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To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act (NEPA), an environmental review has been performed on the following action.

**TITLE:** Environmental Assessment on the Issuance of a Scientific Research Permit to Take North Atlantic Right Whales (File no. 14791)

**LOCATION:** Waters of the Western North Atlantic Ocean, including the Gulf of Maine, Cape Cod Bay, and coastal waters within 50 nautical miles of the shore along the entire eastern seaboard of the U.S.

**SUMMARY:** The National Marine Fisheries Service (NMFS) proposes to issue a scientific research permit for takes under the authority of the Endangered Species Act and the Marine Mammal Protection Act. The primary research objectives are to determine: (1) natural behavioral patterns North Atlantic right whales (*Eubalaena glacialis*) exhibit to approaching vessels and (2) the ability of right whales to localize and detect vessels and other sounds in their environment. Researchers would conduct passive recording, attach a digital sound recording tag (DTAG) via suction cup, and collect samples of exhaled air and sloughed skin on up to 40 right whales per year. The permit would be valid for five years from the date of issuance. The preferred alternative would not be expected to have more than short-term effects on right whales and will not significantly impact the quality of the human environment.

**RESPONSIBLE  
OFFICIAL:**

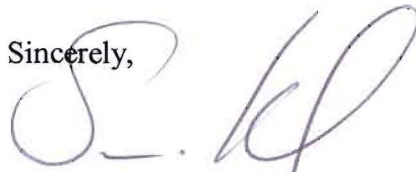
James H. Lecky  
Director, Office of Protected Resources  
National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
1315 East-West Highway, Room 13821  
Silver Spring, MD 20910  
(301) 713-2332

The environmental review process led us to conclude that this action will not have a significant effect on the human environment. Therefore, an environmental impact statement will not be prepared. A copy of the finding of no significant impact (FONSI) including the supporting environmental assessment (EA) is enclosed for your information.



Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist us in preparing future NEPA documents. Please submit any written comments to the responsible official named above.

Sincerely,

A handwritten signature in blue ink, appearing to read "P. Doremus", written over a horizontal line.

*for*

Paul N. Doremus, Ph.D.  
NOAA NEPA Coordinator

Enclosure



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Silver Spring, MD 20910

**Environmental Assessment**  
**FOR**  
**ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT (FILE NO. 14791) TO TAKE**  
**NORTH ATLANTIC RIGHT WHALES**

July 2010

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**Lead Agency:** USDC National Oceanic and Atmospheric Administration  
National Marine Fisheries Service, Office of Protected  
Resources

**Responsible Official:** James H. Lecky, Director, Office of Protected Resources

**For Further Information Contact:** Office of Protected Resources  
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**Location:** Waters of the Western North Atlantic Ocean, including the  
Gulf of Maine, Cape Cod Bay, and coastal waters within 50  
nautical miles of the shore along the entire eastern seaboard  
of the U.S.

**Abstract:** The National Marine Fisheries Service (NMFS) proposes to issue a scientific research permit for takes of marine mammals in the wild, pursuant to the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*) and the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*). The primary research objectives are to determine: (1) natural behavioral patterns that North Atlantic right whales (*Eubalaena glacialis*) exhibit in response to approaching vessels and (2) the ability of right whales to localize and detect vessels and other sounds in their environment. Researchers would conduct passive recording, attach a digital sound recording tag (DTAG) via suction cup, and collect samples of exhaled air and sloughed skin on up to 40 right whales per year. The permit would be valid for five years from the date of issuance.



# CONTENTS

<b>CHAPTER 1</b>	<b>PURPOSE OF AND NEED FOR ACTION.....</b>	<b>4</b>
1.1	<b>DESCRIPTION OF ACTION.....</b>	<b>4</b>
1.1.1	<i>Purpose and Need.....</i>	<i>4</i>
1.1.2	<i>Research Objectives.....</i>	<i>4</i>
1.2	<b>OTHER EA/EIS THAT INFLUENCE SCOPE OF THIS EA.....</b>	<b>4</b>
1.3	<b>SCOPING SUMMARY.....</b>	<b>5</b>
1.3.1	<i>Comments on application.....</i>	<i>5</i>
1.4	<b>APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS.....</b>	<b>5</b>
1.4.1	<i>National Environmental Policy Act.....</i>	<i>5</i>
1.4.2	<i>Endangered Species Act.....</i>	<i>6</i>
1.4.3	<i>Marine Mammal Protection Act.....</i>	<i>7</i>
1.4.4	<i>Other sections as needed.....</i>	<i>8</i>
<b>CHAPTER 2</b>	<b>ALTERNATIVES INCLUDING THE PROPOSED ACTION.....</b>	<b>9</b>
2.1	<b>ALTERNATIVE 1 – NO ACTION.....</b>	<b>9</b>
2.2	<b>ALTERNATIVE 2 – PROPOSED ACTION (ISSUANCE OF PERMIT WITH STANDARD CONDITIONS).....</b>	<b>9</b>
<b>CHAPTER 3</b>	<b>AFFECTED ENVIRONMENT.....</b>	<b>12</b>
3.1	<b>SOCIAL AND ECONOMIC ENVIRONMENT.....</b>	<b>12</b>
3.2	<b>PHYSICAL ENVIRONMENT.....</b>	<b>12</b>
3.2.1	<i>Sanctuaries, Parks, Historic Sites, etc.....</i>	<i>12</i>
3.2.2	<i>Essential Fish Habitat.....</i>	<i>13</i>
3.2.3	<i>Areas of Biological or Ecological Importance to North Atlantic Right Whales.....</i>	<i>13</i>
3.3	<b>BIOLOGICAL ENVIRONMENT.....</b>	<b>15</b>
3.3.1	<i>ESA Target Species Under NMFS Jurisdiction.....</i>	<i>15</i>
<b>CHAPTER 4</b>	<b>ENVIRONMENTAL CONSEQUENCES.....</b>	<b>16</b>
4.1	<b>EFFECTS OF ALTERNATIVE 1: NO ACTION.....</b>	<b>16</b>
4.2	<b>EFFECTS OF ALTERNATIVE 2: ISSUE PERMIT WITH STANDARD CONDITIONS.....</b>	<b>16</b>
4.2.1	<i>Effects on Biological Environment.....</i>	<i>16</i>
4.2.1	<i>Effects on Physical Environment.....</i>	<i>17</i>
4.3	<b>SUMMARY OF COMPLIANCE WITH APPLICABLE LAWS, NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS.....</b>	<b>17</b>
4.3.1	<i>Endangered Species Act.....</i>	<i>18</i>
4.3.2	<i>Marine Mammal Protection Act.....</i>	<i>18</i>
4.4	<b>COMPARISON OF ALTERNATIVES.....</b>	<b>18</b>
4.5	<b>MITIGATION MEASURES.....</b>	<b>18</b>
4.6	<b>UNAVOIDABLE ADVERSE EFFECTS.....</b>	<b>19</b>
4.7	<b>CUMULATIVE EFFECTS.....</b>	<b>19</b>
4.7.1	<i>Research permits.....</i>	<i>19</i>
4.7.2	<i>Shipping and ship strikes.....</i>	<i>20</i>
4.7.4	<i>Habitat Degradation.....</i>	<i>22</i>
4.7.5	<i>Contaminants.....</i>	<i>22</i>
4.7.6	<i>Noise.....</i>	<i>22</i>
4.7.7	<i>Climate and Ecosystem Change.....</i>	<i>23</i>
4.7.8	<i>Vessel Interactions: Marine Mammal Watching.....</i>	<i>24</i>
4.7.9	<i>Incidental Harassment Authorizations.....</i>	<i>24</i>
4.7.10	<i>Conservation Efforts.....</i>	<i>26</i>
4.7.11	<i>Summary of cumulative effects.....</i>	<i>27</i>

<b>LITERATURE CITED .....</b>	<b>29</b>
<b>APPENDIX A: PERMIT CONDITIONS.....</b>	<b>33</b>
<b>APPENDIX B: ANNUAL TAKES AUTHORIZED UNDER PROPOSED PERMITS .....</b>	<b>34</b>
<b>APPENDIX C: ACTIVE PERMITS THAT AUTHORIZE RIGHT WHALE TAKES.....</b>	<b>35</b>
<b>APPENDIX D: RESEARCH ACTIVITIES AUTHORIZED.....</b>	<b>36</b>

## CHAPTER 1 PURPOSE OF AND NEED FOR ACTION

### 1.1 DESCRIPTION OF ACTION

NMFS proposes to issue a scientific research permit that authorizes “takes”<sup>1</sup> of marine mammals in the wild pursuant to the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*), the regulations governing the taking and importing of marine mammals (50 CFR Part 216), the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*), and the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR Parts 222-226) to:

- Douglas Nowacek, Ph.D., Duke University, Beaufort, NC 28516

#### 1.1.1 Purpose and Need

The primary purpose of the permit is to provide an exemption from the take prohibitions under the MMPA and the ESA to allow “takes”. The need for issuance of the permit is related to NMFS’s mandates under the MMPA and the ESA. NMFS has a responsibility to implement the MMPA and ESA to protect, conserve, and recover threatened and endangered marine mammals under its jurisdiction. The MMPA and ESA prohibit takes of threatened and endangered marine mammals, with only a few specific exceptions, including for scientific research and enhancement purposes. Permit issuance criteria require that research activities are consistent with the purposes and policies of the MMPA and ESA and will not have a significant adverse impact on the species.

#### 1.1.2 Research Objectives

Study objectives include determining what natural behavioral patterns and responses North Atlantic right whales (*Eubalaena glacialis*) show in response to approaching vessels and determining the ability of right whales to localize and detect vessels and other sounds in their environment.

### 1.2 OTHER EA/EIS THAT INFLUENCE SCOPE OF THIS EA

On October 17, 2005, NMFS issued a notice of intent to voluntarily prepare an EIS (70 FR 60285) for issuance of permits for research on Northern right whales, in order to consider long-range planning needs and efficiencies in the permitting process. The EIS is not being conducted as a result of a finding on significant impacts. The development of the EIS is currently on hold. Therefore, in accordance with NEPA and its implementing regulations at 40 CFR Section 1506.1, nothing precludes NMFS from issuing permits in the interim while the EIS is being developed. NMFS is evaluating Dr. Nowacek’s request for right whale research to determine whether the action would result in significant impacts to the species or other portions of the environment.

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<sup>1</sup> Under the MMPA, “take” is defined as “harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect.” [16 U.S.C. 1362(18)(A)] The ESA defines “take” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The term “harm” is further defined by regulations (50 CFR §222.102) as “an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including breeding, spawning, rearing, migrating, feeding, or sheltering.”

### ***1.3 SCOPING SUMMARY***

The purpose of scoping is to:

- identify the issues to be addressed
- identify the significant issues related to the proposed action
- identify and eliminate from detailed study the non-significant issues
- identify and eliminate issues that have been covered by prior environmental review
- identify the concerns of the affected public and Federal agencies, states, and Indian tribes

CEQ regulations implementing the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) do not require that a draft EA be made available for public comment as part of the scoping process.

The MMPA and its implementing regulations governing issuance of special exception permits for scientific research (50 C.F.R. §216.33) require that, upon receipt of a valid and complete application for a new permit, NMFS publish a notice of receipt in the *Federal Register*. The notice summarizes the purpose of the requested permit and invites interested parties to submit written comments concerning the application.

#### *1.3.1 Comments on application*

A Notice of Receipt was published in the *Federal Register*, announcing the availability of Dr. Nowacek's application for public comment (74 FR 61331, November 24, 2009). No public comments were received and the action is not considered controversial.

Pursuant to 50 CFR §216.33 (d)(2), the applications were sent to the Marine Mammal Commission (MMC) for review. The MMC did not provide comments on the request but asked how this request would be analyzed in reference to the EIS being developed. Section 1.2 describes how this is being handled.

### ***1.4 APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS***

This section summarizes federal, state, and local permits, licenses, approvals, and consultation required to implement the proposed action. When it is the applicant's responsibility to obtain such permissions, NMFS is still obligated under the National Environmental Policy Act (NEPA) to ascertain whether the applicant is seeking other federal, state, or local approvals for their action.

#### *1.4.1 National Environmental Policy Act*

NEPA was enacted in 1969 and is applicable to "major" federal actions significantly affecting the quality of the human environment. A federal action is considered "major" if a federal agency fully or partially funds, regulates, conducts, or approves this action. NMFS issuance of research permits is considered a major federal action. NEPA requires consideration of environmental issues in federal agency planning and decision making. The Council on Environmental Quality's

implementing regulations (40 CFR Parts 1500-1508) outline federal agency responsibilities under NEPA.

Through NOAA Administrative Order (NAO) 216-6, NOAA established agency procedures for complying with NEPA and the implementing regulations issued by the Council on Environmental Quality. NAO 216-6 specifies that issuance of scientific research permits under the MMPA and ESA are categorically excluded from further environmental review, except under extraordinary circumstances.

NMFS must prepare an EA or EIS when a proposed action:

- is the subject of public controversy based on potential environmental consequences,
- has uncertain environmental impacts or unknown risks,
- establishes a precedent or decision in principle about future proposals,
- may result in cumulatively significant impacts, or
- may have an adverse effect upon endangered or threatened species or their habitats.

While issuance of scientific research permits is typically subject to a categorical exclusion, as described in NAO 216-6, NMFS is preparing an EA for this action to provide a more detailed analysis of effects to ESA-listed species. This Environmental Assessment is prepared in accordance with NEPA, its implementing regulations, and NAO 216-6.

#### *1.4.2 Endangered Species Act*

Section 9 of the ESA, as amended, and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption such as by a permit. Permits to take ESA-listed species for scientific purposes, or for the purpose of enhancing the propagation or survival of the species, may be granted pursuant to Section 10(a)(1)(A) of the ESA.

NMFS has promulgated regulations to implement the permit provisions of the ESA (50 CFR Part 222) and has produced OMB-approved application instructions that prescribe the procedures necessary to apply for permits. All applicants must comply with these regulations and application instructions in addition to the provisions of the ESA.

Section 10(d) of the ESA stipulates that, for NMFS to issue permits under section 10(a)(1)(A) of the ESA, the Agency must find that the permit: was applied for in good faith; if granted and exercised will not operate to the disadvantage of the species; and will be consistent with the purposes and policy set forth in Section 2 of the ESA.

Section 2 of the ESA sets forth the purposes and policy of the Act. The purposes of the ESA are to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in section 2(a) of the ESA. It is the policy of the ESA that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of the ESA. In



consideration of the ESA's definition of conserve, which indicates an ultimate goal of bringing a species to the point where listing under the ESA is no longer necessary for its continued existence (i.e., the species is recovered), exemption permits issued pursuant to section 10 of the ESA are for activities that are likely to further the conservation of the affected species.

Section 7 of the ESA requires consultation with the appropriate federal agency (either NMFS or the U.S. Fish and Wildlife Service) for federal actions that "may affect" a listed species or adversely modify critical habitat. NMFS issuance of a permit affecting ESA-listed species or designated critical habitat, directly or indirectly, is a federal action subject to these Section 7 consultation requirements. Section 7 requires federal agencies to use their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of endangered and threatened species. NMFS is further required to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of habitat for such species. Regulations specify the procedural requirements for these consultations (50 Part CFR 402).

#### 1.4.3 *Marine Mammal Protection Act*

The MMPA prohibits takes of all marine mammals in the U.S. (including territorial seas) with a few exceptions. Permits for *bona fide*<sup>2</sup> scientific research on marine mammals, or to enhance the survival or recovery of a species or stock, issued pursuant to section 104 of the MMPA are one such exception. These permits must specify the number and species of animals that can be taken, and designate the manner (method, dates, locations, etc.) in which the takes may occur. NMFS has sole jurisdiction for issuance of such permits and authorizations for all species of cetacean, and for all pinnipeds except walrus<sup>3</sup>.

NMFS may issue a permit or authorization pursuant to section 104 of the MMPA to an applicant who submits with their application information indicating that the taking is required to further a bona fide scientific purpose. An applicant must demonstrate to NMFS that the taking will be consistent with the purposes of the MMPA and applicable regulations. If lethal taking of a marine mammal is requested, the applicant must demonstrate that a non-lethal method of conducting research is not feasible. NMFS must find that the manner of taking is "humane"<sup>4</sup> as defined in the MMPA. In the case of proposed lethal taking of a marine mammal from a stock listed as "depleted" NMFS must also determine that the results of the research will directly benefit the species or stock, or otherwise fulfill a critically important research need.

NMFS has promulgated regulations to implement the permit provisions of the MMPA (50 CFR Part 216) and has produced OMB-approved application instructions that prescribe the procedures (including the form and manner) necessary to apply for permits. All applicants must comply with these regulations and application instructions in addition to the provisions of the MMPA.

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2 The MMPA defines bona fide research as "scientific research on marine mammals, the results of which – (A) likely would be accepted for publication in a refereed scientific journal; (B) are likely to contribute to the basic knowledge of marine mammal biology or ecology; or (C) are likely to identify, evaluate, or resolve conservation problems."

3 The U.S. Fish and Wildlife Service has jurisdiction for walrus, polar bears, sea otters, and manatees.

4 The MMPA defines humane in the context of the taking of a marine mammal, as "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved."

#### 1.4.4 *Other sections as needed*

National Marine Sanctuaries Act: The NMSA (32 U.S.C. 1431 *et seq.*) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance. The National Marine Sanctuary Program, operating under the NMSA and administered by NOAA's National Ocean Service (NOS) has the authority to issue special use permits for research activities that would occur within a National Marine Sanctuary. Obtaining special use permits is the responsibility of individual researchers. However, as a courtesy, the Office of Protected Resources consults with NOS when proposed research would occur in or near a National Marine Sanctuary.

Convention on International Trade in Endangered Species of Wild Fauna: CITES is an international agreement between governments with the goal of ensuring that international trade in specimens of wild animals and plants does not threaten their survival. All import, export, re-export and introduction from the sea of species covered by CITES has to be authorized through a licensing system. In the U.S., the Fish and Wildlife Service is the Management Authority for CITES. Obtaining CITES permits is the responsibility of individual researchers.

## **CHAPTER 2 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

This chapter describes the range of potential actions (alternatives) determined reasonable with respect to achieving the stated objective, as well as alternatives eliminated from detailed study. This chapter also summarizes the expected outputs and any related mitigation of each alternative. One alternative is the “No Action” alternative where the proposed permit would not be issued. The No Action alternative is the baseline for rest of the analyses. The Proposed Action alternative represents the research proposed in the submitted application for a permit, with standard permit terms and conditions specified by NMFS.

### ***2.1 ALTERNATIVE 1 – NO ACTION***

An alternative to the proposed action is no action, i.e., denial of the permit request. This alternative would eliminate any potential risk to the environment from the proposed research activities. However, it would not allow the research to be conducted, and the opportunity would be lost to collect information that would contribute to better management of Northern right whales. NMFS regulators could use the information gained during this research to inform decisions on vessel collision mitigation.

### ***2.2 ALTERNATIVE 2 – PROPOSED ACTION (ISSUANCE OF PERMIT WITH STANDARD CONDITIONS)***

Under the Proposed Action alternative, a permit would be issued for activities as proposed by the applicant, with the permit terms and conditions standard to such permits as issued by NMFS. The permit would be valid five years from the date of issuance. Alternative 2 is the preferred alternative.

#### **Action area**

The research would take place in the waters of the western North Atlantic Ocean. Study areas include the Gulf of Maine, Cape Cod Bay and coastal waters within 50 nautical miles from the shore along the entire eastern seaboard of the United States. Research could occur in Gray’s Reef, Stellwagen Bank, and Monitor National Marine Sanctuaries.

See Appendix B for a table outlining the proposed numbers of animals, research activities, etc. Table 1 outlines the number of protected species, by species, that would be authorized to be taken, and the locations and manner in which they would be taken.

The following is a description of activities that would be permitted:

#### **Close approach to Photograph/D-tag via Suction Cup**

Researchers would closely approach some animals for photo-identification and/or tagging. Criteria for selecting animals to tag would include: individuals who are not already identified or tagged, individuals who are exhibiting normal behavior, and individuals who do not appear to have calves. Mother and calf pairs would be avoided. Tagging of the right whales would consist of approaching within 10 m of the animals and attaching the DTAGs to the dorsal surface of free-swimming whales, about midway between the blowholes and caudal peduncle (Nowacek, et al. 2001). Tag deployment would occur from a small vessel using a long carbon fiber pole.

It is expected that the amount of time the tag would remain adhered to the whale would range from around 5 to 20 hours, as the tags can be removed as a result of breaching, social rubbing between whales, skin sloughing, or the deliberate activation of a release mechanism in the tag that consists of a corrosive wire, which is connected to the air line in each suction cup (Nowacek, et al. 2001, Johnson and Tyack 2003).

Given the small size of the DTAG, which has a volume of 1 liter and a dry weight of 500 g, a 12-m pole cantilevered in an oarlock on the bow of the research vessel is sufficient in affixing the tag to right whales via suction cups (Johnson and Tyack 2003). In addition to recording acoustic information relative to its ambient surroundings, the tag is able to measure and record water depth, water temperature, and the orientation of the tagged animal (Johnson and Tyack 2003). All of the information acquired by the tag is retained in a memory array by means of a digital signal processor (DSP), while data retrieval and the programming of the tag is achieved with an infrared interface, the latter of which has a data rate of 0.5 MB/s (Johnson and Tyack 2003). Audio components of the DTAG include a piezoceramic hydrophone, preamplifier, anti-alias filter, and analog-to-digital converter (ADC) (Johnson and Tyack 2003).

### **Focal Follows**

Researchers would carry out focal follows, which are classified as following a single focal animal (typically the tagged animal) or several whales in a group including the focal animal during the tagging to relate data on the tag to observed surface behaviors. Sometimes focal follows can be conducted on individuals using natural markings, and behavioral data from this kind of follow can be useful, but the majority of focal follows in the permitted research would use the tag to facilitate the follow. Since a radio transmitter on the tag broadcasts the bearing to the whale every time the tagged whale surfaces, and since the tag itself is visible, it is possible to follow tagged whales from standoff distances considerably farther than non-tagged whales. Where possible, the focal follow may include time before the tag is attached and after the tag releases from the animal to determine any effects of tagging on behavior. These focal follows are typically conducted from 100-500 m from the animal, depending on weather conditions and visibility from the platform. The hope is to have no animals harassed by the focal follow, and researchers have seldom detected any responses at all.

### **Sample exhaled air/sloughed skin**

Two parts/products would be collected opportunistically as part of tagging: 1) sloughed skin; 2) mucous, i.e., blowhole output. If sloughed skin is visible on the suction cups when they slide off of the test subject, the skin samples would be collected from the tag attachment. Tissue would be used for molecular genetic analyses including determination of sex, population, matriline, and possibly paternity (Kraus, et al. 2001). Modern genetic analysis requires very small samples and any excess tissue would be made available to other investigators interested in stock analysis etc. Date, time, location and animal's daily identification letter would be recorded with the skin sample, along with the name of the collector. Materials from exhalations have been used to measure hormone levels (Hogg et al 2005, 2009), and researchers plan to collect such samples with a passive system attached to the tag-attachment pole. This system, which was tested in the Bay of Fundy in 2005, consists of a piece of nylon mesh stretched across a ring, which is mounted on the opposite side of the pole from the tag, so when the whale exhales the sample is trapped in the mesh. The collection of the exhalation is incidental to the tagging process and the

sample is collected at the same time as tag attachment. Neither the pole nor the mesh ring would ever be dangerously near the blowhole. The mesh would be stored in DMSO and a sea water sample is taken at/near the location of the sample for comparison. Samples would be frozen and stored in liquid N<sub>2</sub> until processing. Date, time, location and animal's daily identification letter would be recorded with the skin or blowhole discharge sample, along with the name of the collector.

## **CHAPTER 3 AFFECTED ENVIRONMENT**

This chapter presents baseline information necessary for consideration of the alternatives, and describes the resources that would be affected by the alternatives, as well as environmental components that would affect the alternatives if they were to be implemented. The effects of the alternatives on the environment are discussed in Chapter 4.

### ***3.1 SOCIAL AND ECONOMIC ENVIRONMENT***

There are a variety of human activities that may occur in the action area such as commercial fishing, shipping, military activities, recreational uses (such as fishing and boating), and ecotourism. The social and economic effects of the proposed action mainly involve the effects on the people involved in the research, as well as any industries that support the research, such as charter vessels and suppliers of equipment needed to accomplish the research. Permitting the proposed research could result in a low level of economic benefit to local economies in the action area. However, such impacts would be negligible on a national or regional (state) level and therefore are not considered significant. There are no significant social or economic impacts of the proposed action interrelated with significant natural or physical environmental effects. Thus, the EA does not include any further analysis of social or economic effects of the proposed action.

### ***3.2 PHYSICAL ENVIRONMENT***

Activities under File No. 14791 would take place in the migratory, feeding, and breeding grounds of North Atlantic right whales along the coast of the US. It's possible that the research would occur within the Gray's Reef, Stellwagen Bank, and Monitor National Marine Sanctuaries as well as areas that are of biological and ecological importance to right whales.

#### *3.2.1 Sanctuaries, Parks, Historic Sites, etc.*

**Gerry E. Studds Stellwagen Bank National Marine Sanctuary**, at the mouth of Massachusetts Bay between Cape Cod and Cape Ann, covers 842 square miles and extends to 80 m deep. It is of special importance because of its historical, economical, biological, and ecological significance. This sanctuary is also important to the local economy, particularly regarding its use by the shipping, fishing, and wildlife watching industries. The area serves as a refuge, feeding ground, and migratory path along the eastern coast of North America for endangered North Atlantic right whales. In addition, Stellwagen Bank is important habitat for a variety of marine species including endangered leatherback, Kemp's ridley, and loggerhead sea turtles, endangered humpback whales and finback whales, as well as harbor porpoises, Atlantic white-sided dolphins, harbor seals and gray seals, numerous fish species, forty species of sea birds, and a variety of invertebrates.

**Gray's Reef National Marine Sanctuary**, located 17.5 nm (32 km) off the coast of Georgia, protects 17 square miles of open ocean that is home to a wide variety of marine life, as well as the "Bone yard," which has provided scientists with relics and fossils possibly dating back 20,000 years. Its sea floor is considered a "live bottom," where rocky ledges and limestone

outcroppings are densely covered by sessile marine invertebrates, interspersed with sandy areas. In addition to being a known foraging and resting ground of loggerhead sea turtles and a right whale calving ground, Gray's Reef is important habitat for over 150 species of fish. Gray's Reef is a common recreational resource for fishing, boating, and diving; however, commercial industries are prohibited.

**The Monitor National Marine Sanctuary** protects the wreck of the famed Civil War ironclad *USS Monitor*. In 1974 the wreck was listed on the National Register of Historic Places. Since its designation as our nation's first marine sanctuary in 1975, the *Monitor* has been the subject of intense investigation. Located 16 miles off the North Carolina coast in 73 m of water, biologists are studying how the *Monitor* acts as a living artificial reef for marine life.

### 3.2.2 *Essential Fish Habitat*

Congress defined Essential Fish Habitat (EFH) as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). The EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act offer resource managers means to accomplish the goal of giving heightened consideration to fish habitat in resource management. EFH has been designated for federally managed fisheries. Details of the designations and descriptions of the habitats within the action area can be found at <http://www.nmfs.noaa.gov/habitat/habitatprotection/efh/index/htm>.

Activities that have been shown to adversely affect EFH include disturbance or destruction of habitat from stationary fishing gear, dredging and filling, agricultural and urban runoff, direct discharge, and the introduction of exotic species.

None of the proposed activities are expected to have an effect on designated EFH.

### 3.2.3 *Areas of Biological or Ecological Importance to North Atlantic Right Whales*

Under Permit No. 14791 research would occur in the following areas along the U.S. East Coast considered to be of biological or ecological importance to the North Atlantic right whale.

#### Great South Channel (GSC)

The GSC is a large funnel-shaped bathymetric feature at the southern extreme of the Gulf of Maine between Georges Bank and Cape Cod, Massachusetts. The channel is bordered on the west by Cape Cod and Nantucket Shoals, and on the east by Georges Bank. The average depth is 175m with a maximum depth to about 200m to the north. The V-shaped 100-m isobath effectively delineates the steep drop-off from Nantucket Shoals and Georges back to the deeper basins. On the southwestern fringe of the GSC lies the GSC Sliver Restricted Area, a region established as a Marine Managed Area in 1977. Both the GSC and the Sliver Region are subjected to fisheries management and lie within the Mandatory Ship Reporting System boundaries.

The GSC is one of the most used cetacean habitats off the northeastern United States (Kenney & Winn 1986). The late winter/early spring mixing of warmer shelf waters with the cold Gulf of Maine water funneled through the channel causes a dramatic increase in faunal productivity in the area (Sherman et al. 1987). This increase in zooplankton fauna, the main food source for

baleen whales, attracts an abundance of mysticetes to the GSC region. Three “high-use” shipping corridors and numerous fisheries operate within the GSC, making ship-strikes and fishing gear entanglements major threats to baleen whale survival in this region.

### Cape Cod Bay

CCB is a large embayment on the U.S. Atlantic Ocean off the state of Massachusetts that is bounded on three sides by Cape Cod and the Massachusetts coastline from Plymouth, MA, south. To the north, CCB opens to Massachusetts Bay and the Gulf of Maine. CCB has an average depth of about 25 m (82 ft) and a maximum depth of about 65 m (213 ft). The deepest area of CCB is in the northern section, bordering Massachusetts Bay.

The general water flow is counter-clockwise, running from the Gulf of Maine south into the western half of CCB, over to eastern CCB, and back into the Gulf of Maine through the channel between the north end of Cape Cod (Race Point) and the southeast end of Stellwagen Bank, a submarine bank that lies just north of Cape Cod. Flow within the bay is driven by density gradients caused by freshwater river run-off from the Gulf of Maine (Franks and Anderson 1992; Geyer et al. 1992) and by a predominantly westerly wind.

Thermal stratification occurs in the bay during the summer months. Surface water temperatures typically range from 0 to 19°C throughout the year. Salinity is fairly stable at around 31-32 ppt. Much of the bottom is comprised of unconsolidated sediments, with finer sediments occurring in the deeper waters (Davis 1984). In shallow areas, or where there is sufficient current, sediments tend to be coarser.

The late winter/early spring zooplankton fauna of CCB consists primarily of copepods, represented predominantly by two species, *Acartia clausi* and *A. tonsa*. Samples taken in the daytime indicated greater densities of copepods at greater depths. The copepod *C. finmarchicus* is found throughout inshore CCB waters at densities of 100 individuals per cubic meter from April through June (Mayo and Marx 1990). Mayo and Marx (1990) found that the density of surface zooplankton samples collected in the path of feeding right whales during mid-winter was significantly higher than for the samples taken where whales were absent (median = 3,904 organisms/m<sup>3</sup>). The threshold value below which feeding by northern right whales is not likely to occur in CCB is approximately 1,000 organisms/m<sup>3</sup> (Mayo and Marx 1990). CCB, like the GSC, is a primary feeding ground for the right whales, most likely because of the high densities of zooplankton species found there.

### Southeastern United States (SEUS)

The South Atlantic Bight (also referred to as the SEUS) extends roughly from Cape Hatteras, North Carolina, to West Palm Beach, Florida. These waters average about 30 m in depth with a maximum depth of about 60 m. The deepest waters occur along the coast of Florida, just south of Cape Canaveral. Right whales migrate through the northern portion of the South Atlantic Bight on their way to and from the calving grounds off the Georgia and northern Florida coast.

The South Atlantic Bight contains three large cape areas: Raleigh Bay, Onslow Bay, and Long Bay (Milliman and Imamura 1992). The dominant bathymetric features are the continental shelf, the continental slope, and the Blake Plateau. The continental shelf slopes gently from the coast



to approximately the 50 m (164 ft) isobath; where it drops off to the 200 m (656 ft) isobath. The continental slope is steeply angled and extends approximately from the 200 m (656 ft) to the 700 m (2,297 ft) isobath. The slope is widest off Jacksonville, FL (30°N). The Gulf Stream flows along the Florida-Hatteras Slope over the Blake Plateau's western flank (DoN August 2002).

The substrate composition of the SEUS ranges from mixed fine sand and gravel near the coast to an increasingly higher percentage of calcium carbonate material at greater depths. There are also traces of gravelly sand, sand and clay, and fine-grained sand and silt found in deeper waters. Continental slope sediments in the SEUS area are primarily composed of silt and clay. The inner part of the Blake Plateau contains a minimal amount of sediments due to the sweeping action of the Gulf Stream. The Plateau is also covered by a thick layer of phosphoritic sediments and a thin layer of carbonate sands (DoN August 2002).

Seasonal water temperatures and salinity for this area are higher than in northern waters. The SEUS is considered a transition zone, where waters change from hosting subtropical marine communities to temperate marine communities. Large, cyclic changes in abundance and dominance of plankton species occur seasonally and annually. Annual variation may be so great that short-term monitoring studies may not be sensitive enough to assess the temporal variability of the plankton community. The recorded preferred food of the northern right whale, *C. finmarchicus*, does not occur in these waters, and the area is not considered a foraging area for northern right whales. The SEUS is believed to be the primary calving and nursery ground for the species.

### **3.3 BIOLOGICAL ENVIRONMENT**

#### *3.3.1 ESA Target Species Under NMFS Jurisdiction*

**North Atlantic right whales (*Eubalaena glacialis*).** The western North Atlantic stock of right whales range from their winter calving grounds in coastal waters of the southeastern United States, to their spring feeding and nursery grounds in New England waters, and northward to the Bay of Fundy and the Scotian shelf in summer. However, the location of a large segment of the population is unknown during winter, and data from a limited number of satellite-tagged whales suggest an extended range, at least for some individuals. There are at least six major habitats or congregation areas for this stock of right whales: the coastal waters of the southeastern United States, the Great South Channel, Georges Bank/Gulf of Maine, Cape Cod and Massachusetts Bays, the Bay of Fundy, and the Scotian Shelf.

The western North Atlantic right whale population was estimated to include a minimum of 345 individuals based on 2003 data (Waring et al. 2009). Although the 2008 SAR indicates the population declined in the 1990s, more recent data indicate the population may be increasing at a slow rate. Data on the reproductive success of this population suggest that the number of calves born annually is declining and the mean calving interval is increasing (Knowlton et al. 1994). However, recent sightings by the NMFS Southeast Fisheries Science Center on the southeast U.S. calving grounds identified 40 mother–calf pairs in the 2008–2009 season. This is the highest number of mother–calf pairs recorded for the population since the 1980s. Approximately one-third of all Northern right whale mortalities have been attributed to human activities, including entanglement in fishing gear and collision with vessels (Kraus 1990). Given the small population size and low reproductive rate, human-related mortalities may be the principal factors

inhibiting growth and recovery of the population. The stock is considered to be critically endangered and is designated as strategic under the MMPA.

### *3.3.2 Non-target species*

The action is not expected to affect non-target species. Numerous cetacean (e.g. humpback, fin, minke whales) and sea turtle (leatherback, green, loggerhead) species are found within the action area. Although these species could be sighted during the research none would be approached. The effects of the researcher's presence on these non-target species would be equal to that of any passing boat.

## **CHAPTER 4 ENVIRONMENTAL CONSEQUENCES**

This chapter represents the scientific and analytic basis for comparison of the direct, indirect, and cumulative effects of the alternatives. Regulations for implementing the provisions of NEPA require consideration of both the context and intensity of a proposed action (40 CFR Parts 1500-1508).

### ***4.1 EFFECTS OF ALTERNATIVE 1: No Action***

An alternative to the proposed action is no action, i.e., denial of the permit requests. This alternative would eliminate any potential risk to all aspects of the environment from the proposed research activities. It would prohibit researchers from gathering information that could help endangered and protected right whales.

### ***4.2 EFFECTS OF ALTERNATIVE 2: Issue permit with standard conditions***

Any impacts of the proposed action would be limited primarily to the biological environment, specifically the animals that would be studied or affected by the research. The type of action proposed in the permit requests would minimally affect the physical environment and would be unlikely to affect the socioeconomic environment or pose a risk to public health and safety.

#### *4.2.1 Effects on Biological Environment*

Effects of the action on North Atlantic right whales are discussed below.

### **Close approach to Photograph/D-tag via Suction Cup**

The effects of the proposed activities on individual whales would range from short (e.g., 5 sec) to moderate (e.g., 30 min) duration behavioral disruption as researchers approach and attempt to attach suction cup tags to a whale. The effects of moderate duration may occur during approach attempts, though it bears repeating that they would make a maximum of 3 attempts to tag any one whale on a given day. Short and/or moderate duration effects may occur as a result of the tag attachment itself. Based on past experience many whales have displayed little to no reaction to the tagging, while very few have shown short, forceful reactions. The level of the reactions are based on the reaction scale of 0-3 (Weinrich, et al. 1991), and these are explained in that document. The vast majority of whales display a reaction of 0-1, which represents either no reaction or a short (5 sec) startle or direction change, respectively. The behavioral reaction of whales scored 2-3 include rapid acceleration/direction change, dive, and, in only one case, a breach. The most prolonged response of any one whale was an individual that lob-tailed (i.e., raising flukes and peduncle vertically out of the water) ~30 times over a period of ~15 min. The

tag then fell off this whale and it presumably returned to normal behavior as they could no longer track it.

The typical response to tagging consists of a quick startle followed by a short dive, but then the whales often fall into a pattern that is seen throughout the rest of the tag record, e.g., dive times/depths, foraging behavior, surface times, etc. Researchers would not attempt to tag any individual whale more than 3 times in one day, and if it displayed significant negative responses (e.g., repeated breaching) to any of our activities (follow or tagging) work would cease immediately.

The non-invasive tag attachment technique minimizes any pain, though it is unknown how well innervated the skin is, i.e., if the whale feels any pain by having the tag attached. While direct experimental evidence of the effects on right whale skin from suction cup attachments is not available, the duration of the tag is short so the likelihood that tissue damage results from the <36 hour attachments is minimal.

### **Focal Follows**

After a successful attachment of a tag to a whale, researchers may need to approach again (though not as closely) to obtain complete photo-identification information. Documenting the tagged individual is a necessity both for the science as well as to minimize disturbance on individual whales. Researchers would cease activities if forceful, negative responses (e.g., repeated breaches) are observed and coincide with the activities. If a tagged whale shows such behavior, researchers would remain at greater than normal distance from the whale, e.g., 800-1000 m to allow them to observe the whale from a distance and later recover the tag.

### **Sample exhaled air/sloughed skin**

The collection of samples is incidental to the tagging and would be collected at the same time; therefore, NMFS expects that the effect of this additional activity is minimal. The skin samples would be properly stored and packaged for shipment to Canada. The air samples would be kept at Duke University.

#### *4.2.2 Effects on Physical Environment*

The proposed activities would have no affect on the physical environment. The researcher's boat would pass over and through the water column and no bottom habitat would be affected. The tags would be recovered so they would not fall to the ocean floor.

### ***4.3 SUMMARY OF COMPLIANCE WITH APPLICABLE LAWS, NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS***

As summarized below, NMFS has determined that the proposed research is consistent with the purposes, policies, and applicable requirements of the MMPA, ESA, and NMFS regulations. NMFS issuance of the permit would be consistent with the MMPA and ESA. The applicant has secured or applied for necessary permits from the Sanctuaries and if necessary has IACUC approval from their research institution for their research protocols.

#### *4.3.1 Endangered Species Act*

To comply with section 7 of the regulations (50 CFR 402.14(c)), a section 7 consultation was initiated by NMFS PR under the ESA. In accordance with Section 7 of the ESA of 1973, as amended (16 U.S.C. 1531 et seq.), a biological opinion was prepared for this proposed action and it concluded that after reviewing the current status of listed right whales, the environmental baseline for the action area, the effects of the take authorized in the permit, and probable cumulative effects, it is NMFS' biological opinion that issuance of Permit No. 14791, as proposed, is not likely to jeopardize the continued existence of any listed right whales, or any other NMFS ESA-listed species and is not likely to destroy or adversely modify designated critical habitat.

#### *4.3.2 Marine Mammal Protection Act*

The applicant submitted an application which included responses to all applicable questions in the application instructions. The requested research is consistent with applicable issuance criteria in the MMPA and NMFS implementing regulations. The views and opinions of scientists or other persons or organizations knowledgeable of the marine mammals that are the subject of the application or of other matters germane to the application were considered, and support NMFS's initial determinations regarding the application.

The permit would contain standard terms and conditions stipulated in the MMPA and NMFS's regulations. As required by the MMPA, the permit would specify: (1) the effective date of the permit; (2) the number and kinds (species and stock) of marine mammals that may be taken; (3) the location and manner in which they may be taken; and (4) other terms and conditions deemed appropriate. Other terms and conditions deemed appropriate relate to minimizing potential adverse impacts of specific activities (e.g. capture, sampling, etc.), coordination among permit holders to reduce unnecessary duplication and harassment, monitoring of impacts of research, and reporting to ensure permit compliance.

#### **4.4 COMPARISON OF ALTERNATIVES**

While the no action alternative would not have environmental effects, the opportunity would be lost to collect information that would contribute to better understand right whales movement and behavior and that would provide information to NMFS that is needed to implement NMFS management activities. This is important information that would help conserve and manage right whales as required by the ESA, MMPA, and NMFS's implementing regulations. The preferred alternative would affect the environment, primarily individual right whales. However, the effects would be minimal and the alternative would allow the collection of valuable information that could help NMFS' efforts to recover right whales. Neither the no action nor the preferred alternatives are anticipated to have adverse population or stock-level effects on right whales.

#### **4.5 MITIGATION MEASURES**

There are no additional mitigation measures beyond those conditions that would be required by permit. The conditions that would be required if a permit were issued are outlined in Appendix A. All of these conditions are intended to minimize unavoidable adverse effects of the various research activities. The permit conditions also require regular reports on the effectiveness of the

research at achieving the applicant's stated objectives (and thus at achieving the purpose and need of the federal action) and on the effectiveness of the mitigation measures required by the permit. By statute, regulation, and permit conditions, NMFS has authority to modify the permit or suspend the research if information suggests it is having a greater than anticipated adverse impact on target species or the environment.

#### **4.6 UNAVOIDABLE ADVERSE EFFECTS**

The research activities would cause disturbance and stress to the target animals (temporarily interrupting normal activities such as feeding). The research is not expected to have more than a minimal effect on individuals, and no effect on populations. While individual right whales may experience short term stress and discomfort in response to the activities of researchers, the impact to individual animals is not expected to be significant.

The measures required by permit conditions are intended to reduce, to the maximum extent practical, the potential for adverse effects of the research on all species. Because the research involves wild animals that are not accustomed to being tagged or followed, the research activities would unavoidably result in harassment; however, the harassment would not rise to significant levels.

#### **4.7 CUMULATIVE EFFECTS**

Cumulative effects are defined those that result from incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.

Research under the action alternative is not expected to result in more than localized disturbance of animals in the action area. It is likely the effects of the disturbance would be short-term and that the affected areas would recover between disturbances and following conclusion of the permitted research.

Aside from the disturbance resulting from research activities, the target species is also exposed to disturbance from other human activities in the action area including vessel traffic, fishing, and recreation/tourism. Under the preferred alternative, the research would not result in additional disturbance of non-target ESA-listed animals or non-target marine mammal species. Whether this frequency of disturbance, by itself or in combination with disturbance from other human activities, would result in cumulative adverse effects depends on how long the effects of each disturbance last, whether the animals have sufficient time between disturbance events to resume or compensate for disrupted activities, and whether the effects of repeated disturbance are additive, synergistic or accumulate in some other way. However it is expected that the frequency of disturbance would be relatively low under the permit compared other sources of disturbance.

##### *4.7.1 Research permits*

Ten permits currently authorize research of North Atlantic right whales in the action area. See Appendix C for a list of the permits and their expiration dates. These permits will gradually expire over the next four years. However it is expected that most, if not all, of the researchers will apply for a new permit after their current expires. For example, two of the holders (NMFS

SEFSC and Dr. Kraus) are currently working under extensions while their new permit applications are in process. Their new applications: 1) are continuations or expansions of the holder's current research; 2) include right whale research and 3) would replace their expiring permits.

In addition to the proposed action, NMFS PR is processing five other requests that include right whale research in the North Atlantic. Four of these actions are continuations of work currently authorized (NMFS SEFSC, Dr. Kraus, Center for Coastal Studies, Georgia Department of Natural Resources).

The number of research permits and associated takes by harassment indicate a high level of research effort relative to the population size of North Atlantic right whales. This is due, in part, to intense interest in developing appropriate management and conservation measures to recover this highly endangered species. It is important to note that of the ten active permits, only three authorize Level A harassment (see Appendix D). The majority of researchers studying right whales are only authorized for Level B harassment. Most research consists of photo-identification and aerial surveys.

Furthermore, right whale research is distributed between the northeast feeding grounds, the southeast breeding grounds, and the migration corridor. Many researchers are limited to a specific portion of the U.S. east coast, which reduces the chance of repeated harassment of individual whales by researchers. It is a standard condition of NMFS permits that researchers coordinate their activities with those of other permit holders to avoid unnecessary disturbance of animals. Permitted researchers are also required to notify the appropriate NMFS Regional Office at least two weeks in advance of any planned field work so that the Regional Office can facilitate this coordination and take other steps appropriate to minimize disturbance from multiple permits. Lastly, the right whale research community is well coordinated, sharing data and holding annual meetings to transfer knowledge.

#### *4.7.2 Shipping and ship strikes*

Ship strikes are responsible for the majority of human-caused right whale mortalities ( Knowlton and Kraus 2001; Jensen and Silber 2003; NMFS 2005b). More than half (56 percent) of the recorded ship strikes from 1975 to 2002 occurred off the coasts of the Northeast U.S. and Canada, while the mid-Atlantic and SEUS areas each accounted for 22 percent (Jensen and Silber 2003). Records from Knowlton and Kraus' (2001) account of right whale deaths show similar results: of 15 confirmed ship strikes in the western North Atlantic (including Canada) from 1970 to 1999, nine (60 percent) occurred in the Northeast, and three (20 percent) occurred in both the mid-Atlantic and Southeast.

Records of deaths from 1970 to 1999 indicate that ship strikes were responsible for over one-third (16 out of 45, or 35.5%) of all confirmed right whale mortalities (Knowlton and Kraus 2001). The authors also noted two possibly fatal; and seven nonfatal ship strike injuries during this time period. Another study conducted over a similar period, 1970 to 2002, examined 30 (18 adults and juveniles and 12 calves) out of 54 reported right whale mortalities from Florida to Canada (Moore et al. 2004). Human interaction (ship strike or gear entanglement) was evident

in 14 of the 18 adults examined, and trauma, presumably from vessel collision, was apparent in ten out of 14 cases. Trauma was also present in four out of 12 calves; although the cause of death was more difficult to determine in these cases. In 14 cases, the assumed cause of death was vessel collision (Moore et al. 2004).

A NMFS reference document on mortality and serious injury determinations for large whales contains 50 reports of right whale events from 1999 to 2003, including five right whale mortalities resulting from ship strike, which represent 27.8 percent of the 18 verified right whale mortalities from 1999-2003 (Cole et al. 2005). More recently, NMFS documented ten mortalities and two serious injuries from confirmed ship strikes between 2002 and 2006 (Waring et al. 2009).

Researchers believe that the primary causes for right whale ship strikes relate to their hearing and inability to detect the presence of the vessels. Aside from these issues though, a whale must perceive a ship as a threat in order to avoid it. Unless a given individual has had a previous close encounter with a ship, survived the encounter, and learned the threat posed by the vessel, then the urge to avoid a ship may not be great. Presumably, right whales are either unable to detect approaching vessels or ignore them if they are involved in important activities such as feeding, nursing, or mating. On the other hand, given the density of ships and the distribution of right whales, overlap is nearly inevitable, thereby increasing the probability of a collision, even if one entity or the other is actively trying to avoid a collision. Additionally, right whales are very buoyant and slow swimmers, which may make it difficult for them to avoid oncoming vessels, even if they are aware of a vessel's approach. Similarly, it is difficult to detect a right whale from the bow of the ship because of its dark coloration, and it maintains a low profile while swimming (WWF 2005, as cited in USCG and Environmental Resources Management Inc. 2006).

#### *4.7.3. Fishing Gear Entanglement*

Most right whale entanglements appear to be with gillnets, lobster pots, crab pots, seines, fish weirs, and aquaculture equipment (NMFS 2005a). Because right whales are skimmers and feed by swimming with their mouth agape, it is quite common for gear to become entangled amongst the baleen plates in their mouths. Entanglements of juveniles are particularly dangerous because wrapped line can become imbedded in tissue as the whale grows, cause infections, and/or restrict growth.

Records of deaths from 1970 to 1999 indicate that three out of 45 (6.7 percent) were due to entanglement in fishing gear (Knowlton and Kraus 2001). The recent Stock Assessment Report states that 37% of confirmed right whale human-caused mortalities (3) and serious injuries (4) reported from 2002 through 2006 resulted from entanglements or fishery interactions (Waring et al. 2009).

Although entanglements do not always result in death or serious injury, they pose a serious threat to North Atlantic right whales. Analysis of the North Atlantic Right Whale Catalog<sup>5</sup> indicates

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<sup>5</sup> The Right Whale Catalog is a database of whale sightings and photographs maintained by the New England Aquarium.

that 61.6 percent of the overall population shows physical evidence of entanglements, such as scars (Hamilton et al. 1998), and between 10 and 28 percent of whales experience entanglements each year (Knowlton et al. 2001).

#### *4.7.4 Habitat Degradation*

Anthropogenic activities, such as emitting discharge from wastewater facilities, dredging, ocean dumping and disposal, aquaculture, and coastal development are also known to have deleterious impacts on marine mammals and their prey's habitat, ultimately affecting the animals themselves. Point source pollutants from coastal runoff, at sea disposal of dredged material and sewage effluents, oil spills, as well as substantial commercial and recreational vessel traffic and impacts of fishing operations continue to negatively affect marine mammals in the proposed action areas. Right whales frequent coastal waters where dredging and its associated disposal operations occur on a regular basis, such as along the SEUS coast.

#### *4.7.5 Contaminants*

Some researchers have correlated contaminant exposure to possible adverse health effects in marine mammals. Organochlorines are chemicals that tend to bioaccumulate through the food chain, thereby increasing the potential of exposure to a marine mammal via its food source. During pregnancy and nursing, some of these contaminants can be passed from the mother to developing offspring. Contaminants like organochlorines do not tend to accumulate in significant amounts in invertebrates, but do accumulate in fish and fish-eating animals. Thus, contaminant levels in planktivorous mysticetes have been reported to be one to two orders of magnitude lower compared to piscivorous odontocetes (Borell 1993; O'Shea and Brownell 1994; O'Hara and Rice 1996; O'Hara et al. 1999).

Right whales may be exposed to a variety of anthropogenic chemical contaminants throughout their range, which can lead to reproductive dysfunction. Theoretically, a loss of genetic diversity can lead to "inbreeding depression," where inbreeding adversely affects a population's reproduction and recruitment rates. Genetic factors might be affected by external factors, including toxic chemicals and poor nutrition (Reeves et al. 2001).

Pollutants may also affect phytoplankton and zooplankton populations in a way that decreases the density and abundance of specific zooplankton patches on which northern right whales feed. In addition, pollution may affect the feeding patterns and habitat use of other components of the marine ecosystem, which in turn could impact food and habitat availability for the right whale. A study conducted by Doucette et al. (2006) suggests that the trophic transfer of marine algal toxins is a factor contributing to the recovery failure of the North Atlantic right whale.

#### *4.7.6 Noise*

Noise from ships is one of the biggest problems facing right whales related to their hearing abilities. Even though research indicates that right whales should be able to hear vessels, they do not appear to avoid vessels. Several researchers have confirmed that right whales should be able to hear approaching vessels, which emit sounds in a range they can perceive. Parks (2003) established that whales have the ability to locate a sound and even remember where it originated from for around 20 minutes after the sound stops. Masking and habituation are two phenomena that may help to explain right whale behavior regarding vessels and other anthropogenic sounds.



Background ambient noise, or underwater noise, including that produced by human activities (e.g., dredging, shipping, seismic exploration, and drilling for oil), may interfere with or mask the ability of a marine mammal to detect sound signals, such as calls from other animals (Richardson et al. 1995). There are many sources of low frequency noises from human activities that overlap with the low frequency calls of mysticetes. To compensate and reduce masking, some mysticetes may alter the frequencies of their communication sounds (Richardson et al. 1995).

Masking may also prevent right whales from being able to detect and avoid approaching vessels because they might not be able to distinguish the sound of an approaching ship from the ambient noise in the ocean. This hypothesis has not been tested. Areas with continuous loud distant shipping may mask the sound of individual ships until they are too close to the whales (Terhune and Verboom 1999), which may make right whales more susceptible to ship strikes.

Research has been conducted on the effects of vessel noise on certain species of large whales yet there are still unknowns about right whale hearing capacities. Research suggests that right whale hearing is concentrated in the low frequency range, thus some high frequency noise such as propellers might not be detected (Terhune and Verboom 1999). Large vessels cause the most lethal and serious injury to whales and also produce low frequency sounds which may interfere with right whale hearing (Koschinski 2002).

#### *4.7.7 Climate and Ecosystem Change*

The extent to which climate and/or ecosystem changes impact the target cetacean species is largely unknown. However, NMFS recognizes that such impacts may occur based on the biology, diet, and foraging behavior of whales. Interannual, decadal, and longer time-scale variability in climate can alter the distribution and biomass of prey available to large whales. The effects of climate-induced shifts in productivity, biomass, and species composition of zooplankton on the foraging success of planktivorous whales have received little attention. Such shifts in community structure and productivity may alter the distribution and occurrence of foraging whales in coastal habitats and affect their reproductive potential as well. Similar shifts in prey resources could likewise impact large whales if climate change alters the density, distribution, or range of prey.

For example, there is a close linkage between right whale foraging and the physical forcing processes that concentrate prey in the oceanic environment (Kenney et al. 2001). Interannual, decadal, and longer time-scale variability in climate can alter the distribution and biomass of prey available to right whales. Decade-scale climatic regime shifts have been related to changes in zooplankton in the North Atlantic (Fromentin and Planque 1996). Decadal trends in the North Atlantic Oscillation (NAO) (Hurrell 1995) can affect the position of the Gulf Stream (Taylor et al. 1998) and other circulation patterns in the North Atlantic that may be important to right whales. The effects of climate-induced shifts in productivity, biomass, and species composition of zooplankton on the foraging success of right whales have received little attention. Such shifts in community structure and productivity may alter the distribution and occurrence of foraging right whales in coastal habitats and affect their reproductive potential as well.

#### *4.7.8 Vessel Interactions: Marine Mammal Watching*

Concern has been raised over the possible adverse effects of whale-watching activities on right whale aggregations, particularly in Cape Cod Bay (CCB) and the lower Bay of Fundy. While adverse effects from this activity are possible, there are no data that conclusively establish adverse effects beyond the possibility of ship strikes. Furthermore, whale-watching in these regions is typically focused on other large whale species since a federal regulation (50 CFR 224.103) prohibits vessels from approaching right whales in U.S. Atlantic waters within 500 yards (460 m). As a result, most effects from whale-watching activities are likely limited to behavioral changes or perhaps relatively small changes in distribution. Given the above-mentioned regulations on vessel approaches to right whales, the potential for temporary, perhaps relatively minor, effects has been reduced. However, relatively recent collisions between whale-watching boats and a humpback (2001) and a minke whale (1998) indicate that much more serious consequences (e.g., death or serious injury) are also possible. Each NMFS region issues guidelines for viewing whales.

#### *4.7.9 Incidental Harassment Authorizations*

In addition to scientific research permits, NMFS issues Letters of Authorization (LOAs) and Incidental Harassment Authorizations (IHAs) under the MMPA for the incidental take of marine mammals. NMFS has issued two IHAs, five rulemakings, and four LOAs for the take of multiple target species in the action area.

#### *Military Activities*

Although no evidence conclusively links military activities in the North Atlantic to impacts on right whales, activities such as underwater explosions and military exercises in this ocean basin have the potential for disturbing, injuring, or killing these and other whales.

In early 1996, six right whale deaths were documented. Five (one attributed to a ship strike) occurred in waters adjacent to the SEUS critical habitat. Navy facilities adjacent to the critical habitat use offshore areas for gunnery exercises. Because several of the carcasses were found near a U.S. Navy gunnery range, it was suspected that some deaths were related to underwater explosions, and there was concern that Navy activities may have been involved in some deaths. However, no such link was established. Although a link to military activities was not established, the Navy entered into consultation with NMFS under Section 7 of the ESA on the potential effect of some of its operations on protected species, as described in Appendix A of the Recovery Plan (NMFS 2005b). In addition, Navy activities that introduce loud sounds into the marine environment are required to be reviewed to ensure compliance with those provisions of the MMPA regarding the incidental harassment of marine mammals. The Navy has made a number of significant modifications to its operations to facilitate protection of right whales in their critical habitat in the SEUS. NMFS and the Navy both understand the need to continue to keep an open dialogue and to evaluate ways to mitigate possible environmental impacts of naval operations throughout the eastern seaboard.

The Navy has also been issued Letters of Authorization (LOAs) to take North Atlantic right whales by Level B harassment of animals incidental to Navy training, maintenance, and research, development, testing, and evaluation activities to be conducted along the Atlantic and Gulf of Mexico coasts, over the course of 5 years. They are authorized 662 takes for the harassment of

right whales annually. These training activities are classified as military readiness activities. These training activities may incidentally take whales present within the AFAST Study Area by exposing them to sound from mid-frequency or high frequency active sonar or to underwater detonations at levels that NMFS associates with the take of marine mammals.

### *Alternative Energy Development*

Steady increases in oil prices and a desire to decrease U.S. dependence on foreign sources of oil have led to the development of alternative energy projects in U.S. waters. These include offshore wind farms and liquefied natural gas installations. Another factor driving some of these projects is the desire to find cleaner, more environmentally-friendly sources from which to derive and maintain our energy needs.

### Wind Farms

In 2001, Cape Wind Associates, LLC filed a permit application with the USACE, New England District, in anticipation of constructing a wind park located on Horseshoe Shoals in Nantucket Sound, Massachusetts. The proposed park would consist of 130 offshore wind turbine generators with a maximum potential electric output of approximately 454 megawatts (MW). The installation would require a 30 kilovolt submarine transmission cable to transmit the electricity to a centrally located electric service platform (71 CFR 30693, May 30, 2006). Mineral Management Service (MMS) published the Cape Wind draft EIS in January 2008 and the final EIS on January 16, 2009. Currently the MMS is completing regulatory obligations under the Clean Air Act (CAA) General Conformity and under Section 106 of the National Historic Preservation Act (NHPA).

According to a study conducted by ESS Group Inc. (2006), the construction and existence of the Cape Wind park will have a minimal impact on right whale feeding. The primary feeding grounds for many whales found in the study area, including right whales, are located further offshore from Nantucket Sound at locations such as Stellwagen Bank, CCB, and the Gulf of Maine. The bathymetric and oceanographic features that favor dense aggregations of whale prey species are not developed in Nantucket Sound to the same extent that they are farther north, around Stellwagen Bank, Jeffrey's Ledge, Browns and Baccaro Banks, and in the GSC (Kenney and Winn 1986). "Historically and at present, Nantucket Sound does not appear to be an important area for these species of whales" (ESS Group Inc. 2006).

Minerals Management Service (MMS) is also currently drafting an EIS regarding a proposal from the Long Island Power Authority and Florida Power and Light Energy to construct an eight square mile wind park of 40, 3.6 MW wind turbine generators in Federal waters, approximately 3.6 miles south of Jones Beach Island, Long Island, New York. This area is not currently known to be a critical habitat location for the western North Atlantic right whale population. However, there is a possibility that the whales may use this area as they migrate between the calving grounds in the south and the feeding grounds in the north.

### Liquefied Natural Gas Installations

Liquefied Natural Gas (LNG) will be an increasingly important supply component to meet domestic demand for natural gas. According to the Federal Energy Regulatory Commission (FERC) website (<http://www.ferc.gov/industries/lng.asp#skipnavsub>), approximately 40 LNG terminals are either before FERC or being discussed by the LNG industry. Six terminals are already operating along the eastern seaboard, Puerto Rico, and Alaska. Of the 16 facilities currently under FERC jurisdiction, 12 are land-based. However, two of the most recently proposed sites received by the USCG/Maritime Administration (MARAD) are located off of Boston, MA near Stellwagen Bank NMS.

Northeast Gateway Energy Bridge, LLC (NEG) submitted a proposal for a LNG facility approximately 13 miles south-southeast of the city of Gloucester, MA in Massachusetts Bay waters (71 FR 29211, May 19, 2006). NMFS issued an incidental harassment authorization (IHA) to NEG in May 2007 to begin construction of the terminal facility (72 FR 27077, May 14, 2007). Construction was expected to take place between May and November 2007. Neptune LNG, LLC also submitted a proposal to the USCG/MARAD to construct an installation 22 miles northeast of Boston, Massachusetts in the Federal waters of the Outer Continental Shelf (70 FR 58729, October 7, 2005).

According to the EIS prepared by the USCG and its contracting company, Environmental Resources Management, Inc. (2006), right whales have the potential to be affected by construction activities as the result of physical harassment, vessel strikes, alteration to habitat, acoustic harassment, alteration of prey species abundance and distribution, and entanglement. However, the findings in the EIS (USCG and Environmental Resources Management Inc. 2006) indicate that impacts from these activities will be minimal, especially when mitigation measures are employed. The greatest risk from these activities is the increased chance of ship strikes because of the increased vessel traffic in the area, especially during the construction phase. NMFS and the National Ocean Service noted other potential impacts to the USCG during the comment period for the DEIS: ingestion of marine debris, fuel spills, impingement and entrainment during ballast water intake (including prey species), and bioaccumulation of contaminants. NMFS issued Biological Opinions (Neptune, January 12, 2007; NEG, February 5, 2007) for each facility. Both documents state that construction and operation of each deepwater port are likely to adversely affect but are not likely to jeopardize the continued existence of the North Atlantic right whale.

#### *4.7.10 Conservation Efforts*

In November 2006, NMFS established a set of recommended vessel routes in four locations to reduce the likelihood of collisions in key right whale habitats. More recently, in October 2008, NMFS issued new regulations to reduce the likelihood of vessel collisions with North Atlantic right whales. The regulations implement speed restrictions of 10 knots or less for vessels 65 ft (19.8 m) and greater in certain areas and at certain times of the year along the U.S. Atlantic seaboard that correspond to right whale occurrence. Exempted from the rule are State enforcement vessels and U.S. government vessels that will be expected to adhere to guidance provided under ESA Section 7 consultations. The rule also contains a provision exempting vessels from speed restrictions in poor sea and weather conditions, thereby ensuring safe vessel

maneuverability under those special conditions. The rule also provides for establishment of temporary, voluntary dynamic management areas (DMAs) in times and/or areas where the seasonal management measures are not in effect, and where whales occur. In these locations, mariners would have the option to cross through the DMA at a speed no greater than 10 knots or route around the area.

Some human activities result in beneficial impacts to the target cetacean species, including guidelines that encourage responsible, safe viewing of protected animals by the public, regulations that reduce the potential for harmful interactions with aircraft and vessels, and conservation efforts to reduce interactions with commercial fisheries. NMFS has launched an education and outreach campaign to provide commercial boat operators and the general public with responsible marine mammal viewing guidelines. Each NMFS region provides guidelines for the public's viewing of marine wildlife. Viewing distances vary slightly by region, but NMFS generally recommends the public remain at least 50 to 100 yards away from protected marine mammals.

#### *4.7.11 Summary of cumulative effects*

It is likely that issuance of the proposed permit would have some cumulative adverse effects on the target animals due to the disturbances associated with research activities. These adverse effects would likely be additive to those resulting from disturbance under other permits, and to disturbances related to other human activities in the action area. Some animals may be acclimated to a certain level of human activity and may be able to tolerate disturbance associated with these activities with little adverse impacts on population or species vital rates. However, even animals acclimated to a certain level of disturbance may be adversely affected by additive effects that exceed their tolerance threshold. Based on the review of past, present and future actions that impact the target species, the incremental contribution of the short-lived impacts associated with the proposed action is not anticipated to result in significant cumulative impacts to the human environment.

Overall, the preferred alternative would not be expected to have more than short-term effects on the target species. The impacts of the non-lethal research activities are not expected to have more than short-term effects on individual right whales and any increase in stress levels from the research would dissipate within approximately a day and possible discomfort caused by tagging is expected to disappear. Even if an animal was exposed to additional research effort (e.g., a week later), no significant cumulative effects of research would be expected given the nature of the effects. NMFS does not expect the authorization of the proposed research activities of the preferred alternative to appreciably reduce the species' likelihood of survival and recovery in the wild because it would not likely adversely affect their birth rates, death rates, or recruitment rates. In particular, NMFS does not expect the proposed research activities to affect adult female right whales in a way that appreciably reduces the reproductive success of adults, the survival of young, or the number of young that annually recruit into the breeding populations of any of the target species.

The incremental impact of the action when added to other past, present, and reasonably foreseeable future actions discussed here would not be significant at a population level. The data generated by the tagging and sampling activities associated with the proposed action would help

determine the movement and habitat use of right whales found in the waters of the action area. The research would provide information that would help manage, conserve, and recover threatened and endangered species and would outweigh any adverse impacts that may occur.

## **CHAPTER 5 LIST OF PREPARERS AND AGENCIES CONSULTED**

This EA was prepared by the National Marine Fisheries Service, Office of Protected Resources in Silver Spring, Maryland.

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## APPENDIX A: PERMIT CONDITIONS

In an effort to mitigate the effects of research the proposed permits would be conditioned with the following requirements:

- No mortality is expected and none is authorized; therefore, researchers must suspend activities in the event of a serious injury or mortality or if the level of authorized take is exceeded.
- Researchers must submit annual reports each year the permit is valid and a final report summarizing the research results.
- Researchers must notify the appropriate NMFS regional office at least two weeks before beginning the field season. This is will help to coordinate the level of research occurring in the action area.

The following conditions are specific to right whale permits and would accompany the general conditions listed above:

- Any “approach”<sup>6</sup> of a cetacean constitutes a take by harassment and must be counted and reported.
- Regardless of success, any attempt, which includes the associated close approach, to tag an animal constitutes a take and must be counted and reported.
- No individual animal may be taken more than 3 times in one day.
- To minimize disturbance of the subject animals the Permit Holder must exercise caution when approaching animals and must retreat from animals if behaviors indicate the approach may be interfering with reproduction, feeding, or other vital functions.
- No calves of any age will be tagged.
- Before attempting to sample an individual, Researchers must take reasonable measures (e.g., compare photo-identifications) to avoid repeated sampling of any individual.
- A tag attachment attempt must be discontinued if an animal exhibits repetitive strong adverse reactions to the activity or the vessel.

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<sup>6</sup> An "approach" is defined as a continuous sequence of maneuvers (episode) [involving a vessel or researcher's body in the water], including drifting, directed toward a cetacean or group of cetaceans closer than 100 yards for large whales, or 50 yards for smaller cetaceans.

**APPENDIX B: ANNUAL TAKES AUTHORIZED UNDER PROPOSED PERMITS**

**Table 1: Annual Takes of North Atlantic Right Whales in the western North Atlantic, including the Gulf of Maine, Cape Cod Bay and coastal waters within 50 nautical miles of shore along the entire eastern seaboard.**

LIFE STAGE	SEX	NUMBER OF ANIMALS	TAKES PER ANIMAL	OBSERVED/COLLECT METHOD	PROCEDURES	DETAILS
Adult/ Juvenile	Male and Female	80	3	Survey, vessel	Acoustic, passive recording; Collect, sloughed skin; Import/export/receive, parts; Incidental harassment; Instrument, suction-cup (e.g., VHF, TDR); Observations, behavioral; Photo-id; Sample, exhaled air; Tracking	No more than 40 animals will be tagged per year
Adult/ Juvenile	Male and Female	90	1	Survey, vessel	Acoustic, passive recording; Incidental harassment; Observations, behavioral; Photo-id	

**APPENDIX C: ACTIVE PERMITS THAT AUTHORIZE RIGHT WHALE TAKES**

<b>Permit No.</b>	<b>Holder</b>	<b>Expiration Date</b>
655-1652-01	Kraus	**until new permit is issued
633-1763-01	Center for Coastal Studies	5/1/2011
594-1759	Georgia DNR	5/1/2011
948-1692	Pabst	5/31/2011
1058-1733-01	Baumgartner	5/31/2012
775-1875	NMFS, NEFSC	1/15/2013
779-1633-01	NMFS, SEFSC	**until new permit is issued
605-1904-01	Whale Center of New England	2/15/2013
13545	Ocean Alliance	2/15/2015

## APPENDIX D: RESEARCH ACTIVITIES AUTHORIZED

**Types of research activities under active permits affecting right whales.** A check mark in a given column indicates that activity is authorized by the permit in the corresponding row. The sex and age classes of animals affected varies by permit, as does the time of year and frequency of activity. The proposed action appear in red.

Permit No.	Suction cup tag (level A)	Biopsy (level A)	Implantable tag (level A)	Acoustic Playbacks	Approach /Photo-ID/survey (level B)	Collect sloughed skin/mucous (level B)	Ultrasound (level B)
Kraus 655-1652-01	√	√		√	√		√
Center for Coastal Studies 633-1763-01					√	√	
DiGiovanni 1036-1744					√		
Georgia DNR 594-1759					√		
Pabst 948-1692					√		
Baumgartner 1058-1733-01	√		√		√		
NMFS, NEFSC 775-1875	√	√			√		
NMFS, SEFSC 779-1633-01					√		
Whale Center of New England 605-1904-01					√		

<b>Permit No.</b>	<b>Suction cup tag (level A)</b>	<b>Biopsy (level A)</b>	<b>Implantable tag (level A)</b>	<b>Acoustic Playbacks</b>	<b>Approach /Photo-ID/survey (level B)</b>	<b>Collect sloughed skin/mucous (level B)</b>	<b>Ultrasound (level B)</b>
Ocean Alliance 13545					√	√	
Nowacek 14791	√				√	√	



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Silver Spring, MD 20910

## **Finding of No Significant Impact** **Issuance of Scientific Research Permit No. 14791**

### Background

In September 2009, the National Marine Fisheries Service (NMFS) received an application for a permit (File No. 14791) from Douglas Nowacek, Ph.D., Duke University, to conduct research on North Atlantic right whales. In accordance with the National Environmental Policy Act, NMFS has prepared an Environmental Assessment (EA) analyzing the impacts on the human environment associated with permit issuance (Environmental Assessment on the Issuance of a Scientific Research Permit to Take North Atlantic right whales). In addition, a Biological Opinion was issued under the Endangered Species Act (July 2010) summarizing the results of an interagency consultation. The analyses in the EA, as informed by the Biological Opinion, support the below findings and determination.

### Analysis

National Oceanic and Atmospheric Administration Administrative Order 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

- 1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in Fishery Management Plans?

The action involves tagging and behavioral observations of North Atlantic right whales from research vessels. The vessel will move on and through the water column but will not disturb bottom habitat. The action is not expected to cause damage to ocean and coastal habitats.

- 2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

The research will result in short-term disturbance of the target species. No other species will be affected. The action will not have an impact on biodiversity or ecosystem function, and no bottom habitat or sediment will be disturbed.





3) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

The proposed action requires the researchers to store and transport biological samples. Researchers will handle and transport samples following safety protocols to ensure there is no impact to public health or safety.

4) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

There is no critical habitat in the action area. The area includes biologically important habitat for right whales but the research will not affect this habitat. The research will affect endangered right whales. However, the effects of the proposed action on individuals will not be severe and would be short-term in nature. No injuries to listed species are expected. The action will not affect any other species. The permit will contain conditions to minimize the potential effects and stress to target species.

5) Are significant social or economic impacts interrelated with natural or physical environmental effects?

There will be no significant social or economic impacts as a result of the proposed action.

6) Are the effects on the quality of the human environment likely to be highly controversial?

The action is not likely to be controversial. The application was made available for public comment and no comments were received. The research methods are commonly used and NMFS is not aware of any controversy surrounding this permit application.

7) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas?

The proposed research will not be expected to result in substantial impacts to any such area. The proposed research will occur at or near the water surface and would not substantially affect bottom habitat or any biological, physical or chemical property of such habitat. The action will occur in National Marine Sanctuaries but is not expected to impact these areas. The applicant will coordinate with the sanctuary managers to secure the proper permits to work in these areas.

8) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The research activities of the proposed permits are not new. Researchers have previously conducted the same type of research with no significant impacts to the environment. The effects on the human environment are not highly uncertain and the risks would be minimal and known.

9) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

The proposed action is not related to other actions with individually insignificant, but cumulatively significant impacts. If the proposed permit is issued, it is not expected that the additional effects of this research will result in cumulatively significant impacts. The short-term stresses (separately and cumulatively when added to other stresses the species face in the environment) resulting from the sampling and tagging activities would be expected to be minimal. Animals will be exposed to low level harassment and no serious injuries will be expected. The permit will contain conditions to mitigate adverse impacts to species from these activities.

The researcher will coordinate with other right whale researchers through the Right Whale Consortium's annual meeting.

Overall, the proposed action will be expected to have no more than short-term effects on endangered right whales and minimal to no effects on other aspects of the environment. The incremental impact of the action when added to other past, present, and reasonably foreseeable future actions discussed in the environmental assessment will be minimal and not significant.

10) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

The proposed research will not take place in any areas listed or eligible for listing in the National Register of Historic Places.

11) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Researchers will work from small vessels that do not take on ballast water. Researchers will not move between large water bodies. The action will not be expected to remove or introduce any species; therefore, it will not likely result in the introduction or spread of a non-indigenous species.

12) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

The decision to issue this permit will not be precedent setting and would not affect any future decisions. Issuing a permit to a specific individual or organization for a given activity does not in any way guarantee or imply that NMFS will authorize other individuals or organizations to conduct the same or similar activity, nor does it involve irreversible or irretrievable commitment of resources.

13) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

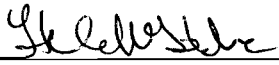
The action will not result in any violation of Federal, State, or local laws for environmental protection. In addition, the permit will not relieve the Permit Holder of the responsibility to obtain any other permits, or comply with any other Federal, State, local, or international laws or regulations necessary to carry out the action. The research will coordinate with the Sanctuaries and is aware that additional permits to work in the Sanctuaries may be necessary.

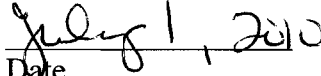
14) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

The action is not expected to result in cumulative adverse effects to the species that are the subject of the proposed research. The proposed action will be expected to have minimal effects on affected species' populations. The proposed research activities require close vessel approach to the target animals. Researchers would not attempt to approach or interact with non-target species; therefore, NMFS does not expect that issuance of the permit would result in cumulative adverse effects to non-target species. No cumulative adverse effects that could have a substantial effect on any species will be expected.

DETERMINATION

In view of the information presented in this document, and the analyses contained in the EA and Biological Opinion prepared for issuance of Permit No. 14791, it is hereby determined that permit issuance will not significantly impact the quality of the human environment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

  
for \_\_\_\_\_  
James H. Lecky  
Director, Office of Protected Resources

  
Date