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**APPENDIX I**

**SUMMARY FOR BIOLOGICAL EVALUATION**

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1           **BIOLOGICAL EVALUATION FOR FEDERALLY LISTED THREATENED AND**  
2           **ENDANGERED SPECIES SECTION 7 CONSULTATION FOR ATLANTIC FLEET**  
3           **ACTIVE SONAR TRAINING ACTIVITIES**

4           This Biological Evaluation (BE) appendix serves to initiate formal consultation pursuant to  
5           Section 7 of the Endangered Species Act (ESA) with the National Marine Fisheries Service  
6           (NMFS). The U.S. Navy prepared this appendix to consolidate and provide information on the  
7           potential environmental effects to Federally-listed species associated with the implementing the  
8           proposed action analyzed in this Atlantic Fleet Active Sonar Training (AFAST) Environmental  
9           Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS).

10          **I.1    PURPOSE AND NEED OF THE PROPOSED ACTION**

11          The Navy seeks to designate areas where mid- and high-frequency active sonar and the improved  
12          extended echo ranging (IEER) system training, maintenance, and research, development, test,  
13          and evaluation (RDT&E) activities will occur within and adjacent to existing operating areas  
14          (OPAREAs), and to conduct these activities. These areas are located in the ocean along the East  
15          Coast and within the Gulf of Mexico. Navy OPAREAs include designated ocean areas near fleet  
16          concentration areas (i.e., homeports). OPAREAs are where the majority of routine Navy training  
17          and RDT&E takes place. However, the Navy's training exercises are not confined to the  
18          OPAREAs. Some training exercises or portions of exercises are conducted seaward of the  
19          OPAREAs, and a limited amount of active sonar use is conducted in water areas shoreward of  
20          the OPAREAs.

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22          The purpose of the Proposed Action is to provide mid- and high-frequency active sonar and  
23          IEER system training for U.S. Navy Atlantic Fleet ship, submarine, and aircraft crews, as well as  
24          to conduct RDT&E activities to support the requirements of the Fleet Readiness Training Plan  
25          (FRTP) and stay proficient in ASW and MIW skills. The FRTP is the Navy's training cycle that  
26          requires naval forces to build up in preparation for operational deployment and to maintain a  
27          high level of proficiency and readiness while deployed. All phases of the FRTP training cycle are  
28          needed to meet Title 10 requirements.

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30          The Navy's need for training and RDT&E is found in Title 10 of the United States Code  
31          (U.S.C.), Section 5062 (10 U.S.C. 5062). Title 10 U.S.C. 5062 requires the Navy to be  
32          "organized, trained, and equipped primarily for prompt and sustained combat incident to  
33          operations at sea." The current and emerging training and RDT&E activities addressed in the  
34          AFAST Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement  
35          (OEIS) are conducted in fulfillment of this legal requirement.

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  - 38           • Section 1.1, *Purpose*, of this AFAST EIS/OEIS provides further information on the
  - 39           • Section 1.2, *Need*, provides further information on the need for the proposed action.

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## I.2 DESCRIPTION OF AFAST TRAINING ACTIVITIES

AFAST activities involve active sonar technology and the IEER system. The activities encompass maintenance and research, as well as RDT&E for active sonar activities similar to Atlantic Fleet training. These RDT&E activities have not been previously evaluated in other environmental planning documents. Training and RDT&E activities involving active sonar and the IEER system are collectively described as active sonar activities. The activities involving active sonar are not new and do not involve significant changes in systems, tempo, or intensity from past activities.

The systems used during training include active and passive systems mounted to surface ships and submarines or deployed by military patrol aircraft and helicopters. Other systems include torpedoes and acoustic device countermeasures.

- Section 2.2 of this AFAST EIS/OEIS, *ASW and MIW Training Activities*, for an overview of the types of Navy training.
- Section 2.3, *Sonar Systems*, provides specific information on the systems employed during AFAST proposed activities.
- Section 2.4, *Representative Active Sonar Use and Acoustic Sources*, provides specific information about the active sonar training events and the usage of each system.

## I.3 AFAST ACTIVITY LOCATIONS

Active sonar use was distributed throughout the AFAST Study Area based on actual reported usage. The U.S. Navy compiled the information and grouped similar events to form representative scenarios. The scopes of these activities, which are presented in the EIS/OEIS also form the basis of the Section 7 ESA consultation. The Navy's preferred alternative is to continue conducting active sonar activities within and adjacent to existing OPAREAs rather than designate active sonar areas or areas of increased awareness.

- Refer to Section 2.8.1, *No Action Alternative (Preferred Alternative)* of this EIS/OEIS for specific information on the proposed location of U.S. Navy active sonar training along the East Coast and Gulf of Mexico

## I.4 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

Fifteen species listed under the ESA potentially occur in the AFAST Study Area. Seven of these species are marine mammals, five are sea turtles, and three are fish. Table I-1 gives the names, status, and locations for these threatened and endangered species. Critical habitat has been designated for the North Atlantic right whale and the Gulf sturgeon.

Table I-1. ESA-listed Species Along the East Coast and in the Gulf of Mexico

Common Name	Scientific Name	ESA Status	Possible Location
North Atlantic right whale	<i>Eubalaena glacialis</i>	Endangered	East Coast
Humpback whale	<i>Megaptera novaeangliae</i>	Endangered	East Coast
Sei whale	<i>Balaenoptera borealis</i>	Endangered	East Coast
Fin whale	<i>Balaenoptera physalus</i>	Endangered	East Coast and Gulf of Mexico
Blue whale	<i>Balaenoptera musculus</i>	Endangered	East Coast
Sperm whale	<i>Physeter macrocephalus</i>	Endangered	East Coast and Gulf of Mexico
West Indian manatee	<i>Trichechus manatus</i>	Endangered	East Coast and Gulf of Mexico
Green sea turtle	<i>Chelonia mydas</i>	Threatened <sup>1</sup>	East Coast and Gulf of Mexico
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered	East Coast and Gulf of Mexico
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	East Coast and Gulf of Mexico
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	East Coast and Gulf of Mexico
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	East Coast and Gulf of Mexico
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered	East Coast
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	Endangered	Gulf of Mexico
Smalltooth sawfish	<i>Pristis pectinata</i>	Endangered	Gulf of Mexico

1. As a species, the green sea turtle is listed as threatened. However, the Florida and Mexican Pacific coast nesting populations are listed as endangered. It should be noted that green sea turtles found in the East Coast OPAREAs and eastern Gulf of Mexico might not all be from the Florida population.

Sources: DON, 2001, 2002a, 2002b, 2005, 2007a, 2007b, 2007c, and 2007d

1 Description, status, diving behavior, acoustic and hearing, and distribution information about  
 2 Federally-listed species is contained in this AFAST EIS/OIES in the following sections:

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- 4 • North Atlantic right whale, Section 3.6.1.1.1
- 5 • Humpback whale, Section 3.6.1.1.2
- 6 • Sei whale, Section 3.6.1.1.5
- 7 • Fin whale, Section 3.6.1.1.6
- 8 • Blue whale, Section 3.6.1.1.7
- 9 • Sperm whale, Section 3.6.1.2.1
- 10 • West Indian manatee, Section 3.6.1.4.1
- 11 • Green sea turtle, Section 3.7.2.1
- 12 • Hawksbill sea turtle, Section 3.7.2.2
- 13 • Loggerhead sea turtle, Section 3.7.2.3
- 14 • Kemp's ridley sea turtle, Section 3.7.2.4
- 15 • Leatherback sea turtle, Section 3.7.2.5
- 16 • Shortnose sturgeon, Section 3.9.4.1
- 17 • Gulf sturgeon, Sections 3.9.4.2 and 3.9.4.3
- 18 • Smalltooth sawfish, Section 3.9.4.4

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 20 Additional information pertaining to these species ESA status is contained in Section 3.6.2,  
 21 *Threatened and Endangered Marine Mammals*; Section 3.7.3, *Threatened and Endangered Sea*  
 22 *Turtles*; and Section 3.9.4, *ESA Listed Fish Species*.

## I.5 DETERMINATION OF IMPACTS TO LISTED SPECIES AND CRITICAL HABITAT

The potential exists for direct and indirect effects to occur to threatened and endangered species, including marine mammals, sea turtles, and fish, as a result of exposure to in-water sound; entanglement with expended materials; direct strike with torpedoes, training targets, or sonobuoys; or vessel strike. The EIS/OEIS includes a quantitative analysis to determine the potential impacts to marine mammals and sea turtles associated with the use of active sonar and explosive source sonobuoys.

- Refer to Section 4.4.2, *Analytical Framework for Assessing Marine Mammal Response to Active Sonar*, through Section 4.4.9, *Acoustic Effects Analysis*, of this AFAST EIS/OEIS for detailed information on the acoustic methodology and analysis for marine mammals.
- Refer to Section 4.4.119, *Summary of Potential Acoustic Effects by Marine Mammal Species*, contains acoustic exposure estimates for all species of marine mammals in the study areas including Federally-listed species.
- Refer to Section 4.4.11.1, *Potential Effects to ESA-Listed Species*, for specific information about the potential acoustic effects from AFAST activities to Federally-listed marine mammals.
- Refer to Section 4.4.12, *Other Potential Acoustic Effects to Marine Mammals*, for information on the potential for acoustically mediated bubble growth, resonance, likelihood of prolonged exposure, likelihood of masking, potential for long-term effect, and sound in the water from in-air sound.
- Refer to Section 4.5.2, *Explosive Source Sonobuoy*, for information on the acoustic methodology, analysis, and potential acoustic exposures to sea turtles.

Information about the potential effects to marine mammals and sea turtles from expended materials, direct strike, and vessel strike is contained within the body of the AFAST EIS/OEIS.

- Refer to Section 4.4.13, *Potential Nonacoustic Effects to Marine Mammals*, for detailed information on the potential marine mammal entanglement with expended materials; direct strike by a torpedo, exercise target, or sonobuoy; and the potential for ship strike.
- Refer to Section 4.5.3, *Potential Nonacoustic Effects to Sea Turtles*, for detailed information on the potential sea turtle entanglement with expended materials; direct strike by a torpedo, exercise target or sonobuoy; and the potential for ship strike.

Information on the potential acoustic impacts to fish from proposed active sonar and explosive source sonobuoys is contained within the AFAST EIS/OEIS.

- Refer to Section 4.7, *Marine Fish*, for detailed information on the potential acoustic impacts to fish.
- Refer to Section 4.7.3, *ESA-Listed Fish Species*, for details on the effects to ESA-Listed species.

Northeast North Atlantic right whale critical habitat is listed as such due to being some of the known primary feeding grounds. North Atlantic right whales primarily feed on zooplankton.

1 Effects to zooplankton from the proposed active sonar and explosive source sonobuoys are  
2 contained within the AFAST EIS/OEIS in Section 4.9, *Marine Invertebrates*.

### 3 **I.6 CUMULATIVE EFFECTS**

4 Regulations for ESA Section 7 require that the U.S. Navy analyze cumulative effects during  
5 formal consultations. The Biological Opinion (BO) issued by NMFS in response to the federal  
6 action agency must consider these cumulative effects. Cumulative effects include the effects of  
7 future state, tribal, local and private actions, not involving federal actions that are reasonably  
8 certain to occur in the action area under consideration. Future federal actions that are unrelated  
9 to the Proposed Action are not considered because they require separate consultation pursuant to  
10 Section 7 of the ESA.

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- 12 • Section 6.2, *Past and Present Actions*, provides a comprehensive, detailed description of
- 13 the activities in the AFAST Study Area.
- 14 • Section 6.4, *Discussion of Cumulative Impacts Relative to the Proposed Action*, and
- 15 Section 6.5, *Assessing Individual Past, Present, and Future Impacts*, discuss the
- 16 cumulative effects of other actions added to the proposed AFAST activities.

### 17 **I.7 MITIGATION MEASURES**

18 The U.S. Navy has developed mitigation measures that would be implemented as part of the  
19 Proposed Action to protect ESA-listed species during AFAST training. The mitigations  
20 presented in Chapter 5, Mitigation Measures, of the EIS/OEIS address actions specific to active  
21 sonar training activities, use of explosive source sonobuoys, and vessel transits. Many of these  
22 mitigation measures are the same as the protective measures that have been in place for Navy at-  
23 sea training since 2004.

- 24
- 25 • Refer to Section 5.1, *Mitigation Measures Related to Acoustic Effects*, for mitigation
- 26 measures used during active sonar training.
- 27 • Refer to Section 5.2, *Mitigation Measures Related to Explosive Source Sonobuoys*, for
- 28 mitigation measures used during the deployment of explosive source sonobuoys.
- 29 • Refer to Section 5.3, *Mitigation Measures Related to Vessel Transit and North Atlantic*
- 30 *Right Whales*, for mitigation measures used to reduce the likelihood of striking a north
- 31 Atlantic right whale with a Navy vessel.
- 32 • Refer to Section 5.4, *Alternative Mitigation Measures Considered but Eliminated*, for a
- 33 discussion of mitigation measures that were considered infeasible.

1 **I.8 LIST OF PREPARERS**

2 Refer to Section 7 of the AFAST EIS/OEIS for a list of document preparers.

3 **I.9 REFERENCES**

4 Refer to Section 8 of the AFAST/EIS/OEIS for a list of references cited.