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

ENVIRONMENTAL ASSESSMENT ON ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT FOR SEA TURTLE AND MARINE MAMMAL RESEARCH IN FLORIDA PERMIT NO. 14586

November 2010

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

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Location: Southeast Florida waters

Abstract: The National Marine Fisheries Service (NMFS) proposes to issue a scientific research permit 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.*), and the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR Parts 222-226). The purpose of File No. 14586 is to collect baseline data regarding the abundance and distribution of sea turtles and marine mammals in the Straits of Florida. Under NOAA Administrative Order 216-6, NMFS issuance of scientific research permits is generally categorically excluded from the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) requirements to prepare an environmental assessment (EA) or environmental impact statement (EIS). However, for this permit NMFS prepared an EA to facilitate a more thorough assessment of potential impacts on endangered and threatened sea turtles and marine mammals. This EA evaluates the potential impacts to the human environment from issuance of the proposed permit.

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CHAPTER 1 PURPOSE OF AND NEED FOR ACTION

1.1 DESCRIPTION OF ACTION

NMFS proposes to issue a scientific research permit that authorize "takes"[1] 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 Jeanette Wyneken, Florida Atlantic University, Boca Raton, FL

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. 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 include the requirement that research activities are consistent with the purposes and policies of the MMPA and ESA.

1.1.2 Research Objectives

The objective of the research is to collect information on the spatial and temporal distribution of sea turtle and marine mammal species using the Straits of Florida prior to the deployment of a national off-shore laboratory that will serve as a testing site for ocean energy technology. The research would provide information on the abundance of sea turtles and marine mammals in the area as well as assess how proposed ocean energy technology may impact these species.

1.2 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

The Council on Environmental Quality's (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.

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1 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."

1.2.1 Comments on application

A Notice of Receipt of the application was published in the *Federal Register*, announcing the availability of File No. 14586 for review (75 FR 9580, March 2010). No comments from the general public were received.

Pursuant to 50 CFR §216.33 (d)(2), the application was sent to the Marine Mammal Commission (MMC) for review. The MMC recommended that the authorization be granted with the exception of right whales. The MMC recommended the right whale authorization be deferred until NMFS has completed the EIS (70 FR 60285) for issuance of permits for research on Northern right whales.

The right whale EIS is not being conducted as a result of a finding on significant impacts. 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. Wyneken's request for right whale harassment to determine whether the action would result in significant impacts to the species or other portions of the environment.

1.3 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. While it is the applicant's responsibility to obtain such authorizations, NMFS is still obligated under The National Environmental Policy Act (NEPA) to ascertain whether the activity is subject to other such approvals.

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

Through NOAA Administrative Order (NAO) 216-6, NMFS established agency procedures for complying with NEPA and the implementing regulations issued by CEQ. 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.

1.3.2 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, without special exemption. 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 permit application instructions. 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 a permit, 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 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 recovering a species so that listing is no longer necessary, 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).

1.3.3 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*[2] 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[3].

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"[4] 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.

CHAPTER 2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter describes the range of potential 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 understanding the distribution of sea turtle and marine mammal populations in the Straits of Florida.

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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 With regard to marine mammals, 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."

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 Florida Straits from Jacksonville to Miami, Florida and out to the Bahamas. The majority of the research would focus on the area from West Palm Beach to Miami. East-west surveys would be conducted with the Florida Straits off Ft. Lauderdale, as well as along north-south transects from West Palm Beach to Jacksonville.

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 sections describe the proposed research activities:

Aerial Surveys

Aerial surveys would be conducted following the transect line methodology presented by Buckland et al. 2001. Surveys would be taken once a month during all months of the year using high-wing aircraft (Cessna 337). Altitude would be maintained at 500 ft (153 m) with a ground speed of approximately 75-100 knots (Henwood and Epperly 1999). Two types of transects would be flown: (1) Transects would be flown perpendicular to the coast (east-west) and would encompass both near-shore and off-shore areas out from Ft. Lauderdale north to West Palm Beach, across the Florida Straits to the Bahamas, and (2) one transect south and one transect north from Jacksonville to West Palm Beach within the main currents of the Gulf Stream. Specific location is dependent on activity and movement of the Gulf Stream itself, which is known to fluctuate seasonally. Observers would identify all species observed (Henwood and Epperly 1999) as well as species size (< 60 vs. >60 cm scl) when possible. Researchers would not break from transect and approach the target animals.

Vessel Surveys

Vessel surveys would also be conducted following the transect line methodology presented by Buckland et al. 2001. The surveys would take place in Beaufort sea states of 2-3 at a speed of 9 km/hour. Surveys would be taken once a month during all months of the year using a 33 ft boat. Transects would again be perpendicular to the coast (east-west) and would encompass both near-shore and off-shore areas out from Ft. Lauderdale north to Jupiter, and across the Florida Straits to the Bahamas. Three observers would be positioned on the boat to identify target turtle and marine mammal species using binoculars. Researchers would not break from transect to approach turtles or marine mammals. If an animal is sighted along the transect line, researchers would break transect to avoid the animal.

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. 14586 would occur in the waters of southeastern Florida. The study area is located within the Florida current and at the beginning of the Gulf Stream; the surveys are designed to focus on the most eastern outer continental shelf waters. There are two national marine sanctuaries near the action area: Grey's Reef National Marine Sanctuary (NMS) off the coast of Georgia and the Florida Keys NMS. The most northern point of the study site is West Palm Beach, south of Grey's Reef NMS. The most southern point of the survey area is off Miami. Miami coastal waters are close to the Florida Keys sanctuary and are also close to but do not overlap with the Biscayne National Park. Thus, the proposed action will not affect these protected areas.

3.2.1 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)). Habitats Areas of Particular Concern (HAPC) are subsets of EFH that are especially vulnerable to degradation. Portions of the action area are currently being considered for status as a Habitat Areas of Particular Concern (HAPC) in order to protect the Deep Sea Coral Ecosystems.

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/profile/southatlanticcouncil.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 or EFH-HAPCs. The researchers would observe the animals at the surface of the water or by air so they would not have an impact on deep-water systems in this region.

3.2.2 Designated Critical Habitat

Critical habitat for the Florida manatee (*Trichechus manatus latirostri)* was designated in the early 1970's (50 CFR 17.95(a)).

Critical habitat was designated for the Florida manatee (*Trichechus manatus latirostri)* in 1976 (41 FR 41914). The designation identified specific waterways in Florida known to be important concentration areas for manatees at that time, but did not identify primary or secondary constituent elements (50 CFR 17.95(a)).

On December 19, 2008, the USFWS was petitioned to revise Florida manatee critical habitat. On September 29, 2009 the USFWS published a 90-day finding indicating the petition presented substantial information and a revision may be warranted; and, initiated a 12-month finding. The USFWS published the 12-month finding on January 12, 2010 (75 FR 1574) indicating that revising critical habitat for Florida manatee under the ESA is warranted. A proposed or final rule has not been published.

Activities proposed under File No. 14586 may fall within designated manatee critical habitat when survey vessels or planes are transiting to the research sites. Research surveys would be focused outside of manatee habitat. NMFS expects no effects to critical habitat. The applicant would be transiting through or flying over the critical habitat and would not disturb sediment or any portion of the habitat.

3.3 BIOLOGICAL ENVIRONMENT

3.3.1 ESA Target Species Under NMFS Jurisdiction

ESA Endangered sea turtles

Green sea turtle	*Chelonia mydas**
Kemp's ridley sea turtle	*Lepidochelys kempii*
Hawksbill sea turtle	*Eretmochelys imbricata*
Leatherback sea turtle	*Dermochelys coriacea*

*ESA Threatened sea turtle***

Loggerhead sea turtle	*Caretta caretta*

**Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green turtles are considered endangered wherever they occur in U.S. waters.*

*** NMFS is currently accepting comments on changing the listing of the loggerhead sea turtle to endangered (75 FR 12598).*

Green sea turtle

Green sea turtles are distributed around the world, mainly in waters between the northern and southern 20° C isotherms (Hirth 1971). The complete nesting range of the green sea turtle within the southeastern U.S. includes sandy beaches of mainland shores, barrier islands, coral islands, and volcanic islands between Texas and North Carolina and at the U.S. Virgin Islands (USVI) and Puerto Rico (NMFS and USFWS 1991). Principal U.S. nesting areas for green turtles are in eastern Florida, predominantly Brevard through Broward counties. Regular green sea turtle nesting also occurs on the U.S. Virgin Islands and Puerto Rico.

Green sea turtle mating occurs in the waters off the nesting beaches. Each female deposits 1-7 clutches (usually 2-3) during the breeding season at 12 to 14 day intervals. Mean clutch size is highly variable among populations, but averages 110-115 eggs. After hatching, green sea turtles go through a post-hatchling pelagic stage where they are associated with drift lines of algae and other debris.

The green sea turtle was listed as threatened in 1978, except for the Florida and Pacific coast of Mexico breeding populations that were listed as endangered. Critical habitat for the green sea turtle has been designated for the waters surrounding Isla Culebra, Puerto Rico and its associated keys from the mean high water line seaward to 3 nautical miles (5.6 km). These waters include Culebra's outlying Keys including Cayo Norte, Cayo Ballena, Cayos Geniqui, Isla Culebrita, Arrecife Culebrita, Cayo de Luis Pena, Las Hermanas, El Mono, Cayo Lobo, Cayo Lobito, Cayo Botijuela, Alcarraza, Los Gemelos, and Piedra Steven. Key features in the designated critical habitat include important food resources and developmental habitat, water quality, and shelter.

Kemp's ridley sea turtle

Of the seven extant species of sea turtles of the world, the Kemp's ridley has declined to the lowest population level. This species has a very restricted range relative to other sea turtle species. Kemp's ridleys nest in daytime aggregations known as arribadas, primarily at Rancho Nuevo, a stretch of beach in Mexico. Most of the population of adult females nests in this single locality (Pritchard 1969). When nesting aggregations at Rancho Nuevo were discovered in 1947, adult female populations were estimated to be in excess of 40,000 individuals (Hildebrand 1963). By the early 1970s, the world population estimate of mature female Kemp's ridleys had been reduced to 2,500-5,000 individuals. The growing trend in total number of nests suggests that the adult nesting female population is about 7,400 individuals.

Table 3: Total number of nests at Rancho Nuevo

Year	# of Nests
1985	702
1995	1,940
2000	5,800
2003	8,300
2005	10,300
2006	12,000

It appears that adult Kemp's ridley sea turtles are restricted somewhat to the Gulf of Mexico in shallow near shore waters, although adult-sized individuals sometimes are found on the eastern seaboard of the United States. Juvenile/subadult Kemp's ridleys have been found along the eastern seaboard of the United States and in the Gulf of Mexico. Atlantic juveniles/subadults travel northward with vernal warming to feed in the productive, coastal waters of Georgia through New England, returning southward with the onset of winter to escape the cold (Lutcavage and Musick 1985; Henwood and Ogren 1987; Ogren 1989).

In the Gulf, juvenile/subadult ridleys occupy shallow, coastal regions. The near shore waters of the Gulf of Mexico are believed to provide important developmental habitat for juvenile Kemp's ridley sea turtles. Ogren (1988) suggests that the Gulf coast, from Port Aransas, Texas, through Cedar Key, Florida, represents the primary habitat for subadult ridleys in the northern Gulf of Mexico.

Ogren (1989) suggested that in the northern Gulf this species moves offshore to deeper, warmer water during winter. Studies suggest that subadult Kemp's ridleys stay in shallow, warm, nearshore waters in the northern Gulf of Mexico until cooling waters force them offshore or south along the Florida coast (Renaud 1995). Little is known of the movements of the post-hatching, planktonic stage within the Gulf. Studies have shown the post-hatchling pelagic stage varies from 1-4 or more years, and the benthic immature stage lasts 7-9 years (Schmid and Witzell 1997).

The Kemp's ridley was listed as endangered on December 2, 1970. There is no designated critical habitat for the Kemp's ridley sea turtle.

Hawksbill sea turtle

The hawksbill sea turtle occurs in tropical and subtropical seas of the Atlantic, Pacific, and Indian Oceans. The species is widely distributed in the Caribbean Sea and western Atlantic Ocean, with representatives of at least some life history stages regularly occurring in southern Florida and the northern Gulf of Mexico (especially Texas); in the Greater and Lesser Antilles; and along the Central American mainland south to Brazil.

Within the United States, hawksbills are most common in Puerto Rico and its associated islands, and in the USVI. In the continental U.S., hawksbill sea turtles have been recorded from all the Gulf States and from along the eastern seaboard as far north as Massachusetts, with the exception of Connecticut, but sightings north of Florida are rare (Meylan and Donnelly 1999). They are closely associated with coral reefs and other hard-bottom habitats, but they are also found in other habitats including inlets, bays, and coastal lagoons. At least some life history stages regularly occur in southern Florida and the northern Gulf of Mexico (especially Texas); in the Greater and Lesser Antilles; and along the Central American mainland south to Brazil.

In Florida, hawksbills are observed with some regularity on the reefs off Palm Beach County, where the warm Gulf Stream current passes close to shore, and in the Florida Keys. Texas is the only other state where hawksbills are sighted with any regularity. Most sightings involve post-hatchlings and juveniles. These small turtles are believed to originate from nesting beaches in Mexico.

The life history of hawksbills consists of a pelagic stage that lasts from the time they leave the nesting beach as hatchlings until they are approximately 22-25 cm in straight carapace length (Meylan 1988), followed by residency in developmental habitats (foraging areas where immatures reside and grow) in coastal waters. Adult foraging habitat, which may or may not overlap with developmental habitat, is typically coral reefs, although other hard-bottom communities and occasionally mangrove-fringed bays may be occupied. Hawksbills show fidelity to their foraging areas over periods of time as great as several years (van Dam and Diez 1998).

Critical habitat for the hawksbill sea turtle includes the waters surrounding the islands of Mona and Monito, Puerto Rico from the mean high water line seaward to 3 nautical miles (5.6 km).

Leatherback sea turtle

Leatherbacks utilize both coastal and pelagic waters. In the western Atlantic, adults routinely migrate between boreal, temperate and tropical waters, presumably to optimize both foraging and nesting opportunities (Bleakney 1965; Lazell 1980). Leatherbacks are deep divers, with recorded dives to depths in excess of 1000 m (Eckert et al. 1989), but they may come into shallow waters if there is an abundance of jellyfish nearshore.

The leatherback ranges farther than any other sea turtle species, exhibiting broad thermal tolerances (NMFS and USFWS 1995). The most significant nesting beaches in the Atlantic, and perhaps in the world, are in French Guiana and Suriname (NMFS SEFSC 2001). Leatherbacks are predominantly distributed pelagically, however can be found in nearshore waters

Recent analysis suggests that 7 stocks exist in the Atlantic including Florida, Northern Caribbean, Western Caribbean, Southern Caribbean-Guyana Shield-Trinidad, West Africa, South Africa, and Brazil (Turtle Expert Working Group, 2007). The primary western Atlantic leatherback nesting beaches occur in French Guiana, Suriname, Trinidad, and Costa Rica.

The Turtle Expert Working Group (2007) estimated the adult leatherback sea turtle population of the North Atlantic to be approximately 34,000-94,000 animals. The range of the estimate is large, reflecting the Working Group's uncertainty in nest numbers and their extrapolation to adults. The Working Group believes that as estimates improve the range will likely decrease. However, this is the most current estimate available. It is important to note that while the analysis provides an estimate of adult abundance for all populations in the greater North Atlantic, it does not provide estimates for the number or origin of leatherbacks in specific foraging areas, nor does it provide an estimate of subadult abundance. Trends in the adult population size estimate were not possible since trends in sex ratio and remigration rates were not available (Turtle Expert Working Group, 2007).

The leatherback was listed as endangered on June 2, 1970. Critical habitat for the leatherback includes the waters adjacent to Sandy Point, St. Croix, U.S. Virgin Islands, up to and inclusive of the waters from the hundred fathom curve shoreward to the level of the mean high tide with boundaries at 17° 42'12" North and 65°50'00" West. Key physical or biological features essential for the conservation of the leatherback sea turtle found in this designated critical habitat include elements important for reproduction.

Loggerhead sea turtle

Loggerheads occur throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans and inhabit continental shelves and estuarine environments. Developmental habitat for small juveniles includes the pelagic waters of the North Atlantic Ocean and the Mediterranean Sea.

Adults have been reported throughout the range of this species in the U.S. and throughout the Caribbean Sea. Non-nesting, adult female loggerheads are reported throughout the U.S. and Caribbean Sea; however, little is known about the distribution of adult males who are seasonally abundant near nesting beaches during the nesting season. Aerial surveys (TEWG 1998) suggest that loggerheads (benthic immatures and adults) in U.S. waters are distributed in the following proportions:

- 54% in the southeast U.S. Atlantic
- 29% in the northeast U.S. Atlantic
- 12% in the eastern Gulf of Mexico
- 5% in the western Gulf of Mexico

Five nesting subpopulations exist in northwestern Atlantic. Low gene flow and strong nesting site fidelity may make these subpopulations vulnerable.

Annual nesting trends of Northwest Atlantic Recovery Units (TEWG 2009)

Name	Location	Percent Decrease	Year
Northern	FL/GA Border to S. VA	1.6	1983-2006
Peninsular Florida	FL/GA Border through Pinellas County	43-44	1998-2007
Dry Tortugas	islands of the Dry Tortugas, near Key West	High likelihood of decline	--
Northern Gulf of Mexico	Franklin County, FL through TX	Appears to be declining	--
Greater Caribbean	Mexico, French Guiana, Bahamas, Lesser and Greater Antilles	Appears to be declining	--

It is important to note that these trend analyses numbers are not compared to larger historical numbers, and only reflect one segment of the population (just nesting females). Nesting females are the only segment of the population for which we have reasonably good data and are cautiously used as one measure of the possible trend of populations.

The loggerheads in the major different geographic areas represent differing proportions of the western Atlantic subpopulations. The northern nesting subpopulation produces about 9 percent of the loggerhead nests; however, they comprise more loggerheads found in foraging areas.

The recent loggerhead status review (Conant et al. 2009) concluded that there are nine loggerhead distinct population segments (DPSs). These include the North Pacific Ocean DPS;

the South Pacific DPS; the North Indian Ocean DPS; the Southeast Indo-Pacific Ocean DPS; the Southwest Indian Ocean DPS; the Northwest Atlantic Ocean DPS; the Northeast Atlantic Ocean DPS; the Mediterranean Sea DPS; and the South Atlantic Ocean DPS. While NMFS has not yet officially recognized these DPSs, the information provided in the status review represents the most recent and available information relative to the status of this species. On March 16, 2010 NMFS published a Notice of a Proposed Rule (75 FR 12598) to formally designate the loggerhead with these nine DPS' worldwide. The notice also stated that NMFS plans to reclassify both DPS' within the United States as endangered (N. Pacific DPS and Northwest Atlantic Ocean DPS). The public has until June 14, 2010 to comment on the proposed rule.

The loggerhead was listed as a threatened species in 1978. Critical habitat has not been designated for the loggerhead.

3.3.2 MMPA-ESA Target Species Under NMFS Jurisdiction

Endangered marine mammals

North Atlantic right whale	*Eubalaena glacialis*
Fin whale	*Balaenoptera physalus*
Sperm whale	*Physeter macrocephalus*
Humpback whale	*Megaptera novaeangliae*

North Atlantic right whale

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. Ecologically critical habitat for right whales is found in the Atlantic Ocean in Cape Cod Bay, Great South Channel, and coastal waters off the southeastern United States (Waring et al. 2009).

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.

Fin whale

The fin whale is ubiquitous in the North Atlantic, occurring from the Gulf of Mexico and Mediterranean Sea northward to the edges of the arctic ice pack (NMFS 2006). The overall pattern of fin whale movement is complex, consisting of a less obvious north-south pattern of migration than that of North Atlantic right and humpback whales. Based on acoustic recordings from hydrophone arrays, however, Clark (1995) reported a general southward flow pattern of fin whales in the fall from the Labrador/Newfoundland region, south past Bermuda, and into the West Indies. In general, fin whales are found from Cape Hatteras, North Carolina northward, but can be found in waters off the southeastern U.S. Overall distribution may be based on prey availability. Based on stranding data, fin whales are believed to calve in the Mid-Atlantic (Hain et al. 1992). Fin whales are larger and faster than humpback and right whales and are less concentrated in nearshore environments. The best abundance estimate of the population currently is 2,269 animals with an annual PBR of 3.4 whales (Waring et al. 2009). However, data are insufficient to determine status and trends for this stock. Fishery interactions kill or seriously injury an average of 0.2 whales per year while vessel collisions take 1.2 whales per year.

Sperm whale

In winter, sperm whales are concentrated east and northeast of Cape Hatteras. In spring, the center of distribution shifts northward to east of Delaware and Virginia, and is widespread throughout the central portion of the mid-Atlantic bight and the southern portion of Georges Bank. In summer, the distribution is similar but also includes the areas east and north of Georges Bank and into the Northeast Channel region, as well as the continental shelf (inshore of the 100 m isobath) south of New England to waters off the southeastern U.S. In the fall, sperm whale occurrence south of New England on the continental shelf if at its highest levels, and there remains a continental shelf edge occurrence in the mid-Atlantic bight. The best available abundance estimate for this stock is 4,804 animals with an annual PBR of 7.1 animals. However, no population trend is available for this stock. Pollutants, drift gillnet fisheries and vessel collisions are threats to this stock. However, total U.S. fishery-related mortality and serious injury can be considered to be insignificant and approaching a zero mortality and serious injury rate

The greatest threat for sperm whales has been man, especially with the advent of whaling. By 1987, whalers took at least 345,000 sperm whales in the North Pacific and North Atlantic Oceans combined, with approximately 99 percent coming from North Pacific stocks (Perry et al. 1999). Hunting of sperm whales by commercial whalers declined in the 1970s and 1980s, and virtually ceased with the implementation of a moratorium against whaling by the IWC in 1988. Sperm whales are still being targeted in a few areas: there is a small catch by primitive methods in Lamalera, Indonesia, and Japan takes sperm whales for scientific purposes. There is also some evidence to suggest that sperm whales are being hunted illegally in some parts of the world (Angliss and Allen 2008).

In addition to whaling, sperm whales may be impacted by other shipping traffic, noise disturbance, and fishing operations. Sperm whales have the potential to be harmed by ship strikes and entanglements in fishing gear, although these are not as great of a threat to sperm whales as they are to more coastal cetaceans. Disturbance by anthropogenic noise may prove to be an important habitat issue in some areas of this population's range, notably in areas of oil and gas activities or where shipping activity is high. Another potential human-caused source of mortality is from accumulation of stable pollutants (e.g., polycholorobiphenyls, chlorinated pesticides, polycyclic aromatic hydrocarbons, and heavy metals). Stable pollutants might affect the health or behavior of sperm whales. The potential impact of coastal pollution may be an issue for this species in portions of its habitat, though little is known on this to date. In efforts to recover this species, the NMFS' recovery plan for sperm whales noted that the potential effects of pollutants is poorly understood and should be determined (2006). At present, because of their general offshore distribution, sperm whales are less likely to be impacted by humans, and those impacts that do occur are less likely to be recorded.

Humpback whale

The Western North Atlantic stock of humpback whales includes relatively discrete sub-populations which feed during summer in the waters of the Gulf of Maine, the Gulf of St. Lawrence, Newfoundland/Labrador, and western Greenland (Katona and Beard 1990). Other North Atlantic feeding grounds occur off Iceland and northern Norway (Christensen et al. 1992). In the winter, whales from all six feeding areas (including the Gulf of Maine) mate and calve primarily in the West Indies, where spatial and genetic mixing among sub-populations occurs (Clapham et al. 1993; Katona and Beard 1990; Stevick et al. 1998). Humpback whales also use the Mid-Atlantic as a migratory pathway and apparently as a feeding area, at least for juveniles. Since 1989, observations of juvenile humpbacks in that area have been increasing during the winter months, peaking January through March, particularly in the vicinity of the Chesapeake and Delaware Bays (Swingle et al. 1993). Humpbacks can be found in waters off of Florida. Biologists theorize that non-reproductive animals may be establishing a winter feeding range in the Mid-Atlantic because they are not participating in reproductive behavior in the Caribbean.

The best population estimate for the stock is 847 whales with a PBR of 1.1 whales annually (Waring et al. 2009). Although the most recent abundance estimates indicate continued population growth, the size of the Gulf of Maine humpback whale stock may be below the optimum sustainable population in the U.S. Atlantic EEZ. Barlow and Clapham (1997) estimated a rate of population increase of at 6.5 percent for this stock.

The total level of human-caused mortality and serious injury is unknown, but may be slowing recovery of the population. The main sources of human-caused serious injury and mortality are entanglement in fishing gear and vessel collisions. On average 3 animals are seriously injured or killed as a result of fishery interactions and another 1.4 whales due to vessel collisions annually. The total level of U.S. fishery-caused mortality and serious injury is unknown, but reported levels are more than 10% of the calculated PBR and, therefore, cannot be considered to be insignificant or approaching zero mortality and serious injury rate.

3.3.3 MMPA Non-ESA-listed Target Species Under NMFS Jurisdiction

Dolphins

Two bottlenose dolphin stocks are found throughout both action areas (Western North Atlantic Coastal and Western North Atlantic Offshore). Eight other dolphin species stocks are also found within the action area (pantropical spotted, Atlantic spotted, striped, spinner, clymene, common short-beaked, Risso's, and rough-toothed dolphins). All these stocks are protected under the MMPA but not listed as threatened or endangered under the ESA. The applicant is requesting take of these stocks.

3.3.4 MMPA-ESA Non-Target Species under USFWS Jurisdiction

Manatees are listed as endangered under the ESA and designated as depleted under the MMPA. The West Indian manatee stock is divided into two subspecies, the Antillean manatee (*Trichechus manatus manatus*) and the Florida manatee (*Trichechus manatus latirostris*). Florida manatees may be encountered in canals, rivers, estuarine habitats, saltwater bays, and on occasion have been observed as much as 3.7 miles off the Florida Gulf coast.

Researchers do not expect to interact with the Florida manatee, because the proposed surveys are designed to focus on the most eastern outer continental shelf waters where manatees are unlikely to occur. Encounters could occur while survey vessels are en route to the survey tracks; researchers would comply with State guidelines for minimizing impacts to Florida Manatee while transiting to the survey locations. Surveys do not involve the placement of nets in water or working close to shore where manatees are typically found. Therefore, no consultation was conducted with the U.S. Fish and Wildlife Service.

The permit is conditioned as follows: This permit does not authorize takes of any protected species not identified in Appendix 1, including those species under the jurisdiction of the USFWS (e.g., manatees). Should other protected species be encountered during the research activities authorized under this permit, researchers must exercise caution and remain a safe distance from the animal(s) to avoid take, including harassment.

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 request. 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 sea turtles and marine mammals by providing data on the distribution of sea turtle and marine mammal populations in the Straits of Florida.

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 request 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 the target species are discussed below.

Level B harassment, as defined by the MMPA, would occur during aerial and vessel surveys. These activities were analyzed in past EAs for large whale research, and it was determined that they could lead to short-term disturbance of marine mammals, but that there would be no significant impact from issuance of the permits and amendments (NMFS 2004, 2005b, 2008).

Behavioral responses would be expected to vary from no response to diving, tail slapping, or changing direction. With experienced vessel drivers, any potential effect of vessel approach should be short-lived and minimal. These short-term behavioral responses would not likely lead to mortality, serious injury, or disruption of essential behaviors such as feeding, mating, or nursing, to a degree that the individual's likelihood of successful reproduction or survival would be substantially reduced. Annual reports submitted by applicants under current and past permits indicate that conduct of activities resulting in level B harassment have not led to mortality, serious injury, or disruption of essential behaviors such as feeding, mating, or nursing.

Sea turtles may or may not respond to an aircraft passing overhead depending upon the altitude of the plane, the proximity of the turtle to the trackline, and the turtle itself. NMFS Southeast Fisheries Science Center staff with experience conducting aerial surveys conservatively estimated that approximately 30-50% of the sea turtles near the track line (flown no lower than 500 ft) would react to the survey craft. This percentage could be higher for lower flights, but is unknown. While every animal may not react to the surveys, NMFS took a conservative approach and assumes that all animals would be affected. A sea turtle's reaction to an aerial survey would include diving as the plane is approaching the turtle or diving as the aircraft passes directly overhead. Similarly, turtles would dive in response to a close approach of an in-water survey vessel if they noticed it. Due to slow vessel speed and constant surveillance for animals in the vicinity NMFS expects the risk of ship strike to be very low.

While this reaction would result in a change in behavior, it would be similar to other natural behaviors such as predator avoidance. No animals would be captured or have any intrusive procedures conducted on them. NMFS does not feel that the avoidance reaction would result in harm, is within the normal spectrum of behaviors the animal might experience naturally, and believes it would have a very minimal impact on sea turtles. Turtles could resume previous behavior minutes after reacting to the survey. NMFS does not believe the animals would experience significant effects or consequences from the proposed action. Given the minimal effects of the research that would occur and the ability of the animals to recover from effects between surveys, NMFS believes that even those animals that may be affected more than once a year would not suffer any significant consequences.

In addition to the mitigation measures identified by the applicant and described in Chapter 2.2, the permit, if issued, would contain conditions requiring the applicant to retreat from animals if behaviors indicate the approach may be interfering with reproduction, pair bonding, feeding, or other vital functions. In addition, the applicant would not break from the transect to approach animals.

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.

4.3.1 Endangered Species Act

To comply with section 7 of the regulations (50 CFR 402.14(c)), a section 7 consultation under the ESA was conducted by the NMFS Endangered Species Division, resulting in a biological opinion. The opinion concluded the issuance of Permit No. 14586 is not likely to jeopardize the continued existence of any species or destroy or adversely modify the critical habitat of any listed species. No incidental take of non-targeted ESA-listed species is anticipated or exempted.

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 have no environmental effects, the opportunity would be lost to collect information that would contribute to better understanding sea turtles and marine mammals 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 sea turtles and marine mammals as required by the ESA and MMPA and NMFS's implementing regulations. The preferred alternative would affect the environment, primarily individual sea turtles and marine mammals. However, the effects would be minimal and the alternative would allow the collection of valuable information that could help NMFS' conservation and

management efforts. Neither the no action nor the preferred alternatives are anticipated to have adverse population or stock-level effects on sea turtles, marine mammals, or other non-target species.

4.5 MITIGATION MEASURES

There are no additional mitigation measures beyond those conditions that would be required by the 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 short-term disturbance to sea turtles and marine mammals. The research is not expected to have more than a minimal effect on individuals, and no effect on populations. While individuals 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.

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.

The target and non-target species are also exposed to disturbance from other human activities in the action area including vessel traffic, fishing, and recreation/tourism. Whether the frequency of the proposed 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.

There are five active permits that authorize aerial/vessel surveys in areas that could overlap with the proposed action area:

- Permit No. 605-1904 issued to the Whale Center of New England, expiring February 15, 2013
- Permit No. 633-1778 issued to the Center for Coastal Studies, expiring June 30, 2011
- Permit No. 775-1875 issued to the NMFS NEFSC, expiring January 15, 2013
- Permit No. 1551 issued to the NMFS SEFSC, expiring July 1, 2013
- Permit No. 779-1633 issued to the NMFS SEFSC, expiring December 31, 2010

The effects of many individual surveys are short-term, lasting hours to days following the research event. There is not enough information about the exact location and timing of the research under the various permits to specifically identify the extent of overlap in time and space of all of the permitted research, or to identify the frequency with which any given local population may be disturbed. However, it is a standard condition of NMFS permits for research (see Appendix A) 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.

Under the proposed permit, animals in the action area would be disturbed by research activities one day per month for up to 5 years. Monthly surveys would occur no closer in time than two weeks apart. Aerial surveys are estimated to take up to 8 hours each, whereas vessel surveys are expected to take 10 hours. Whether this frequency of disturbance, by itself or in combination with disturbance from other permitted research, 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.

The proposed action would not be expected to have more than short-term effects on endangered and threatened sea turtles and marine mammal species. Any increase in stress levels to individual animals from the research would dissipate within approximately a day. 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 proposed action 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 females 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 actions discussed here would not be significant at a population level. The data generated by the activities associated with the proposed action would help determine the movement and habitat use of animals found in the waters of the action area.

In summary, issuance of the proposed permit may have some cumulative effects on the target animals due to the frequency of the disturbances associated with research activities. These 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, but even animals acclimated to disturbance may be adversely affected by additive effects that exceed their tolerance threshold. However, the incremental contribution of the short-lived impacts associated with the proposed action is not anticipated to result in significant adverse cumulative impacts to the human environment, including the target species of the research and non-target species.

CHAPTER 5 LIST OF PREPARERS AND AGENCIES CONSULTED

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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 surveys and would accompany the general conditions listed above:

- During aerial surveys, any cetacean or sea turtle observed below 1,000 ft should be counted and reported as a take.
- To minimize disturbance: If an animal shows a response to the presence of the aircraft, the aircraft must leave the vicinity and either resume searching or continue on the line-transect survey.
- This permit does not authorize takes of any protected species not identified in Appendix 1, including those species under the jurisdiction of the USFWS (e.g., manatees). Should other protected species be encountered during the research activities authorized under this permit, researchers must exercise caution and remain a safe distance from the animal(s) to avoid take, including harassment.

APPENDIX B: ANNUAL TAKES AUTHORIZED UNDER PROPOSED PERMIT

Table 1: Authorized Annual take for aerial and vessel surveys off of the Southeast US Coast, Florida Strait

SPECIES	LISTING UNIT/STOCK	NUMBER OF ANIMALS	TAKES PER ANIMAL	TAKE ACTION	OBSERVE/COLLECT METHOD	PROCEDURES
Turtle, green sea	Range-wide (NMFS Threatened)	275	1	Harass	Survey, aerial	Count/survey
Turtle, hawksbill sea	Range-wide (NMFS Endangered)	35	1	Harass	Survey, aerial	Count/survey
Turtle, Kemp's ridley sea	Range-wide (NMFS Endangered)	35	1	Harass	Survey, aerial	Count/survey
Turtle, leatherback sea	Range-wide (NMFS Endangered)	275	1	Harass	Survey, aerial	Count/survey
Turtle, loggerhead sea	Range-wide (NMFS Threatened)	700	1	Harass	Survey, aerial	Count/survey
Turtle, unidentified sea	NA (NMFS Endangered)	550	1	Harass	Survey, aerial	Count/survey
Turtle, green sea	Range-wide (NMFS Threatened)	75	1	Harass	Survey, vessel	Count/survey
Turtle, hawksbill sea	Range-wide (NMFS Endangered)	15	1	Harass	Survey, vessel	Count/survey
Turtle, Kemp's ridley sea	Range-wide (NMFS Endangered)	15	1	Harass	Survey, vessel	Count/survey

SPECIES	LISTING UNIT/STOCK	NUMBER OF ANIMALS	TAKES PER ANIMAL	TAKE ACTION	OBSERVE/COLLECT METHOD	PROCEDURES
Turtle, leatherback sea	Range-wide (NMFS Endangered)	75	1	Harass	Survey, vessel	Count/survey
Turtle, loggerhead sea	Range-wide (NMFS Threatened)	200	1	Harass	Survey, vessel	Count/survey
Turtle, unidentified sea	NA (NMFS Endangered)	150	1	Harass	Survey, vessel	Count/survey
Dolphin, bottlenose	Western North Atlantic Offshore Stock	2600	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, bottlenose	Western North Atlantic Coastal Stocks	400	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, pantropical spotted	Western North Atlantic Stock	100	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, Atlantic spotted	Western North Atlantic Stock	1000	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, striped	Western North Atlantic Stock	100	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, spinner	Western North Atlantic Stock	100	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, clymene	Western North Atlantic Stock	100	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, common, short-beaked	Western North Atlantic Stock	1000	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, Risso's	Range-wide	100	1	Harass	Survey, aerial/vessel	Count/survey
Dolphin, rough-toothed	Range-wide	1000	1	Harass	Survey, aerial/vessel	Count/survey

SPECIES	LISTING UNIT/STOCK	NUMBER OF ANIMALS	TAKES PER ANIMAL	TAKE ACTION	OBSERVE/COLLECT METHOD	PROCEDURES
Whale, right, North Atlantic	Western Atlantic Stock (NMFS Endangered)	25	1	Harass	Survey, aerial/vessel	Count/survey
Whale, fin	Western North Atlantic Stock (NMFS Endangered)	10	1	Harass	Survey, aerial/vessel	Count/survey
Whale, sperm	Range-wide (NMFS Endangered)	10	1	Harass	Survey, aerial/vessel	Count/survey
Whale, humpback	Range-wide (NMFS Endangered)	10	1	Harass	Survey, aerial/vessel	Count/survey