickly deploy Navy assets, sometimes to multiple locations, in response to world events. In order for the Navy to be "surge-ready," it must be able to quickly modify its routine training schedule to allow for earlier certification of units before deploying them.

b. Why the Navy Trains: The nature of modern warfare and security operations has become increasingly complex. The threat is global, and the tactics, weapons and forces arrayed against the U.S. military span the gamut from crude to extremely sophisticated. To effectively counter the array of threats, naval forces bring together thousands of sailors and marines, their equipment, vehicles, ships, and aircraft, and often other U.S. services or coalition partners, all of which need to work together as a cohesive team to achieve success. Realistic, regular training provides all elements of the Navy-Marine Corps team, from the individual to the Strike Group, with the initial combat experience crucial to success and survival in this environment.

Naval forces can carry out operations on and below the ocean surface, on land and in the air simultaneously. To optimize all this capability, Navy training activities must focus on achieving proficiency in eight functional areas, known as Primary Mission Areas (PMAR): Air Warfare (AW), Anti-submarine Warfare (ASW), Amphibious Warfare (AMW), Surface Warfare (SUW), MIW, Strike Warfare (STW), Electronic Combat (EC), and Naval Special Warfare (NSW). Each training event addressed in the VACAPES Final EIS/OEIS is categorized under one of these PMARs.

c. Structuring the Analysis in the VACAPES Final EIS/OEIS of Navy Training Activities:

(1) **Geographic Scope:** The Navy has been training in the area now defined as the VACAPES Range Complex for national defense purposes for over 60 years. The air, sea space, and undersea space of the Range Complex has and continues to provide a safe and realistic training and testing environment to ensure military personnel are ready to carry out assigned missions in furtherance of the Navy's Congressionally mandated duty.

The Final EIS/OEIS analyzed current, emerging, and future training and RDT&E operations in VACAPES Range Complex that geographically encompasses the offshore and nearshore OPAREA including the area from mean high tide line out to and extending seaward from the 3 nautical-mile western boundary of the OPAREA and special use airspace (SUA) located near the East Coast of the U.S. In addition, the lower portion of the Chesapeake Bay was proposed for MIW training areas. The VACAPES Study Area does not include any dry land.¹ These areas encompass the VACAPES Study Area for the purposes of the Final EIS/OEIS. Together, components of the VACAPES Range Complex encompass 27,661 square nautical miles of sea space, 28,672 square nautical miles of SUA, and 420 square nautical miles of the lower Chesapeake Bay.

The VACAPES Range Complex offshore OPAREA is in the southern portion of the Mid-Atlantic Bight, the region between Cape Cod and Cape Hatteras. The VACAPES OPAREA includes the nearshore area from just off the mouth of Delaware Bay south to Cape Hatteras. The western (shoreward) boundary is roughly the 3 nautical-mile state territorial limit and the seaward

¹ The land-based Navy range at Dare County, while a component of the VACAPES Range Complex, was not included in the Study Area. Training and target upgrades at the Dare County Bombing Range were the subject of a 2008 Environmental Assessment (EA).

(eastern) boundary extends 155 nautical miles into waters more than 13,120 feet deep.

The northern limits of the VACAPES Study Area extend to Cape Henlopen, Delaware. To the south, the VACAPES Range Complex extends almost to Cape Hatteras, North Carolina before angling seaward and terminating at the approximate latitude of Cape Fear. This analysis also includes proposed MIW training areas in the lower Chesapeake Bay.

2. Procedural History and Public Involvement: As the lead agency for this action, the Navy invited the National Marine Fisheries Service (NMFS) to be a cooperating agency for the EIS/OEIS. The Navy initiated a mutual exchange of information through early and open communications with interested stakeholders during the development of the Draft EIS/OEIS. The Notice of Intent, which provided an overview of the proposed action, scope of the EIS/OEIS, and scoping meeting locations was published in the *Federal Register* on December 8, 2006 (71 FR 71143-71145). A revised NOI was issued in the *Federal Register* (72 FR 50940-50941) on September 5, 2007 when potential shallow water non-explosive MIW training areas in the southern Chesapeake Bay were identified for analysis. Notification of public scoping meetings was also made through local media outlets and four local newspapers. The Navy conducted scoping meetings at the following four locations from January 8-11, 2007: Salisbury, Maryland; Chincoteague; Virginia, Virginia Beach, Virginia; and Nags Head, North Carolina.

The Notice of Availability of the Draft EIS/OEIS and Notice of Public Hearings were published in the *Federal Register* on June 27, 2008 (73 FR 36498-36500). Notification of public hearings was also made through local media outlets and newspapers. The Draft EIS/OEIS was distributed to those individuals, agencies, and associations who asked to be notified during the scoping process, as well as members of Congress, state governors and officials from the coastal region adjacent to the VACAPES Range Complex. Notification of the availability of the VACAPES Draft EIS/OEIS and public hearing schedule was sent to interested individuals, agencies, and associations, as well as elected and other public officials. In addition, the VACAPES Draft EIS/OEIS was made available for general review at six public libraries in the region encompassed by the VACAPES Range Complex, and the project website (<http://www.vacapesrangecomplexeis.com>). The Navy held four public hearings from July 14-17, 2008 in Ocean City, Maryland;

Chincoteague, Virginia; Virginia Beach, Virginia; and Kitty Hawk, North Carolina.

The Final EIS/OEIS incorporated, and formally responded to, all public comments received on the Draft EIS/OEIS. During the public review process for the Draft EIS/OEIS, 119 comments were received; 30 from government agencies, 66 from state agencies, 9 from organizations and 14 from individuals. Responses took the form of corrections of data inaccuracies, clarifications of and modifications to analytical approaches, inclusion of additional data or analyses, and modification of the proposed action or alternatives. No comments received on the Draft EIS/OEIS required significant revisions in the Final EIS/OEIS. Revisions were made in the FEIS/OEIS; however, to amplify information previously provided. These changes included a more detailed description of Maritime Security Operations and more detailed Weapon System data sheets.

The Notice of Availability of the Final EIS/OEIS was published in the *Federal Register* on March 20, 2009 (74 FR 11943), and in various newspapers. Also, the Final EIS/OEIS was made available for general review at six public libraries in the region encompassed by the Study Area, and at the project website (<http://www.vacapesrangecomplexeis.com>). Finally, the Final EIS/OEIS was distributed to those individuals, agencies, and associations who asked to be notified during the public comment period, as well as members of Congress, state governors and officials from the coastal region encompassed in the VACAPES Study Area. Notification of the availability of the Final EIS/OEIS was sent to interested individuals, agencies, and associations, as well as elected and other public officials. Comments received during the 30-day wait period are discussed below in the section entitled "Responses to Comments on the Final EIS/OEIS."

ADDITIONAL BACKGROUND AND ISSUES: The Final EIS/OEIS incorporates the Navy's training needs while ensuring compliance with applicable environmental laws, regulations, and executive orders.

1. NEPA: Structure of the Analysis:

a. U.S. Atlantic Fleet Considerations: The Navy's approach to developing alternatives in the Final EIS/OEIS hinged on conducting training exercises to meet its obligations under Title 10 of the U.S. Code. In addition, the development of alternatives took into account the fact that no single range complex on the East Coast can accommodate the entire spectrum of

Navy and Marine Corps training and testing, the need to train as we fight, and the requirement to achieve the necessary levels of proficiency in weapons firing. The VACAPES Range Complex possesses a number of features that make it an indispensable component of the Navy's East Coast system of ranges, primary among them the fact that Norfolk, Virginia has been a fleet concentration area since before World War II. Today, it represents one of the largest concentrations of Atlantic Fleet ships, aircraft and personnel.

b. The Relationship with other U.S. Fleet Forces Command (USFF) Environmental Planning and Associated Compliance Documents:

(1) The Tactical Training Theater Assessment Program (TAP): In 2002, Commander, U.S. Fleet Forces and Commander, U.S. Pacific Fleet initiated the Tactical Training Theater Assessment and Planning (TAP) Program to serve as the overarching Fleet training area sustainment program. The TAP program focuses specifically on the sustainability of range complexes, OPAREAs, and SUA that support the F RTP. The TAP program represents the first time the Navy has managed its training areas on a range complex-wide basis. TAP will provide environmental planning documentation that assesses the potential for environmental effects associated with certain activities/actions conducted within a Range Complex.

Through this program, the Navy achieves and maintains Fleet readiness using the range complexes to support and conduct current, emerging, and future training and RDT&E activities; expand warfare missions supported by the range complexes; and upgrade and modernize existing range capabilities to enhance and sustain U.S. Navy training and RDT&E activities. Where applicable, the results of these Final EIS/OEIS are incorporated by reference into the environmental documentation for the following USFF Range Complexes: Jacksonville (JAX); Navy Cherry Point (NCHPT); and Gulf of Mexico (GOMEX).

(2) The Atlantic Fleet Active Sonar Training (AFAST) Final EIS/OEIS: The VACAPES Final EIS/OEIS incorporates by reference the AFAST Final EIS/OEIS, which is available at <http://afasteis.gcsaic.com>. Because mid-frequency active (MFA) and high-frequency active (HFA) sonar use and potential sonar effects can cross and go beyond Range Complex boundaries, the Navy comprehensively analyzed all Atlantic Fleet MFA and HFA sonar training in the AFAST EIS/OEIS. Active sonar training, however, is an integral component of fleet readiness training within each Range Complex; therefore, the AFAST Final EIS/OEIS

analysis and conclusions are incorporated and summarized within the VACAPES Final EIS/OEIS so the direct and indirect impacts of all components of fleet training in the VACAPES Range Complex can be comprehensively evaluated under NEPA and EO 12114. The AFAST Final EIS/OEIS provides full description and analysis of active sonar activities along the East Coast and within the Gulf of Mexico. The AFAST Final EIS/OEIS was released to the public on December 12, 2008 (73 FR 75715). The Navy's consultation with NMFS pursuant to the Marine Mammal Protection Act (MMPA) concluded with NMFS's filing of the Final Rule for public inspection with the Office of the Federal Register (74 FR 4844) on January 22, 2009, and NMFS's subsequent issuance of the first annual Letter of Authorization (LOA). The Navy's consultation with NMFS, in accordance with Section 7 of the Endangered Species Act (ESA), concluded when the Biological Opinion was signed on January 16, 2009, and the annual Incidental Take Statement was subsequently issued. Accordingly, any incidental take authorizations under the MMPA and ESA issued by NMFS for VACAPES Range Complex training and RTD&E activities will not cover those AFAST activities for which the Navy has already received prior authorization. AFAST activities conducted on the VACAPES Range Complex will be covered by these prior AFAST authorizations.

The AFAST Final EIS/OEIS analyzed the potential environmental effects associated with the improved extended echo ranging (IEER) system during Atlantic Fleet training exercises. The IEER system consists of an explosive source sonobuoy (AN/SSQ-110A) and an air deployable active receiver (ADAR) sonobuoy (AN/SSQ-101). The Navy is developing the Advanced Extended Echo Ranging (AEER) system as a replacement to the IEER system. The AEER system would use a new active sonobuoy (AN/SSQ-125) that utilizes a tonal (or a ping) versus an impulsive (or explosive) sound source as a replacement for the AN/SSQ-110A. The AEER system will still use the ADAR sonobuoy as the systems receiver. In addition, the AFAST Final EIS/OEIS incorporates RDT&E active sonar activities similar, and coincident with, Atlantic Fleet training. For the purposes of the AFAST Final EIS/OEIS, "active sonar activities" refers to training, maintenance, and RDT&E activities involving MFA and HFA sonar and explosive source sonobuoy (AN/SSQ-110A). Surface ships, submarines, helicopters, and marine patrol aircraft use active sonar during ASW, MIW, object detection/navigation, and maintenance events. The activities involving active sonar described in the AFAST Final EIS/OEIS are not new and do not involve significant changes in systems, tempo, or intensity from past activities.

The Navy analyzed four geographic alternatives in the AFAST Final EIS/OEIS. Under Alternative 1, active sonar areas would be designated using an environmental analysis to determine locations that would minimize environmental effects to biological resources while still meeting operational requirements. Under Alternative 2, active sonar training areas would be designated using the same environmental analysis conducted under Alternative 1; however, these areas would be adjusted seasonally to minimize effects to marine resources. Under Alternative 3, sonar training would not occur within certain environmentally sensitive areas, which would be designated areas of increased awareness. The No Action Alternative can be regarded as continuing with the present course of action. Under the No Action Alternative, the Navy would continue conducting active sonar activities within and adjacent to existing OPAREAs rather than designate active sonar areas or areas of increased awareness.

The Deputy Assistant Secretary of the Navy for Environment (DASN(E)), considered the following factors: the Congressional mandates in section 5062 of Title 10 of the U.S. Code; the Navy, DoD, and other federal agencies' operational, testing, and training requirements; environmental impacts; and comments received during the AFAST EIS/OEIS process in determining whether and how to designate areas where active sonar activities would occur within and adjacent to existing OPAREAs located along the East Coast of the U.S. and in the Gulf of Mexico. After carefully weighing all of these factors and analyzing the data presented in the AFAST Final EIS/OEIS, the DASN(E) determined that the Preferred Alternative, the No Action Alternative, best meets the requirements for the proposed AFAST active sonar activities. The DASN(E) signed the Navy's Record of Decision (74 FR 5650) on January 23, 2009.

The estimated annual incidental takes of marine mammals and sea turtles due to acoustic exposures resulting from AFAST activities in the VACAPES Range Complex may be found in Tables 3.19-4 and 3.19-5 in the Final EIS/OEIS, respectively, and are summarized below in the discussion of environmental effects associated with the Preferred Alternative.

The active sonar activities described in the Final EIS/OEIS are not new and do not involve significant changes in systems, tempo, or intensity from past events. Evaluation of the potential environmental stressors indicated that no significant impact to resources and issues from AFAST activities conducted

in the VACAPES Range Complex would be expected. A complete listing of the entire suite of mitigation measures (those associated with both AFAST and the VACAPES Range Complex) is provided below.

(3) The Proposed Undersea Warfare Training Range (USTWR): The Navy is preparing an EIS/OEIS that analyzes the potential impacts of installing and operating a USWTR along the East Coast. The proposed action includes training involving the use of MFA and HFA sonar at the USWTR. Several sites along the East Coast are under consideration for the USWTR, including a site within the VACAPES Range Complex. Further information regarding the USWTR EIS/OEIS is available at <http://projects.earthtech.com/uswtr/>.

PURPOSE AND NEED: The purpose of the VACAPES Range Complex proposed action is to: (1) achieve and maintain Fleet readiness using the VACAPES Range Complex to support and conduct current, emerging, and future training operations and RDT&E operations to support the requirements of the FRTP; (2) expand warfare missions supported by the VACAPES Range Complex; and (3) upgrade and modernize existing range capabilities to enhance and sustain Navy training and RDT&E.

The need for the proposed action is to provide range capabilities for training and equipping combat-capable naval forces ready to deploy worldwide. In this regard, the VACAPES Range Complex furthers the Navy's execution of its congressionally mandated roles and responsibilities under section 5062 of Title 10 of the U.S. Code.

ALTERNATIVES CONSIDERED: The Navy identified a reasonable range of alternatives, based on criteria set out in the Final EIS/OEIS, which would satisfy its purpose and need. Three alternatives are analyzed in the Final EIS/OEIS: (1) The No Action Alternative, which continues current training operations, to include surge consistent with the FRTP; (2) Alternative 1, which is current activities in the No Action Alternative plus increase operational training, expanded warfare missions, accommodation of force structure changes (including training resulting from the introduction of new platforms), and implementation of enhancements to the minimal extent possible to meet the components of the proposed action; and (3) Alternative 2, which includes Alternative 1 activities plus additional MIW training capabilities, and implementation of increases in operations to enable the range complex to meet future requirements. Alternative 2 is identified in the Final EIS/OEIS as the Preferred Alternative. Selection of the Preferred

Alternative will result in a ninety-six percent (96%) reduction in High Explosive bombs used in at-sea BOMBEXs. Based on the analysis incorporated in Appendix J to the Final EIS/OEIS, Alternative 2 is also the environmentally preferred alternative.

The proposed action is to support and conduct current and emerging training and RDT&E operations in the VACAPES Range Complex. Under the No Action Alternative, the Navy would maintain training and RDT&E operations at current levels.

Under either Alternative 1 or Alternative 2, the following would occur: increase or modify training and RDT&E operations from current levels as necessary in support of the FRTP; accommodate mission requirements associated with force structure changes, including those resulting from the introduction of new platforms (aircraft, and weapons systems); and implement enhanced Range Complex capabilities.

1. Alternatives Eliminated From Further Consideration: In developing a reasonable range of alternatives, the Navy eliminated four alternatives from further consideration: (1) no training alternative; (2) alternative range complex locations; (3) conduct simulated training exclusively; and (4) practice ammunition use only.

a. No-Training Alternative: If the Navy did not conduct training exercises along the East Coast, it would not be able to meet its obligations under section 5062 of Title 10 of the U.S. Code, which requires the Navy to be "organized, trained, and equipped primarily for the prompt and sustained combat incident to operations at sea." Additionally, RDT&E supports the Title 10 mandate because it provides the Navy the capability of developing weapon systems and ensuring their safe and effective implementation for the Atlantic Fleet. For these reasons, an alternative that would reduce military training from current levels or eliminate training altogether would not meet the purpose and need of the proposed action. This alternative was eliminated from further consideration in the Final EIS/OEIS.

b. Alternative Range Complex Locations: To maintain a high level of combat readiness for naval forces at best value to the U.S. taxpayer, the Navy and Marine Corps homeported their forces in multiple concentration areas rather than a single area, in part to ensure the surrounding training and testing areas could support their specific needs. The result is a system of range complexes, each optimized to support particular warfare areas. For example, the JAX Range Complex is the only East Coast Range Complex with a Navy owned land-based range

capable of supporting STW events where High Explosive munitions are used. Likewise, the NCHPT Range Complex is proximate to the beaches at Marine Corps Base (MCB) Camp Lejeune, and as such, is the only East Coast Range Complex capable of supporting large scale amphibious assault training. Taken as a whole, this system of ranges provides a robust training and testing capability for all naval warfare missions, but no one range complex can cover them alone. Historical and natural features have made Virginia Capes a fleet concentration area and preferred venue for unit level training and major exercises such that the Navy has invested substantial money and effort in building the range infrastructure that supports homeported units and training activities. Other locations do not provide reasonable alternatives for required training purposes/activities, and as a result, alternative training locations were eliminated from further consideration.

c. Conducting Simulated Training Exclusively: Simulated training using computer models and classroom training are currently used by the Navy and are effective tools; however, they cannot exclusively replace live training because they do not replicate the atmosphere or experience that live training provides. While the Navy continues to research new ways to provide realistic training through simulation, simulated training does not fully develop the skills and capabilities necessary to attain appropriate military readiness; thus, such an alternative would also fail to meet the purpose and need of the proposed action. Simulators may assist in developing an understanding of certain basic skills and equipment operation, but cannot sufficiently capture the complexity and uncertainty of real-world training conditions, nor can they offer a complete picture of the detailed and instantaneous interaction within each command and among many commands and warfare communities that actual training at sea provides. Current simulation technology cannot adequately replicate the multi-dimensional training (e.g., training for simultaneous air, surface and subsurface threats) necessary to adequately prepare the nation's Naval forces for combat. Because of the need to train as we fight, this alternative would fail to meet the purpose and need of the proposed action in that it would not sufficiently prepare our naval forces for combat. Therefore, this alternative was not evaluated in the Final EIS/OEIS.

d. Practice Ammunition Use Only: An alternative that would rely entirely on non-explosive, practice ammunition use within the VACAPES Range Complex would not achieve the necessary levels of proficiency in firing weapons in a high stress and

realistic environment. Practice ammunition is already utilized extensively to enhance combat performance in the Navy's training program. However, while it is an essential component of training, practice ammunition cannot be used exclusively to train safely in an inherently unsafe combat environment. Consequently, this alternative also fails to meet the purpose and need of the proposed action and was not carried forward for analysis.

2. No Action Alternative - Current Training Operations within the VACAPES Range Complex: For proposals involving changes to on-going activities, CEQ guidance describes the "no action" as "'no change' from management direction or level of intensity" and "continuing with the present course of action until the action is changed." Consequently, the No Action Alternative, consistent with CEQ regulations, is a baseline against which the impacts of the proposed action are compared. For the purposes of the Final EIS/OEIS, the No Action Alternative is the baseline level of operations on the VACAPES Range Complex, representing the regular and historical level of training and testing activity necessary to maintain Navy readiness. The Navy has been training in the area now defined as the VACAPES Range Complex for national defense purposes for over 60 years. Consequently, the No Action Alternative stands as no change from current levels of training and testing usage. Training operations in the VACAPES Range Complex span from unit level exercises to integrated major range training events. The scope of operations can consist of air combat maneuvers or ordnance delivery at water targets by a single aircraft, to Joint Task Force Exercises (JTFEX) which may involve thousands of participants over a period of two weeks.

3. Alternative 1 - Increase and Modify Operational Training, Expand Warfare Missions, Accommodate Force Structure Changes, and Enhance Range Complex Capabilities: Alternative 1 is designed to meet Navy and DoD current and near-term operational training and RDT&E requirements. Under Alternative 1, in addition to accommodating training operations currently conducted (*i.e.*, those described in the No Action Alternative), training operations would be increased or modified, force structure changes would be accommodated, and Range Complex capabilities would be enhanced under this alternative. The following increases and enhancements would be implemented under Alternative 1:

a. Increases in Training Operations: Baseline levels would increase by approximately ten percent (10%) for most operations to accommodate short-term national security

contingencies and provide planners with flexibility to develop realistic battle problems for major fleet training exercises.

b. Expand Warfare Missions: The Navy would use the VACAPES Range Complex to ensure that the Navy's ability to respond to emergent requirements, such as piracy and the global war on terrorism, is maintained. The Navy proposes to use the VACAPES Range Complex for preparing surface ships and embarked air, special forces and Marine Corps units for deployment as Maritime Security Surge (MS) SSGs. The Navy also proposes to conduct surface-to-air missile training exercises with either High Explosive or non-explosive warheads at target drones simulating enemy aircraft.

c. Force Structure Changes: The Navy proposes to conduct Multi-Mission Helicopter (MH-60R/S) training missions in the VACAPES Range Complex in accordance with recent restructuring of Navy helicopter forces involving the MH-60R/S airframes. The MH-60R's missions include surface warfare, electronic warfare, maritime intercept operations, non-combatant operations/maritime law enforcement, and fleet support/search and rescue. The MH-60S' missions include mine countermeasure and mine neutralization, using the following Organic Mine Countermeasures Systems: (Airborne Mine Neutralization System (AMNS); Rapid Airborne Mine Clearance System (RAMICS); Airborne Laser Mine Detection System (ALMDS); Organic and Surface Influence Sweep (OASIS); and the AN/AQS-20. Additionally, the Navy proposes to conduct Multi-Mission Maritime Aircraft (MMA) training.

d. Enhanced Range Complex Capabilities: The Navy proposes to increase number, type, and operation of Commercial Air Services Support (CAS) to support Fleet Training. These contractor owned and operated aircraft carry a variety of electronic threat emitters, perform aircraft maneuvers and flight profiles that mimic enemy aircraft, provide air-to-air refueling capabilities, and tow and stream targets used for surface-to-air gunnery training.

4. Alternative 2, the Preferred Alternative - Increase and Modify Operational Training, Accommodate Force Structure Changes, and Implement Enhanced MIW Training Capability: Alternative 2 includes implementation of Alternative 1 with additional increases in training operations, a reduction in the use of High Explosives munitions during at-sea BOMBEXs by 96%, and the designation of additional MIW training areas within the VACAPES Study Area to provide additional support during training events. The Navy proposes to create six separate MIW training areas, two in the lower Chesapeake Bay and four in the VACAPES

OPAREA, primarily for enhanced mine countermeasures (MCM) and mine neutralization unit level training.

5. Actions Associated with the Preferred Alternative:

a. Training Events: Training events within the VACAPES Range Complex range from unit-level training (training with one or more ships, submarines, and aircraft) through integrated and sustainment training including major exercises such as the Composite Training Unit Exercise (COMPTUEX) and JTFEX. The training activities that make up a major exercise are typically unit-level training conducted under the umbrella of a large coordinated event. Training events occur within the VACAPES Range Complex throughout the year, based on training schedules and emergent training requirements.

(1) **Unit-Level Activities:** Unit-level training and coordinated unit-level training include activities in the mission areas of MIW, SUW, AW, STW, AMW, ASW, EC, NSW, and test and evaluation of the Shipboard Electronic Systems Evaluation Facility Utilization (SESEF). See Table 2.2-4 in the Final EIS/OEIS for additional details.

(2) **COMPTUEX:** The COMPTUEX is an Integration Phase, at-sea, major range event. For the CSG, this exercise integrates the aircraft carrier and carrier air wing with surface and submarine units in a challenging operational environment. For the ESG, this exercise integrates amphibious ships with their associated air wing, surface ships, submarines, and MEU. Live-fire operations that may take place during COMPTUEX include long-range air strikes, Naval Surface Fire Support, and surface-to-air, surface-to-surface, and air-to-surface missile exercises. The MEU also conducts realistic training based on anticipated operational requirements and to further develop the required coordination between Navy and Marine Corps forces. Special Operations training may also be integrated with the exercise scenario. The COMPTUEX is typically 21 days in length. The exercise is conducted in accordance with a schedule of events, which may include two one-day, scenario-driven, "mini" battle problems, culminating with a scenario-driven three-day final battle problem. COMPTUEX occurs three to four times per year.

(3) **JTFEX:** The JTFEX is a dynamic and complex major range event that is the culminating exercise in the Sustainment Phase training for the CSGs and ESGs. A JTFEX evaluates a Strike Group's capabilities in all warfare areas through a series of complex scenario-driven events. For an ESG, the exercise

incorporates an Amphibious Ready Group (ARG) Certification Exercise for the amphibious ships and may include a Special Operations Capable Certification for the MEU. For a CSG, the exercise normally requires that a Strike Group demonstrate the ability to conduct air strikes throughout all phases of a scenario ranging from the period during which the potential for hostilities exist through actual combat operations involving all warfare areas. When schedules align, the JTFEX may be conducted concurrently for an ESG and CSG. JTFEX emphasizes mission planning and effective execution by all primary and support warfare commanders, including command and control, surveillance, intelligence, logistics support, and the integration of tactical fires. A JTFEX normally consists of about 10 days at sea and is the final at-sea exercise for the CSG or ESG prior to deployment. Depending on CSG and ESG schedules, JTFEXs normally occur about three to four times per year.

b. RDT&E Activities: The Preferred Alternative provides for increases in RDT&E activities that are similar to training activities conducted in the VACAPES Range Complex in the mission areas of MIW, SUW, AW, STW, AMW, ASW, and EC in support of the FRTP and are considered in the total number of events/sorties/rounds in Table 2.2-4 in the VACAPES Final EIS/OEIS.

c. Planned Enhancements: The Navy will enhance the VACAPES Range Complex by increasing Commercial Air Services as simulated targets and opposition forces during military training and creating six separate MIW training areas, two in the lower Chesapeake Bay and four in the VACAPES OPAREA, primarily for enhanced MCM and mine neutralization unit level training.

ENVIRONMENTAL IMPACTS: The Navy analyzed the potential impacts of the proposed action in terms of the following resource areas: bathymetry and sediments, hazardous material and hazardous waste, water resources, air quality, airborne noise, marine communities, marine mammals, sea turtles, fish and essential fish habitat (EFH), sea birds and migratory birds, land use, cultural resources, transportation, demographics, regional economy, recreation, environmental justice, public health and safety, and summary of AFAST sonar training. The potential for environmental impacts throughout the VACAPES Study Area associated with each alternative was analyzed and documented in the Final EIS/OEIS. This Record of Decision summarizes the potential impacts associated with implementation of the Preferred Alternative.

The environmental impacts analysis in the Final EIS/OEIS includes several warfare areas (e.g., MIW) and the specific activities/training operations that occur within those warfare areas (e.g., MIW includes Mine Neutralization, MCMs, and Mine Laying). Likewise, these specific activities/training operations result in stressors (e.g., Mine Neutralization may result in underwater detonations and or expended materials). Accordingly, the analysis is organized by specific activity/training operation and stressors associated with that activity/training operation.

The Navy used a screening process to identify aspects of the proposed action that could act as stressors to resources or issues. Navy subject matter experts de-constructed the warfare areas and operations included in the proposed action to identify specific activities that could act as stressors. Public and agency scoping comments, previous environmental analyses, previous agency consultations, laws, regulations, Executive Orders, and resource-specific information were also evaluated. This process was used to focus the information presented and analyzed in the affected environment and environmental consequences sections of the Final EIS/OEIS. Potential stressors identified through the screening process include: Vessel Movements (disturbance and collision); Aircraft Overflights (disturbance and strikes); Towed MIW Devices; MIW Deployment and Recovery; Non-Explosive Practice Munitions; High Explosive ordnance; and Military Expended Materials.

The analysis was conducted to determine the significance of impacts in U.S. territory in accordance with NEPA and significance of harm in non-territorial waters in accordance with EO 12114. In addition, resources and issues were evaluated in accordance with Clean Water Act, Clean Air Act, Coastal Zone Management Act (CZMA), MMPA, ESA, Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (Eagle Act), National Historic Preservation Act (NHPA), Sustainable Fisheries Act (SFA), and Magnuson-Stevens Fishery Conservation and Management Act (MSA).

1. Bathymetry and Sediments: The primary effect of the Navy's training activities in the VACAPES Study Area would be the deposition of expended training materials and their accumulation over time. Implementation of the Preferred Alternative would have no significant impact on bathymetry or sediments in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to bathymetry or sediments in non-territorial

waters as a result of the analyzed stressors. Mitigation measures are not necessary for this resource area.

2. Hazardous Material and Hazardous Waste: Hazardous material used and waste generated in the VACAPES Study Area would be managed in accordance with applicable federal and state regulations, and DoD service guidelines. Expended training materials, which are discussed under this resource area, will also be managed in accordance with applicable federal and state regulations, and DoD service guidelines. Implementation of the Preferred Alternative would have no significant impact on marine habitats in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to marine habitats in non-territorial waters as a result of the analyzed stressors. Mitigation measures are not necessary for this resource area.

3. Water Resources: For the purposes of this analysis, water quality is evaluated with respect to the possible release of hazardous constituents from those aircraft, vessels, munitions, and expended training materials used in the VACAPES Study Area. Implementation of the Preferred Alternative would have no significant impact on water quality in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to water quality in non-territorial waters as a result of the analyzed stressors. Mitigation measures are not necessary for this resource area.

4. Air Quality: Implementation of the Preferred Alternative would result in minor, short-term effects, such as minor increases of aircraft air emissions within the airsheds, but would have no unavoidable significant environmental effects. Implementation of the Preferred Alternative would have no significant impact on air quality in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to air quality in non-territorial waters as a result of the analyzed stressors. Mitigation measures are not necessary for this resource area.

5. Airborne Noise: The analysis of airborne noise was limited to potential impacts from airborne noise on humans.² While implementation of the Preferred Alternative would increase airborne noise levels above the baseline for current operations, as Navy training takes place in remote and cleared areas and as

²Modeling of airborne noise effects was not necessary, as no land-based ranges were included in the VACAPES Study Area.

military personnel operating the equipment/weapon systems producing the noise would wear personal protective equipment, no unavoidable significant environmental effects would be associated with the Preferred Alternative. Implementation of the Preferred Alternative would have no significant impact on the human noise environment in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to the human noise environment in non-territorial waters as a result of the analyzed stressors. Mitigation measures are not necessary for this resource area.

6. Marine Communities and Biological Considerations: The Final EIS/OEIS focused on the following marine communities occurring within the VACAPES Study Area: plankton and macroalgae, benthic communities, seagrasses/submerged aquatic vegetation and artificial habitats. The primary effect of the Navy's training activities in the VACAPES Study Area would be the deposition of expended training materials and their accumulation over time.

a. NEPA and EO 12114 Conclusions: Implementation of the Preferred Alternative would have no significant impact on marine communities in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to marine communities in non-territorial waters as a result of the analyzed stressors.

Non-explosive munitions (NEPM), missiles and naval gun shells could result in 7,384 square feet of disturbance to benthic habitats per year. Concrete mine anchors could result in 1,700 square feet of disturbance to benthic habitats per year. Only a percentage of the total area affected (less than 7,384 square feet per year from NEPM) would be sensitive benthic habitat such as live hard bottom. As such, non-explosive practice bomb, missile, and naval gun shell strikes could result in long-term, minor effects to benthic communities, but the effects would be localized and no long-term changes to community structure or function would be expected.

Avoidance of sargassum rafts and live/hardbottom habitats (when practicable) during testing and training exercises are the primary mitigation measures to protect marine communities. A complete listing of the entire suite of mitigation measures can be found in the Mitigation Measures section below.

7. Marine Mammals: Training activities analyzed in the Final EIS/OEIS involve the use of High Explosive ordnance and MFA and HFA sonar (incorporated from the AFAST Final EIS/OEIS).

There are 33 cetaceans, three pinnipeds, and one sirenian species, including seven ESA-listed species, with confirmed or potential occurrence in the VACAPES Study Area. No significant short- or long-term impact or significant harm to marine mammals from expended components or vessel strikes is expected. The Final EIS/OEIS evaluated the potential direct and indirect effects to marine mammals as a result of exposure to potential environmental stressors. A quantitative analysis was used to determine the potential impacts to marine mammals associated with testing and training activities using explosive munitions. As discussed below, NMFS specified the criteria to be used by the Navy in analyzing the potential effects to marine mammals from the active sonar activities analyzed in the Final EIS/OEIS.

a. Framework for Assessing Marine Mammal Response to Anthropogenic Sound: As discussed above, the Final EIS/OEIS incorporates by reference the AFAST Final EIS/OEIS. The AFAST Final EIS/OEIS employed separate criteria to assess physiological and behavioral effects on marine mammals from exposure to MFA and HFA sonar that were developed in cooperation with NMFS for the Navy's 2005 USWTR Draft EIS/OEIS, the U.S. Pacific Fleet's 2007 Undersea Warfare Exercise (USWEX) Programmatic Environmental Assessment/Overseas Environmental Assessment (EA/OEA), the U.S. Pacific Fleet's 2006 Supplement to the 2002 Rim-of-the-Pacific (RIMPAC) Programmatic EA/OEA, and the U.S. Pacific Fleet's 2007 Southern California (SOCAL) COMPTUEX/JTFEX EA/OEA. For purposes of estimating physiological effects to marine mammals due to sound exposure, the Navy and NMFS concur on use of the energy flux density level (EL) method, which takes into account the total sound energy received. The approach to estimating potential behavioral effects of ASW training within the AFAST Study Area on marine mammals, meanwhile, was adopted as a result of comments and recommendations received on these previous documents, as well as comments on the Navy's Draft EIS/OEIS for the Hawaii Range Complex (HRC). Coordination between the Navy and NMFS resulted in the adoption of two risk function curves for evaluation of behavioral effects.

In the Final EIS/OEIS, the criteria employed in the AFAST Final EIS/OEIS was used to assist in ordering and evaluating the potential responses of marine mammals to sound. The framework includes the physics of sound propagation (physics component), the potential physiological responses associated with sound exposure (physiology component), the potential physiological responses associated with sound exposure (physiology component), the behavioral processes that might be affected (behavior

component), and the life functions that may be immediately affected by changes in behavior at the time of exposure (Figure 3.7-3 in the Final EIS/OEIS). These are extended to longer term life functions and into population and species effects.

The most familiar effect of exposure to high intensity sound is hearing loss. This phenomenon is called a noise-induced threshold shift, or simply a threshold shift (TS). TS may be either permanent, in which case it is called a permanent threshold shift (PTS), or temporary, in which case it is called a temporary threshold shift (TTS). The distinction between PTS and TTS is based on whether there is a complete recovery of TS following a sound exposure. A comprehensive discussion of the framework for assessing marine mammal exposure to sound is provided in the Final EIS/OEIS.

b. Explosive Modeling Analysis: In the AFAST Final EIS/OEIS, the approach to risk assessment for impulsive sound in the water was derived from the analysis of effects associated with the USS WINSTON S. CHURCHILL (DDG 81) and USS SEAWOLF (SSN 21) ship shock trials. The CHURCHILL ship shock trial used three criteria for analysis of potential exposure effects: eardrum rupture (*i.e.*, tympanic-membrane [TM] rupture), onset of extensive lung injury, and onset of slight lung injury. The threshold for TM rupture corresponds to a 50-percent (50%) rate of rupture (*i.e.*, fifty percent (50%) of the animals exposed to the level are expected to suffer TM); this is stated in terms of an EL value of 1.17 inch pounds per square inch (about 205 dB re 1 $\mu\text{Pa}^2\text{-s}$). This recognizes that TM rupture is not necessarily a serious or life-threatening injury, but it is a useful index of possible injury that is well correlated with measures of permanent hearing impairment.

The criteria for mortality is the onset of extensive lung injury. For small mammals, the threshold is given in terms of the Goertner modified positive impulse indexed to 30.5 pounds per square inch-millisecond (psi-ms). For medium and large mammals, the threshold is 73.9 and 111.7 psi-ms, respectively. In the AFAST Final EIS/OEIS, all cetaceans and turtles were analyzed using the threshold for small mammals for extensive lung injury. The results of the analysis, therefore, are conservative. The reader should refer to the AFAST Final EIS/OEIS for the full description and analysis of small explosives activities along the East Coast and within the Gulf of Mexico.

The effects of an underwater explosion on marine mammals are dependent on several factors, including the size, type, and

depth of both the animal and the explosive charge; the depth of the water column; and the standoff distance between the explosive charge and the animal, as well as the sound propagation properties of the environment. Impacts to marine species are a result of physiological responses (generally the destruction of tissues at air-fluid interfaces) to both the type and strength of the acoustic signature and shock wave generated by an underwater explosion. Behavioral impacts are also expected, though the type and severity of these effects are more difficult to define due to limited studies addressing the behavioral effects of explosives on marine mammals and other aquatic species. Potential effects can range from brief acoustic effects (such as behavioral disturbance), tactile perception, physical discomfort, slight injury of the internal organs and the auditory system, to death of the animal. Non-lethal injury includes slight injury to internal organs and the auditory system; however, delayed lethality may be a result of individual or cumulative sublethal injuries. Immediate lethal injury would be a result of massive combined trauma to internal organs as a direct result of close proximity to the point of detonation.

(1) **Summary of Thresholds and Criteria for Impulsive Sound:** Criteria and thresholds for estimating the exposures from a single explosive activity on marine mammals were established for the SEAWOLF Submarine Shock Test Final EIS, and subsequently used in the CHURCHILL Ship Shock Final EIS and the AFAST Final EIS/OEIS. NMFS adopted these criteria and thresholds in its final rule on unintentional taking of marine animals occurring incidental to the shock testing. Since the ship-shock events involve only one large explosive at a time, additional assumptions were made to extend the approach to cover multiple explosions for the Firing Exercise (FIREX) using the Integrated Maritime Portable Acoustic Scoring System (IMPASS), BOMBEX, and MK3A2 anti-swimmer grenades. In addition, this section reflects a revised acoustic criterion for small underwater explosions (*i.e.*, 23 pounds per square inch [psi] instead of previous acoustic criteria of 12 psi for peak pressure over all exposures), based on the MMPA Final Rule and first annual LOA issued the Navy by NMFS for AFAST activities.

(A) Thresholds and Criteria for Injurious Physiological Effects: For injury, the analysis uses dual criteria: eardrum rupture (*i.e.*, TM rupture) and onset of slight lung injury. These criteria are considered indicative of the onset of injury. The threshold for TM rupture corresponds to a 50% rate of rupture (*i.e.*, fifty percent [50%] of animals

exposed to the level are expected to suffer TM rupture); this is stated in terms of an EL value of 1.17 inch pounds per square inch (in lbs/in²) (about 205 dB re 1 μ Pa²-sec).

The threshold for onset of slight lung injury is calculated for a small animal (a dolphin calf weighing 26.9 pounds), and is given in terms of the "Goertner modified positive impulse," indexed to 13 psi-millisecond (msec). The criterion with the largest potential exposure range (most conservative), either TM rupture (energy threshold) or onset of slight lung injury (peak pressure threshold), was used in the analysis to determine injurious physiological exposures.

For mortality, the analysis uses the criterion corresponding to the onset of extensive lung injury. For small animals, the threshold is given in terms of the Goertner modified positive impulse, indexed to 30.5 psi-msec.

(B) Thresholds and Criteria for Non-Injurious Physiological Effects: The criterion for non-injurious harassment is TTS (a slight, recoverable loss of hearing sensitivity). For this assessment, there are dual thresholds for TTS, an energy threshold and a peak pressure threshold. The first threshold is a 182 dB re 1 μ Pa²-sec maximum EL in any 1/3 octave band at frequencies above 100 Hertz (Hz) for toothed whales/sea turtles and in any 1/3-octave band above 10 Hz for baleen whales. The second threshold is stated in terms of peak pressure at 23 psi (about 225 dB re 1 μ Pa). The criterion with the largest potential exposure range (most conservative), either the energy threshold or peak pressure threshold, was used in the analysis to determine non-injurious physiological (TTS) exposures.

(C) Thresholds and Criteria for Behavioral Effects - Multiple Explosions: Because multiple explosions would occur within a discrete time period, a new acoustic criterion - behavioral disturbance - is used to account for behavioral effects significant enough to be judged as harassment, but occurring at lower noise levels than those that may cause TTS.

The behavioral disturbance threshold for tones is derived from the Space and Naval Warfare Systems Center (SSC) pure-tone tests for TTS and is found to be 5 dB below the threshold for TTS, or 177 dB re 1 μ Pa²-sec maximum EL in any 1/3 octave band at frequencies above 100 Hz for toothed whales/sea turtles and in any 1/3-octave band above 10 Hz for baleen whales.

c. Summary of Impacts for Marine Mammals

(1) **ESA Conclusions:** As part of the environmental documentation for the Final EIS/OEIS, and as an MMPA incidental take authorization applicant, Navy entered into early consultation procedures with NMFS regarding the potential effects on ESA-listed species from the conduct of the activities outlined in the VACAPES Final EIS/OEIS. As part of its analysis, the Navy concluded that the stressors associated with the Preferred Alternative would have no effect on the West Indian Manatee. The Navy also concluded that some of the training activities may affect the blue, fin, humpback, North Atlantic right, sei, and sperm whales.

NMFS reviewed the Navy's analysis and concluded that the issuance of an Incidental Take Statement was appropriate where NMFS concluded that the activities associated with the Preferred Alternative were likely to adversely effect some of the listed species. NMFS reviewed the current status of ESA-listed blue, fin, humpback, North Atlantic right, sei, and sperm whales, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, and issued a Programmatic Biological Opinion of June 5, 2009. NMFS concluded that the training activities the Navy plans to conduct in the VACAPES Range Complex and the NMFS's Permits, Conservation, and Education Division's proposal to promulgate regulations governing the take and importation of marine mammals pursuant to the MMPA that would allow it to issue annual LOAs to the Navy to take marine mammals for a five-year period beginning in June 2009 and ending in June 2014 incidental to the Navy's training activities are likely to adversely effect but are not likely to jeopardize the continued existence of these threatened and endangered species under NMFS's jurisdiction. NMFS subsequently issued an annual Biological Opinion and associated Incidental Take Statement on June 5, 2009, based upon these same conclusions. In these Opinions, NMFS also concluded that NMFS' issuance of the regulations, annual LOAs, and the Navy's training activities are not likely to result in the destruction or adverse modification of critical habitat that has been designated for endangered or threatened species in the action area.

The Navy has concluded the ESA Section 7 formal consultation process with NMFS for listed whales. The Navy has completed the ESA Section 7 informal consultation process with U.S. Fish and Wildlife Service (USFWS) for the manatee. In a letter dated October 7, 2008, the USFWS concurred with the

Navy's determination that explosive ordnance use would have no effect on the manatee.

(2) MMPA Conclusions: No Level A or Level B harassment, as defined by MMPA, is expected for any stressor other than the use of explosive ordnance.³ Exposure estimates from the use of explosive ordnance indicate potential for Level A and Level B harassment. Fin (2), humpback (2), sperm whales (2) Atlantic spotted dolphins (39), bottlenose dolphins (22), Clymene dolphins (32), common dolphins (2,096), *Kogia* spp. (3), Pantropical spotted dolphins (66), pilot whales (8), Risso's dolphins (14), Rough-toothed dolphins (1), and Striped dolphins (42) may be exposed at levels that could result in behavioral disturbance. Atlantic spotted dolphins (4), bottlenose dolphins (7), Clymene dolphins (1), common dolphins (97), Pantropical spotted dolphins (4), pilot whales (2), Risso's dolphins (2), and Striped dolphins (26) may be exposed at levels that could result in temporary threshold shift, or non-injurious physiological effects. Atlantic spotted dolphins (1), common dolphins (20), Pantropical dolphins (1), and Striped dolphins (3) may be exposed at levels that could result in permanent threshold shift, or injurious physiological effects. While Navy modeling estimated that a common dolphin (1) may be exposed at levels that could result in mortality, due to the proposed mitigation and monitoring measures, NMFS does not expect that the proposed action would result in any marine mammal mortality. Therefore, no mortality was authorized for the Navy's VACAPES Range Complex training activities. A complete summary of potential exposures for both single and multiple detonations may be found in Tables 3.7-19 and 3.7-20 of the Final EIS/OEIS.

Exposure estimates could not be calculated for several species (blue whale, sei whale, Bryde's whale, killer whale, pygmy killer whale, false killer whale, melon-headed whale, spinner dolphin, Fraser's dolphin, Atlantic white-sided dolphin, and harbor porpoise) because density data could not be calculated due to the limited available data for these species. However, the likelihood of exposure should be even lower than that estimated for other species with given densities since they are less likely to occur in the VACAPES Study Area. In addition, the West Indian manatee is not expected to occur offshore in areas where explosive ordnance use takes place. Therefore, no exposures are expected for this species.

³ Estimated MMPA incidental takes associated with AFAST activities are discussed in the AFAST Final EIS/OEIS.

Although there may be impacts to individual marine mammals, the impacts at the population, stock, or species level would be negligible. It is unlikely there would be adverse effects to the recruitment or survival of any species at the population level. The Navy submitted to NMFS an application for a LOA under MMPA for the Preferred Alternative. NMFS issued the Final Rule on June 5, 2009, and subsequently issued the first annual LOA for the period June 5, 2009 through June 4, 2010.

(3) NEPA and EO 12114 Conclusions: Implementation of the Preferred Alternative would have no significant impact on marine mammal populations in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to marine mammal populations in non-territorial waters as a result of the analyzed stressors. While the analysis presented in the Final EIS/OEIS indicated that explosive ordnance use under the Preferred Alternative may impact individual marine mammals, any impacts observed at the population, stock, or species level would be negligible.

Avoidance of impacts to marine mammals, though General Maritime Measures, Measures specific to North Atlantic Right Whale Migration, and Measures for Specific Training Events (which include the establishment of buffer zones) are the primary mitigation measures to protect marine mammals. A complete listing of the entire suite of mitigation measures can be found in the below section titled "Mitigation Measures."

8. Sea Turtles: Five species of sea turtles (green, hawksbill, Kemp's ridley leatherback, and loggerhead) occur in the VACAPES Study Area. These sea turtle species are classified as endangered with the exception of the green and loggerhead sea turtle, which are classified as threatened. It should be noted that the Florida and Mexican Pacific coast nesting populations of green turtles are listed as endangered. However, since not all green turtles found within the VACAPES Study Area come from the Florida population they are considered as threatened for the purposes of this document.

a. Framework for Assessing Sea Turtle Response to Anthropogenic Sound: The framework outlined above with regard to assessing the response of marine mammals to anthropogenic sound is applicable for sea turtle species as well.

Documentation of PTS or TTS in sea turtles is extremely scarce; limited to scattered, solitary records that would be difficult to extrapolate to a population-wide generality. However, it is assumed that acoustic exposure may elicit a

physiological or behavioral response (startle) to detonations. Presumably the same broad categories of responses that were examined for marine mammals may also apply here to sea turtles. Few experiments have been conducted to attempt to quantify explosive exposures on turtles; and unfortunately, the methods of these experiments do not allow for their results to be analyzed.

Navy analysts have compared the injury levels reported by the best of these experiments to the injury levels that would be predicted using the modified Goertner method. For this assessment, in the absence of criteria specifically set for sea turtles, the criteria for marine mammals, as established in the SEAWOLF and CHURCHILL EISs, were used to estimate potential exposures for turtles. Non-injurious effects were determined by either the dual physiological criteria for single detonations or by the behavioral criterion for multiple detonations. The criterion for behavioral disturbance used in this analysis is based on use of multiple explosives. A summary description for each criteria level, metric, and threshold for small explosives is outlined above.

b. Summary of Impacts for Sea Turtles

(1) **ESA Conclusions:** As part of the environmental documentation for the Final EIS/OEIS, the Navy entered into early consultation procedures with NMFS regarding the potential effects on ESA-listed sea turtle species from the conduct of the activities outlined in the VACAPES Final EIS/OEIS. The Navy concluded that some of the training activities may affect the Kemp's ridley, leatherback, loggerhead, and hardshell sea turtles, which include green, and hawksbill sea turtles.

NMFS reviewed the Navy's analysis and concluded that the issuance of an Incidental Take Statement was appropriate where NMFS had concluded that the activities associated with the Preferred Alternative were likely to adversely effect some of the listed species. NMFS concluded that ESA-listed sea turtles might be exposed to ELs resulting from underwater detonations which would elicit behavioral responses that NMFS would classify as harassment under nthe ESA. NMFS reviewed the current status of ESA-listed Kemp's ridley, leatherback, loggerhead, and hardshell sea turtles, which includes green and hawksbill sea turtles, the environmental baseline for the action area, and the cumulative effects. Based on its analysis, NMFS' issued a Programmatic Biological Opinion of June 5, 2009 and concluded that the training activities the Navy plans to conduct in the JAX Range Complex are likely to adversely effect but are not

likely to jeopardize the continued existence of these threatened and endangered species under NMFS's jurisdiction. NMFS subsequently issued an annual Biological Opinion and associated Incidental Take Statement on June 5, 2009, based upon these same conclusions. In these Opinions, NMFS also concluded that the Navy's training activities are not likely to result in the destruction or adverse modification of critical habitat that has been designated for endangered or threatened species in the action area.

(2) NEPA and EO 12114 Conclusions: Implementation of the Preferred Alternative would have no significant impact on sea turtle populations in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to sea turtle populations in non-territorial waters as a result of the analyzed stressors. While the analysis presented in the Final EIS/OEIS indicated that explosive ordnance use under the Preferred Alternative may impact individual sea turtles, any impacts observed at the population or species level would be negligible.

General Maritime Measures and Measures for Specific Training Events (which include the establishment of buffer zones) are the primary mitigation measures to protect, and avoid impacts to, sea turtles. A complete listing of the entire suite of mitigation measures can be found in the mitigation measures section below.

9. Fish and EFH: The general approach to analysis for fish and EFH is the same as the approach described above for marine mammals. The EFH that occurs in the Study Area is generally categorized as: benthic habitat; structured habitat (including artificial reefs, wrecks, biogenic habitat such as sponges, mussels, and coral); sargassum habitat; Gulf Stream habitat; marine water column habitat; and estuarine habitat. There are at least 94 species (not including corals) with designated EFH for at least one life stage occurring within the VACAPES Study Area. Twenty-five species have designated EFH within the lower Chesapeake Bay portion of the Study Area. Two ESA-listed fish species (the shortnose sturgeon and the Smalltooth sawfish) were considered in the analysis of potential impacts.

The shortnose sturgeon is not expected to occur in the Atlantic Ocean portion of the VACAPES Study Area; its potential occurrence in the Study Area is limited to the lower Chesapeake Bay. The Smalltooth sawfish is not expected to occur in the VACAPES Study Area because its current distribution is limited

to peninsular Florida, no recent records exist for the Study Area, and it rarely occurs offshore. Critical habitat has not been designated under the ESA for either species, within the OPAREA. One candidate species, the Atlantic sturgeon, may occur in the Study Area. The analysis included consideration for 11 species of concern.

a. ESA Conclusions: As part of the environmental documentation for the Final EIS/OEIS, Navy entered into early consultation procedures with NMFS regarding the potential effects on ESA-listed fish species from the conduct of the activities outlined in the Final EIS/OEIS. The Navy concluded that the effects of the Preferred Alternative would have no effect on the Smalltooth sawfish. The Navy also concluded that the effects of the Preferred Alternative may affect the shortnose sturgeon. NMFS determined that, because of their coastal distribution, Shortnose sturgeon and Smalltooth sawfish are not likely to be exposed to training activities the U.S. Navy proposes to conduct on the VACAPES Range Complex, and, therefore, are not likely to be adversely effected by the proposed activities.

b. SFA and MSA Conclusions: Implementation of the Preferred Alternative would not adversely affect EFH. Potential impacts to EFH and fish/managed species would be temporary and/or minimal. Implementation of the Preferred Alternative would not reduce the quality and/or quantity of EFH in the Study Area.

c. NEPA and EO 12114 Conclusions: Implementation of the Preferred Alternative would have no significant impact on fish populations or habitat in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to fish populations or habitat in non-territorial waters as a result of the analyzed stressors.

Avoidance of sargassum rafts and live/hardbottom habitats (when practicable) during testing and training exercises are the primary mitigation measures to protect essential fish habitat. A complete listing of the entire suite of mitigation measures can be found in the mitigation measures section below.

10. Seabirds and Migratory Birds: The analysis focused on seabirds in the open waters of the Atlantic Ocean and migratory birds that could seasonally migrate through the VACAPES Study Area. There were 61 species of seabirds and migratory birds that could potentially occur in the VACAPES OPAREA considered in the analysis of potential impacts from implementation of the

proposed activities. Two bird species, the Bermuda petrel and the roseate tern, are listed as endangered under the ESA and could potentially occur in the OPAREA. Critical habitat for the listed birds has not been designated under the ESA within the Study Area.

a. ESA Conclusions: Roseate terns are not expected to occur in the VACAPES Study Area except as occasional transient individuals. Consequently, for all stressors analyzed, the Preferred Alternative would have no effect on the roseate tern. Under the Preferred Alternative, vessel movements, aircraft overflights, military expended materials, non-explosive practice munitions, and high explosive ordnance use may affect the Bermuda petrel, but effects would be insignificant and discountable. MIW training and towed MIW devices would have no effect on the Bermuda petrel. Implementation of the Preferred Alternative would have no effect on critical habitat because none has been designated for either listed species within the Study Area.

The Navy has completed informal consultation with USFWS for the Preferred Alternative in accordance with Section 7 of the ESA. In a letter dated October 7, 2008, the USFWS concurred with the Navy's determination that the Preferred Alternative may effect, but would not likely adversely affect the Bermuda petrel, and would have no effect on the roseate tern. A copy of this letter can be found in Appendix C of the VACAPES Final EIS/OEIS.

In response to USFWS concerns on the piping plover, the Navy, in an email dated February 26, 2009, clarified the protective measures to ensure that the Preferred Alternative would not likely adversely affect the piping plover. The Navy specified that helicopters transiting from Norfolk Naval Station to off-shore training areas shall avoid overflying the barrier island at the southern tip of the Eastern Shore by at least 3,000 feet vertically and horizontally, and helicopters involved in mine training would avoid plover habitat by one nautical mile. In a letter dated March 19, 2009, the USFWS agreed to the clarified protective measure and concurred with Navy's determination that the Preferred Alternative would not likely adversely affect the piping plover. A copy of the Navy's e-mail and the USFWS letter can be found in Appendix C of the Final EIS/OEIS.

b. MBTA Conclusions: Implementation of the Preferred Alternative would not diminish the capacity of a population of a migratory bird species to maintain genetic diversity, to

reproduce, and to function effectively in its native ecosystem. The proposed action would not have a significant adverse effect on migratory bird populations. As a result and in accordance with 50 CFR Part 21, the Navy is not required to confer with the USFWS on the development and implementation of conservation measures to minimize or mitigate adverse effects to migratory birds not listed under the ESA.

c. NEPA and EO 12114 Conclusions: Implementation of the Preferred Alternative would have no significant impact on seabirds and migratory birds in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to seabirds and migratory birds in non-territorial waters as a result of the analyzed stressors.

Avoidance of sargassum rafts during testing and training exercises are the primary mitigation measures to protect sea birds. A complete listing of the entire suite of mitigation measures can be found in the mitigation measures section below.

11. Land Use: Implementation of the Preferred Alternative would not be associated with land encroachment, land forms, or soil. Offshore activities in the proposed action and potential impacts in non-territorial waters were not relevant to land use impacts. Evaluation of the environmental stressors indicated that there would be no significant impact to land use in territorial waters and no significant harm to land use in non-territorial waters. Mitigation measures are not necessary for this resource area.

12. Cultural Resources: There is a potential for prehistoric and historic cultural resources to occur within the lower Chesapeake Bay and the VACAPES OPAREA.

a. NHPA Conclusions: The Navy has consulted with the State Historic Preservation Offices (SHPO) in Delaware, Maryland, Virginia, and North Carolina and has obtained concurrence that no historic properties would be affected by the implementation of the Preferred Alternative.

b. NEPA Conclusions: Implementation of the Preferred Alternative would have no significant impact to cultural resources in territorial waters as a result of the analyzed stressors. Furthermore, the proposed activities would not cause significant harm to cultural resources in non-territorial waters as a result of the analyzed stressors. Avoidance of known shipwrecks when deploying non-explosive mineshafts, as well as during the anchorage of ships, is the primary mitigation measure

for protection of cultural resources. A complete listing of the entire suite of mitigation measures can be found in the mitigation measures section below.

13. Transportation: Evaluation of the potential environmental stressors indicated that there would be no significant impacts to transportation resources in the lower Chesapeake Bay or in the VACAPES Range Complex as a result of the Preferred Alternative and no significant harm to transportation resources in non-territorial waters. Mitigation measures are not necessary for this resource area.

14. Demographics: No environmental stressors were identified for assessment of potential impacts to population characteristics, household characteristics, and employment rates and trends. Offshore activities in the proposed action were not assessed and potential impacts in non-territorial water were not relevant to demographic impact assessment. Therefore, no significant impact to demographics from implementation of the Preferred Alternative would be expected. Mitigation measures are not necessary for this resource area.

15. Regional Economy: The Final EIS/OEIS included assessment of economic factors including industry, commercial fishing, tourism, and recreational fishing. Evaluation of the potential environmental stressors indicated that no significant impact and no significant harm to regional economy from implementation of the Preferred Alternative would be expected. Mitigation measures are not necessary for this resource area.

16. Recreation: The Final EIS/OEIS included assessment of non-commercial activities that occur in the VACAPES Study Area. Evaluation of the potential environmental stressors indicated that no significant impact and no significant harm to recreation from implementation of the Preferred Alternative would be expected. Mitigation measures are not necessary for this resource area. The Navy's Fleet Area Control and Surveillance Facility (FACSFAC) maintains a website that provides the necessary information to inform the public of training events along the East Coast. FACSFAC VACAPES manages the schedule of training events for the VACAPES OPAREA and is available at the project website, <http://www.vacapes.navy.mil>.

17. Environmental Justice: The Final EIS/OEIS included assessment of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. Chief of Naval Operations Supplemental

Environmental Planning Policy provides instructions to identify and assess stressors and disproportionately high and adverse impacts to minorities, low-income populations, and children. Evaluation of the potential environmental stressors indicated that no significant impact to environmental justice or protection of children from implementation of the Preferred Alternative would be expected. Mitigation measures are not necessary for this resource area.

18. Public Health and Safety: The Final EIS/OEIS included assessment of potential hazards inherent in flight operations, vessel movements, MIW, and weapons firing. Evaluation of the potential environmental stressors indicated that no significant impact and no significant harm to public health and safety from implementation of the Preferred Alternative would be expected. Mitigation measures are not necessary for this resource area.

MITIGATION MEASURES

1. Standard Operating Procedures (General Maritime Measures): The mitigation measures presented below are taken by Navy personnel on a regular and routine basis. These are routine measures and are considered "Standard Operating Procedures." The use of shipboard lookouts is a critical component of all Navy standard operating procedures. Navy shipboard lookouts (also referred to as "watchstanders") are highly qualified and experienced observers of the marine environment. Their duties require that they report all objects sighted in the water to the Officer of the Deck (OOD) (e.g., trash, a periscope, marine mammals, sea turtles) and all disturbances (e.g., surface disturbance, discoloration) that may be indicative of a threat to the vessel and its crew. There are personnel serving as lookouts on station at all times (day and night) when a ship or surfaced submarine is moving through the water.

All personnel serving as lookouts on Navy ships and submarines are now required to complete Marine Species Awareness Training (MSAT) as part of the lookout training program. MSAT includes instruction on the lookout's role in environmental protection, laws governing the protection of marine species, Navy stewardship commitments, general observation at sea, and detecting/identifying marine mammals. MSAT has been reviewed by NMFS and acknowledged as suitable training.

All bridge personnel, Commanding Officers, Executive Officers, officers standing watch on the bridge, maritime patrol aircraft aircrews, and MIW helicopter crews will complete MSAT.

Navy lookouts shall undertake extensive training to qualify as a watchstander in accordance with the Lookout Training Handbook (NAVEDTRA 12968-D). Lookout training shall include on-the-job instruction under the supervision of a qualified, experienced watchstander. Following successful completion of this supervised training period, lookouts shall complete the Personal Qualification Standard Program, certifying that they have demonstrated the necessary skills (such as detection and reporting of partially submerged objects). Lookouts shall be trained in the most effective means to ensure quick and effective communication within the command structure to facilitate implementation of protective measures if marine species are spotted. Surface lookouts shall scan the water from the ship to the horizon and be responsible for all contacts in their sector. In searching the assigned sector, the lookout would always start at the forward part of the sector and search aft (toward the back). To search and scan, the lookout shall hold the binoculars steady so the horizon is in the top third of the field of vision and direct the eyes just below the horizon. The lookout shall scan for approximately five seconds in as many small steps as possible across the field seen through the binoculars. They shall search the entire sector in approximately five-degree steps, pausing between steps for approximately five seconds to scan the field of view. At the end of the sector search, the glasses shall be lowered to allow the eyes to rest for a few seconds, and then the lookout shall search back across the sector with the naked eye. At night, to increase effectiveness, lookouts shall continuously scan the horizon with their eyes in a series of movements that would allow their eyes to come to periodic rests as they scan the sector. When visually searching at night, they shall look a little to one side and out of the corners of their eyes, paying attention to the things on the outer edges of their field of vision. Lookouts shall also have night vision devices available for use.

a. Operating Procedures & Collision Avoidance:

(1) Prior to major exercises, a Letter of Instruction, Naval Message or Environmental Annex to the Operational Order shall be issued to further disseminate the personnel training requirement and general marine species mitigation measures.

(2) Commanding Officers shall make use of marine species detection cues and information to limit interaction with

marine species to the maximum extent possible consistent with safety of the ship.

(3) While underway, surface vessels shall have at least two lookouts with binoculars; surfaced submarines shall have at least one lookout with binoculars. Lookouts already posted for safety of navigation and man-overboard precautions may be used to fill this requirement. As part of their regular duties, lookouts shall watch for and report to the OOD the presence of marine mammals and sea turtles.

(4) On surface vessels equipped with a mid-frequency active sonar, pedestal mounted "Big Eyes" (20x110) binoculars will be properly installed and in good working order to assist in the detection of marine mammals and sea turtles in the vicinity of the vessel.

(5) Personnel on lookout shall employ visual search procedures employing a scanning method in accordance with the Lookout Training Handbook (NAVEDTRA 12968-D).

(6) After sunset and prior to sunrise, lookouts shall employ Night Lookouts Techniques in accordance with the Lookout Training Handbook (NAVEDTRA 12968-D).

(7) While in transit, naval vessels shall be alert at all times, use extreme caution, and proceed at a "safe speed" so that the vessel can take proper and effective action to avoid a collision with any marine animal and can be stopped within a distance appropriate to the prevailing circumstances and conditions.

(8) When whales have been sighted in the area, Navy vessels shall increase vigilance and take reasonable and practicable actions to avoid collisions and activities that might result in close interaction of naval assets and marine mammals. Actions shall include changing speed and/or direction and are dictated by environmental and other conditions (e.g., safety or weather).

(9) Naval vessels shall maneuver to keep at least 1,500 feet (460 meters) away from any observed whale and avoid approaching whales head-on because species identification can be difficult at times in light of the critically endangered status of the North Atlantic right whale. This requirement does not apply if a vessel's safety is threatened, such as when change of course will create an imminent and serious threat to a person,

vessel, or aircraft, and to the extent vessels are restricted in their ability to maneuver. Restricted maneuverability includes, but is not limited to, situations when vessels are engaged in dredging, submerged operations, launching and recovering aircraft or landing craft, minesweeping operations, replenishment while underway and towing operations that severely restrict a vessel's ability to deviate course. Vessels shall take reasonable steps to alert other vessels in the vicinity of the whale.

(10) Where feasible and consistent with mission and safety, vessels shall avoid closing to within 200-yards (183 meters) of sea turtles and marine mammals other than whales (whales addressed above).

(11) Floating weeds, algal mats, sargassum rafts, clusters of seabirds, and jellyfish are good indicators of sea turtles and marine mammals. Therefore, increased vigilance in watching for sea turtles and marine mammals shall be taken where these are present.

(12) Navy aircraft participating in exercises at sea shall conduct and maintain, when operationally feasible and safe, surveillance for marine species of concern as long as it does not violate safety constraints or interfere with the accomplishment of primary operational duties. Marine mammal detections shall be immediately reported to assigned Aircraft Control Unit for further dissemination to ships in the vicinity of the marine species as appropriate where it is reasonable to conclude that the course of the ship will likely result in a closing of the distance to the detected marine mammal.

(13) All vessels shall maintain logs and records documenting training operations should they be required for event reconstruction purposes. Logs and records will be kept for a period of 30 days following completion of a major training exercise.

2. Mitigation Measures Applicable to Vessel Transit During North Atlantic Right Whale Migration: In 1999, a Mandatory Ship Reporting System was implemented by the U.S. Coast Guard, which requires vessels larger than 300 gross registered tons (Navy ships are exempt) to report their location, course, speed, and destination upon entering the nursery and feeding areas of the right whale. At the same time, ships receive information on locations of right whale sightings,

in order to avoid collisions with the animals. In the Southeastern U.S., the reporting system is from November 15 through April 15 of each year; the geographical boundaries include coastal waters within roughly 46 kilometers (25 nautical miles) of shore along a 167-kilometer (90-nautical mile) stretch of the Atlantic coast in Florida and Georgia. In the northeastern U.S., the reporting system is year-round and the geographical boundaries include the waters of Cape Cod Bay, Massachusetts Bay, and the Great South Channel east and southeast of Massachusetts; it includes all of Stellwagen Bank National Marine Sanctuary.

a. Mid-Atlantic, Offshore of the Eastern U.S.

(1) **Mid-Atlantic Generally.** For purposes of these measures, the mid-Atlantic is defined broadly to include ports south and east of Block Island Sound southward to South Carolina. The procedure described below would be established as mitigation measures for Navy vessel transits during North Atlantic right whale migratory seasons near ports located off the western North Atlantic, offshore of the eastern U.S. The mitigation measures would apply to all Navy vessel transits, including those vessels that would transit to and from East Coast ports and OPAREAs. Seasonal migration of North Atlantic right whales is generally described by NMFS as occurring from October 15th through April 30th, when right whales migrate between feeding grounds farther north and calving grounds farther south. The Navy mitigation measures have been established in accordance with rolling dates identified by NMFS consistent with these seasonal patterns.

NMFS has identified ports located in the western Atlantic Ocean, offshore of the eastern U.S., where vessel transit during North Atlantic right whale migration is of highest concern for potential ship strike. The ports include the Hampton Roads entrance to the Chesapeake Bay, which includes the concentration of Atlantic Fleet vessels in Norfolk, Virginia. Navy vessels are required to use extreme caution and operate at a slow, safe speed consistent with mission and safety during the months indicated in Table 5.6-1 and within a 20-nautical mile (37-kilometer) arc of the specified reference points.

During the indicated months, Navy vessels would practice increased vigilance with respect to avoidance of vessel-whale interactions along the mid-Atlantic coast, including transits to and from any mid-Atlantic ports not specifically identified above. All surface(d) units transiting within 56 kilometers (30 nautical miles) of the coast in the mid-Atlantic would ensure at

least two watchstanders are posted, including at least one lookout that has completed required MSAT training. Furthermore, Navy vessels would not knowingly approach any whale head on and would maneuver to keep at least 500 yards (457 meters) away from any observed whale, consistent with vessel safety.

(2) MMPA Final Rule Mitigation Measures Applicable to Vessel Transit during North Atlantic Right Whale Migration: Mid-Atlantic, Offshore of the Eastern U.S.:

(A) All Navy vessels are required to use extreme caution and operate at a slow, safe speed consistent with mission and safety during the months indicated below and within a 37 kilometer (20 nautical mile) arc (except as noted) of the specified associated reference points:

(i) South and East of Block Island (37 km (20 NM) seaward of line between 41-4.49° N. lat. 071-51.15° W. long. and 41-18.58 ° N. lat. 070-50.23 ° W. long): September-October and March-April;

(ii) New York/New Jersey (40-30.64 ° N. lat. 073-57.76 ° W. long.): September-October and February-April;

(iii) Delaware Bay (Philadelphia) (38-52.13° N. lat. 075-1.93° W. long.): October-December and February-March;

(iv) Chesapeake Bay (Hampton Roads and Baltimore) (37-1.11° N. lat. 075-57.56° W. long.): November-December and February-April;

(v) North Carolina (34-41.54° N. lat. 076-40.20° W. long.): December-April; and

(vi) South Carolina (33-11.84° N. lat. 079-8.99° W. long. and 32-43.39° N. lat. 079-48.72 ° W. long.): October-April.

(B) During the months indicated in paragraph 2.d(1)(A) of this section, Navy vessels shall practice increased vigilance with respect to avoidance of vessel-whale interactions along the mid-Atlantic coast, including transits to and from any mid-Atlantic ports not specifically identified in paragraph 2.d(1)(A) of this section.

(C) All surface units transiting within 56 kilometer (30 nautical miles) of the coast in the mid-Atlantic

shall ensure at least two watchstanders are posted, including at least one lookout who has completed required MSAT training.

(D) Navy vessels shall not knowingly approach any whale head on and shall maneuver to keep at least 457 meters (1,500 feet) away from any observed whale, consistent with vessel safety.

(3) MMPA Final Rule Mitigation Measures Applicable to Vessel Transit during North Atlantic Right Whale Migration: Southeast Atlantic, Offshore of the Eastern United States: For the purposes of the measures below the "southeast" encompasses sea space from Charleston, South Carolina, southward to Sebastian Inlet, Florida, and from the coast seaward to 148 kilometers (80 nautical miles) from shore. North Atlantic right whale critical habitat is the area from 31-15° N. lat. to 30-15° N. lat. extending from the coast out to 28 kilometers (15 nautical miles), and the area from 28-00° N. lat. to 30-15° N. lat. from the coast out to 9 kilometers (5 nautical miles). All mitigation measures described here that apply to the critical habitat apply from November 15 - April 15 and also apply to an associated area of concern which extends 9 kilometers (5 nautical miles) seaward of the designated critical habitat boundaries.

(A) Prior to transiting or training in the critical habitat or associated area of concern, ships shall contact Fleet Area Control and Surveillance Facility, Jacksonville, to obtain latest whale sighting and other information needed to make informed decisions regarding safe speed (the minimum speed at which mission goals or safety will not be compromised) and path of intended movement. Subs shall contact Commander, Submarine Group Ten for similar information.

(B) The following specific mitigation measures apply to activities occurring within the North Atlantic right whale critical habitat and an associated area of concern which extends 9 kilometers (5 nautical miles) seaward of the designated critical habitat boundaries

(i) When transiting within the critical habitat or associated area of concern, vessels shall exercise extreme caution and proceed at a slow safe speed. The speed shall be the slowest safe speed that is consistent with mission, training and operations.

(ii) Speed reductions (adjustments) are required when a whale is sighted by a vessel or when the vessel

is within 9 kilometers (5 nautical) of a reported new sighting less than 12 hours old. Circumstances could arise where, in order to avoid North Atlantic right whale(s), speed reductions could mean vessel must reduce speed to a minimum at which it can safely keep on course or vessels could come to an all stop.

(iii) Vessels shall avoid head-on approaches to North Atlantic right whale(s) and shall maneuver to maintain at least 457 meters (500 yards) of separation from any observed whale if deemed safe to do so. These requirements do not apply if a vessel's safety is threatened, such as when a change of course would create an imminent and serious threat to a person, vessel, or aircraft, and to the extent vessels are restricted in the ability to maneuver.

(iv) During the North Atlantic right whale calving season, north-south transits through the critical habitat are prohibited.

(v) Ships, surfaced subs, and aircraft shall report any whale sightings to FACSFAC JAX by the quickest and most practicable means. The sighting report shall include the time, latitude/longitude, direction of movement and number and description of whale (i.e., adult/calf).

(vi) Naval vessel operations in the North Atlantic right whale critical habitat and AAOC during the calving season shall be undertaken during daylight and periods of good visibility, to the extent practicable and consistent with mission, training, and operation. When operating in the critical habitat and AAOC at night or during periods of poor visibility, vessels shall operate as if in the vicinity of a recently reported NARW sighting.

(4) MMPA Final Rule Mitigation Measures Applicable to Vessel Transit during North Atlantic Right Whale Migration: Northeast Atlantic, Offshore of the Eastern United States:

(A) Prior to transiting the Great South Channel or Cape Cod Bay critical habitat areas, ships shall obtain the latest North Atlantic right whale sightings and other information needed to make informed decisions regarding safe speed (the minimum speed at which mission goals or safety will not be compromised). The Great South Channel critical habitat is defined by the following coordinates: 41-00 ° N. lat., 69-05 ° W. long.; 41-45 ° N. lat., 69-45 ° W. long.; 42-10 ° N. lat., 68-31 ° W. long.; 41-38 ° N. lat., 68-13 ° W. long. The Cape Cod Bay critical habitat is defined by the following coordinates: 42-04.8 ° N.

lat., 70-10 ° W. long.; 42-12 ° N. lat., 70-15 ° W. long.; 42-12 ° N. lat., 70-30 ° W. long.; 41-46.8 ° N. lat., 70-30 ° W. long.

(B) Ships, surfaced subs, and aircraft shall report any North Atlantic right whale sightings (if the whale is identifiable as a right whale) off the northeastern U.S. to Patrol and Reconnaissance Wing (COMPATRECONWING). The report shall include the time of sighting, lat/long, direction of movement (if apparent) and number and description of the whale(s).

(C) Vessels or aircraft that observe whale carcasses shall record the location and time of the sighting and report this information as soon as possible to the cognizant regional environmental coordinator. All whale strikes must be reported immediately. This report shall include the date, time, and location of the strike; vessel course and speed; operations being conducted by the vessel; weather conditions, visibility, and sea state; description of the whale; narrative of incident; and indication of whether photos/videos were taken. Navy personnel are encouraged to take photos whenever possible.

(D) Specific mitigation measures related to activities occurring within the critical habitat include the following:

(i) Vessels shall avoid head-on approaches to North Atlantic right whale(s) and shall maneuver to maintain at least 457 meters (500 yards) of separation from any observed whale if deemed safe to do so. These requirements do not apply if a vessel's safety is threatened, such as when change of course would create an imminent and serious threat to person, vessel, or aircraft, and to the extent vessels are restricted in the ability to maneuver.

(ii) When transiting within the critical habitat or associated area of concern, vessels shall use extreme caution and operate at a safe speed (the minimum speed at which mission goals or safety will not be compromised) so as to be able to avoid collisions with North Atlantic right whales and other marine mammals, and stop within a distance appropriate to the circumstances and conditions.

(iii) Speed reductions (adjustments) are required when a whale is sighted by a vessel or when the vessel is within 9 kilometers (5 nautical miles) of a reported new sighting less than one week old.

(iv) Ships transiting in the Cape Cod Bay and Great South Channel critical habitats shall obtain information on recent whale sightings in the vicinity of the critical habitat. Any vessel operating in the vicinity of a North Atlantic right whale shall consider additional speed reductions as per Rule 6 of International Navigational Rules.

3. Measures for Specific Training Events: The following measures are standard operating procedures that have been in place and will be used for the following training activities. Additionally, during the following training activities involving explosives, if a marine mammal is injured or killed as a result of the Navy training activities (e.g., instances in which it is clear that munition explosions caused death), the Navy shall suspend its activities immediately and report such incident to NMFS.

a. Surface-to-Surface Gunnery (up to and including 5-inch explosive rounds): Lookouts will visually survey for floating weeds, algal mats, and sargassum rafts, which may be inhabited by immature sea turtles, in the target area. Intended target area shall not be within 600 yards (548 meters) of known or observed floating weeds, algal mats, sargassum rafts, or coral reefs. If applicable, target-towing vessels shall maintain a trained lookout for marine mammals and sea turtles. If a marine mammal or sea turtle is sighted in the vicinity, the tow vessel will immediately notify the firing vessel, which will suspend the exercise until the area is clear. A 600-yard (548-meter) radius buffer zone will be established around the intended target. From the intended firing position, trained lookouts will survey the buffer zone for marine mammals and sea turtles prior to commencement and during the exercise as long as practicable. Due to the distance between the firing position and the buffer zone, lookouts are only expected to visually detect breaching whales, whale blows, and large pods of dolphins and porpoises. The exercise will be conducted only when the buffer zone is visible and marine mammals and sea turtles are not detected within the target area and the buffer zone.

b. Surface-to-Surface Gunnery (up to and including 5-inch non-explosive rounds): Lookouts will visually survey for floating weeds, algal mats, and sargassum rafts which may be inhabited by immature sea turtles in the target area. Intended target area shall not be within 200 yards (182 meters) of known or observed floating weeds, algal mats, sargassum rafts, or coral reefs. A 200-yard (182-meter) radius buffer zone will be established around the intended target. From the intended firing position, trained lookouts will survey the buffer zone

for marine mammals and sea turtles prior to commencement and during the exercise as long as practicable. Due to the distance between the firing position and the buffer zone, lookouts are only expected to visually detect breaching whales, whale blows, and large pods of dolphins and porpoises. If applicable, target-towing vessels shall maintain a trained lookout for marine mammals and sea turtles. If a marine mammal or sea turtle is sighted in the vicinity, the tow vessel will immediately notify the firing vessel, which will suspend the exercise until the area is clear. The exercise will be conducted only when the buffer zone is visible and marine mammals and sea turtles are not detected within the target area and the buffer zone.

c. FIREX Using IMPASS (5-in. explosive rounds):⁴ FIREX using IMPASS will only be conducted in Areas 1C1/2, 7C/D, 8C/D and 5C/D of the VACAPES Range Complex. Pre-exercise monitoring of the target area shall be conducted with "Big Eyes" prior to the event, during deployment of the IMPASS sonobuoy array, and during return to the firing position. Ships shall maintain a lookout dedicated to visually searching for marine mammals and sea turtles 180° along the ship track line and 360° at each buoy drop-off location. "Big Eyes" on the ship shall be used to monitor a 600-yard (548-meter) buffer zone around the target area for marine mammals/sea turtles during naval-gunfire events. Ships shall not fire on the target if any marine mammals or sea turtles are detected within or approaching the 600-yard (548-meter) buffer until the area is cleared. If marine mammals or sea turtles are present, operations would be suspended. Visual observation shall occur for approximately 45 minutes, or until the animal has been observed to have cleared the area and is heading away from the buffer zone. Post-exercise monitoring of the entire effect range shall take place with "Big Eyes" and the naked eye during the retrieval of the IMPASS sonobuoy array following each firing exercise. FIREX using IMPASS shall take place during daylight hours only. FIREX using IMPASS shall only be used in Beaufort Sea State three (3) or less due to equipment limitations. The visibility must be such that the fall of shot is visible from the firing ship during the exercise. No firing shall occur if marine mammals are detected within 70 yards (64 meters) of the vessel.

Historically FIREX using IMPASS occurs in preferred areas W-386 7C/D, 8C/D, W-72 (1C1/2) and secondary areas W-386 (5C/D). The locations were established to be far enough from shore to

⁴ This exercise is also known as Firing Exercise II (FIREX II) and Naval Surface Fire Support (NSFS).

reduce civilian encounters (e.g., diving and recreational fishing), while remaining a reasonable day's distance from the homeport of Norfolk, Virginia of participating ships. Surface ships conducting FIREX using IMPASS do not have strict distance from land restrictions like aircraft that embark from shore-based facilities.

d. Surface-to-Air Gunnery (up to and including 5-inch explosive or non-explosive rounds): Vessels will orient the geometry of gunnery exercises to prevent debris from falling in the area of sighted marine mammals, sea turtles, algal mats, sargassum rafts, and coral reefs. Vessels will expedite recovery of any parachute deploying aerial targets to reduce the potential for entanglement of marine mammals and sea turtles. If applicable, target towing aircraft shall maintain visual observation. If a marine mammal or sea turtle is sighted within the vicinity of the exercise, the tow aircraft will immediately notify the firing vessel in order to secure gunnery firing until the area is clear.

e. Small Arms Training - Firearms (e.g., 9 mm, .45 cal pistol, 12GA Shotgun, 5.56 mm, 7.62 mm, and .50 cal): Lookouts shall visually survey for floating weeds, algal mats, sargassum rafts, marine mammals, and sea turtles. Weapons will not be fired in the direction of known or observed floating weeds, algal mats, sargassum rafts, marine mammals, sea turtles or coral reefs.

f. Air-to-Surface At-Sea BOMBEXs (250-lbs to 2,000-lbs explosive bombs): This activity occurs in 7D and part of 8C in the VACAPES Study Area. The location was established to be far enough from shore to reduce civilian encounters (e.g., diving and recreational fishing), while remaining within 150 nm from shore-based facilities (the established flight distance restriction for F/A-18 jets during unit level training events). Aircraft shall visually survey the target and buffer zone for marine mammals and sea turtles prior to and during the exercise. The pre-exercise survey of the impact area shall be made by flying at 1,500 feet altitude or lower, if safe to do so, and at the slowest safe speed. Release of ordnance through cloud cover is prohibited: aircraft must be able to actually see ordnance impact areas. Survey aircraft should employ most effective search tactics and capabilities. A buffer zone of 5,100-yards (4,663 meters) radius will be established around the intended target zone. The exercises shall be conducted only if the buffer zone is clear of sighted marine mammals and sea turtles. If surface vessels are involved, lookouts will survey for sargassum

rafts. Ordnance shall not be targeted to impact within 5,100 yards (4,663 meters) of known or observed sargassum rafts or coral reefs. At-sea BOMBEXs using live ordnance will occur during daylight hours only.

g. Air-to-Surface At-Sea BOMBEXs (non-explosive munitions): If surface vessels are involved, trained lookouts will survey for sargassum rafts, which may be inhabited by immature sea turtles, and for sea turtles and marine mammals. Ordnance shall not be targeted to impact within 1,000 yards (914 meters) of known or observed sargassum rafts, sea turtles, marine mammals or coral reefs. A 1,000-yard (914-meter) radius buffer zone will be established around the intended target. Aircraft will visually survey the target and buffer zone for marine mammals and sea turtles prior to and during the exercise. The pre-exercise survey of the impact area will be made by flying at 1,500 feet or lower, if safe to do so, and at the slowest safe speed. Release of ordnance through cloud cover is prohibited: aircraft must be able to actually see ordnance impact areas. Survey aircraft should employ most effective search tactics and capabilities. The exercise will be conducted only if marine mammals and sea turtles are not visible within the buffer zone.

h. Air-to-Surface Gunnery (e.g., .50 cal, 20 mm and 25 mm explosive or nonexplosive rounds): If surface vessels are involved, lookouts will visually survey for sargassum rafts, which may be inhabited by immature sea turtles, in the target area. Impact should not occur within 200 yards (182 meters) of known or observed floating weeds, algal mats, sargassum rafts, or coral reefs. A 200-yard (182-meter) radius buffer zone will be established around the intended target. If surface vessels are involved, lookout(s) will visually survey the buffer zone for marine mammals and sea turtles prior to and during the exercise. Aerial surveillance of the buffer zone for marine mammals and sea turtles will be conducted prior to commencement of the exercise. Aerial surveillance altitude of 500 feet to 1,500 feet is optimum. Aircraft crew/pilot will maintain visual watch during exercises. Firing through cloud cover is prohibited; aircraft must be able to actually see ordnance impact areas. The exercise will be conducted only if marine mammals and sea turtles are not visible within the buffer zone. If applicable, target towing control craft shall maintain a lookout. If a marine mammal or sea turtle is sighted in the vicinity of the exercise, the towing control craft will immediately notify the firing vessel in order to stop gunnery firing until the area is clear.

i. Air-to-Surface Missile Exercises (explosive): Aircraft shall initially visually survey the intended ordnance impact area for marine mammals and sea turtles. Ordnance shall not be targeted to impact within 1,800 yards (1,646 meters) of sighted marine mammals and known or observed sargassum rafts, which may be inhabited by immature sea turtles, or coral reefs. Visual inspection of the target area will be made by flying at 1,500 feet altitude or lower, if safe to do so, and at slowest safe speed. During the actual firing of the weapon, the aircraft involved must be able to observe the intended ordnance impact area to ensure the area is free of marine mammals transiting the range. Explosive ordnance shall not be targeted to impact within 1,800 yards (1,646 meters) of sighted marine mammals and sea turtles.

This activity occurs within W-386 (Air-E, F, I, J, and Air-K) and W-72A. These locations were established to be far enough from shore to reduce civilian encounters (e.g., diving and recreational fishing), while remaining within 60 nm from shore-based facilities (the established flight distance restriction for helicopters during unit level training events).

j. Air-to-Surface Missile Exercises (non-explosive munitions): Ordnance shall not be targeted to impact within 1,800 yards (1,646 meters) of known or observed sargassum rafts, which may be inhabited by immature sea turtles, or coral reefs. Aircraft will visually survey the target area for marine mammals and sea turtles. Visual inspection of the target area will be made by flying at 1,500 feet or lower, if safe to do so, and at slowest safe speed. Firing or range clearance aircraft must be able to actually see ordnance impact areas. Ordnance shall not be targeted to impact within 1,800 yards (1,646 meters) of sighted marine mammals and sea turtles. This activity will only occur in W-386 (Air-K).

k. Air-to-Air Missile Exercises (explosive and non-explosive): The geometry of missile exercises will be oriented in order to minimize the potential for debris to fall within 1,000 yards (914 meters) of sighted marine mammals, sea turtles, algal mats, sargassum rafts, and coral reefs.

l. Mine Neutralization Training Involving Underwater Detonations (up to and including 20-lbs NEW charges): Mine neutralization involving underwater detonations occurs in shallow water (0-120 feet or 0-36 meters) and is executed by divers using scuba. NMFS issued a Biological Opinion in 2002

for underwater detonations of up to and including 20-lb explosive charges related to MINEX training. These exercises utilize small boats that deploy from shore-based facilities. Often times these small boats are rigid-hulled inflatable boats (RHIBs) which are designed for shallow water and have limited seaworthiness necessitating a nearshore location. The exercise is a one-day event that occurs only during daylight hours therefore the distance from shore is limited.

Observers shall survey the Zone of Influence (ZOI), a 700-yard (640-meter) radius from detonation location, for marine mammals and sea turtles from all participating vessels during the entire operation. A survey of the ZOI (minimum of three parallel tracklines 219 yards [200 meters] apart) using support craft will be conducted at the detonation location 30 minutes prior through 30 minutes post detonation. During late July through October, an additional surface observer will be added to more carefully look for hatchling turtles in the buffer zone. Aerial survey support will be utilized whenever assets are available.

Detonation operations shall be conducted during daylight hours. If a sea turtle or marine mammal is sighted within the ZOI, the animal shall be allowed to leave of its own volition. The Navy shall suspend detonation exercises and ensure the area is clear for a full 30 minutes prior to detonation. Divers placing the charges on mines and dive support vessel personnel shall survey the area for sea turtles and marine mammals and will report any sightings to the surface observers. These animals shall be allowed to leave of their own volition and the buffer zone shall be clear for 30 minutes prior to detonation. No detonations shall take place within 3.2 nautical miles of an estuarine inlet (e.g., Chesapeake Bay). No detonations shall take place within 1.6 nautical miles of shoreline. No detonations shall take place within 1,000 feet of any known artificial reef, shipwreck, or live hardbottom community. Personnel shall record any protected species observations during the exercise as well as measures taken if species are detected within the buffer zone.

This activity shall only occur in W-50. Historically this activity has occurred in shallow water portions of W-50 in the VACAPES Study Area per the 2002 NMFS Biological Opinion. This location is just offshore from NAS Oceana Dam Neck Annex, a restricted access Naval Installation and overlaps an established Surface Danger Zone for live ordnance use, therefore civilian

encounters are minimized. This location has a low bathymetric relief and a sand-silt bottom.

m. MCMS - Minesweeping Using Equipment Towed by Helicopters: Use trained lookouts to survey for sargassum rafts, sea turtles and marine mammals prior to and during the exercise. Establish a 250-yard (229-meter) buffer zone around the towed equipment. Exercise will not be conducted if marine mammals or sea turtles are detected within the buffer zone. Helicopters will not fly within one nautical mile from the Chesapeake Bay Bridge Tunnel in VACAPES Range Complex. Helicopters will avoid overflying the barrier island of the southern tip of the Eastern Shore by at least 3,000 feet vertically and horizontally. Helicopters will avoid piping plover critical habitat by one nautical mile in the VACAPES Range Complex.

n. Inert Mine Shape Deployment: Known shipwrecks will be avoided when deploying inert mine shapes. Known artificial and oyster reefs will be avoided when deploying inert mine shapes.

o. Anchorage of Ships (Not applicable if going to an assigned anchorage): Avoid sargassum rafts. Ships will not anchor in the vicinity of coral reefs, except in designated anchorages or for safety of ship: vicinity is defined as the anchor swing circle encompassing a portion of a coral reef. Ships will not anchor in areas of known shipwrecks.

4. Mitigation Measures Related to Acoustic Effects Beyond Those Previously Described (Source: AFAST Final EIS/OEIS): The AFAST Record of Decision, dated January 23, 2009, provides a detailed discussion of mitigation measures to be employed during activities analyzed in the AFAST Final EIS/OEIS. As discussed in the NMFS MMPA regulations for AFAST active sonar activities, ESA biological opinion, and the AFAST Record of Decision, the Navy would implement various mitigation measures to maximize the ability of operators to recognize instances when marine mammals are in the vicinity. These measures include the following: training personnel in lookout/watchstander duties; stationing at least three people on watch with binoculars at all times; Stationing at least two additional people on watch during ASW exercises when MFA sonar is being used; requiring all personnel engaged in passive acoustic sonar operation to monitor for marine mammal vocalizations; Using all available sensor and optical systems, such as night vision goggles during MFA and HFA active sonar activities; using only passive capability of sonobuoys when marine mammals are detected within 183 meters

(200 yards); limiting ship or submarine active transmission levels to at least 6 dB below normal operating levels when marine mammals are detected by any means within 914 meters (1,000 yards) of the sonar dome (the bow); limiting ship or submarine active transmission levels to at least 10 dB below normal operating levels when marine mammals are detected by any means within 457 meters (500 yards) of the sonar dome, or ceasing ship or submarine active transmissions when a marine mammal is detected by any means within 183 meters (200 yards) of the sonar dome; if the need for such power-down arises, following power-down requirements as though the system is operating at 235 dB, the normal operating level (*i.e.*, power-down would be to 229 dB); operating sonar at the lowest practicable level, not to exceed 235 dB, except as required to meet tactical training objectives; requiring helicopters to observe or survey the vicinity of an ASW activity for ten minutes before first deployment of active (dipping) sonar in the water; prohibiting dipping sonar within 183 meters (200 yards) of a marine mammal and ceasing pinging if a marine mammal closes to within 183 meters (200 yards) after pinging has begun; Coordinating with the local NMFS Stranding Coordinator; and, submitting a report containing a discussion of the nature of any observed effects based on both modeled results of real-time events and sightings of marine mammals.

a. Special Conditions Applicable for Bow-Riding Dolphins:

If, after conducting an initial maneuver to avoid close quarters with dolphins, the ship concludes that dolphins are deliberately closing in on the ship to ride the vessel's bow wave, no further mitigation actions would be necessary because dolphins are out of the main transmission axis of the active sonar while in the shallow-wave area of the vessel bow.

b. Additional Measures: The Navy and NMFS worked together during development of the AFAST Final EIS/OEIS and associated MMPA and ESA consultations to identify additional practicable and effective mitigation measures to address the following three issues of concern: (1) general minimization of marine mammal impacts; (2) minimization of impacts within the North Atlantic right whales southeastern critical habitat; and (3) the potential relationship between the operation of mid and/or high-frequency active sonar and marine mammal strandings.

Any mitigation measures prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the following general goals: avoidance or

minimization of injury or death of marine mammals wherever possible; a reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of mid- or high-frequency active sonar, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to the first goal above, or by reducing harassment takes only); a reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels MFA or HFA sonar, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to the first goal listed above or by reducing harassment takes only); a reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of MFA or HFA sonar, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to the first goal above, or to reducing the severity of harassment takes only); a reduction in adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time; and for monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation (e.g., shut-down zone).

NMFS and the Navy had extensive discussions regarding mitigation as part of consultation on the proposed and final rules, in which several mitigation options and their respective practicability were explored. Ultimately, NMFS and the Navy developed the following measures which the Navy and NMFS believe supports (or contributes) to the goals mentioned above.

(1) **Planning Awareness Areas (PAAs):** The Navy has designated several Planning Awareness Areas (PAAs) based on areas of high productivity that have been correlated with high concentrations of marine mammals (such as persistent oceanographic features like upwellings associated with the Gulf Stream front where it is deflected off the East Coast near the Outer Banks), and areas of steep bathymetric contours that are frequented by deep diving marine mammals such as beaked whales and sperm whales. In developing the PAAs, USFF was able to consider these factors because of geographic flexibility in conducting ASW training. USFF is not tied to a specific range

support structure for the majority of the AFAST training activities.

Additionally, the topography and bathymetry along the East Coast and in the Gulf of Mexico is unique in that there is a wide continental shelf leading to the shelf break, affording a wider range of training opportunities. The Navy shall avoid planning major exercises in the specified PAAs where feasible. Should national security require the conduct of more than four major exercises (COMPTUEX, JTFEX, Southeast Anti-Submarine Warfare Integration Training Initiative [SEASWITI], or similar scale event) in these areas (meaning all or a portion of the exercise) per year the Navy shall provide NMFS with prior notification and include the information in any associated after-action or monitoring reports. To the extent operationally feasible, the Navy plans to conduct no more than one of the four above-mentioned major exercises (COMPTUEX, JTFEX, SEASWITI, or similar scale event) per year in the Gulf of Mexico. Based on operational requirements, the exercise area for this one exercise may include the De Soto Canyon. If national security needs require more than one major exercise to be conducted in the PAAs, which includes portions of the DeSoto Canyon, the Navy would provide NMFS with prior notification and include the information in any associated after-action or monitoring reports. The PAAs will be included in the Navy's Protective Measures Assessment Protocol (PMAP) (implemented by the Navy for use in the protection of the marine environment) for unit level situational awareness (*i.e.*, exercises other than COMPTUEX, JTFEX, or SEASWITI). The goal of PMAP is to raise awareness in the fleet and ensure common sense and informed oversight is injected into planning processes for testing and training evolutions.

(2) Helicopter Dipping Sonar in North Atlantic right whale Critical Habitat: Helicopter Dipping Sonar is one of the two activity types that have been identified as planned to occur in the southern North Atlantic right whale critical habitat. Historically, only maintenance of helicopter dipping sonars occurs within a portion of the North Atlantic right whale critical habitat. Tactical training with helicopter dipping sonar does not typically occur in the North Atlantic right whale critical habitat area at any time of the year. The critical habitat area is used on occasion for post maintenance operational checks and equipment testing due to its proximity to shore. Unless otherwise dictated by national security needs, the Navy will minimize helicopter dipping sonar maintenance within the southeast North Atlantic right whale critical habitat from

November 15 to April 15. The southeast North Atlantic right whale critical habitat is exclusive to the JAX Range Complex. No such habitat exists in the VACAPES Range Complex.

(3) Object Detection Exercises in North Atlantic Right Whale Critical Habitat: Object detection training requirements are another type of activity that has been identified as planned to occur in the southern North Atlantic right whale critical habitat. The Navy recognizes the significance of the North Atlantic right whale calving area and has explored ways of affecting the least practicable impact (which includes a consideration of practicality of implementation and impacts to training fidelity) to right whales. Navy units will incorporate data from the Early Warning System (EWS) into exercise pre-planning efforts. USFF contributes more than \$150,000 annually for aerial surveys that support the EWS, a communication network that assists afloat commands to avoid interactions with right whales. FACSFAC JAX houses the Whale Fusion Center, which disseminates the latest right whale sighting information to Navy ships, submarines, and aircraft. Through the Fusion Center, FACSFAC JAX coordinates ship and aircraft movement into the right whale critical habitat and the surrounding operating areas based on season, water temperature, weather conditions, and frequency of whale sightings and provides right whale reports to ships, submarines and aircraft, including coast guard vessels and civilian shipping.

Mitigations include: reducing the time spent conducting object detection exercises in the North Atlantic right whale critical habitat during the time of November 15 to April 15; and, prior to conducting surface ship object detection exercises in the southeast North Atlantic right whale critical habitat during the time of November 15 to April 15, ships will contact the FACSFAC JAX to obtain the latest right whale sighting information. FACSFAC JAX will advise ships of all reported whale sightings in the vicinity of the critical habitat and Associated Area of Concern. To the extent operationally feasible, ships will avoid conducting training in the vicinity of recently sighted right whales. Ships will maneuver to maintain at least 457 meters (500 yards) separation from any observed whale, consistent with the safety of the ship.

5. Mitigation Measures Related to Explosive Source Sonobuoys (AN/SSQ-110A)(Source: AFAST Final EIS/OEIS): As discussed in the NMFS MMPA regulations for AFAST active sonar activities, the ESA Biological Opinion, and the AFAST Record of

Decision, the Navy would implement the following mitigation measures for explosive source sonobuoys (AN/SSQ-110A) as well as for the follow on AEER system: Crews will conduct visual reconnaissance of the drop area prior to laying their intended sonobuoy pattern. Crews will conduct a minimum of 30 minutes of visual and aural monitoring of the search area prior to commanding the first post (source/receiver sonobuoy pair) detonation. If a post (source/receiver sonobuoy pair) will be deployed within 914 meters (1,000 yards) of observed marine mammal activity, crews will deploy the receiver only and monitor while conducting a visual search. When operationally feasible, crews will conduct continuous visual and aural monitoring of marine mammal activity, including monitoring of their aircraft sensors from first sensor placement to checking off-station and of radio frequency range of these sensors; aural detection of marine mammal cues the aircrew to increase the diligence of their visual surveillance. If marine mammals are visually detected within 914 meter (1,000 yards) of the explosive source sonobuoy (AN/SSQ-110A) intended for use, then that payload shall not be detonated. Aircrews will ensure a 914-meter (1,000-yard) safety zone, visually clear of marine mammals, is maintained. Aircrews shall only leave posts with unexploded charges in the event of a sonobuoy malfunction, an aircraft system malfunction, or when an aircraft must immediately depart the area due to issues such as fuel constraints, inclement weather, and in-flight emergencies. Aircrews will ensure all payloads are accounted for. Marine mammal monitoring shall continue until out of their aircraft sensor range.

6. Reporting, Monitoring, and Stranding Response: The Navy will implement the reporting and monitoring requirements of the MMPA Final Rule and the ESA Biological Opinion, and any additional such requirements in the annual MMPA LOAs and ESA Incidental take Statements. Reports required by the MMPA Final Rule and ESA Biological Opinion include an Annual VACAPES Monitoring Plan Report, an Annual VACAPES Exercise Report, and a VACAPES Comprehensive 5-Year Report.

The Navy will also implement an Integrated Comprehensive Monitoring Plan in 2009. This planning and adaptive management tool shall include a method for prioritizing monitoring projects, a method for annually reviewing with NMFS, monitoring results, Navy R&D, and current science, and a detailed description of the Monitoring Workshop to be convened in 2011.

As a part of NMFS' MMPA rulemaking process, NMFS and the Navy developed a marine species monitoring plan, the VACAPES

Monitoring Plan. The Monitoring Plan contains the framework for research on the distribution of key marine mammal species in the VACAPES Range Complex; analyzes behavioral responses, or the lack of such responses, of marine mammals to explosives; and assesses the effectiveness of the Navy's suite of mitigation measures. The Monitoring Plan may utilize vessel, aerial surveys, and passive acoustics to accomplish these goals. The Navy will continue to work with the scientific community to better understand marine mammals and to assess what effect, if any, the Navy's training activities are having on marine mammals.

The MMPA regulations governing the take of marine mammals incidental to Navy activities in the VACAPES Range Complex includes an adaptive management component. The use of adaptive management will give NMFS the ability to consider new data from different sources to determine (in coordination with the Navy) on an annual basis if mitigation or monitoring measures should be modified or added (or deleted) if new data suggests that such modifications are appropriate (or are not appropriate) for subsequent annual MMPA LOAs.

Navy personnel shall coordinate with the local NMFS Stranding Coordinator for an unusual marine mammal behavior and any stranding, beached live/dead, or floating marine mammals that may occur at any time during or within 24 hours after completion of training activities. The Navy shall follow internal chain of command reporting procedures as promulgated through Navy instructions and orders.

MEASURES CONSIDERED BUT ELIMINATED: The vast majority of estimated exposures to marine mammals during proposed activities would not cause injury. Potential effects on marine mammals would be further reduced with the implementation of mitigation measures described above. Therefore, the Navy concludes the proposed action and mitigation measures would achieve the least practicable adverse impact on species or stocks of marine mammals. A determination of "least practicable adverse impacts" includes consideration, in consultation with NMFS, of personnel safety, practicality of implementation, and impact of the effectiveness of the military training activity. Therefore, the following additional mitigation measures were analyzed and eliminated from further consideration because: they would result in impacts to training effectiveness, which would ultimately degrade military readiness, they present personnel safety concerns; or they are impractical and provide no known protective benefit.

1. Reduction in Training: The requirements for training have been developed iteratively over many years to ensure sailors have achieved levels of readiness that ensure they are prepared to properly respond to the many contingencies that may occur during deployment and actual combat. These training requirements are designed to provide the experience needed to ensure sailors are properly trained and proficient for operational success. There is not extra training built into the training plan, as this would not be an efficient use of resources (e.g. fuel, time). Therefore, any reduction of training would not allow sailors to achieve satisfactory levels of readiness needed to accomplish their mission.

2. Establish and Implement a Set Vessel Speed: Navy personnel are already required to use extreme caution and operate at a slow, safe speed consistent with mission and safety. Further, during periods of North Atlantic right whale migration, ships exercise heightened lookout vigilance and adjust speeds as necessary as an added measure to avoid this critically endangered species. Ships and submarines need to be able to react to changing tactical situations during training as they would in actual combat. Placing arbitrary speed restrictions would not allow them to properly react to these situations. By training differently than what would be needed in an actual combat scenario there would be a decrease in training effectiveness and a reduction in crew's abilities.

3. Restrict Training to Certain Geographic Areas, during Certain Seasons, and During Certain Conditions (e.g. low visibility, nighttime): Implementation of blanket restrictions on training as mitigation measures would dramatically reduce the realism of training with potentially severe national security consequences, and would afford at best only highly speculative benefits to marine species populations. Personnel must train under the full range of conditions that they might encounter during deployment and in combat, and be in a state of readiness that allows them to identify and respond to changing environmental conditions 24 hours per day. On-the-job training in combat is the worst possible way of training personnel and places personnel and the success of the military mission at significant risk. Nonetheless, the Navy has considered limitations during certain specific training events in all East Coast Range Complexes where feasible and when such limitations would not interfere with training missions and goals, and when other related training events provide the necessary exposure of personnel to the full spectrum of environmental conditions they

may encounter during deployment and combat (particularly Unit Level Training events involving explosive ordnance, and seasonal restrictions related to North Atlantic right whale calving season and migration).

4. Expansion of Exclusion Area Delineated for Use with Explosive Detonations: Currently, the Navy uses certain exclusion zones for different explosive types, which means that an area of a certain size around an explosive must be clear of marine mammals for a certain amount of time prior to the detonation of that explosive. For a few of the larger charges (MK-84s and MK-48s), the distance to the isopleths within which NMFS expects TTS would likely occur is larger than the distance that the Navy must ensure is clear prior to the initiation of some of the exercise types that utilize those larger charges (*i.e.*, an animal could be within the distance from a source where TTS may occur, but outside of the distance that the Navy is required to 'clear' prior to detonation). NMFS considered requiring an enlarged exclusion zone for use with these larger charges.

5. Monitoring of Explosive Exclusion Area during Exercises: For some explosive detonations, the Navy's current mitigation requires clearance of an area prior to the initiation of an explosive exercise, but does not require continued monitoring of the area throughout the exercise. Under this measure, NMFS considered a requirement for Navy to continue monitoring the exclusion zone throughout the exercise and to take appropriate mitigation measures during the exercise should a marine mammal be spotted within that zone.

6. Visual monitoring using third-party observers from aircraft and vessels in addition to existing Navy-trained lookouts: Under the Integrated Comprehensive Monitoring Program (ICMP) for Marine Mammals described in Section 5.3, third-party lookouts would be used during exercises selected for data sampling. However, using third-party lookouts for all training events the Navy conducts in order to supplement Navy lookout observations and/or provide a "check" of Navy-trained lookouts would present logistical and security problems for the Navy.

a. Security: Security clearances would need to be obtained for a large number of observers in order to cover all training events, since the exact time and location of all Navy training events is classified as SECRET.

b. Crew Space: Some training events span one or more 24-hour periods during which training operations occur that would require continuous observer coverage. This greatly expands the number of third-party personnel required to be present onboard the ship. Ships have severe space limitations for berthing third-party crews, and there are no additional seats in aircraft that are involved in exercises. Accordingly, crew space is very limited and cannot accommodate an extra crew for the purpose of additional exercise monitoring in addition to existing lookout requirements.

c. Scheduling: Scheduling civilian vessels and/or aircraft to coincide with all training events would impact training effectiveness since exercise event timetables cannot be precisely fixed and are instead based on the free-flow development of tactical situations. Waiting for civilian aircraft or vessels to complete surveys, refuel, or be on station would slow the unceasing progress of the exercise and impact the effectiveness of the training activity.

d. Safety: Surveying during training events also raises safety concerns with multiple vessels and slow, low-flying civilian aircraft operating in the same seaspace and airspace as military vessels and aircraft engaged in combat training activities. In addition, most of the training events take place far from land, limiting both the time available for civilian aircraft to be in the exercise area and presenting a concern should aircraft mechanical problems arise.

CUMULATIVE IMPACTS: The Final EIS/OEIS analyzed cumulative impacts associated with implementation of Navy-sponsored activities and other non-Navy activities in the region. The analysis of cumulative impacts considered the effects of the Proposed Action in combination with other past, present, and reasonably foreseeable future actions taking place in the VACAPES Study Area, regardless of what agency or person undertakes these actions. Activities included in the VACAPES Final EIS/OEIS cumulative impact analysis included commercial and recreational fishing; onshore and offshore liquefied natural gas facilities; exploration, extraction, and production of oil, gas, and alternative energy on the outer continental shelf; state regulated oil and gas activities; dredging operations; maritime traffic; seismic surveys; scientific research; expended materials; environmental contaminations and biotoxins; marine tourisms; National Aeronautics and Space Administration activities; military operations; and implementation of vessel operational measures to reduce ship strikes to North Atlantic right whales.

Most of the summary conclusions on past, present, and reasonably foreseeable future actions for the resources evaluated were either "no adverse impacts" or "potential for minor, but recoverable, adverse impacts." Fewer summary conclusions were categorized as "potential for moderate, but recoverable, adverse impacts." Specifically, this was the cumulative impact conclusion for Marine Communities and Marine Mammals. No summary conclusions were characterized as potential for major, non-recoverable, adverse impacts. Refer to Table 6.5-1 in the Final EIS/OEIS for a summary of cumulative impacts by resource area.

COMPLIANCE WITH ENVIRONMENTAL LAWS

1. **MMPA:** In support of the proposed action, in March 21, 2008, the Navy applied for an authorization pursuant to Section 101(a)(5)(A) of the MMPA. After the application was reviewed by NMFS, a Notice of Receipt of Application was published in the *Federal Register* on April 14, 2008 (73 FR 20032). Publication of the Notice of Receipt of Application initiated the 30-day public comment period, during which anyone could obtain a copy of the application by contacting NMFS. NMFS developed regulations governing the issuance of a LOA and published a Proposed Rule in the *Federal Register* on December 12, 2008 (73 FR 75631). Publication of the Proposed Rule initiated another 30-day public comment period, which ended on January 12, 2009. The Final Rule was signed on June 5, 2009, and is applicable on June 5, 2009 through June 4, 2014.

2. **ESA:** As part of the environmental documentation for the Final EIS/OEIS, and as an MMPA incidental take authorization applicant, the Navy entered into early consultation procedures in January, 2008, with NMFS regarding the potential effects on ESA-listed species from the conduct of the activities outlined in the VACAPES Final EIS/OEIS. In accordance with 50 CFR § 402.11, NMFS reviewed the current status of the endangered North Atlantic right whale, humpback whale, sei whale, fin whale, blue whale, sperm whale, loggerhead sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, Atlantic green sea turtle, and hawksbill sea turtle, the environmental baseline for the VACAPES Study Area, the effects of the proposed action, and the cumulative effects. On June 5, 2009, NMFS issued a Programmatic Biological Opinion concluding that the Navy's proposal to conduct testing and training activities in the VACAPES Study Area each year for a five-year period beginning on June 5, 2009, are likely to adversely affect but are not likely to jeopardize the continued existence of these threatened and endangered species under NMFS' jurisdiction. NMFS also concluded that the

effects of the proposed action are not likely to result in the destruction or adverse modification of critical habitat that has been designated for endangered or threatened species in the action area. Consultation with NMFS was considered complete on June 5, 2009 when NMFS issued both the Programmatic Biological Opinion and first Annual Biological Opinion with the associated Incidental Take Statement for the period from June 2009 to June 2010.

In accordance with regulations under Section 7 of the Endangered Species Act (50 CFR Part 402), the Navy requested informal consultation with the USFWS on May 12, 2008 for the potential effects of the Proposed Action having potential effects on the Bermuda petrel. In a letter dated October 7, 2008, the USFWS concurred with the Navy's determination that the Preferred Alternative may affect, but is not likely to adversely affect the Bermuda petrel and would have no effect on the roseate tern. After publication of the Final EIS/OEIS, clarification regarding mitigations to protect Piping Plovers was received from USFWS on March 19, 2009. Specifically, the USFWS concurred with the Navy's following conservation measure: Navy helicopters transiting from Norfolk Naval Station to off-shore training areas shall avoid overflying the barrier island at the southern tip of the Eastern Shore by at least 3,000 feet vertically and horizontally, and helicopters involved in mine training would avoid plover habitat by one nautical mile.

3. CZMA: In accordance with the CZMA, the Navy has reviewed the enforceable policies of each state's Coastal Zone Management Plan (CZMP) located adjacent to the VACAPES Study Area. Based on the location of VACAPES Range Complex activities, the enforceable policies of each state's CZMP, and pursuant to 15 CFR Section 930.39, the Navy prepared a Consistency Determination for the Commonwealth of Virginia. Additionally, the Navy prepared Negative Determinations pursuant to 15 CFR section 930.35 for the states of Delaware, Maryland, and North Carolina.

a. Status of Consistency Determinations: The Navy obtained written concurrence with the Consistency Determination from the Commonwealth of Virginia on March 2, 2009. The Navy obtained written concurrence with the Negative Determination from the State of North Carolina on February 9, 2009. Concurrence was presumed for the States of Delaware and Maryland after the 60-day response period had elapsed without correspondence.

4. **NHPA:** The Navy consulted with the States of Delaware, Maryland, Virginia, and North Carolina State Historic Preservation Offices (SHPO) regarding their determination that no historic properties are affected by the Preferred Alternative. The Navy obtained written concurrence with the Navy's finding from the Delaware SHPO on March 16, 2009; the Maryland SHPO on February 11, 2009; the Virginia SHPO on March 13, 2009; and the North Carolina SHPO on February 18, 2009.

5. **SFA and MSA:** The Navy determined that potential impacts to EFH and Fish/Managed species would be temporary and/or minimal. Implementation of the Preferred Alternative would not reduce the quality and/or quantity of EFH in the Study Area.

CHANGES BETWEEN THE DRAFT AND FINAL EIS/OEIS: The Final EIS/OEIS incorporated, and formally responded to, all public comments received on the Draft EIS/OEIS. No comments received on the Draft EIS/OEIS required significant revisions in the Final EIS/OEIS. There were additional revisions, which are reflected in the Final EIS/OEIS, that were made to amplify information previously provided. These changes included a more detailed description of Maritime Security Operations and more detailed Weapon System data sheets. The Notice of Availability of the Final EIS/OEIS was published in the *Federal Register*, in various newspapers, and on the project website.

TYPOGRAPHICAL ERRORS IN THE FINAL EIS/OEIS: In the VACAPES Final EIS/OEIS, the following tables mis-identified the training area where Mine Neutralization (*i.e.*, Navy divers performing underwater detonations (UNDETS)) exercises will occur: Tables 2.2-1, 2.2-4, 2.2-7, 3.1-1, 3.2-1, 3.3-1, 3.4-1, 3.5-1, 3.6-1, 3.7-2, 3.8-2, 3.9-1, 3.10-1, 3.12-1, 3.13-1, 3.15-1, 3.16-1, and 3.18-1. These tables identified the training area as W-50C, when in fact Mine Neutralization exercises can occur throughout W-50. Key graphics and discussions of these events clearly indicated that the entirety of W-50 supports these training events.

These typographical errors do not impact any of the modeling or conclusions made in the VACAPES Final EIS/OEIS. An updated Final EIS/OEIS and an errata page have been posted to the VACAPES EIS/OEIS website at <http://www.vacapessrangecomplexeis.com>.

RESPONSES TO COMMENTS ON THE VACAPES FINAL EIS/OEIS: The Notice of Availability of the VACAPES Final EIS/OEIS was published in the *Federal Register* on March 20, 2009, in various newspapers, and on the VACAPES EIS/OEIS website. Release of the

VACAPES Final EIS/OEIS was accompanied by a 30-day wait period. The Navy reviewed and considered all comments received during the wait period following the issuance of the Notice of Availability. The only substantive comments on the VACAPES FEIS/OEIS were provided by the Office of Environmental Programs, U.S. Environmental Protection Agency (EPA) Region III in a letter dated April 20, 2009. An additional comment from the EPA was published in the *Federal Register* on May 15, 2009 (74 FR 22924). The comments received from the EPA Region III letter, which are discussed in the next paragraph, reiterated comments they made on the Draft EIS/OEIS as well as raising one additional comment. The comment published in the *Federal Register* was also a reiterated comment the EPA made on the Draft EIS/OEIS.

1. EPA Comments: The EPA reiterated four concerns raised in its review of the Draft EIS/OEIS and one additional concern from their review of the Final EIS/OEIS. The first comment requested that "the EIS should explain how the proposed action relates to the Chesapeake 2000 Agreement and any necessary mitigation." The Navy will adhere to the goals set forth in the Chesapeake 2000 Agreement as it pertains to the training activities proposed in the lower Chesapeake Bay in the VACAPES Final EIS/OEIS.⁵ Specifically, the Navy will not disturb any submerged aquatic vegetation (SAV) or oyster beds. Given the nature of the Navy's proposed MIW training areas (two in all) activities in the lower Chesapeake Bay and the anticipated lack of negative impacts to it, the Navy does not believe that mitigation is warranted. For further discussion, please refer to Section 3.3.2.4 in the Final EIS/OEIS.

In its second comment, the EPA reiterated a concern it had with the reference of the Canadian Forces Maritime Experimental and Test Ranges (CFMETR) Study in both the Draft and Final EIS/OEIS. Specifically, they are concerned that "there is no information provided comparing the two physical environments, which could support that the sediment characteristics are similar enough for the information to be applicable to the VACAPES area." In response to this comment, the Navy would highlight that the CFMETR refers to an Environmental Assessment for a training range located in Canadian waters off the coast of British Columbia, on Canada's West coast. While situated in different geographical areas, both locations are dominated by Holocene sediments. Muddy Holocene sediments dominate the

⁵ The Chesapeake 2000 Agreement is available at the following website: http://www.chesapeakebay.net/content/publications/cbp_12081.pdf.

CFMETR's study area and a combination of muddy and sandy sediments dominate the VACAPES study area. As both study locations contain soft sediments and no hardbottom, the Navy does not anticipate any adverse impacts to the seafloor as a result of the proposed activities.

In its third comment, the EPA reiterated a concern it made on the Draft EIS/OEIS about "the effect of potential temperature changes caused by the proposed actions on water quality, as well as climatic fluctuations and global warming." In our response to the comment on Draft EIS/OEIS, the Navy mistakenly pointed to Section 6.3 for the detailed response to this comment. In fact, Section 6.4.9.2 of the VACAPES Final EIS/OEIS addresses the impacts of climatic fluctuations and global warming. In addition Section 3.3.3 of the VACAPES Final EIS/OEIS states that "any potential impacts to water quality from combustion products are localized, temporary, and do not substantially affect water quality or resources in the Study Area."

The fourth comment suggested it would be "beneficial" for the Navy to "summarize" the Water Range Sustainability Environmental Program Assessment (WRSEPA) Policy in the EIS. The Navy offered the following in the Final EIS/OEIS: The Navy has recently implemented the Water Range Sustainability Environmental Program Assessment (WRSEPA) Policy (August 29, 2008) to ensure the long-term viability of our operational ranges while protecting human health and the environment; and to develop a written operational range assessment plan that details the process and procedures to assess operational ranges.

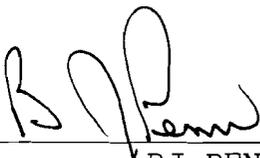
In the comment published in the *Federal Register*, the EPA "expressed environmental concerns about the deposition of expended training materials into the marine environment and its potential impact over time." The Final EIS/OEIS concluded no significant impact or harm would result from the deposition of expended training materials, and as such, committing to "specific" monitoring efforts would be premature at this time. The Navy, however, is committed to ensuring the long-term sustainability of water ranges and at sea operating areas, and has indicated its interest in working with applicable regulators on increasing the knowledge level of the potential effects of Military Expended materials on the environment.

CONCLUSIONS: In determining whether to implement the Preferred Alternative, the following factors were considered: the Congressional mandates in section 5062 of Title 10 of the U.S. Code; existing assets and capabilities of the VACAPES Range

Complex, the Navy and DoD's operational, testing, and training requirements; environmental impacts; the training and maintenance of ships and aircraft, and training of personnel; and comments received during the EIS/OEIS process.

After carefully weighing all of these factors and analyzing the data presented in the VACAPES Final EIS/OEIS, I have determined that the Preferred Alternative best meets the requirements for the Navy training and RDT&E activities. In addition to the specific mitigation measures identified in this Record of Decision, the Navy will continue to review its operational procedures and coordinate with other federal, state, and local entities as necessary to determine if any additional mitigation measures are necessary, feasible and practicable.

6/5/2009
Date


BJ PENN

Assistant Secretary of the Navy
(Installations and Environment)