DEPARTMENT OF DEFENSE

Department of the Navy

Record of Decision for Atlantic Fleet Active Sonar Training

AGENCY: Department of the Navy, Department of Defense

ACTION: Notice of Record of Decision

SUMMARY: The Department of the Navy (Navy), after carefully weighing the operational and environmental consequences of the proposed action, announces its decision to designate areas along the East Coast of the United States (U.S.) and in the Gulf of Mexico where mid- and high-frequency active (MFA and HFA) sonar and the improved extended echo ranging (IEER) system training; maintenance; and research, development, test, and evaluation (RDT&E) activities will occur, and to conduct these activities. The Navy's decision regarding MFA sonar activities includes the advanced extended echo ranging (AEER) system as a replacement for the IEER system. These activities are collectively described as "active sonar activities" in the Final Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) for Atlantic Fleet Active Sonar Training (AFAST).

FOR FURTHER INFORMATION: Naval Command, Atlantic Division, Code EV22 (Atlantic Fleet Sonar Project Manager), 6506 Hampton Boulevard, Norfolk, Virginia, 23508-1278, telephone number (757) 322-4767.

INTRODUCTORY STATEMENT: Pursuant to Section 4331 *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 designate areas along the East Coast of the U.S. and in the Gulf of Mexico where MFA and HFA sonar and IEER system training; maintenance; and research, development, test, and evaluation (RDT&E) activities will occur within and adjacent to existing Navy Operating Areas (OPAREAs), and to conduct these activities. These activities are collectively described as "active sonar activities" in the Final EIS/OEIS, and neither constitute new

activitites nor involve significant changes in systems, tempo, or intensity from current activities. The Navy considered applicable executive orders, including an analysis of the environmental effects of its actions outside the U.S. or its territories under Executive Order (EO) 12114, ***Environmental Effects Abroad of Major Federal Actions***, and the requirements of Executive Order 12898, ***Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations***.

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 the No-Action Alternative, described in the Final EIS/OEIS as the preferred alternative. Implementation of the preferred alternative could begin immediately. The Preferred Alternative represents the active sonar training and RDT&E activities necessary for Navy to meet its Title 10 obligation 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.

1. *Overview of the AFAST Final EIS/OEIS*

a. Today's Navy: The Navy currently consists of about 330,000 active duty and 121,000 reserve personnel who maintain and operate more than 280 ships and submarines and an excess of 3,700 aircraft. Most of these Sailors and their ships, submarines, and aircraft are based at naval stations, naval submarine bases, and naval air stations in the continental U.S. The U.S. Marine Corps consists of about 200,000 active duty and 40,000 reserve Marines, which are similarly based at Marine Corps bases and air stations. These facilities serve as the bases from which these Sailors and Marines train and eventually deploy overseas, with missions ranging from combat to humanitarian assistance. As discussed below, preparing these personnel and ships for deployments overseas in support of U.S. strategic interests consists of several phases. Completion of these phases requires access to ranges complexes, OPAREAs, and other training areas where the entire suite of training activities may occur.

One of these critical warfare areas involve the ability of the Navy to move Strike Groups (a combination of ships, submarines, and aircraft) into areas from which they may carry out sustained operations while simultaneously protecting themselves from many threats, including those posed by submarines and mines. In recent decades, many nations have increased their submarine warfare capabilities in an effort to thwart surface ships and their ability to carry out strike missions. Accordingly, one of the Navy's key training objectives involves countering adversarial submarines by maintaining the ability to destroy them, if and when required, at a time and place of the Navy's choosing. Fundamental to this objective is the knowledge at all times of where such submarines are operating and an understanding of their intentions and capabilities as evidenced by their actions.

b. The Importance of Proficiency in Critical Anti-Submarine Warfare (ASW) and Mine Warfare (MIW) Skills: The time period leading up to actual hostilities is one of the most difficult and strenuous period for Strike Groups to prepare for during training. Strike Groups must develop a proficiency in reducing the risk to themselves should an adversary submarine engage in an unexpected hostile act. Strike Groups counter this challenge by using active sonar to detect, identify and classify a submarine and its actions to gain an understanding of its intentions. The Strike Group must also maintain contact and ensure that the movements of the Strike Group vessels do not place them in a position where the adversary submarine could harm them. As modern diesel-electric submarines of potential adversaries have become exceedingly quiet and increasingly difficult to detect by passive means, realistic and repetitive ASW training with active sonar is necessary for U.S. forces to be confident and knowledgeable in the Navy's plans, tactics, and procedures to perform and survive in situations leading up to hostilities as well as actual combat.

Similarly, Strike Groups must be able to detect and defeat mine warfare systems that may pose a significant threat to the movement and strike capability of a Strike Group. MIW training requires the use of active sonar systems and mine fields in shallow waters where submarines, ships and aircraft learn to detect and defeat this threat.

c. Structuring the Analysis in the AFAST Final EIS/OEIS of Active Sonar Activities

(1) *Geographic Scope:* The AFAST Final EIS/OEIS analyzes active sonar activities in the East Coast of the U.S.

and Gulf of Mexico range complexes, OPAREAs and open ocean.[1] The range complexes consist of both water space and land ranges where training occurs in support of the Fleet Readiness Training Plan (FRTP) which include designated ocean areas near U.S. Atlantic Fleet concentration areas (i.e., homeports). These range complexes are where the majority of U.S. Atlantic Fleet active sonar activities occurs; however, the U.S. Atlantic Fleet's training exercises are not confined to range complexes. Some training exercises, or portions of exercises, are conducted seaward of the range complexes, and a limited amount of active sonar activities are conducted in water areas shoreward of the range complexes.[2] This diversity of available training areas provides the Navy flexibility in timing and location of active sonar activities along the East Coast and Gulf of Mexico based on current training requirements. This diversity also provided the drafters of the AFAST Final EIS/OEIS flexibility in evaluating alternatives while accounting for geographic considerations.

(2) *Active Sonar Systems:* Today's active sonar systems are generally categorized into three areas: low-, mid-, and high-frequency. Active sonar training as analyzed in the AFAST Final EIS/OEIS employs two frequency ranges: mid- and high-frequency. Mid- and high-frequency systems are integrated into Strike Groups as part of the ships, submarines, and aircraft comprising each Strike Group. To estimate impacts from MFA and HFA sonar, five types of narrowband MFA sonars representative of those used in the AFAST Study Area were modeled. The Navy calculated exposure estimates for each sonar according to the manner in which it operates. The IEER system consists of two separate air-deployed sonobuoys: an impulsive (or explosive) source sonobuoy (the active source) and an active receiver (ADAR) sonobuoy (passive). In coordination with the National Marine Fisheries Service (NMFS), the Navy determined in the Final EIS/OEIS that the Mk-46/54 and Mk-48 torpedoes, the SQQ-32 mine-hunting sonar, the BQS-15 submarine navigation sonar are the only high-frequency sources requiring authorization under the Marine Mammal Protection Act (MMPA). As discussed in AFAST Final EIS/OEIS (Table 2-1), the frequency range and characteristics of other high frequency sources as employed in

[1] The AFAST Study Area extends east from the Atlantic Coast of the U.S. to 45 degree West longitude and south from the Atlantic and Gulf of Mexico Coasts to approximately 23 degrees North latitude, but not encompassing the Bahamas.

[2] As discussed below in the Additional Background and Issues section, the Navy is preparing separate EISs/OEISs to analyze all training activities occurring within the following range complexes: Virginia Capes (VACAPES), Cherry Point (CHPT), Jacksonville/Charleston (JAX/CHSN) and Gulf of Mexico (GOMEX).These range complex EISs/OEISs will incorporate the AFAST Final EIS/OEIS by reference to address on-range MFA and HFA active sonar activities.

the AFAST study area would not result in an exposure of marine mammals to sound which NMFS would characterize as harassment.

The Navy's decision regarding MFA sonar activities includes the development and employment of the advanced extended echo ranging (AEER) system as a replacement for the IEER system. The AEER system would use a new active sonobuoy that utilizes a tonal sound source (a "ping") as a replacement for the IEER system's impulsive source sonobouy. The AEER system will still use the ADAR sonobuoy as the receiver. As an integral part of a Strike Group's suite of organic assets, MFA sonar provides the greatest detection ranges and areas over which submarines can be detected.[3]

The AFAST Final EIS/OEIS analyzes MFA and HFA sonar and IEER system activities necessary for U.S. Atlantic Fleet ships, submarines, and air crews to support the FRTP. The FRTP 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. In addition, RDT&E provides the Navy the capability of developing new active sonar and IEER systems and ensuring their safe and effective implementation. The FRTP formalizes the traditional Navy building block approach to training which ensures that strike groups attain and maintain the required level of combat readiness. Training proceeds on a continuum in the FRTP, advancing through four phases: Maintenance, Basic, Integrated, and Sustainment.

At the beginning of the cycle, basic combat skills are learned and practiced during basic unit level training (ULT) activities. In the AFAST Final EIS/OEIS, the Basic Phase training is described as Independent ULT, which involves one unit and Coordinated ULT, which involves more than one unit. Basic skills are refined during Coordinated ULT. Strike Group Training is integrated training using progressively more difficult, complex, and large-scale exercises conducted at an increasing tempo. This training provides the warfighter with the skills necessary to function as part of a coordinated fighting

[3] The Navy's Surveillance Towed Array Sensor System (SURTASS) Low Frequency Active (LFA) sonar was developed and is deployed separately from the Strike Group because of physical limits on its mobility and the limited number of available units. The Navy has analyzed SURTASS LFA sonar in separate Final and Supplemental EISs/OEISs and its operation is covered by associated environmental documentation, all of which are available at http://www.surtass-lfa-eis.com.

force in a hostile environment with the capacity to accomplish multiple missions. The Sustainment Phase begins upon completion of the Integrated Phase, and includes a variety of ASW and MIW training evolutions designed to sustain the warfighting readiness of a group.

Surface ships and submarines participating in the training also must conduct active sonar maintenance pier side and during transit to the training exercise location. The active sonar maintenance is required to ensure that the sonar system is operating properly before engaging in the training exercise or when the sonar systems are suspected of operating at levels below optimal performance.

Additionally, RDT&E provides the Navy the capability of developing new active sonar systems and ensuring their safe and effective implementation for the U.S. Atlantic Fleet.[4] RDT&E activities are similar to, and coincident with, U.S. Atlantic Fleet training events and have not been previously evaluated in other environmental planning documents.

2. *Procedural History:* 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 project, scope of the EIS/OEIS, and scoping meeting locations was published in the ***Federal Register*** on September 29, 2006 (71 Fed. Reg. 57489). Notification of public scoping meetings was also made through local media outlets and newspapers. The Navy conducted scoping meetings at the following seven different locations between October 23, 2006, and November 29, 2006: Chesapeake, Virginia; Corpus Christi, Texas; New London, Connecticut (twice); Jacksonville, Florida; Panama City, Florida; Morehead City, North Carolina; and Charleston, South Carolina.

The Notice of Availability of the Draft EIS/OEIS and Notice of Public Hearings was published in the ***Federal Register*** on February 15, 2008 (73 Fed. Reg. 8856). Notification of public hearings was also made through local media outlets and

[4] On October 1, 2001, the Chief of Naval Operations designated Commander, U.S. Atlantic Fleet concurrent as Commander, U.S. Fleet Forces Command; a new command responsible for overall coordination, establishment, and implementation of integrated requirements and policies for manning, equipping, and training Atlantic and Pacific Fleet units during the inter-deployment training cycle. Environmental analyses and policies during the period from 2001 to 2006 may refer to these designations interchangeably.

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 AFAST Study Area. Notification of the availability of the AFAST 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 AFAST Draft EIS/OEIS was made available for general review at eleven public libraries in the region encompassed by the AFAST Study Area, and on the project website (http://afasteis.gcsaic.com). The Navy held six public hearings between March 4 and March 19, 2008, in Virginia Beach, Virginia; Boston, Massachusetts; Morehead City, North Carolina; Charleston, South Carolina; Jacksonville, Florida; and Panama City, Florida. A total of 214 individuals, agencies, and organizations submitted 1,607 comments on the Draft EIS/OEIS.

The Notice of Availability of the Final EIS/OEIS was published in the ***Federal Register*** on December 12, 2008 (73 Fed. Reg. 75715). Notification of the availability of the Final EIS/OEIS was also made through various newspapers. The Final EIS/OEIS was distributed to those individuals, agencies, and associations who asked to be notified during the pubic comment period, as well as members of Congress, state governors and officials from the coastal region encompassed in the AFAST 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. In addition, the AFAST Final EIS/OEIS was made available for general review at eleven public libraries in the region encompassed by the AFAST Study Area, and on the project website (http://afasteis.gcsaic.com).

ADDITONAL BACKGROUND AND ISSUES: The Final EIS/OEIS incorporates the U.S. Atlantic Fleet's active sonar training needs while ensuring compliance with applicable environmental laws, regulations, and executive orders.

1. *NEPA: Structure of the Analysis*

a. U.S. Atlantic and U.S. Pacific Fleet Considerations: The Navy's approach to developing alternatives in the Final EIS/OEIS varies from that discussed in U.S. Pacific Fleet environmental planning documents. The AFAST Final EIS/OEIS considers alternatives based on environmental conditions (e.g., marine mammal occurrence and densities, and topographic, geographic, bathymetric conditions) which are different from

those encountered in the Pacific Fleet Study Areas. Because of the absence of contiguous location of U.S. Pacific Fleet range complexes (e.g., the Hawaii Range Complex [HRC], the Mariana Islands Range Complex [MIRC], the Southern California [SOCAL] Range Complex, and the Northwest Training Range Complex), Strike Group training is generally confined to a single range complex. Furthermore, the Study Areas are very dissimilar in size. The Southern California Range Complex consists of about 120,000 square nautical miles compared with the AFAST Study Area of about 2-million square nautical miles. The AFAST Study Area has a much larger shallow-water region available because of the wide continental shelf. The Pacific Fleet Study Areas, in sharp contrast, have very narrow continental shelves, which limit the available shallow-water areas. When coupled with limited air routes into and out of land ranges, U.S. Pacific Fleet training is more geographically constrained. In addition, the majority of U.S. Atlantic Fleet active sonar activities may occur over larger ocean areas. While the U.S. Atlantic Fleet also has shore-based support facility requirements for ASW training, they are not concentrated in one geographic area, which provides greater potential for operational flexibility than in the Pacific Fleet Study Areas. The U.S. Pacific Fleet, in contrast, has range complexes centered on geographically fixed instrumented ranges and high-value, land-based training ranges (e.g., San Clemente Island and the Pacific Missile Range Facility [PMRF]), which limits its overall operational flexibility. Additional information on the SOCAL Range Complex Final EIS/OEIS and HRC Final EIS/OEIS can be found at http://www.socalrangecomplexeis.com and http://www.govsupport.us/navynepahawaii/hawaiirceis.aspx, respectively.

b. The Relationship with the East Coast Undersea Warfare Training Range (USWTR): The Navy released the USWTR Draft EIS/OEIS in October, 2005, and a revised Draft EIS/OEIS in September 2008, which address a proposed action to instrument an approximate 500-square-nautical-mile area (1,713 square kilometers) off the East Coast with undersea cables and sensor nodes, creating an undersea warfare training range, and to use the area for ASW training. Such training would typically involve up to three vessels and two aircraft using the range for any one training event. The instrumented area would be connected to the shore via a single trunk cable. Active sonar hours proposed to be used during future USWTR activities are not analyzed in the AFAST Final EIS/OEIS; however, cumulative impacts of a proposed USWTR are addressed in Chapter 6 of the AFAST Final EIS/OEIS. Similarly, the USWTR Draft EIS/OEIS

discusses the cumulative effects associated with AFAST active sonar activities. The Navy will request separate and stand-alone authorization from NMFS pursuant to the MMPA and Endangered Species Act (ESA) for the USWTR.

c. The Relationship with other Ongoing U.S. Atlantic Fleet Environmental Planning Documents: 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 special use airspace that support the FRTP. 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.

Specifically, the Navy is proposing to achieve and maintain 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 Navy training and RDT&E activities. Where applicable, the results of this AFAST Final EIS/OEIS will be incorporated by reference into the environmental documentation for the following U.S. Atlantic Fleet range complexes: Virginia Capes (VACAPES), Cherry Point (CHPT), Jacksonville/Charleston (JAX/CHSN) and Gulf of Mexico (GOMEX).

PURPOSE AND NEED: The purpose of the proposed action is to provide MFA and HFA sonar and IEER system training for U.S. Atlantic Fleet ships, submarines, and air crews, to support the requirements of the FRTP, and stay proficient in ASW and MIW skills. In addition, the Final EIS/OEIS incorporates RDT&E active sonar activities similar, and coincident to, U.S. Atlantic Fleet training that have not been previously evaluated in other environmental planning documents.

The Proposed Action is needed to fulfill the Navy's obligations as required under Sections 5013 and 5062 of Title 10 of the U.S. Code as discussed above.

The Navy has been training and operating in the AFAST Study Area for decades, and has been using active sonar similar to current systems for more than forty years. During this timeframe of use there have not been any marine mammal stranding events

associated with active sonar training or testing activities in the AFAST Study Area.

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. Alternatives considered in the Final EIS/OEIS were identified as the No-Action Alternative, Alternative 1, Alternative 2, and Alternative 3. Under the No-Action Alternative, Alternative 1, Alternative 2, and Alternative 3, the Navy does not plan to conduct active sonar activities within the Stellwagen Bank, Monitor, Gray's Reef, Flower Garden Banks, and Florida Keys National Marine Sanctuaries, and will avoid these sanctuaries by observing a 5-kilometer (5,468 yards) buffer. At all times, the Navy will conduct AFAST activities in a manner that avoids to the maximum extent practicable any adverse impacts on sanctuary resources or qualities. In the event the Navy determines AFAST active sonar activities, due to operational requirements, are likely to destroy, cause the loss of, or injure any sanctuary resource, the Navy would first consult with the Director, Office of National Marine Sanctuaries in accordance with 16 U.S.C. § 1434(d).[5] The No-Action Alternative is identified in the Final EIS/OEIS as the preferred alternative.

1. *Alternatives Eliminated From Further Consideration:* In developing a reasonable range of alternatives, the Navy eliminated five alternatives from further consideration: (1) elimination or reduction of active sonar activities along the East Coast of the U.S. and in the Gulf of Mexico; (2) use of training areas along the West Coast of the U.S.; (3) simulated active sonar activities in lieu of live active sonar activities along the East Coast of the U.S. and in the Gulf of Mexico; (4) restriction of active sonar activities along the East Coast of the U.S. and in the Gulf of Mexico via temporal, seasonal or geographic restrictions; and (5) alteration of the tempo and intensity of active sonar activities along the East Coast of the U.S. and in the Gulf of Mexico.[6]

Conducting training exercises along the East Coast of the U.S. or in the Gulf of Mexico without the use of active sonar would not meet the legal requirements identified in section 5062

[5] For the Stellwagen Bank National Marine Sanctuary, the required consultation threshold is "may" destroy, cause the loss of, or injure any sanctuary resource.

[6] In this setting, "tempo" means intensity and could include more forces or a change in training duration, and "frequency" means the number of training events in a given period.

of Title 10 to the U.S. Code as discussed above. Without the use of active sonar, U.S. combat forces would not be capable of deploying at a level of readiness necessary to respond to "real world" contingency situations. Additionally, RDT&E supports the Title 10 mandate because it provides the Navy the capability of developing new active sonar systems and ensuring their safe and effective implementation into the U.S. Atlantic Fleet.

West Coast training areas would not be practical for training U.S. Atlantic Fleet units because of the extreme transit distance, excessive costs, and time constraints that would be involved (i.e., the proximity to East Coast homeports and air bases is too far). Crew training needs to be conducted on the specific ship to which they are assigned. It is important that the crew being trained become familiar with the ship and systems they operate. Therefore, if training were to be conducted on the West Coast, the entire crew and ship would need to transit to the West Coast in order to maintain the same level of ASW and MIW proficiency. Lastly, units need to be stationed on both coasts to respond to unforeseen real-world contingencies and be available to U.S. Combatant Commanders world-wide.

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. Initial training of sonar technicians can and does occur using simulators, and simulators are usually the first method used for the initial training of new sonar technicians in the basics of sonar system operations.

Simulators, however, will not replace real-world training in the foreseeable future because simulators cannot provide the dynamic and vastly challenging scenarios that are encountered in the ocean environment. Specifically, computer modeling simulations cannot adequately mimic the bathymetry, sound propagation properties, or oceanography to the degree necessary to serve as a substitute for actual at-sea sonar operations. Furthermore, computer simulation cannot replicate the complexities of conducting ASW in at-sea combat when a ship is expected to integrate its ASW operations with other ships

operating active sonar, defend the air space in its operating area from aircraft firing missiles targeted at an aircraft carrier or amphibious ships, or defend itself against other surface ships. In addition, the majority of RDT&E activities cannot be reliably modeled or researched using computer simulation, and must be conducted in a variety of acoustic environments to ensure the safe and effective use of the active sonar system. The sole reliance on simulators would deny Navy strike groups the training benefit and opportunity to derive critical lessons learned in the employment of active sonar in bottom bounce and multiple propagation path environmental conditions, mutual sonar interference, interplay between ship and submarine target, and interplay between ASW teams in the strike group.

Multiple active sonar activities that involve vessels and helicopters stationed out of multiple homeports are carefully coordinated events, recognizing that the units must train together simultaneously. Since the training schedule is driven by the Navy's deployment schedule, activities must be conducted year-round. In addition, given that activities must be conducted in a realistic environment and available activity areas are limited by proximity to homeports, water depth, and acoustic environments, no one OPAREA can be avoided. Restricting active sonar use during certain seasons over large geographic regions would not provide realistic, year-round, active sonar training opportunities. The Navy would not comply with the FRTP and Strike Group readiness requirements would not be fulfilled. This alternative would also not meet the crucial requirements of proximity to homeports/air stations and support facilities.

Based on extensive discussion within the operational community, the U.S. Atlantic Fleet does not presently anticipate that an increase in active sonar activities is needed to fulfill mission requirements described in this document nor that a decrease in the intensity of operations would fulfill those same operational requirements. Therefore, a variation of alternatives considering a change in the tempo of operations is not considered reasonable at this time, as they do not meet the purpose and need. Furthermore, the environmental planning documents for the various range complexes discussed in section 3c above are not expected to propose any changes in the tempo of operations for warfare missions that require active sonar activities.

2. *No-Action Alternative (Preferred Alternative):* If implemented as the Preferred Alternative, the No-Action Alternative can be regarded as continuing with the present level

of training in the same geographic areas while complying with protective measures contained in the ESA and MMPA Authorizations. 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 as discussed below. Currently active sonar training does not occur in North Atlantic right whale critical habitat with the exception of object detection and navigation off shore Mayport, Florida and Kings Bay, Georgia; helicopter ASW offshore Mayport, Florida; and during torpedo exercises in the northeast during August and September.

3. *Alternative 1:* Alternative 1 designates fixed areas for active sonar activities. Such areas were designated using an environmental analysis to determine locations that would minimize environmental effects to biological resources while still meeting operational requirements. The designated areas would be available for use year-round. Based on the analysis incorporated in Appendix H, Alternative 1 is the environmentally preferred alternative.

4. *Alternative 2:* Alternative 2 designates seasonal active sonar activity areas based on the same operational criteria and environmental analysis supporting Alternative 1. The areas would be adjusted seasonally to minimize effects to marine resources while still meeting minimum operational requirements.

5. *Alternative 3:* Under Alternative 3, the results of the environmental analyses conducted for Alternatives 1 and 2 were utilized in conjunction with a qualitative environmental analysis of sensitive habitats to identify "areas of increased awareness." Designated areas of increased awareness are environmentally sensitive areas that typically indicate higher concentrations of marine species and include the following features: (1) bathymetric features such as canyons, steep walls, and seamounts; (2) areas of persistent oceanographic features; (3) North Atlantic right whale critical habitat areas; (4) river and bay mouths; (5) areas of high marine mammal density (see Appendix D of the Final EIS/OEIS); and (6) designated National Marine Sanctuaries (i.e., Monitor, Gray's Reef, Stellwagen Bank, Florida Keys, and Flower Garden Banks National Marine Sanctuaries). Active sonar activities would not be conducted within these areas of increased awareness. All marine waters within the AFAST Study Area, but outside the designated areas of increased awareness identified in the Final EIS/OEIS (see Figures 2-26 through 2-29), would be open to active sonar activities. Due to operational requirements, there

are several types of active sonar activity areas that cross a limited set of designated areas of increased awareness.

6. *Actions Associated with the Preferred Alternative:* ASW and MIW training provide the warfighter with the skills necessary to function as part of a coordinated fighting force in a hostile environment with the capacity to accomplish multiple missions. Ships, submarines, and squadrons will focus on individual and team ASW and MIW training. The U.S. Atlantic Fleet meets these requirements by conducting training activities prior to deployment of forces. Overall, ASW and MIW training is conducted to meet deployment certification requirements as directed in the FRTP. The Maintenance Phase is the preferred period during which major shipyard or depot level repair and most personnel turnover occurs. RDT&E activities are conducted as part of developing new technologies and to ensure their effectiveness prior to implementation. Maintenance activities are conducted pier-side and during transit to training exercise locations. Active sonar maintenance is required to ensure the sonar system is operating properly prior to engaging in the training exercise or when the sonar systems are suspected of performing below optimal levels. Active sonar is rarely used continuously throughout the listed activities. In addition, when sonar is in use, the sonar "pings" occur at intervals, referred to as a duty cycle, and the signals themselves are very short in duration. The typical sonar use scenarios are detailed in Chapter 4 of the AFAST Final EIS/OEIS.

a. Training Considerations and Requirements: The Navy needs to conduct Independent ULT, Coordinated ULT, and Strike Group training exercises, to include ASW and MIW active sonar activities, RDT&E, and active sonar maintenance activities. These activities occur at multiple locations along the East Coast of the U.S. and in the Gulf of Mexico. Conducting active sonar activities in multiple locations is necessary to ensure that the range of environments and features likely to be encountered in an actual conflict are experienced during training. Technology continues to improve submarines' abilities to evade detection while increasing the distances from which they can launch weapons of increasing lethality and precision at Strike Group vessels. Accordingly, Strike Group training requires the flexibility to train expeditiously to emerging requirements involving widely varying environmental conditions that are present along the entire East Coast of the U.S. Requiring naval personnel to train under unrealistic conditions results in ineffective training and places the lives of

thousands of Sailors and Marines, the Strike Group, and the success of the military mission at significant risk.

The ability to conduct real world training requires: (1) the ability to conduct ASW, MIW, and RDT&E active sonar activities year-round; (2) the maximum operational distance feasible between homeport and training location;[7]. (3) the appropriate scheduling and de-conflicting of military and civilian activities in the available air and sea space; (4) the minimum size of the training area necessary to provide adequate and safe training capabilities, including the ability to conduct multi-unit active sonar activities; (5) the minimum safe water depth for each platform; (6) the maximum feasible operational distance between support facilities and Strike Group training and RDT&E activity locations;[8] (7) an appropriate acoustic environment for the use of active sonar (i.e., the presence or absence of properties which may affect the transmission and reception of underwater sound; and (8) the ability to obtain, lay, and recover targets for select activities.

b. Independent ULT Scenarios: Independent ULT events typically last two to six hours and involve one or two ships or aircraft. Active sonar is typically not used during the entire event.

(1) *Surface Ship ASW ULT:* One or two surface ships (i.e., guided missile cruiser [CG], guided missile [DDG], or fast frigate [FFG]) conduct ASW localization and tracking training. Under the No-Action Alternative, Surface Ship ASW ULT would be occurring in both deep and shallow water areas throughout the eastern and southeastern coast of the United States.

(2) *Surface Ship Object Detection/Navigational Training ULT:* Under this scenario, one ship (CG, DDG, or FFG) conducts object detection and navigational training while transiting in and out of port. This training would be conducted primarily in the shallow water shipping lanes off the coasts of Norfolk, Virginia and Mayport, Florida.

(3) *Helicopter ASW ULT:* In this scenario, one SH-60 helicopter conducts ASW training. This activity would be conducted in shallow and deep waters while embarked on a surface

[7] This requirement is driven by both platform (e.g., aircraft or ship) and crew proficiency levels.

[8] This includes ranges, amphibious assault locations, and device recovery for Strike Group training and support personnel, equipment, and device deployment and recovery for RDT&E activities.

ship. Helicopter ASW ULT events would also be conducted by helicopters deployed from shore-based Florida commands.

(4) *Submarine ASW ULT:* This scenario consists of one submarine conducting underwater ASW training. Submarines would be conducting this training in deep waters throughout the Study Area, within and seaward of existing East Coast OPAREAs and occasionally in the GOMEX OPAREA.

(5) *Submarine Object Detection/Navigational Training ULT:* This scenario consists of one submarine conducting object detection and navigational training while transiting in and out of port. In this scenario, the submarine would be operating the sonar to detect obstructions during transit. This ULT would occur primarily in the established submarine transit lanes outside of Groton, Connecticut; Norfolk, Virginia; and Kings Bay, Georgia.

(6) *Maritime Patrol Aircraft (MPA) ASW ULT:* Under this scenario, one MPA conducts ASW localization and tracking training. MPA ASW ULT would be occurring within and seaward of existing East Coast OPAREAs and occasionally within the GOMEX OPAREA.

(7) *Surface Ship MIW ULT:* During a surface ship MIW ULT, one ship (mine countermeasures [MCM]) would conduct mine localization training. This training would be conducted in the northern Gulf of Mexico in the GOMEX OPAREA, and off the east coast of Texas, in the Corpus Christi OPAREA.

c. Coordinated ULT:

(1) *Southeastern Anti-Submarine Warfare Integrated Training Initiative (SEASWITI):* SEASWITI is an exercise with up to two submarines and either two DDGs and one FFG or one CG, one DDG, and one FFG. The ships and their embarked helicopters would be conducting ASW detection and localization training that would occur in the deep water OPAREAs off the coast of Jacksonville, Florida.

(2) *Group Sail:* The Group Sail is a coordinated training scenario with 1 submarine and either two DDGs or one CG, one DDG, and one FFG. These events would take place within and seaward of the VACAPES, CHPT, and JAX/CHASN OPAREAs.

(3) *Integrated ASW Course (IAC):* The IAC is a tailored course of instruction designed to improve Sea Combat Commander (SCC) and Strike Group integrated ASW warfighting

skill sets. Key components for this course of instruction include coordinated ASW training for the SCC or ASW Commander and staff, key shipboard decision makers, and ASW watch teams. IAC consists of two phases, IAC Phase I and IAC Phase II. IAC Phase I is an approved Navy course of instruction consisting of five days of basic and intermediate level classroom training. IAC Phase II is intended to leverage the knowledge gained during IAC Phase I and build the basic ASW coordination and integration skills of the Strike Group ASW Team. IAC Phase II is a coordinated training scenario that typically involves three DDG's, one CG and one FFG, two to three embarked helicopters, one submarine, and one MPA aircraft searching for, locating, and attacking one submarine. The scenario consists of two 12-hour events that occur five times per year. While the ships are searching for the submarine, the submarine may practice simulated attacks against the ships. These events would occur within and seaward of the VACAPES, CHPT, and JAX/CHASN OPAREAs or within and adjacent to the GOMEX OPAREA. During these exercises, some activities may occur in more than one OPAREA.

(4) ***Submarine Command Course Operations:*** This scenario is conducted as training for submarine Executive and Commanding Officers, and involves two submarines conducting ASW training. The SCC Operations scenario occurs two times per year and lasts from three to five days. This training exercise would be occurring in the JAX/CHASN and Northeast OPAREAs in deep ocean areas.

(5) ***Squadron Exercise (RONEX) and GOMEX:*** The scenario employs from one to five mine countermeasure (MCM) ships conducting mine localization training. These scenarios are 10 to 15 days in length and occur four times per year. Either the RONEX or GOMEX Exercise would be conducted in both deep and shallow water training areas within and adjacent to the Pensacola and Panama City OPAREAs in the northern Gulf of Mexico.

d. Integrated Training: The Expeditionary Strike Group (ESG) and Carrier Strike Group (CSG) consist of multiple ships, aircraft and submarines operating as an integrated force. Only those platforms that use active sonar are described in the following subsections. A typical ESG or CSG consists of up to six surface ships, one to five aircraft, and one submarine. The goal of integrated phase training is to synthesize unit/staff actions into coordinated strike group operations in a challenging, multi-warfare operational environment. This phase provides an opportunity for strike group to complete staff planning and warfare commanders' courses, conduct multi-unit in-

port and at-sea training, and build on individual skill proficiencies attained in their respective basic phase. Training that occurs during the integrated phase includes the Composite Unit Training Exercise (COMPTUEX) which certifies the CSG and ESG Maritime Combat Operations (MCO) surge ready, and is a prerequisite to the Joint Task Force Exercise (JTFEX) which certifies the CSG MCO ready (note: an ESG does not conduct a JTFEX).

(1) *Composite Training Unit Exercise* (COMPTUEX): The COMPTUEX is a training scenario designed to provide coordinated training to the entire ESG and CSG. An ESG COMPTUEX consists of a Navy ESG and Marine Corps units conducting integrated maritime and amphibious operations. ESG COMPTUEXs include the insertion of amphibious forces onto a beach, movement of vehicles and troops over land, delivery of troops and equipment from ship to shore via helicopters and fixed-wing MPA, the use of live-fire and blank munitions from ground-based troops and aircraft, and ship operations. In addition, Navy ships provide indirect Naval Surface Fire Support in support of the landing amphibious forces utilizing non-explosive ordnance. A CSG COMPTUEX is a major at-sea training event that represents the first time before deployment that an aircraft carrier and its carrier air wing integrate operations with surface and submarine units in an at-sea environment. The ESG and CSG consist of multiple ships, aircraft and submarines operating as an integrated force.

Each COMPTUEX lasts 21 days and can occur approximately five times per year. These exercises would be conducted within and seaward of the VACAPES, CHPT, and JAX/CHASN OPAREAs, or within and adjacent to the GOMEX OPAREA. During these exercises, some activities may occur in more than one OPAREA.

(2) *Joint Task Force Exercise (JTFEX):* The JTFEX is the final fleet exercise prior to the deployment of the CSG and ESG. Specifically, a JTFEX would be scheduled after a CSG COMPTUEX to certify that the Strike Group is ready for deployment. The focus of a JTFEX is on mission planning and strategy and on the orchestration of integrated maneuvers, communication, and coordination. The activity is a non-scripted scenario-driven exercise that requires adaptive mission planning by participating naval forces and operational staff, and typically includes other DoD services and/or Allied forces. A CSG COMPTUEX and a JTFEX may take place concurrently, in which case the exercise is called a Combined CSG COMPTUEX/JTFEX.

Typically, four DDGs, two FFGs, and three submarines participate in a JTFEX. The scenario typically lasts 10 days and

can occur approximately two times per year. JTFEX activities would be occurring in shallow and deep water portions located within and seaward of the VACAPES, CHPT, and JAX/CHASN OPAREAs.

e. Sustainment Training: Sustainment training consists of a variety of training evolutions designed to sustain warfighting readiness as a group, multi-unit, or unit until and following deployment. Sustainment training, in port and at sea, allows forces to demonstrate proficiency in operating as part of a joint and coalition combined force and ensures that proficiency is maintained in order to maintain Major Combat Operations (MCO) Ready. The extent of the sustainment training will vary depending on the unit's length of time in a MCO Ready status, as well as the anticipated tasking. During sustainment training, units/groups maintain a MCO Ready status until the commencement of the maintenance phase, unless otherwise directed by the Fleet Commander. Unit/group integrity during this period is vital to ensure integrated proficiency is maintained. This is especially vital for strike groups.

f. Maintenance:

(**1**) ***Surface Ship Sonar Maintenance:*** This scenario consists of surface ships performing periodic maintenance to the AN/SQS-53 or AN/SQS-56 sonar while in port or at sea. This maintenance takes up to 4 hours. Surface ships would be operating their active sonar systems for maintenance while in shallow water near their homeport, located in either Norfolk, Virginia or Mayport, Florida. However, sonar maintenance could occur anywhere as the system's performance may warrant.

(2) ***Submarine Sonar Maintenance:*** A submarine performs periodic maintenance on the AN/BQQ-10 and AN/BQS-15 sonar systems while in port or at sea. This maintenance takes from 45 minutes to 1 hour. Submarines would conduct maintenance to their sonar systems in shallow water near their homeport of either Groton, Connecticut; Norfolk, Virginia; or Kings Bay, Georgia. However, sonar maintenance could occur anywhere as the system's performance may warrant.

g. RDT&E: For the purposes of analyzing RDT&E activities, active sonar usage has been rolled into representative ULT events.

h. Torpedo Exercises: Torpedo firing activities would be occurring within the VACAPES and GOMEX OPAREAs, and within and seaward of the Northeast OPAREA. Due to operational requirements for torpedo recovery operations, support facilities must be

located within 148 kilometers (80 nautical miles) of the torpedo exercise area.

ENVIRONMENTAL IMPACTS: The Navy analyzed the potential impacts of the proposed action in terms of the following resource areas: physical (sediment quality, marine habitat, and water quality), biological (marine mammals, sea turtles, essential fish habitat, marine fish, seabirds, marine invertebrates, marine plants and algae, and National Marine Sanctuaries), airspace management, energy (water, wind, oil, and gas), socioeconomics (commercial and recreational fishing and boating, commercial shipping, scuba diving, and marine mammal watching), and cultural resources. The potential for environmental impacts throughout the AFAST Study Area associated with each alternative was analyzed and documented in Chapter 4 of the Final EIS/OEIS. This Record of Decision summarizes the potential impacts associated with implementation of the Preferred Alternative.

1. *Sediment Quality:* No significant short- or long-term impacts or significant harm to sediment quality from expended components is expected.

2. *Marine Habitat:* No significant short- or long-term impacts or significant harm to marine habitat from expended components is expected.

3. *Water Quality:* No significant short- or long-term impacts or significant harm to water quality from expended components is expected.

4. *Marine Mammals:* Training activities analyzed in the Final EIS/OEIS involve the controversial use of MFA and HFA sonar and underwater detonations. Forty-three marine mammal species, including whales, dolphins, seals, and manatees, have possible or confirmed occurrence in the AFAST 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 in-water sound. Specifically, a quantitative analysis was used to determine the potential impacts to marine mammals associated with the use of active sonar, in addition to the explosive source sonobuoy (AN/SSQ-110A). 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. MFA and HFA Sonar: The Final EIS/OEIS employed separate criteria to assess physiological and behavioral effects on marine mammals from exposure to MFA and HFA sonar. The approach to estimating potential physiological effects from ASW training within the HRC on marine mammals used methods that were developed in cooperation with NMFS for the Navy's Undersea Warfare Training Range (USWTR) Draft EIS/OEIS (U.S. Department of Navy, 2008k), 2007 USWEX Programmatic EA/OEA, the 2006 Supplement to the 2002 RIMPAC Programmatic EA/OEA (U.S. Department of the Navy, Commander Third Fleet, 2006g), and the 2007 Composite Training Unit Exercise (COMPTUEX)/Joint Task Force Exercise (JTFEX) EA/OEA. 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.

(1) *Physiological Effects Analysis:* The impact analysis in the Final EIS/OEIS used auditory tissues as indicators of both injurious and non-injurious physiological effects and supported the determination that permanent threshold shift (PTS) and temporary threshold shift (TTS) were the most appropriate biological indicators of physiological effects that equate to the onset of injury (Level A harassment under the MMPA) and non-injurious behavioral disturbance (Level B harassment under the MMPA). Alternative views have challenged this determination, arguing that it is inconsistent with other types of observed or reported injury. Such observed or reported injuries, however, have not been linked directly to sound exposure and may result from other processes related to the behavior of the animal. The impact analysis as presented in the Final EIS/OEIS is consistent with the scientific literature. No scientific literature exists that demonstrates a direct mechanism by which injury will occur as a result of sound exposure levels less than those predicted to cause a PTS in a marine mammal.

The Final EIS/OEIS expressed the physiological effects thresholds in terms of the total received energy flux density level (EL), which is a measure of the flow of sound energy through an area because marine and terrestrial mammal data show that, for continuous-type sounds of interest (e.g., MFA sonar pings), TTS and PTS are more closely related to the energy in the sound exposure than to the exposure sound pressure level (SPL). The EL includes both the ping SPL and duration. Longer-duration MFA and HFA sonar pings and/or higher-SPL pings will

have a higher EL. If an animal is exposed to multiple pings, the energy flux density in each individual ping is summed to calculate the total EL. Therefore, the total received EL depends on the SPL, duration, and number of pings received.

Because mammalian auditory threshold shift data show less effect from intermittent exposures than from continuous exposures with the same energy (Ward, 1997), basing the physiological effect thresholds on the total received EL is a conservative approach for treating multiple pings that will likely overestimate any adverse effects; in reality, some recovery will occur between pings and lessen the effect of a particular exposure. In the Final EIS/OEIS, the sound exposure thresholds for TTS and PTS in cetacea are 195 dB re 1 μPa^2-s received EL for TTS and 215 dB re 1 μPa^2-s received EL for PTS. Unlike cetaceans, the TTS and PTS thresholds used for exposure modeling for harbor seals and closely related species, which are the only pinnipeds in the AFAST Study Area, are 183 dB re 1 μPa^2-s for TTS and 203 dB re 1 μPa^2-s for PTS.

The Navy considered criticism of its reliance on Navy studies of TTS in highly trained captive animals in the Navy's marine mammal program for its primary source of data for physiological effects. Contrary to this criticism, the Navy, with the full support of NMFS, relied on these studies because they are the most controlled studies of behavioral reactions to sound exposure available and provide the greatest amount of data. These studies recorded baseline behavior of the test subjects over many sessions so that behavioral alterations could be defined as a deviation from normal behavior. The sound exposure level received by each animal was recorded and quantified. The exposure signals used were close to the frequencies typically employed by MFA sonar. No other study provided the same degree of control or relevance to mid-frequency signal types as the TTS studies from which many of the behavioral response thresholds were derived.

The data from these studies are the best available scientific data both with respect to quality and quantity. Data from animals in the wild were utilized when sufficient information on animal behavior (both baseline and reactionary) and sound exposure levels existed. This is unfortunately a sparse amount of data. Utilization of other studies with inadequate control, observational periods, or ability to determine exposure levels of the animals would introduce a large amount of guesswork and estimation that weakens any numerical association between behavioral reactions and sound exposure. Furthermore, the limitations of the TTS studies referred to in

the comment were acknowledged in the original behavioral analysis. Please see Finneran, J.J. and Schlundt, C.E. (2004), "Effects of intense pure tones on the behavior of trained odontocetes" (SSC San Diego, San Diego, CA), in particular Section 5.1.1, which details the limitations of the data collection and analysis. NMFS is aware of these limitations yet still approves, as discussed below, the usage of the data at this time because of the quality and quantity of the data. As quality data continue to be collected on animals in the wild, the relevance of the behavioral data collected during the TTS studies will decrease and will eventually be replaced. However, at this time, they provide the best available data for assessing the relationship between behavioral reactions and sound exposure.

(2) ***Behavioral Effects Analysis:*** The Final EIS/OEIS concluded that the necessary information (i.e., variable and context specific behavioral responses as well as causal factors of marine mammal stranding events associated with MFA sonar) to assess behavioral effects on each species from exposure to MFA and HFA sonar is not yet complete due to the lack of empirical data, although ongoing research efforts will continue to develop the available body of data. The Final EIS/OEIS noted that the Navy has funded, and will continue to fund, research efforts to develop these data, but such an undertaking will require years to complete. The present unavailability of such information is relevant to the ability to develop species-specific behavioral effects criteria. The science of understanding the effects of sound on marine mammals is dynamic. The analysis in the Final EIS/OEIS employed the best available science. The Navy is fully committed to the use of the best available science for evaluating the potential effects of training and testing activities.

(A) <u>History of Assessing Potential Harassment from Behavioral Effects</u>: The Final EIS/OEIS summarized the Navy's and NMFS's efforts to identify the appropriate criteria for assessing non-injurious behavioral effects on marine mammals of exposure to MFA and HFA sonar. The MMPA Incidental Harassment Authorization (IHA) of June 27, 2006, for MFA sonar training during RIMPAC 2006, in part, and the USWTR Draft EIS/OEIS relied on behavioral observations of trained cetaceans exposed to intense underwater sound under controlled circumstances to develop a criterion and threshold for behavioral effects of sound based on energy flux density. Subsequent to issuance of the RIMPAC 2006 IHA, additional public comments were received and considered by Navy and NMFS. Based on this input, and as

required by the 6-month national defense exemption from the legal requirements of the MMPA issued by the Deputy Secretary of Defense on June 30, 2006, the Navy continued to coordinate with NMFS to determine whether an improved approach to energy flux density could be used to evaluate when a marine mammal may behaviorally be affected by MFA sound exposure. Coordination between the Navy and NMFS resulted in the adoption of two risk function curves for evaluation of behavioral effects.

(B) Development of the Two Risk Function Curves: In Section 4.1.2.4.9 of the HRC Draft EIS/OEIS, the Navy presented a dose methodology to assess the probability of Level B non-injurious, behavioral harassment from the effects of MFA and HFA sonar on marine mammals.[9] Following publication of the Draft EIS/OEIS, the Navy continued working with NMFS to refine the mathematically representative curve previously used, along with applicable input parameters, for the purpose of increasing the accuracy of the Navy's assessment. As the regulating and cooperating agency, in 2008 NMFS presented two methods to six scientists (marine mammalogists and acousticians from within and outside the federal government) for an independent review. One of the methods was a normal curve fit to a "mean of means" calculated from the mean of: (1) the estimated mean received level produced by the reconstruction of the USS SHOUP event of May 2003, in which killer whales were exposed to MFA sonar (U.S. Department of the Navy, 2004b); (2) the mean of the five maximum received levels at which Nowacek et al. (2004) observed significantly different responses of right whales to an alert stimuli; and (3) the mean of the lowest received levels from the 3-kHz data that the Space and Warfare Naval Systems Center (SSC) classified as altered behavior from Finneran and Schlundt (2004). The second method was a derivation of a mathematical function used for assessing the percentage of a marine mammal population experiencing the risk of harassment under the MMPA associated with the Navy's use of SURTASS LFA sonar (U.S. Department of the Navy, 2001c). This function is appropriate for application in a number of contexts, including instances where there are limited data (Feller, 1968). This method is identified as "the risk function" in this document.

[9] The definition of Level B Harassment used in the Final EIS/OEIS for military readiness activities is "any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered."

Two NMFS scientists, one from the NMFS Office of Science and Technology and one from the Office of Protected Resources, summarized the reviews of the six scientists, and developed a recommendation. The NMFS Office of Protected Resources decided to use two risk functions, one for odontocetes (except harbor porpoises) and pinnipeds, and one for mysticetes, with applicable input parameters to estimate the risk of behavioral harassment from exposure to MFA and HFA sonar.[10] The particular acoustic risk functions specified by NMFS estimate the probability of behavioral responses that NMFS would classify as Level B harassment under the MMPA given exposure to specific received levels of MFA and HFA sonar. The mathematical function was derived from a solution in Feller (1968), as defined in the SURTASS LFA Sonar Final OEIS/EIS (U.S. Department of the Navy, 2001) and relied on in the Supplemental SURTASS LFA Sonar EIS/OEIS (U.S. Department of the Navy, 2007) with respect to potential impact from the SURTASS LFA sonar, for the probability of MFA and HFA sonar risk for MMPA Level B behavioral harassment with input parameters modified by NMFS for MFA and HFA sonar for mysticetes, odontocetes, and pinnipeds. This determination was based on the recommendation of the two NMFS scientists; consideration of the independent reviews from six scientists; and NMFS' MMPA regulations addressing the Navy's use of SURTASS LFA sonar.

Prior to the development of the HRC Final EIS/OEIS, the Navy had not used acoustic risk functions in previous MFA or HFA sonar assessments of the potential behavioral effects of MFA and HFA sonar on marine mammals, but risk functions are not new concepts for risk assessments. The HRC Final EIS/OEIS for the Hawaii Range Complex noted that common elements are contained in the process used for developing criteria for air, water, radiation, and ambient noise, and for assessing the effects of sources of air, water, and noise pollution, and also acknowledged a widespread consensus that cetacean response to MFA sound signals needs to be better defined using controlled experiments (Cox et al., 2006; Southall et al., 2007). The Navy

[10] The information currently available regarding harbor porpoises (inshore species that inhabit shallow and coastal waters) suggests a very low threshold level of response for both captive and wild animals. Threshold levels at which both captive and wild harbor porpoises responded to sound (e.g. acoustic harassment devices (ADHs), acoustic deterrent devices (ADDs), or other non-pulsed sound sources) is approximately 120 dB re 1 µPa-s, although the biological significance of the disturbance is uncertain. Therefore, as specified by NMFS, the Navy will not use the risk function curve for odontocetes, but will apply a step function threshold of 120 dB re 1 µPa-s to estimate temporary, non-injurious Level B behavioral exposures.

is contributing to an ongoing behavioral response study in the Bahamas that is anticipated to provide some initial information on beaked whales, the species identified as the most sensitive to MFA sonar. NMFS is leading this international effort with scientists from various academic institutions and research organizations to conduct studies on how marine mammals respond to underwater sound exposures. Until additional data are available, NMFS and the Navy have determined that the three data sets detailed in Section 4.4.5.3 of the Final EIS/OEIS are most applicable for the direct use in developing risk function parameters for MFA and HFA sonar. Accordingly, both risk functions specified by NMFS were developed using these data sets. NMFS determined that these data sets represent the only known data that specifically relate to altered behavioral responses to exposure to mid-frequency sound sources. Until applicable data sets are evaluated to better quantify harassment from HFA sources, the Final EIS/OEIS concluded that the risk function derived for MFA sources will apply to HFA sources.

(C) Critique of the Two Risk Function Curves as Presented in the Final EIS/OEIS for the Hawaii Range Complex: As discussed above, the risk functions used in the Final EIS/OEIS to assess non-injurious temporary behavioral effects to marine mammals were first set forth in the Navy's Final EIS/OEIS for the Hawaii Range Complex. The Navy received several comments on the Hawaii Range Complex Final EIS/OEIS critical of the risk function curves specified by NMFS. In reviewing whether the parameters employed were based upon the best available science, the implications in the uncertainty in the values, and biases and limitations in the risk function criteria, such critique asserted that data were incorrectly interpreted by NMFS when calculating parameter values, resulting in a model that underestimates takes. Of primary importance to these commenters was the point that the risk function curves specified by NMFS do not account for a wide range of frequencies from a variety of sources (e.g., motor boats, seismic survey activities, banging on a pipe). In fact, all of the critique concerning "data sets not considered" by NMFS relate to sound sources that are either higher or lower in frequency than MFA sonar, are contextually different (such as those presented in whale watch vessel disturbances or oil industry activities), or are relatively continuous in nature as compared to intermittent sonar pings. These sounds from data sets not considered have no relation to the frequency or duration of a typical Navy MFA sonar as described in the Final EIS/OEIS.

As discussed above and in the Final EIS/OEIS, NMFS selected data sets that were relevant to MFA sonar sources and selected parameters accordingly. In order to satisfy the concern reflected in that a risk function must be inherently precautionary, NMFS could have selected data sets and developed parameters derived from a wide variety of sources across the entire spectrum of sound frequencies in addition to or as substitutes for those that best represent the Navy's mid-frequency active sonar. The net result, however, would have been a risk function that captures a host of behavioral responses beyond those that are biologically significant as contemplated by the definition of Level B harassment under the MMPA as applicable to military readiness activities. Given the results of the modeling and the marine mammal densities in the AFAST Study Area, having a lower basement value would not result in any significant number of additional takes. This is demonstrated in Table 4-6 of the Final EIS/OEIS which shows that less than 1 percent of the predicted number of takes resulted from exposures below 140 dB. Accordingly, while lowering the basement value from 120 dB to something "far lower than 110 dB" would change the risk function curve, it is not likely to result in any appreciable increase in the number of takes. In addition, lowering the basement value below the present 120 dB received level would involve modeling for impacts occurring below the naturally occurring ambient background noise present in the AFAST Study Area.

Such critique suggests that the criteria used to establish the risk function parameters should reflect the biological basement value where any reaction from any source is detectable. The MMPA, particularly as it applies to military readiness activities and certain federally-funded scientific research activities, does not intend to regulate any and all marine mammal behavioral reactions as suggested by the comment.

Various comments recommending that the B parameter and the data used should be revised given that, ". . . 120 dB re 1µPa has broadly been found as the value at which 50 percent of individuals respond to noise . . .;" that ". . . 50 percent of migrating whales changed course to remain outside the 120 dB re 1µPa contour (citing to Malme et al. 1983, 1984);" and that " . . . mysticetes exposed to a variety of sounds associated with the oil industry, typically 50 percent exhibited responses at 120 dB re 1µPa" are factually inaccurate. All of these comments provided a single citation to Malme et al. (1983, 1984) for the repeated assertion that 50 percent of marine mammals will react to 120 db re 1µPa. Malme et al. (1983, 1984) in fact indicated

that for migrating whales, a 50-percent probability of response occurred at 170 dB for a continuous, low-frequency sound source that is very different from mid-frequency active sonar.

Regarding criticism that the model underestimates takes because of uncertainty arising from "inter-specific variation" or from "broad confidence intervals," the risk function methodology assumes variations in responses within the species and was chosen specifically to account for uncertainties and the limitations in available data. NMFS considered all available data sets and, as discussed above, made a determination as to the best data currently available. While the data sets have limitations, they constitute the best available science. Critique that the model has limitations in that it does not account for social factors, and is likely to underestimate takes, reflects a concern that if one animal is "taken" and leaves an area then the whole pod would likely follow. As explained in Appendix H to the Final EIS/OEIS, the model does not operate on the basis of an individual animal but quantifies the exposures NMFS may classify as takes based on the summation of fractional marine mammal densities. Because the model does not consider the many mitigation measures that the Navy utilizes when it is using mid-frequency active sonar, to include mid-frequency active sonar power down and power off requirements should mammals be spotted within certain distances of the ship, if anything, it overestimates the amount of takes.

Lastly, regarding criticism that there are additional datasets, including datasets not considered by NMFS and the Navy, that should have been considered and not having done so resulted in the model underestimating takes, the various data sources suggested by the commenters involve contexts that are neither applicable to the proposed actions nor the sound exposures resulting from those actions. For instance, Lusseau et al. (2006) involved disturbance to a small pod of dolphins exposed to 8,500 whale-watching opportunities annually. This is nothing like the type or frequency of action that is proposed by the Navy for the AFAST Study Area. In a similar manner, the example from noise used in drive fisheries is not applicable to Navy training. Navy training involving the use of active sonar typically occurs in situations where the ships are located miles apart, the sound is intermittent, and the training does not involve surrounding the marine mammals at close proximity. Furthermore, suggestions that effects from acoustic harassment devices and acoustic deterrent devices, which are relatively continuous, high-frequency sound sources (unlike MFA sonar) and are specifically designed to exclude marine mammals from

habitat, are also fundamentally different from the use of MFA sonar. Finally, reactions to airguns used in seismic research or other activities associated with the oil industry are also not applicable to mid-frequency active sonar, since the sound or noise source, its frequency, source level, and manner of use is fundamentally different.

b. Small Explosives Effects Analysis: The approach to risk assessment for impulsive sound in the water was derived from the analysis of effects associated with the USS WINSTON CHURCHILL and USS SEAWOLF 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 rate of rupture (i.e., 50 percent 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 (in-lb/in^2 [about 205 dB re 1 µPa^2-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 (e.g., Ketten [1998] indicates a 30-percent incidence of PTS at the same threshold).

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 this assessment, 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 threshold for onset of slight lung injury was calculated for a calf dolphin (12.2 kilograms [27 pounds]) and an adult dolphin (174 kilograms [384 pounds]); it is given in terms of the Goertner modified positive impulse, indexed to 13 psi-ms and 32 psi-ms respectively. In this assessment, all cetaceans were analyzed using the threshold for a calf dolphin for onset slight lung injury. The results of the analysis, therefore, are conservative.

The TTS energy threshold is a 182 dB re 1 µPa2-s maximum energy flux density level in any 1/3-octave band at frequencies above 0.1 kHz for toothed whales and in any 1/3-octave band above 0.010 kHz for baleen whales. For large explosives, the latter limits at 0.01 and 0.1 kHz make a difference in the range estimates. NMFS has defined large explosives in prior rulemaking

as greater than 907 kilograms (2,000 pounds) Net Explosive Weight (NEW) (NMFS, 2006k). The Navy has defined small explosives as less than 680 kilograms (1,500 pounds) NEW per directive. For small explosives, the spectrum of the shot arrival is broad and there is essentially no difference in effects ranges for the 2 classes of animals.

The TTS peak-pressure threshold applies to all cetacean and turtle species and is stated in terms of peak pressure at 23 psi, which is based on an MMPA IHA issued to the U.S. Air Force for a similar action (NOAA, 2006c). This threshold is derived from the CHURCHILL threshold; however, peak pressure and energy scale are at different rates per charge weight, so that ranges based on the peak-pressure threshold are much greater than those for the energy metric when charge weights are small—even when the source and animal are away from the surface. In order to more accurately estimate TTS for smaller shots while preserving the safety feature provided by the peak-pressure threshold, the peak-pressure threshold was appropriately scaled for small detonations. This scaling is based on the similitude formulas (e.g., Urick, 1983) used in virtually all compliance documents for short ranges. Further, the peak-pressure threshold for TTS for explosives offers a safety margin for a source or an animal near the ocean surface.

c. Effects Estimates: Using the criteria specified by NMFS and the application of the Navy's post-modeling analysis, the Navy does not estimate any mortalities of marine mammals as a result of exposure to the active sonar activities as set forth under the No-Action Alternative. The Navy estimates the potential for 124 injurious effects on marine mammals annually as a result of exposure to active sonar activities that NMFS would classify as Level A harassment under the MMPA. This estimate does not take into consideration any avoidance of vessels or sound sources by marine mammals or the implementation of mitigation measures. As described in the response to comments section of NMFS' MMPA regulations for AFAST active sonar activities, when the distance from the sonar source within which an animal would need to approach to be exposed to injurious levels (10 meters), the small number of modeled exposures to injurious levels to a few species (of relatively good detectability: dolphins and pilot whales), the implementation of mitigation measures, and the likelihood that most marine mammals would avoid approaching the source at this distance are taken into consideration, NMFS and the Navy believe that marine mammals will not be injured by sonar exposure. The Final EIS /OEIS estimates 1,911,195 non-injurious effects on

marine mammals annually as a result of exposure to AFAST active sonar activities that NMFS would classify as Level B harassment under the MMPA. Of this total, 16,615 annual exposures represent temporary, non-injurious physiological effects resulting from the onset of temporary threshold shift (TTS), and the remaining 1,894,580 annual exposures represent temporary, non-injurious behavioral effects.

As discussed below, the Navy requested a MMPA incidental take authorization. A Notice of Receipt of Application was published in the Federal Register on March 5, 2008 (73 Fed. Reg. 11889). NMFS issued MMPA regulations addressing the incidental take of marine mammals for AFAST active sonar activities, effective immediately upon filing with the Office of the Federal Register on January 22, 2009. In addition, the Navy entered into early consultation with NMFS in accordance with Section 7 of the ESA. Consultation concluded on January 14, 2009, when NMFS issued an ESA Biological Opinion. NMFS will issue annual ESA Incidental Take Statements and MMPA Letters of Authorization (LOAs).

d. Navy/NMFS Post-Modeling Assessment of Exposure Effects: Regarding the active sonar activities under the preferred alternative, Navy requested authorization from NMFS for 1,940,221 MMPA Level B incidental annual harassment takes resulting from the potential exposure to these activities. The Navy and NMFS qualitatively analyzed species with near-zero density values to determine an appropriate number of additional requested incidental takes for these species. Therefore, the total number of takes requested is higher than the number of exposures estimated in the AFAST Final EIS/OEIS. NMFS has specified the Navy's activities are best described based on best estimates of the number of active sonar activity hours that the Navy will conduct. Therefore, the annual MMPA LOAs and ESA Incidental Take Statements will specify the number of hours permissible over the course of a year in authorizing takes. NMFS allows for the exact number of hours to vary from year to year, but not to exceed the 5-year totals permitted by more than 10 percent. NMFS estimated that a 10-percent increase in sonar hours would result in approximately a 10-percent increase in the number of takes, and considered this possibility and the effect of this additional sonar use in its analysis.

Additionally, the Navy does not believe any mortalities of marine mammals will result from exposure to MFA or HFA sonar under the preferred alternative. However, given the frequency of naturally occurring marine mammal strandings (e.g., natural mortality), it is conceivable that a stranding could coincide

with a Navy exercise even through the stranding is actually unrelated to and not caused by Navy activities. Although NMFS and the Navy do not anticipate that a marine mammal stranding or mortality will result from the operation of MFA sonar during active sonar activities within the AFAST Study Area, the Navy is requesting 10 serious injury or mortality incidental takes for beaked whale species. This request is consistent with a letter from NMFS to the Navy dated October 2006, in which NMFS indicated that, per Section 101(a)(5)(A) of the MMPA, authorization is appropriate for MFA sonar activities because it allows NMFS to consider the potential for incidental mortality. Specifically, NMFS's letter stated, "[B]ecause [MFA] sonar has been implicated in several marine mammal stranding events including some involving serious injury and mortality, and because there is no scientific consensus regarding the causal link between sonar and stranding events, NMFS cannot conclude with certainty the degree to which mitigation measures would eliminate or reduce the potential for serious injury of mortality."

Accordingly, the Navy's request for ten serious injury or mortality incidental takes for beaked whale species will be made even though for more than forty years of conducting similar exercises without incident in the operating environments represented in the AFAST Study Area indicate that injury, strandings, and mortality are not expected to occur as a result of Navy activities.

e. Mitigation Measures

(1) *Mitigation Measures Related to Acoustic Effects:* As discussed in the NMFS MMPA regulations for AFAST active sonar activities and ESA Biological Opinion, 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 yd) of a marine mammal and ceasing pinging if a marine mammal closes to within 183 meters (200 yd) 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.

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.

The Navy and NMFS worked together 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 southeastern North Atlantic right whales critical habitat; and (3) the potential relationship between the operation of mid- and/or high-frequency active sonar and marine mammal strandings. Any mitigation measure(s) 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 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 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 (1), 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 (shut-down zone, etc.).

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 believes supports (or contributes) to the goals mentioned above:

(A) <u>Planning Awareness Areas (PAAs)</u>: 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 training for AFAST. 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,

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.

(B) 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.

(C) 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. Fleet Area Control and Surveillance Facility, Jacksonville (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. The Navy proposes:

(i) To reduce 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

(ii) 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 Fleet Air Control Surveillance Facility (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.

(2) ***Mitigation Measures Related to Explosive Source Sonobuoys (AN/SSQ-110A):*** As discussed in the NMFS MMPA regulations for AFAST active sonar activities and ESA Biological Opinion, the Navy would implement the following mitigation measures for explosive source sonobuoys (AN/SSQ-110A) as well as for the follow on Advanced Extended Echo Ranging (AEER) system: crews will conduct visual reconnaissance of the drop area prior to laying their intended sonobuoy pattern; 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 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; and marine mammal monitoring shall continue until out of their aircraft sensor range.

(3) ***Mitigation Measures Related to Vessel Transit and North Atlantic Right Whales:*** In 1999, a Mandatory Ship Reporting System was implemented by the U.S. Coast Guard, which requires vessels larger than 300 gross registered tons (naval 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 portion of the Boston OPAREA falls within these boundaries. Specific naval mitigation measures for each region of the AFAST Study Area are as follows:

(A) <u>Mid-Atlantic, Offshore of the Eastern U.S.</u>: 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 Atlantic right whale migratory seasons near ports located

off the western North Atlantic, offshore of the eastern United States. 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 right whales is generally described by NMFS as occuring from October 15th through April 30th, when right whales migrate between feeding grounds farther north and calving grounds farther south. The Navy's mitigation measures have been established in accordance with rolling dates identified by NMFS consistent with these seasonal patterns.

NMFS has identifed ports located in the western Atlantic Ocean, offshore of the southeastern United States, where vessel transit during 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, depending upon the month of the year and within a 37-kilometer (20 nautical mile) arc as follows: (1) south and east of Block Island, Rhode Island in September, October, March and April; (2) off the coasts of New York and New Jersey in September, October and February through April; (3) off Delaware Bay October through December and February through March; (4) off Chesapeake Bay November, December and February through April; (5) off the coast of North Caroline December through April; and (6) off the coast of South Carolina October through April.

During the indicated months, Navy vessels will 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 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 Marine Species Awareness Training (MSAT) training. Furthermore, Navy vessels would not knowingly approach any whale head on and would maneuver to keep at least 457 meters (500 yards) away from any observed whale, consistent with vessel safety.

(B) Southeast Atlantic, Offshore of the Eastern U.S.: For purposes of these measures, 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. The mitigation measures described in this section were developed specifically

to protect the North Atlantic right whale during its calving season (Typically from November 15 through April 15). During this period, North Atlantic right whales give birth and nurse their calves in and around a federally designated critical habitat off the coast of Georgia and Florida. This critical habitat is the area from 31-15N to 30-15N extending from the coast out to 28 kilometers (15 nautical miles), and the area from 28-00N to 30-15N from the coast out to 9 kilometers (5 nautical miles). All mitigation measures that apply to the critical habitat also apply to an associated area of concern which extends 9 kilometers (5 nautical miles) seaward of the designated critical boundaries.

Prior to transiting or training in the critical habitat or associated area of concern, ships will contact Fleet Area Control and Surveillance Facility, Jacksonville, to obtain latest whale sighting and other information needed to make informed decisions regarding safe speed and path of intended movement. Submarines shall contact Commander, Submarine Group Ten for similar information.

Specific mitigation measures related to activities occurring within the critical habitat or associated area of concern include the following:

(i) *Vessel Transits:* When transiting within the critical habitat or associated area of concern, vessels will exercise extreme caution and proceed at a slow safe speed. The speed will be the slowest safe speed that is consistent with mission, training and operations. Ships shall not transit through the critical habitat or associated area of concern in a North-South direction.

(ii) *Speed Reductions:* 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 12 hours old. Additionally, 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.

(iv) *Vessel Approaches:* Vessels will avoid head-on approach to North Atlantic right whale(s) and will 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.

(v) *Reporting:* Ship, surfaced subs, and aircraft will report any whale sightings to Fleet Area Control and Surveillance Facility, Jacksonville, by most convenient and fast means. Sighting report will include the time, latitude/longitude, direction of movement and number and description of whale (i.e., adult/calf).

(C) Northeast Atlantic, Offshore of the Eastern U.S.: These protective measures apply to aircraft operating in the Boston OPAREA (Warning Areas 102, 103, and 104), as well as ships operating within the entire Atlantic Fleet Study Area except those areas off the southeastern U.S.

Prior to transiting the Great South Channel or Cape Cod Bay critical habitat areas, ships will obtain the latest right whale sightings and other information needed to make informed decisions regarding safe speed. The Great South Channel critical habitat is defined by the following coordinates: 41-00N, 69-05W; 41-45N, 69-45W; 42-10N, 68-31W; 41-38N, 68-13W. The Cape Cod Bay critical habitat is defined by the following coordinates: 42-04.8N, 70-10W; 42-12N, 70-15W; 42-12N, 70-30W; 41-46.8N, 70-30W.

Ships, surfaced submarines, and aircraft will 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 will include the time of sighting, lat/long, direction of movement (if apparent) and number and description of the whale(s). In addition, vessels or aircraft that observe whale carcasses will 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. Report will 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. Units are encouraged to take photos whenever possible.

Specific mitigation measures related to activities occurring within the critical habitat or associated area of concern include the following:

(i) *Vessel Approaches:* Vessels will avoid head-on approach to North Atlantic right whale(s) and will

maneuver to maintain at least 457 m (500 yd) 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) *Vessel Transits:* When transiting within the critical habitat or associated area of concern, vessels shall use extreme caution and operate at a safe speed 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) *Vessel Speed:* Speed reductions (adjustments) are required when a whale is sighted by a vessel or when the vessel is within nine kilometers (5 nautical miles) of a reported new sighting less than one week old.

(iv) *Cape Cod Bay and Great South Channel Critical Habitats:* Ships transiting in the Cape Cod Bay and Great South Channel critical habitats will 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.

(4) *Additional Mitigation for Torpedo Exercises (TORPEXs) in Northeast North Atlantic Right Whale Critical Habitat:* TORPEXs in locations other than the Northeast will utilize the measures previously described for acoustic effects. TORPEXs conducted in the five TORPEX training areas off of Cape Cod, which may occur in North Atlantic right whale critical habitat, will implement the following measures:

(A) Night Restrictions: All torpedo-firing operations shall take place during daylight hours.

(B) Surveys Generally: During the conduct of each test, visual surveys of the test area shall be conducted by all vessels and aircraft involved in the exercise to detect the presence of marine mammals. Additionally, trained observers shall be placed on the submarine, spotter aircraft, and the surface support vessel. All participants will be required to report sightings of any marine mammals, including negative reports, prior to torpedo firings. Reporting requirements will be outlined in the test plans and procedures written for each individual exercise, and will be emphasized as part of pre-

exercise briefings conducted with all participants.

(C) Observer Training: Observers shall receive NMFS-approved training in field identification, distribution, and relevant behaviors of marine mammals of the western north Atlantic. Currently, this training is provided by a professor at the University of Rhode Island, Graduate School of Oceanography. Observers shall fill out Standard Sighting Forms and the data will be housed at the Naval Undersea Warfare Center Division Newport. Any sightings of North Atlantic right whales shall be immediately communicated to the Sighting Advisory System (SAS). All platforms shall have onboard a copy of the following: the Guide to Marine Mammals and Turtles of the U.S. Atlantic and Gulf of Mexico (Wynne and Schwartz 1999); the NMFS Critical Sightings Program placard; and Right Whales, Guidelines to Mariners placard.

(D) Aerial Surveys: In addition to the visual surveillance discussed above, dedicated aerial surveys shall be conducted utilizing a fixed-wing aircraft. An aircraft with an overhead wing (i.e., Cessna Skymaster or similar) will be used to facilitate a clear view of the test area. two trained observers, in addition to the pilot, shall be embarked on the aircraft. Surveys will be conducted at an approximate altitude of 305 m (1,000 feet [ft]) flying parallel track lines at a separation of 1.85 kilometers (1 nautical miles), or as necessary to facilitate good visual coverage of the sea surface. While conducting surveillance, the aircraft shall maintain an approximate speed of 185 kilometers per hour (kilometers/hr) (100 knots). Since factors that affect visibility are highly dependent on the specific time of day of the survey, the flight operator will have the flexibility to adjust the flight pattern to reduce glare and improve visibility. The entire test site will be surveyed initially, but once preparations are being made for an actual test launch, survey effort will be concentrated over the vicinity of the individual test location. Further, for approximately ten minutes immediately prior to launch, the aircraft will racetrack back and forth between the launch vessel and the target vessel.

(E) Reporting Requirements: Commencement of an individual torpedo test scenario shall not occur until observers from all vessels and aircraft involved in the exercise have reported to the Officer in Tactical Command (OTC) and the OTC has declared that the range is clear of marine mammals. Should protected animals be present within or seen moving toward the test area, the test shall be either delayed or moved as required to avoid interference with the animals.

(F) Sea State: The TORPEX will be suspended if the Beaufort Sea State exceeds 3 or if visibility precludes safe operations.

(G) Vessel speed: During transit through the North Atlantic right whale critical habitat, surface vessels and submarines shall maintain a speed of no more than 19 kilometers/hour (10 knot) while not actively engaged in the exercise procedures; and during TORPEX operations, a firing vessel will likely not exceed 19 kilometers/hour (10 knots). When a submarine is used as a target, vessel speeds would not likely exceed 33 kilometers/hour (18 knots). However, on occasion, when surface vessels are used as targets, the vessel may exceed 33 kilometers/hour (18 knots) in order to fully test the functionality of the torpedoes. This increased speed would occur for a short period of time (e.g., 10 to 15 minutes) to evade the torpedo when fired upon.

(H) Animal Strikes: In the event of an animal strike, or if an animal is discovered that appears to be in distress, a report will immediately be promulgated through the appropriate Navy chain of Command (see Stranding Plan in NMFS Final Rule for additional details).

(5) *Monitoring and Stranding Response Plan:* The final regulations governing the take of marine mammals incidental to Navy's AFAST exercises contain an adaptive management component. Our understanding of the effects of MFA sonar or HFA sonar and explosives on marine mammals is still in its relative infancy, and yet the science in this field continues to improve. These circumstances make the inclusion of an adaptive management component both valuable and necessary within the context of 5-year regulations for activities that have been associated with marine mammal mortality in certain circumstances and locations (though not off the Atlantic Coast of the U.S.). 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 and ESA Biological Opinions and associated Incidental Take Statements.

These final regulations also address an AFAST Stranding Response Plan, which includes a shutdown protocol, a stranding investigation plan, and a requirement for Navy and NMFS to implement a memorandum of agreement (MOA) that will establish a

framework whereby the Navy can (and provide the Navy examples of how they can best) assist NMFS with stranding investigations.

(6) ***Reporting Requirements:*** The MMPA regulations and authorization require the Navy to provide an evaluation (based on data gathered during all of the major training exercises) of the effectiveness of mitigation measures designed to minimize the exposure of marine mammals to mid-frequency sonar. This evaluation shall identify the specific observations that support any conclusions the Navy reaches about the effectiveness of the mitigation included in the authorization. Additionally, the Navy is required to submit information regarding the use of the active sonar systems to validate compliance with the regulations.

(7) ***Alternative Mitigation Measures Considered but Eliminated:*** As described in Chapter 4 of the Final EIS/OEIS, the vast majority of estimated sound exposures of marine mammals during proposed active sonar activities would not cause injury. Potential acoustic effects on marine mammals would be further reduced by the mitigation measures described previously and in Chapter 5 of the Final EIS/OEIS. 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 of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity in consultation with the DoD.

A number of possible alternative and/or additional mitigation measures have been reviewed in the past in the development of the current measures or have been suggested during the public comment period. The measures discussed and evaluated in Section 5.6 of the Final EIS/OEIS are based on known science, likely effectiveness, impact to military readiness activities personnel safety, and the practicality of implementation. Alternative measures in addition to those currently in use include the following: scaling down training to meet core aims; using ramp-up to attempt to clear an exercise area prior to the use of sonar; using non-Navy personnel onboard Navy vessels to provide surveillance of ASW or other training events to augment Navy lookouts; using non-Navy observers for visual surveillance; survey before, during, and after training events to preclude sonar use; suspending training at night, periods of low visibility, and in high sea-states when marine mammals are not readily visible; reducing power in significant surface ducting conditions; reducing vessel speed; using larger shut-down zones; limiting the active sonar event locations

(avoid areas seasonally, areas with problematic complex/steep bathymetry and/or seamounts, or particular habitats); avoiding active sonar use within 22.2 kilometers (12 nautical miles) from shore, 25 kilometers (13.5 nautical miles) from the 200-m (656-ft) isobath, or 46.3 kilometers (25 nautical miles) from shore; using active sonar with output levels as low as possible consistent with mission requirements; using active sonar only when necessary; adopting mitigation measures of foreign nations navies; and reporting marine mammal sightings to augment scientific data collection. In addition to these alternative measures evaluated, the Navy will evaluate emerging technology and its ability to contribute to mitigation effectiveness.

(A) Scaling down training to meet core aims: The requirements for training have been developed through many years of iteration to ensure Sailors achieve the levels of readiness needed to ensure they are prepared to properly respond to the many contingencies that may occur during an actual mission. These training requirements are designed to provide the experience needed to ensure Sailors are properly prepared for operational success. There is no extra training built in to the plan, as this would not be an efficient use of the resources needed to support the training (e.g. fuel, time). Therefore, any reduction of training would not allow Sailors to achieve satisfactory levels of readiness needed to accomplish their mission.

(B) Using ramp-up to attempt to clear the range prior to the conduct of exercises: Ramp-up procedures, (slowly increasing the sound in the water to necessary levels), are not a viable alternative for training exercises because the ramp-up would alert opponents to the participants' presence. This affects the realism of training in that the target submarine would be able to detect the searching unit prior to themselves being detected, enabling them to take evasive measures. This would insert a significant anomaly to the training, affecting its realism and effectiveness. Though ramp-up procedures have been used in testing, the procedure is not effective in training Sailors to react to tactical situations, as it provides an unrealistic advantage by alerting the target. Using these procedures would not allow the Navy to conduct realistic training, or "train as they fight," thus adversely impacting the effectiveness of the military readiness activity.

(C) Using third-party observers from air or surface platforms, in addition to the existing Navy-trained lookouts: The Final EIS/OEIS concluded that measures in this category do not result in increased protection to marine mammals

because the size of the areas, the time it takes to survey, and the movement of marine mammals preclude real-time mitigation. ASW training events could occur throughout the entire AFAST Study Area (overall greater than two million square nautical miles) and the areas where training events will most likely occur cover approximately 1 million square nautical miles (3.4 million square kilometers). Contiguous ASW events may cover many hundreds of square miles in a few hours. The number of civilian ships and/or aircraft required to monitor the area around these events would be considerable. In addition to practical concerns, surveillance of an exercise area during an event raises safety issues. Multiple, land-based, slow civilian aircraft operating in the same airspace as military aircraft will limit both the time available for civilian aircraft to be in the training area and present a concern should such aircraft experience mechanical problems. Scheduling of civilian vessel or aircraft surveillance also presents concerns, as exercise event timetables cannot be precisely fixed but develop freely from the flow of the tactical situation, thus mimicking real combat action. Waiting for civilian aircraft or vessels to complete surveys, refuel, or be on station would interrupt the necessary spontaneity of the exercise and would negatively impact the effectiveness of the military readiness activity. The presence of other aircraft in the vicinity of naval exercises would raise safety concerns for both the other aircraft and naval personnel engaged in the exercise. The Navy is committed to maintaining its marine mammal surveillance capability using both Navy surface and, to the extent that aviation assets are participants in the training activity, aerial monitoring.

Use of Navy observers is the most effective means to ensure quick and effective implementation of mitigation measures if marine species are spotted. A critical skill set of effective Navy training is communication. Navy lookouts are trained to act swiftly and decisively to ensure that appropriate actions are taken. Crew members participating in training activities involving aerial assets have been specifically trained to detect objects in the water. The crew's ability to sight from both surface and aerial platforms provides excellent survey capabilities using the Navy's existing exercise assets. Security clearance issues would have to be overcome to allow non-Navy observers onboard exercise participants. Some training events will span one or more 24-hour periods, with operations underway continuously in that timeframe. It is not feasible to maintain non-Navy surveillance of these operations, given the number of non-Navy observers that would be required onboard. Surface ships having active mid-frequency sonar have limited berthing

capacity. As exercise planning includes careful consideration of this limited capacity in the placement of exercise controllers, data collection personnel, and training personnel on ships involved in the exercise. Inclusion of non-Navy observers onboard these ships would require that in some cases there would be no additional berthing space for essential Navy personnel required to fully evaluate and efficiently use the training opportunity to accomplish the exercise objectives.

(D) Reducing or securing power during night and low-visibility conditions: The Navy must train in the same manner as it will fight. ASW can require a significant amount of time to develop the "tactical picture," or an understanding of the battle space such as area searched or unsearched, identifying false contacts, understanding the water conditions, etc. Reducing or securing power in low-visibility conditions would affect a commander's ability to develop this tactical picture as well as not provide the needed training realism. By training differently than what would be needed in an actual combat scenario would decrease training effectiveness and reduce the crew's abilities. Additionally, it would be extremely wasteful for Navy forces at sea to only operate in daylight hours or to wait for weather to clear or sea state to fall before undertaking necessary training. As described above, the complexity of ASW requires the most realistic training possible for the effectiveness and safety of the sailors.

(E) Reducing power in strong surface duct conditions: The Navy must train in the same manner as it will fight. As described above, the complexity of ASW requires the most realistic training possible for the effectiveness and safety of the Sailors. Reducing power in strong surface duct conditions would not provide this training realism because the unit would be operating differently than it would in a combat scenario, reducing training effectiveness and the crew's ability. Additionally, water conditions in the various proposed OPAREAs may change rapidly, resulting in continually changing mitigation requirements, resulting in a focus on mitigation versus training.

(F) Establishing and implementing a set vessel speed: As discussed in Section 5.3 of the Final EIS/OEIS, Navy personnel are already required to use extreme caution and operate at a slow, safe speed consistent with mission and safety. Ships and submarines need to be able to react to changing tactical situations in 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 would decrease training effectiveness and reduce the crew's abilities.

(G) Increasing power down and shut down zones: The current power down zones of 457 and 914 meters (500 and 1,000 yards), as well as the 183-meter (200-yard) shut down zone were developed to minimize exposing marine mammals to sound levels that could cause TTS or PTS, levels that are supported by the scientific community. Implementation of the safety zones discussed above will prevent exposure to sound levels greater than 195 dB re 1µPa, the threshold for non-injurious TTS, for animals sighted. The safety range the Navy has developed is also within a range sailors can realistically maintain situational awareness and achieve visually during most conditions at sea. Requirements to implement procedures when marine mammals are present well beyond 914 meters (1,000 yards) require that lookouts reliably sight marine mammals at distances that, in reality, they cannot in most conditions. These increased distances also greatly increase the area that must be monitored to implement these procedures. For instance, if a power down zone increases from 914 to 3,658 meters (1,000 to 4,000 yards), the area that must be monitored increases 16 fold. Although the three action alternatives were developed using marine mammal density data and areas believed to provide habitat features conducive to marine mammals, not all such areas could be avoided. ASW requires large areas of ocean space to provide realistic and meaningful training to the Sailors. These areas were considered to the maximum extent practicable while ensuring the Navy's ability to properly train its forces in accordance with federal law. Avoiding any area that has the potential for marine mammal populations is impractical and would impact the effectiveness of the military readiness activity.

(H) Limiting the active sonar event locations: Areas where events are scheduled to occur are carefully chosen to provide for the safety of events and to allow for the realistic tactical development of the training scenario. Otherwise limiting the training event to a few areas would adversely impact the effectiveness of the training. Major Exercises using integrated warfare components require large areas of the littorals and open ocean for realistic and safe training.

(I) Avoiding active sonar use within (1) 22.2 kilometers (12 nautical miles) from shore; (2) 25 kilometers (13.5 nautical miles) from the 200-m (656-ft) isobath; or (3) 46.3 kilometers (25 nautical miles) from shore: This measure

lacks any scientific basis when applied to the context in AFAST (i.e. the bathymetry, sound propagation, width of channels). There is no scientific analysis indicating this measure is protective and no known basis for the specific metrics (25 kilometers [13 nautical miles] of the 200-meter [656-feet] isobath).

(J) Using active sonar with output levels as low as possible consistent with mission requirements and use of active sonar only when necessary: Operators of sonar equipment are always cognizant of the environmental variables affecting sound propagation. In this regard, the sonar equipment power levels are always set consistent with mission requirements. Active sonar is only used when required by the mission since it has the potential to alert opposing forces to the sonar platform's presence. Passive sonar and all other sensors are used in concert with active sonar to the maximum extent practicable when available and when required by the mission.

(K) Adopting mitigation measures of foreign nation navies: The Navy typically operates in a Strike Group configuration where the group focuses its efforts on conducting air strikes and/or amphibious operations ashore. This requires that the Navy train to what it calls "integrated warfare" meaning that Strike Groups must conduct many different warfare areas simultaneously. These include the ability to defend itself from attacks from submarines, mines, ships, aircraft and missiles. Other nations do not possess the same integrated warfare capabilities as the U.S. As a result, some foreign nations' measures are focused solely on reducing what they perceive to be impacts involving ASW. They are not required to locate training areas and position naval forces for the simultaneous and integrated warfare elements that the Navy conducts. As a result, many nations are willing to move training to areas where they believe marine mammals may not exist and do not train in the same bathymetric and littoral environments as the Navy.

(L) Reporting marine mammal sightings to augment scientific data collections: Ships, submarines, aircraft, and personnel engaged in training events are intensively employed throughout the duration of the exercise. Their primary duty is accomplishment of the exercise goals, and they should not be burdened with additional duties unrelated to that task. Any additional workload assigned that is unrelated to their primary duty would adversely impact the effectiveness of the military readiness activity they are undertaking.

f. Marine Mammal Monitoring and Stranding Response: As a part of the NMFS rule-making process, the Navy and NMFS are continuing to coordinate the development of a marine species monitoring plan and marine mammal stranding response protocol. When finalized, the monitoring plan is expected to contain the framework for research on the effectiveness of the Navy's suite of mitigation measures and analyze behavioral responses of marine mammals to mid-frequency active sonar and explosives. The monitoring plan is expected to utilize vessel, aerial, and shore-based surveys, along with passive acoustics to accomplish its 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. As part of the stranding plan, the Navy and NMFS are working to ensure a dialogue is developed and maintained during any marine mammal stranding event as defined in the MMPA. This dialogue will be in support of NMFS' long-term efforts to gather information on the wide range of marine mammal strandings.

g. SURTASS LFA Sonar: The Navy analyzed use of SURTASS LFA sonar worldwide in the 2001 SURTASS LFA Sonar Final EIS/OEIS and 2007 Supplemental SURTASS LFA Sonar EIS/OEIS. Under NMFS' MMPA incidental take regulations addressing the Navy's use of SURTASS LFA sonar, the take of marine mammals incidental to use of up to four SURTASS LFA sonar systems is authorized through annual LOAs. At this time, the Navy has no plans to employ SURTASS LFA sonar in the AFAST Study Area.

5. *Sea Turtles:* Six species of sea turtles (Atlantic loggerhead, Atlantic green, leatherback, hawksbill, Olive ridley, and Kemp's ridley) occur in the Gulf of Mexico and North Atlantic. All sea turtle species with the exception of the loggerhead sea turtle are classified as endangered. The loggerhead sea turtle is classified as threatened.

As discussed in Section 4.5.1 of the Final EIS/OEIS, although mid-frequency hearing has not been studied in many sea turtle species, most of those that have been tested exhibit low audiometric and behavioral sensitivity to low-frequency sound. It appears that if there were the potential for the mid-frequency sonar to increase masking effects for any sea turtle species, it would be expected to be minimal. Additionally, although little data exist on sea turtle hearing and past studies are limited, sea turtle navigation has been relatively well studied. Unlike marine mammals, researchers have found that sea turtles use non-acoustic cues in migration and particularly in movement related to hatchling activity, nesting, and long-

distance migrations. Hatchlings can use magnetic fields to navigate (Lohmann, 1991; Lohmann and Lohmann, 1996). Recent studies have found that they supplement this navigation technique with a secondary method based on the sun or skylight (Avens and Lohmann, 2003). Avens and Lohmann (2004) concluded from their survey that juvenile and adult sea turtles have a map-based navigation capability (or they are able to home to specific locations). Sea turtles of these age classes may use other indicators such as chemical cues and magnetic fields to navigate to specific areas (Avens and Lohmann, 2004). Since sea turtles rely on multiple sensory systems to navigate and because the sonar systems used during AFAST active sonar activities are at frequency ranges higher than the optimal hearing capabilities of sea turtles, mid- and high-frequency active sonar would not affect sea turtle navigation. Therefore, there will be no significant impact to sea turtles from active sonar activities in territorial waters under the No Action Alternative, Alternative 1, Alternative 2, or Alternative 3. In addition, there will be no significant harm to sea turtles from active sonar activities in non-territorial waters under the No-Action Alternative, Alternative 1, Alternative 2, or Alternative 3.

a. Effects Analysis: The approach to risk assessment for impulsive sound in the water was derived from the SEAWOLF/CHURCHILL approach. CHURCHILL used three criteria: 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 rate of rupture (i.e., 50 percent of 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 (in-lb/in^2 [about 205 dB re 1 µPa^2-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 (e.g., Ketten [1998] indicates a 30-percent incidence of PTS at the same threshold).

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 this assessment, 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 threshold for onset of slight lung injury was calculated for a calf dolphin (12.2 kilograms [27 pounds]) and

an adult dolphin (174 kilograms [384 pounds]); it is given in terms of the Goertner modified positive impulse, indexed to 13 psi-ms and 32 psi-ms respectively. In this assessment, all cetaceans were analyzed using the threshold for a calf dolphin for onset slight lung injury. The results of the analysis, therefore, are conservative.

The TTS energy threshold is a 182 dB re 1 μPa^2-s maximum energy flux density level in any 1/3-octave band at frequencies above 0.1 kHz for toothed whales and in any 1/3-octave band above 0.010 kHz for baleen whales. For large explosives, the latter limits at 0.01 and 0.1 kHz make a difference in the range estimates. NMFS has defined large explosives in prior rulemaking as greater than 907 kilograms (2,000 pounds) NEW (NMFS, 2006k). The Navy has defined small explosives as less than 680 kilograms (1,500 pounds) NEW per directive. For small explosives, the spectrum of the shot arrival is broad and there is essentially no difference in effects ranges for the two classes of animals.

The TTS peak-pressure threshold applies to all cetacean and turtle species and is stated in terms of peak pressure at 23 psi, which is based on an IHA issued to the Air Force for a similar action (NOAA, 2006c). This threshold is derived from the CHURCHILL threshold. However, peak pressure and energy scale at different rates with charge weight, so that ranges based on the peak-pressure threshold are much greater than those for the energy metric when charge weights are small— even when source and animal are away from the surface. In order to more accurately estimate TTS for smaller shots while preserving the safety feature provided by the peak pressure threshold, the peak pressure threshold was appropriately scaled for small detonations. This scaling is based on the similitude formulas (e.g., Urick, 1983) used in virtually all compliance documents for short ranges. Further, the peak-pressure threshold for TTS for explosives offers a safety margin for a source or an animal near the ocean surface.

The analysis identified the potential for all sea turtles to be exposed to sound from AFAST activities involving the explosive source sonobuoy (AN/SSQ-110A) under the Preferred Alternative. Exposures numbers were rounded to "1" if the result was equal to or greater than 0.5. Even though an exposure number may have rounded to "0" in an individual analysis area, when summed with all other results for other analysis areas within the AFAST Study Area, an exposure of "1" is possible.

b. Effects Estimates: The modeling resulted in zero takes by mortality, one PTS take and five TTS takes. Navy

reached a may affect determination and therefore consulted with NMFS under Section 7 of ESA. NMFS concluded that consultation on January 16, 2009, when it issued a Programmatic Biological Opinion in which it concluded that the Navy's proposal to conduct major training exercises, unit-level and intermediate-level training activities, and research, development, test and evaluation activities along the Atlantic coast of the U.S. and in the Gulf of Mexico each year for a 5-year period beginning in January 2009 are likely to adversely affect but are not likely to jeopardize the continued existence of these threatened and endangered species under NMFS jurisdiction. Navy concluded that implementation of the preferred alternative would not result in significant impacts to sea turtles.

6. *Essential Fish Habitat:* There would be no effect to essential fish habitat from active sonar. There would be no significant impact and no significant harm to essential fish habitat from explosive source sonobuoys (AN/SSQ-110A).

7. *Marine Fish:* There would be no significant impact and no significant harm to fish from active sonar or explosive source sonobuoys (AN/SSQ-110A).

8. *Seabirds:* There would be no significant impact and no significant harm to seabirds from active sonar, explosive source sonobuoys (AN/SSQ-110A), or entanglement associated with expended materials.

9. *Marine Invertebrates:* There would be no effect to marine invertebrates from active sonar or explosive source sonobuoys (AN/SSQ-110A).

10. *Marine Plants and Algae:* There would be no significant impact and no significant harm to marine plants and algae from active sonar or explosive source sonobuoys (AN/SSQ-110A).

11. *National Marine Sanctuaries:* There would be no significant impact and no significant harm to the sanctuary resources or qualities of the Monitor, Gray's Reef, Florida Keys, Flower Garden Banks, or Stellwagen Bank National marine Sanctuaries.

12. *Airspace Management:* There would be no effect to airspace management from activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

13. *Energy Exploration:* There would be no significant impact and no significant harm to energy exploration from

activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

14. *Recreational Boating:* There would be no significant impact and no significant harm to recreational boating from activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

15. *Commercial and Recreational Fishing:* There would be no significant impact and no significant harm to commercial and recreational fishing from activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

16. *Commercial Shipping:* There would be no significant impact and no significant harm to commercial shipping from activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

17. *Scuba Diving:* There would be no significant impact and no significant harm to scuba diving from activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

18. *Marine Mammal Watching:* There would be no significant impact and no significant harm to marine mammal watching from activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

19. *Cultural Resources:* There would be no significant impact and no significant harm to cultural resources from activities involving active sonar or explosive source sonobuoys (AN/SSQ-110A).

20. *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 AFAST Study Area, regardless of what agency or person undertakes these actions. Activities included in the AFAST Final EIS/OEIS Chapter 6 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.

COMPLIANCE WITH ENVIRONMENTAL LAWS

1. *MMPA*: In support of the proposed action, in February 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 March 5, 2008 (73 Fed. Reg. 11889). 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 October 14, 2008 (73 Fed. Reg. 60754). Publication of the Proposed Rule initiated another 30-day public comment period, which ended on November 13, 2008. The Final Rule, effective immediately upon filing for public inspection with the Office of the Federal Register on January 22, 2009.

2. *ESA:* As part of the environmental documentation for the Final EIS/OEIS, and as an MMPA permit applicant, the 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 AFAST Final EIS/OEIS. In accordance with 50 CFR § 402.11, after reviewing 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, hawksbill sea turtle, and olive ridley sea turtle; the environmental baseline for the AFAST Study Area; and the cumulative effects, prior to the issuance of this AFAST ROD, NMFS issued on January 16, 2009, a Biological Opinion concluding that the Navy's proposal to contact active sonar activities in the AFAST Study Area each year for a 5-year period beginning in January, 2009, are likely to affect but are not likely to jeopardize the continued existence of these threatened and endangered species under NMFS's jurisdiction. Consultation was considered complete on January 16, 2009, once NMFS issued a Biological Opinion.

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 AFAST Study Area. Based on the location of AFAST active sonar activities, the

enforceable policies of each state's CZMP, and pursuant to 15 CFR § 930.39, the Navy prepared Consistency Determinations for the states of Connecticut, Florida, Georgia, Texas, and Virginia. Additionally, the Navy prepared Negative Determinations pursuant to 15 CFR § 930.35 for the states of Alabama, Delaware, Louisiana, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Rhode Island, and South Carolina.

a. Status of Consistency Determinations: The States of Connecticut, Florida, Texas, and Virginia have expressed their written concurrence with the respective Navy Consistency Determination. On October 24, 2008, the State of Georgia objected to the Navy's Consistency Determination. After exchanges of information and discussions with the Navy, on December 24, 2008, Georgia amended its position and conditionally concurred with the Navy's proposed activity if the Navy incorporated a vessel speed reduction mitigation measure.

(1) *Georgia's Conditional Concurrence:* Georgia's conditional concurrence was based on the Navy modifying AFAST activities described in the Proposed Action to require all Navy vessels 65 feet or longer to operate at speeds of 10 knots or less when transiting through or conducting RDT&E activities within 30 NM of shore from Morehead City, North Carolina, to Port Canaveral, Florida, between November 15 and April 15 each year, with two exceptions: vessels may operate at speeds greater than 10 knots when necessary to maintain safe steerage, and may operate at speeds greater than 10 knots when engaged in combat, activities in support of combat, or other defense activities requiring greater vessel speeds.

(A) <u>The Navy's Response</u>: Pursuant to 15 CFR §§ 930.43(d)(2) and (e), the Navy reviewed Georgia's condition and made a determination to treat it as an objection and to proceed with the proposed activities. It is the Navy's position that all AFAST activities, to include any associated vessel transits, are fully consistent with the enforceable policies of the Georgia Coastal Management Program (GCMP) because the State's attempt to enforce a vessel speed restriction is not based on enforceable polices. Efforts to enforce vessel speed limits to minimize potential impacts to federally-protected marine mammals are neither enforceable policies in that such actions are preempted by the MMPA nor expressly authorized under Section 6 of the ESA. Furthermore, these conditions create a significant conflict with the Navy's obligations under Title 10 of the U.S. Code to provide trained and ready forces. To the extent that any condition would prevent Navy from meeting its Title 10

obligations, the Navy would be consistent to the maximum extent practicable with the enforceable policies of the GCMP. The Navy's position is consistent with an opinion provided to the Navy by the General Counsel for the National Oceanic and Atmospheric Administration (NOAA), which has been provided to Georgia as an attachment to the Navy's written response dated January 16, 2009.

(i) *Federal Consistency:* As a basis for imposing the speed restriction of 10 knots on naval vessel speed, the State relied upon Georgia's statute on endangered wildlife, which is one of the enforceable policies in the GCMP. The Georgia Endangered Wildlife Act states that such rules and regulations shall be limited to the regulation of the capture, killing or selling of protected species and the protection of the habitat of the species on public lands of the State. In addition, the GCMP defines the seaward boundary of Georgia's coastal area as extending to the outer limits of the State's jurisdiction, which is three nautical miles seaward from the mean low watermark. Included within the coastal area are both waters of the state and submerged lands. Based upon the plain wording of this statute, this statute does not provide a mechanism whereby the State of Georgia could impose a 10-knot speed restriction on naval vessels in a large geographic area of the Atlantic seaboard starting at Morehead City, North Carolina, to Port Canaveral, Florida, as part of the federal consistency process.

(ii) *Federal Pre-emption:* Georgia's requirement of a speed restriction on naval vessels in order to protect against a potential vessel strike of the North Atlantic right whale raises the issue of preemption of state law as the state is attempting to prevent the "take" by a federal actor of a federally-listed marine mammal species. Section 109(a) of the MMPA preempts Georgia's Endangered Wildlife Act to the extent that it relates to the taking of listed marine mammals. To the extent any state requirement is preempted by MMPA, it is not enforceable under the CZMA. Moreover, the approval of a state program under the CZMA does not negate the preemptive effect of federal law. Therefore, the GCMP contains no "enforceable policy" that would permit the State to regulate naval vessel speed with regard to the taking of marine mammals.

Section 109(a) of the MMPA provides that "[n]o state may enforce . . . any State law or regulation . . . relating to the taking of any species . . . of marine mammal" within the State unless the Secretary of Commerce has transferred management authority for that species to the State. The plain language of

this provision is unambiguous and preempts all state statutes and regulations related to the taking of marine mammals. Therefore, as a general matter, unless the Secretary of Commerce has transferred MMPA management authority for marine mammal species to a particular state, any state law that prohibits take of marine mammals constitutes a state law "relating to" the taking of marine mammals and, to that extent, is preempted.

In this instance, the Secretary of Commerce has not transferred MMPA management authority over any marine mammal species to the State of Georgia. The CZMA requires that federal agency actions be consistent, to the maximum extent practicable, with the enforceable policies of a state's federally-approved coastal management program. 16 U.S.C. § 1456(c)(1)(A). Enforceable policies are state policies that are legally binding through laws and regulations by which a state exerts control over natural resources within its coastal zone. 16 U.S.C. § 1453(6a); 15 C.F.R. § 930.11(h). Enforceable polices, however, do not include state statutes and regulations that are preempted by federal law, as they are not "legally binding." NOAA has consistently interpreted enforceable policies as those state policies not preempted by federal law.[11]

Although NOAA and Georgia entered into a Cooperative Agreement under Section 6 of the ESA on November 29, 2005, as is the case with a similar NOAA agreement with the State of Hawaii as discussed in the NOAA General Counsel's opinion, the agreement does not explicitly recognize the Georgia's authority to establish and enforce protections for listed marine mammals separate and apart from NMFS; instead the agreement grants only limited authority, primarily providing a vehicle for making federal funding available to Georgia to conserve listed species. Therefore, given that the Georgia state laws in question are preempted by Section 109(a) of the MMPA, insofar as those laws and regulations relate to the taking of marine mammals, and are not explicitly authorized by NOAA under an ESA Section 6 agreement, they are unenforceable under the CZMA.

Notwithstanding the unenforceability under the CZMA of the Georgia state laws at question, NMFS has promulgated a Final Rule to Implement Speed Restrictions to Reduce the Threat of

[11] See NOAA Office of Ocean and Coastal Resource Management, CZMA Federal Consistency Overview, at 6 (Aug. 10, 2007), available at, http://coastalmanagement.noaa.gov/consistency/resources.html; NOAA Office of Ocean and Coastal Resource Management, Program Change Guidance, Section II(D), at 8 (July 1996), available at, http://coastalmanagement.noaa.gov/consistency/FC_policy_guidance.html.

Ship Collisions with the North Atlantic right whale on December 9, 2008.[12] Public vessels were exempt from a speed restriction of 10 knots in the Final Rule because NMFS recognized that national security, navigational, and human safety missions of some federal agencies may be compromised by mandatory vessel speed restrictions on public vessels.[13] The Navy currently implements mitigation measures to address ship strikes; and, NMFS has stated that most of these measures are similar to, if not more stringent than, the measures considered in the Final Rule.[14]

It should be noted that the speed restriction of 10 knots sought by Georgia on naval vessels differs dramatically from the Final Rule discussed in the previous paragraph. Georgia would require the Navy to abide by a speed restriction in a continuous area within 30 nautical miles of shore from Morehead City, North Carolina, to Port Canaveral, Florida between November 15 and April 15 each year.

In contrast, the geographic area covered by the Final Rule is not nearly as large and provides as follows: (1) a 20 nautical mile radius at the ports of Morehead City, North Carolina, and Beaufort, North Carolina, with a 10 knot speed restriction from November 1 to April 30 of each year; (2) A

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[12] See 50 Code of Federal Regulations 224.105 (2008), Speed restrictions to Protect North Atlantic Right Whales. Also see the discussion in comment 5 by NMFS in response to public comments on the Notice of Proposed Rulemaking concerning exempting public vessels from speed restrictions at Federal Register, Vol. 73, No. 198, Friday, October 10, 2008, 60173 to 60191.

[13] See Section 2.4.8 of the Final EIS to Implement Vessel Operational Measures to Reduce Ship Strikes to North Atlantic Right Whales, August 2008, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Office of Protected Resources, discussing the exemption of public vessels from a speed restriction of 10 knots. The Final EIS is available at the following internet address: http://www.nmfs.noaa.gov/pr/shipstrike/eis.htm.

It should be noted that NMFS provided the State of Georgia in 2006 with a consistency determination under the CZMA for the above FEIS and stated that it was consistent to the maximum extent practicable with the enforceable policies of the GCMP. According to NMFS Final EIS, the State of Georgia did not file a response within the review period with NMFS stating that the exemption of public vessels from the 10 knot speed restriction was not consistent with the enforceable policies of GCMP. See sections 4.6.5.2, 4.6.7.1 and Appendix F.

[14] See footnote 10. Section 2.4.8 and Appendix A of the Final EIS/OEIS discusses the current mitigation measures employed by the Navy to address ship strikes.

continuous area 20 nautical miles from shore between Wilmington, North Carolina to Brunswick, Georgia, with a 10 knots speed restriction from November 1 to April 30; and, (3) a continuous area from Brunswick, Georgia, to St. Augustine, Florida, from November 15 to April 15 which coincides for the most part with the Southeast Mandatory Ship Reporting Area.

The MMPA incidental take authorization under the MMPA and the Biological Opinion issued by NMFS for the AFAST active sonar activities require consistency with mission, training, and operations, to include speed reduction in the event North Atlantic right whales are sighted within specified distances of the vessels

b. Status of Negative Determinations: The States of Louisiana, Maine, New York, North Carolina, and Rhode Island have expressed their written concurrence with the respective Navy Negative Determination. The Navy did not receive responses from the States of Delaware, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, and South Carolina. Per 15 CFR § 930.35, the Navy's is treating the non-responses as concurrences.

RESPONSES TO COMMENTS ON THE AFAST FINAL EIS/OEIS: The Notice of Availability of the AFAST Final EIS/OEIS was published in the ***Federal Register***, in various newspapers, and on the AFAST EIS/OEIS website. Release of the AFAST Final EIS/OEIS was accompanied by a 24-day wait period, as approved by the Environmental Protection Agency (EPA) for compelling reasons of national policy.

The Navy reviewed and considered all comments that were received during the wait period following the issuance of the Notice of Availability of the Final EIS/OEIS[15]. The comments summarized here represent major substantive comments that were not previously addressed in the Final EIS/OEIS based on comments received on the Draft EIS/OEIS; addressed a change in the Final

[15] Although the Navy has not received written comments regarding effects of global warming and ocean acidification, Navy recognizes the unique questions presented by these issues nationally and internationally. With regard to global warming, current models do not allow us to quantitatively link the proposed action and localized impacts. Ocean acidification involves the potential for sound in the water to travel greater distances thereby increasing the amount of energy to which marine mammals may be exposed. Navy's quantitative analysis of acoustic sources effecting marine mammals is based on the best available science. As an example, for sonar, modeling involved analysis of areas based on potential activities and transmission loss. See Appendix H of the Final EIS/OEIS for greater detail.

EIS/OEIS from the Draft EIS/OEIS; and were received by January 5, 2009. A total of three comment letters were received on the Final EIS/OEIS from the Virginia Department of Environmental Quality (DEQ), the North Carolina Department of Administration (DOA), and the organization Citizens Opposed to Active Sonar Threats (COAST). These included 29 that were similar or identical to comments received on the Draft EIS/OEIS, and therefore were previously considered and addressed in the Final EIS/OEIS. The remaining comments are addressed below.

1. *Comments:* There were a several comments that were either considered substantive and were not previously raised in comments on the Draft EIS/OEIS or the Supplement to the Draft EIS/OEIS. Such comments relating to the scientific methodology used to assess effects on marine mammals were addressed above. The remaining comments are as follows:

a. North Carolina

Comment 1: Section 3.9.1 in the FEIS is entitled "Threatened/Endangered and Species of Concern Marine Fish", however, table 3-9 includes only threatened and endangered species.

Response: This is a typographical error in the section header, it should read "Threatened/Endangered Species of Marine Fish". The species analyzed in that section are those required to be addressed under the ESA.

Comment 2: Section 6.4.1 of the Final EIS didn't fully address the previous regarding the statement that "... commercial and recreation fishing ... are not required to comply with the NEPA or analyze potential effects." For clarity, actions proposed by the federal fishery management councils and promulgated by NMFS to manage fishing activities within the exclusive economic zone (EEZ) are required to comply with NEPA.

Response: Navy acknowledges that fishery management plans are major federal actions subject to NEPA and Executive Order 12114 and require coordinated action on the part of NOAA Fisheries Service and the eight regional fishery management councils. In evaluating cumulative impacts relative to the Proposed Action, Navy relied on quantitative data when available. However, in some instances quantifiable data was not available and Navy relied on qualitative information when necessary. For example, commercial shipping, commercial and recreational fishing activities not addressed in fishery management plans, boating and other activities occurring are not

required to comply with NEPA or analyze potential effects; therefore, there is little to no data available for analysis of these activities.

b. *Citizens Opposing Active Sonar Threats (COAST)*

Comment 1: The final EIS should include further explanation of the basis for the Navy's decision to prepare a negative determination for Maine and most other East Coast and Gulf states rather than a consistency determination to address its obligation under the Coastal Zone Management Act's federal consistency provision.

Response: Appendix F of the Final EIS/OEIS contains the CZMA consistency determination letters sent to each state, however, the letters enclosures that included the documentation supporting the Navy's decisions was not. This analysis has been posted on the AFAST web site, http://afasteis.gcsaic.com, in the downloads section, to ensure this information is available.

Comment 2: Because of the highly social nature of some marine mammals, if the behavior of even one sensitive individual within the group is disturbed, the entire group could be affected.

Response: The FEIS directed the commenter to the incorrect section of the document. The commenter should have been directed to sections 4.4.3 and 4.4.5.3.10.

Comment 3: What is it that leads the FEIS to assume that unusual behavior or strandings resulting from ASW training will only take place during or within 24 hours of completion of these exercises?

Response: Navy and NMFS do not conclude that unusual behavior or strandings will only occur within 24 hours of the exercise completion. The 24 hour period expressed was representative of the discussions between Navy and NMFS over the period that would be used in the Stranding Response Plan. That plan is now complete and the final AFAST Stranding Response Plan includes a 72-hour period vice 24 hours. That plan may be viewed at: http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications.

CONCLUSIONS: 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. in the Gulf of Mexico, the following factors were

considered: the Congressional mandates in 10 U.S.C. § 5062; the Navy, DoD, and other federal agencies' operational, testing, and training requirements; environmental impacts; and comments received during the EIS/OEIS process.

After carefully weighing all of these factors and analyzing the data presented in the EIS/OEIS, I have determined that the Preferred Alternative, the No-Action Alternative, best meets the requirements for the proposed AFAST active sonar activities.

As noted above, the world today is a rapidly changing and extremely complex place. This is especially true in the arena of ASW and the scientific advances in submarine quieting technology. Not only is this technology rapidly improving, the availability of these quiet submarines has also significantly increased. Since these submarines typically operate in coastal regions, which are the most difficult acoustically to conduct ASW, the Navy needs to ensure it has the ability to train in areas that are environmentally similar to where these submarines currently operate, as well as areas that may arise in the future. Limiting where naval forces can train will eliminate this critical option of training flexibility to respond to future crises.

As the biological science continues to evolve, the areas identified in this EIS/OEIS could evolve and change as well, again potentially restricting access to areas that would be critical to training.

Unlike Alternatives 1 and 2, the No-Action Alternative neither severely limits the training areas similar to where potential threats operate nor requires the relocation of approximately 30-percent of Navy's current training. Furthermore, independent of the geographic limitations that would be imposed by Alternative 3, there is not a statistically significant difference in the analytical results (i.e., number of exposures) between Alternative 3 and the No Action Alternative. Because the difference in acoustic effects analysis between Alternative 3 and the No-Action Alternative is statistically insignificant, and considering the importance of the geographic flexibility required to conduct realistic ASW training, the No-Action Alternative was selected as the preferred alternative.

In addition to the specific mitigation measures identified in this ROD, 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.

1/23/09
Date

DONALD R. SCHREGARDUS
Deputy Assistant Secretary of the Navy
(Environment)