

**Peer review:** Proposed designation of critical habitat for the Northwest Atlantic Distinct Population Segment of the loggerhead sea turtle (*Caretta caretta*).

**Reviewer:** Katherine L. Mansfield, Ph.D.  
Florida International University  
Miami, Florida

Please see attached document for in-text comments and suggestions. The bulk of my review is incorporated in these comments. In this document, I provide additional literature sources not already included in the proposal. A few small typos were also corrected using the 'track changes' function in Word.

**General (in reference to item #3 in the Guidelines for Peer Reviewers):**

My main concern with this document is that there are many sections where the cited literature is rather dated (by 10-15 years in many cases). There are other sections lacking any literature cited. Where possible, I provided suggestions for more up-to-date literature, or information on more recent scientific developments. I do not think that the omission of more recent literature/work undermines the premise and the justifications for the proposed designations; however, updating the literature will help strengthen the argument(s) for these proposed designations. I am happy to provide copies of the additional citations if needed.

Regarding the analyses and assumptions of the data used in the proposal, and whether the best available science was used in making the proposed determination, this is difficult to evaluate. The arguments for how the data were used are present but it is unclear what specific data were used, what datasets were analyzed, and what sort of sampling effort is associated with these datasets. As I recommend in the text, I suggest that a table be provided (either in the text, perhaps around pages 49-50, or as an appendix) detailing what data were used, any associated citations, what beaches, etc. At a minimum, general meta-data information would be helpful and provide an additional layer of transparency. In general, the approach proposed makes sense and is fairly straight-forward, but without this additional information, it is impossible to evaluate whether the appropriate data were used.

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**[FWS-R4-ES-2012-0103]**

**[4500030114]**

**RIN 1018-AY71**

**Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northwest Atlantic Ocean Distinct Population Segment of the Loggerhead Sea Turtle (*Caretta caretta*)**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service, propose to designate specific areas in the terrestrial environment as critical habitat for the Northwest Atlantic Ocean Distinct Population Segment of the loggerhead sea turtle (*Caretta caretta*) under the Endangered Species Act (Act). The proposed critical habitat is located in coastal counties in North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi. The intended effect of this regulation is to assist with the conservation of the loggerhead sea turtle's habitat under the Act.

**DATES:** We will accept comments received or postmarked on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Comments submitted electronically using the Federal eRulemaking Portal (see

**ADDRESSES** section, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **ADDRESSES** by [**INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].

**ADDRESSES:** You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

<http://www.regulations.gov>. In the Search box, enter Docket No. FWS–R4–ES–2012–0103, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on “Comment Now!”

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R4–ES–2012–0103; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We request that you send comments **only** by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see the **Information Requested** section below for more information).

The coordinates or plot points or both from which the maps are generated are included in the supporting record for this critical habitat designation and are available at <http://www.fws.gov/northflorida>, <http://www.regulations.gov> at Docket No. FWS–R4–ES–2012–0103, and at the North Florida Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we may develop for this critical habitat designation will also be available at the Fish and Wildlife Service website and Field Office set out above, and may also be included in the preamble and/or at <http://www.regulations.gov>.

**FOR FURTHER INFORMATION CONTACT:** Dawn P. Jennings, Deputy Field Supervisor, U.S. Fish and Wildlife Service, North Florida Ecological Services Office, 7915 Baymeadows Way, Suite 200, Jacksonville, FL 32256; telephone 904–731–3336. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

**SUPPLEMENTARY INFORMATION:**

**Executive Summary**

**Why we need to publish a rule.** Under the Endangered Species Act (Act), critical habitat must be designated for any endangered or threatened species, to the maximum extent prudent and determinable. Designations of critical habitat can only be completed through rulemaking. This is a proposed rule by the U.S. Fish and Wildlife Service (USFWS) to designate specific areas in the terrestrial environment as critical habitat for the Northwest Atlantic Ocean Distinct Population Segment (DPS) of the loggerhead sea turtle. The National Marine Fisheries Service (NMFS) is reviewing specific areas in the marine environment as potential critical habitat for the DPS and, consistent with their distinct authority with respect to such areas, may propose to designate such areas in a separate rulemaking. A critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, may continue to be the subject of conservation actions implemented under section 7(a)(1) of the Act, and the species in those areas are subject to the regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and section 9 of the Act's prohibitions on taking any individual of the species, including taking caused by actions that affect habitat.

**The purpose of this rule.** We are proposing to designate specific areas in the terrestrial

environment as critical habitat for the Northwest Atlantic Ocean DPS of the loggerhead sea turtle.

**The basis for our action.** Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude a particular area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species.

**Description of proposed critical habitat.**

- In total, 1,189.9 kilometers (km) (739.3 miles) of loggerhead sea turtle nesting beaches are being proposed for designation as critical habitat in the States of North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi. These beaches account for 48 percent of an estimated 2,464 km (1,531 miles) of coastal beach shoreline, and account for approximately 84 percent of the documented nesting (numbers of nests) within these six States. The proposed critical habitat is located in Brunswick, Carteret, New Hanover, Onslow, and Pender Counties, North Carolina; Beaufort, Charleston, Colleton, and Georgetown Counties, South Carolina; Camden, Chatham, Liberty, and McIntosh Counties, Georgia; Bay, Brevard, Broward, Charlotte, Collier, Duval, Escambia, Flagler, Franklin Gulf, Indian River, Lee, Manatee, Martin, Monroe, Palm Beach, Sarasota, St. Johns, St. Lucie, and Volusia Counties, Florida; Baldwin County, Alabama; and Jackson County, Mississippi.
- The proposed critical habitat has been identified by the recovery unit in which they are located. Recovery units are management subunits of a listed entity that are geographically or otherwise identifiable and essential to the recovery of the listed entity. Within the United States, four recovery units have been identified for the Northwest Atlantic population of the loggerhead sea turtle. The four

recovery units for which we propose to designate terrestrial critical habitat are the Northern Recovery Unit, Peninsular Florida Recovery Unit, Dry Tortugas Recovery Unit, and Northern Gulf of Mexico Recovery Unit.

- For the Northern Recovery Unit, we propose to designate 393.7 km (244.7 miles) of Atlantic Ocean shoreline in North Carolina, South Carolina, and Georgia, encompassing approximately 86 percent of the documented nesting (numbers of nests) within the recovery unit. For the Peninsular Florida Recovery Unit, we propose to designate 364.9 km (226.7 miles) of Atlantic Ocean shoreline and 198.8 km (123.5 miles) of Gulf of Mexico shoreline totaling 563.7 km (350.2 miles) of shoreline in Florida, encompassing approximately 87 percent of the documented nesting (numbers of nests) within the recovery unit. For the Dry Tortugas Recovery Unit, we propose to designate 14.5 km (9.0 miles) of Gulf of Mexico shoreline in Florida, encompassing 100 percent of the nesting (numbers of nests) where loggerhead nesting is known to occur within the recovery unit. For the Northern Gulf of Mexico Recovery Unit, we propose to designate 218.0 km (135.5 miles) of Gulf of Mexico shoreline in Mississippi, Alabama, and the Florida Panhandle, encompassing approximately 75 percent of the documented nesting (numbers of nests) within the recovery unit. We do not propose to designate any critical habitat in Virginia, Louisiana, and Texas because of the very low number of nests (less than 10 annually in each State from 2002 to 2011) known to be laid in these States.
- The proposed designation includes occupied critical habitat that contains the physical and biological features essential to the conservation of the species in the terrestrial environment. No unoccupied habitat is being proposed as critical habitat.
- We are exempting the following Department of Defense installations from critical habitat designation because their Integrated Natural Resources Management Plans (INRMPs) incorporate measures that provide a benefit for the conservation of the loggerhead sea turtle: Marine Corps Base Camp Lejeune (Onslow Beach), Cape Canaveral Air Force Station, Patrick Air Force Base, and Eglin Air Force Base (Cape San Blas).

- Under section 4(b)(2) of the Act, we are considering excluding from critical habitat designation areas in St. Johns, Volusia, and Indian River Counties, Florida, that are covered under habitat conservation plans (HCP), because the HCPs incorporate measures that provide a benefit for the conservation of the loggerhead sea turtle.
- We are not considering for exclusion any additional areas from critical habitat based on economic, national security, or other relevant impacts at this time. However, we are seeking comments on economic, national security, and other relevant impacts, and may decide to exclude additional areas from the final rule based on information received during the public comment period.
- Nesting loggerhead turtles, their nests, eggs, and hatchlings, as well as any of their nesting habitat not designated as critical habitat, are still protected under the Act via section 7 where they may be the subject of conservation actions and regulatory protection ensuring Federal agency actions do not jeopardize their continued existence and section 9 that prohibits the taking of any individual of a species, including taking caused by actions that affect its habitat.

**We are preparing an economic analysis of the proposed designations of terrestrial critical habitat.** In order to consider economic impacts, we are preparing an economic analysis of the proposed critical habitat designation. We will announce the availability of the draft economic analysis as soon as it is completed, at which time we will seek additional public review and comment.

**We will seek peer review during public comment.** As part of the public notice, we are seeking comments from independent specialists to ensure that our proposal to designate critical habitat is based on scientifically sound data and analyses. We have invited these peer reviewers to comment on our specific assumptions and conclusions in this critical habitat proposal. Because we will consider all comments and information received during the comment period, our final determinations may differ from this proposal.

### **Information Requested**

We intend that any final action resulting from this proposed rule will be based on the best scientific data available and be as accurate and as effective as possible. Therefore, we request comments or information from other concerned government agencies, the scientific community, industry, or any other interested party concerning this proposed rule. We particularly seek comments concerning:

(1) The reasons whether it would or would not be prudent to designate habitat as “critical habitat” under section 4 of the Act, including whether there are threats to the species from human activity, the degree of which can be expected to increase due to the designation, and whether that increase in threat outweighs the benefit of designation such that the designation of critical habitat may not be prudent.

(2) Specific information on:

(a) The amount and distribution of loggerhead sea turtle terrestrial habitat,

(b) Which areas, that were occupied at the time of listing (or are currently occupied) and that contain features essential to the conservation of the species, should be included in the designation and why,

(c) Special management considerations or protection that may be needed for the nesting beach habitat in critical habitat areas we are proposing, including managing for the potential effects of climate change, and

(d) Which areas not occupied at the time of listing are essential for the conservation of the species and why.

(3) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(4) Information on the projected and reasonably likely impacts of climate change on the loggerhead sea turtle and proposed terrestrial critical habitat.



(5) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation; in particular, any impacts on small entities or families, and the benefits of including or excluding areas that exhibit these impacts.

(6) Whether any of the exemptions we are considering, under section 4(a)(3)(B) of the Act, of land on Department of Defense property at Marine Corps Base Camp Lejeune (Onslow Beach), Cape Canaveral Air Force Station, Patrick Air Force Base, and Eglin Air Force Base (Cape San Blas) are or are not appropriate, and why.

(7) Whether any of the areas we are considering for exclusion under section 4(b)(2) of the Act in St. Johns, Volusia, and Indian River Counties, Florida, because they are covered by an HCP that incorporates measures that provide a benefit for the conservation of the loggerhead sea turtle, are or are not appropriate, and why. The St. Johns County, Florida, Habitat Conservation Plan (“A Plan for the Protection of Sea Turtles and Anastasia Island Beach Mice on the Beaches of St. Johns County, Florida”) is available at <http://www.co.st-johns.fl.us/HCP/HabitatConservation.aspx>, the Volusia County, Florida, Habitat Conservation Plan (“A Plan for the Protection of Sea Turtles on the Beaches of Volusia County, Florida”) is available at <http://www.volusia.org/core/fileparse.php/4145/urlt/VolusiaHCPDec2007small2.pdf>, and the Indian River County, Florida, Habitat Conservation Plan (“Habitat Conservation Plan for the Protection of Sea Turtles on the Eroding Beaches of Indian River County, Florida”) is available at <http://www.ecological-associates.com/IRC-Final-HCP-July-2003.pdf>.

(8) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments **only** by

the methods described in the **ADDRESSES** section.

We will post your entire comment—including your personal identifying information—on <http://www.regulations.gov>. You may request at the top of your document that we withhold personal information such as your street address, phone number, or e-mail address from public review; however, we cannot guarantee that we will be able to do so.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <http://www.regulations.gov>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, North Florida Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Previous Federal Actions**

The loggerhead sea turtle was originally listed worldwide under the Act as a threatened species on July 28, 1978 (43 FR 32800). No critical habitat was designated for the loggerhead at that time. Pursuant to a joint memorandum of understanding, USFWS has jurisdiction over sea turtles in the terrestrial environment and NMFS has jurisdiction over sea turtles in the marine environment. On July 16, 2007, USFWS and NMFS (collectively the Services) received a petition to list the North Pacific populations of the loggerhead sea turtle as an endangered species under the Act. NMFS published a notice in the **Federal Register** on November 16, 2007 (72 FR 64585), concluding that the petition presented substantial scientific information indicating that the petitioned action may be warranted. On November 15, 2007, we received a petition to list the Western North Atlantic populations of the loggerhead sea turtle as an endangered species under the Act. NMFS published a notice in the **Federal Register** on March 5, 2008 (73 FR 11849), concluding that the petition presented substantial scientific information indicating that the petitioned action may be warranted.

On March 12, 2009, the petitioners (Center for Biological Diversity (CBD), Turtle Island Restoration Network, and Oceana) sent a 60-day notice of intent to sue to USFWS and NMFS for failure to make 12-month findings on the petitions by the statutory deadlines (July 16, 2008, for the North Pacific petition and November 16, 2008, for the Northwest Atlantic petition). On May 28, 2009, the petitioners filed a Complaint for Declaratory and Injunctive Relief to compel the Services to complete the 12-month findings. On October 8, 2009, the petitioners and the Services reached a settlement in which the Services agreed to submit to the **Federal Register** a 12-month finding on the two petitions on or before February 19, 2010. On February 16, 2010, the United States District Court for the Northern District of California modified the February 19, 2010, deadline to March 8, 2010.

On March 16, 2010 (75 FR 12598), the Services published in the **Federal Register** combined 12-month findings on the petitions to list the North Pacific populations and the Northwest Atlantic populations of the loggerhead sea turtle as endangered DPSs, along with a proposed rule to designate nine loggerhead sea turtle DPSs worldwide and to list two of the DPSs as threatened species and seven as endangered species.

On March 22, 2011 (76 FR 15932), the Services published in the **Federal Register** a notice announcing a 6-month extension of the deadline for a final listing decision to address substantial disagreement on the interpretation of data related to the status and trends for the Northwest Atlantic Ocean DPS of the loggerhead sea turtle and its relevance to the assessment of risk of extinction.

On September 22, 2011 (76 FR 58868), the Services jointly published a final rule revising the loggerhead's listing from a single worldwide threatened species to nine DPSs listed as either endangered or threatened species (50 CFR 17.11(h)). At that time, we lacked the comprehensive data and information necessary to identify and describe physical and biological features of the terrestrial and marine habitats of the loggerhead and found critical habitat to be "not determinable." However, we stated that we would

later propose to designate critical habitat for the two DPSs (Northwest Atlantic Ocean and North Pacific Ocean) in which loggerheads occur within the United States' jurisdiction. USFWS has jurisdiction over sea turtles on the land, and loggerheads come on land only to nest; therefore, the only terrestrial habitat they use is for nesting. Since no loggerhead nesting occurs within U.S. jurisdiction for the North Pacific Ocean DPS, no critical habitat is being proposed for that DPS in the terrestrial environment. Because critical habitat can only be designated in areas under U.S. jurisdiction (50 CFR 424.12(h)) and because loggerhead sea turtle nesting in the United States occurs only within the Northwest Atlantic Ocean DPS, we are only proposing to designate specific areas in the terrestrial environment as critical habitat for this one DPS. The petitioners filed a notice of intent to sue on October 11, 2012, and a complaint for declaratory and injunctive relief on January 8, 2013, to both USFWS and NMFS for failure to designate critical habitat.

## **Background**

It is our intent to discuss only those topics directly relevant to the designation of terrestrial critical habitat for the loggerhead sea turtle in this proposed rule. For more information on the taxonomy, biology, and ecology of the loggerhead sea turtle, refer to the final listing rule published in the **Federal Register** on September 22, 2011 (76 FR 58868), and the Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*) finalized on December 31, 2008 (NMFS and USFWS 2008, entire), which are available from the North Florida Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**).

### *Species Description*

The loggerhead sea turtle belongs to the family Cheloniidae along with all other sea turtle species except the leatherback (*Dermochelys coriacea*). The genus *Caretta* is monotypic (one representative in the group). The loggerhead sea turtle is characterized by a large head with blunt jaws. The carapace (shell) of adult and juvenile loggerheads is

reddish-brown. Dorsal (top) and lateral (side) head scales and dorsal scales of the flippers are also reddish-brown, but with light to medium yellow margins. Mean straight carapace length (SCL) of nesting females in the southeastern United States, the location where the vast majority of loggerheads nest in the United States, is approximately 92 centimeters (cm) (36 inches (in)); corresponding weight is approximately 116 kilograms (kg) (256 pounds (lb)) (Ehrhart and Yoder 1978, p. 29). Hatchlings vary from light to dark brown to dark gray dorsally and lack the reddish-brown coloration of adults and juveniles. Flippers are dark gray to brown above with distinct white margins. At emergence, hatchlings average 45 millimeters (mm) (1.8 in) SCL and weigh approximately 20 grams (g) (0.7 ounces (oz)) (Dodd 1988, pp. 50, 52).

### *Life History and Habitat*

Loggerheads are long-lived, slow-growing animals that use multiple habitats across entire ocean basins throughout their life history. This complex life history encompasses terrestrial, nearshore, and open ocean habitats. The three basic ecosystems in which loggerheads live are the following:

1. Terrestrial zone (supralittoral [area above the spring high tide line that is regularly splashed, but not submerged by ocean water]) – the nesting beach where both oviposition (egg laying) and embryonic development and hatching occur.
2. Neritic zone – the nearshore marine environment (from the surface to the sea floor) where water depths do not exceed 200 meters (m) (656 feet (ft)). The neritic zone generally includes the continental shelf (the sea bed surrounding a continent), but in areas where the continental shelf is very narrow or nonexistent, the neritic zone conventionally extends from the shore to areas where water depths reach 200 m (656 ft).
3. Oceanic zone – the vast open ocean environment (from the surface to the sea floor) where water depths are greater than 200 m (656 ft).

The loggerhead occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans (Dodd 1988, p. 16). However, the majority of loggerhead nesting is at the western rims of the Atlantic and Indian Oceans. The most recent reviews show that only two loggerhead nesting aggregations have greater than 10,000 females nesting per year: Peninsular Florida, United States, and Masirah Island, Oman (Baldwin *et al.* 2003, p. 219; Ehrhart *et al.* 2003, p. 169; Kamezaki *et al.* 2003, pp. 213–214; Limpus and Limpus, 2003, p. 200; Margaritoulis *et al.* 2003, p. 177). Thus, loggerhead nesting within the Peninsular Florida Recovery Unit of the Northwest Atlantic Ocean DPS is significant for the conservation of loggerheads worldwide. From a global perspective, this U.S. nesting aggregation is of paramount importance to the survival of the species as is the population that nests on islands in the Arabian Sea off Oman. The loggerhead nesting aggregations in Oman and the United States account for the majority of nesting worldwide.

Nesting aggregations with 1,000 to 9,999 females nesting annually include Georgia through North Carolina (United States), Quintana Roo and Yucatan (Mexico), Brazil, Cape Verde Islands (Cape Verde), Western Australia (Australia), and Japan. Smaller nesting aggregations with 100 to 999 nesting females annually occur in the Northern Gulf of Mexico (United States), Dry Tortugas (United States), Cay Sal Bank (The Bahamas), Tongaland (South Africa), Mozambique, Arabian Sea Coast (Oman), Halaniyat Islands (Oman), Cyprus, Peloponnesus (Greece), Zakyntos (Greece), Crete (Greece), Turkey, and Queensland (Australia) (NMFS and USFWS 2008, p. I-3).

In the Northwest Atlantic, the majority of loggerhead nesting is concentrated along the coast of the United States from North Carolina through Mississippi, although a small amount of nesting also occurs regularly in Virginia, Louisiana, Texas, and the U.S. Virgin Islands. Additional nesting beaches are found along the eastern Mexico coast, particularly the eastern Yucatan Peninsula coast; in The Bahamas; in Cuba; and along the coasts of Central America, Colombia, Venezuela, and some of the eastern Caribbean Islands (Addison and Morford 1996, pp. 32–35; Addison 1997, entire; Ehrhart *et al.* 2003, p. 160). As post-hatchlings, Northwest Atlantic loggerheads use the North Atlantic

Gyre and enter Northeast Atlantic waters (Carr 1987, pp. 111–118). They are also found in the Mediterranean Sea (Carreras *et al.* 2006, p. 1274; Eckert *et al.* 2008, pp. 305–306). In these areas, they overlap with other loggerheads originating from the Northeast Atlantic and the Mediterranean Sea (Laurent *et al.* 1993, p. 1234; Bolten *et al.* 1998, pp. 3–5; Laurent *et al.* 1998, pp. 1535–1537; LaCasella *et al.* 2005, entire; Carreras *et al.* 2006, p. 1274; Monzón-Argüello *et al.* 2006, entire; Revelles *et al.* 2007, pp. 268–269; Eckert *et al.* 2008, pp. 305–306; Monzón-Argüello *et al.* 2010, p. 1878).

Sea turtles spend the majority of their lives in the ocean. However, they are intimately tied to the land where they must lay their nests. Loggerheads nest on ocean beaches and occasionally on estuarine shorelines. Sea turtle eggs require a high-humidity substrate that allows for sufficient gas exchange and temperatures conducive to egg development (Miller 1997, pp. 67–68; Miller *et al.* 2003, pp. 129–130). Loggerhead nests incubate for variable periods of time depending on sand temperatures (Mrosovsky and Yntema 1980, p. 272). Hatchlings emerge from their nests en masse almost exclusively at night (Hendrickson 1958, pp. 513–514; Mrosovsky 1968, entire; Witherington *et al.* 1990, pp. 1166–1167; Moran *et al.* 1999, p. 260), although secondary emergences from nests may occur on subsequent nights (Carr and Ogren 1960, p. 23; Witherington 1986, p. 36; Ernest and Martin 1993, pp. 10–11; Houghton and Hays 2001, p. 134). Hatchlings then use a progression of seafinding orientation cues to guide their movement from the nest to the marine environments where they spend their early years (Lohmann and Lohmann 2003, entire).

In the Northwest Atlantic, the nesting season extends from about late April through early September with nesting occurring primarily at night. Clutch frequency for loggerheads has been reported as 3 to 5.5 nests per female per season (Murphy and Hopkins 1984, p. 10; Frazer and Richardson 1985, p. 248; Hawkes *et al.* 2005, pp. 68, 70; Scott 2006, pp. 51, 70; Tucker 2008, pers. comm.; L. Ehrhart, University of Central Florida, unpublished data). Nests are laid at intervals of approximately 12 to 15 days (Caldwell 1962, pp. 294–295; Dodd 1988, p. 36). Mean clutch size varies from about 100 to 126 eggs (Dodd 1988, p. 40). Egg incubation duration varies depending on time

of year and latitude but typically ranges from about 42 to 75 days (Dodd and Mackinnon 2006, pp. 7, 19; Witherington 2006, pers. comm.; Dodd and Mackinnon 2007, pp. 7, 17; Dodd and Mackinnon 2008, pp. 7, 17; Dodd and Mackinnon 2009, p. 14; Dodd and Mackinnon 2010, p. 15; Dodd 2011, p. 15). Remigration intervals (number of years between successive nesting migrations) typically range from 2.5 to 3.7 years (Richardson *et al.* 1978, pp. 40–42; Bjorndal *et al.* 1983, pp. 68–70; L. Ehrhart, University of Central Florida, unpublished data). Age at sexual maturity is believed to be about 32 to 35 years (NMFS and USFWS 2008, pp. I-18, V-13).

Immediately after hatchlings emerge from the nest, they begin a period of frenzied activity. During this active period, hatchlings move from their nest to the surf, swim and are swept through the surf zone, and continue swimming away from land for approximately 20 to 30 hours (Carr and Ogren 1960, pp. 23–24; Carr 1962, pp. 364–365; Carr 1982, p. 22; Wyneken and Salmon 1992, p. 482; Witherington 1995, p. 154). Hatchlings swimming from land rely on an approximately 5-day store of energy and nutrients within their retained yolk sac (Kraemer and Bennett 1981, pp. 407–409). Orientation cues used by hatchlings as they crawl, swim through the surf, and migrate offshore are discussed in detail by Lohmann and Lohmann (2003, entire) and include visual cues on the beach, wave orientation in the nearshore, and later magnetic field orientation as they proceed further toward open water.

Post-hatchling sea turtles are young turtles that have matured to the point beyond the period of frenzied swimming (Wyneken and Salmon 1992, p. 478). Post-hatchling loggerheads are largely inactive, exhibit infrequent low-energy swimming, and have begun to feed, no longer relying on their retained yolk (Witherington 2002, p. 850). As post-hatchlings, loggerheads are pelagic (spend time more at the surface than sea bottom) and are best known from neritic waters along the continental shelf. They often inhabit areas where surface waters converge to form downwellings, which are associated with linear accumulations of floating material like *Sargassum* (Witherington 2002, p. 844). This neritic post-hatchling stage is weeks or months long and may be a transition to the oceanic stage that loggerheads enter as they grow and are carried by ocean currents



(Witherington 2002, p. 850; Bolten 2003, p. 65). Bolten (2003, p. 65) notes that the post-hatchling transition stage occurs in the neritic environment, and ends when the small turtles enter the oceanic zone.

The oceanic juvenile stage begins when loggerheads first enter the oceanic zone (Bolten 2003, p. 66). Juvenile loggerheads originating from nesting beaches in the Northwest Atlantic appear to use oceanic developmental habitats and move with the predominant ocean gyres for several years before returning to their neritic foraging and nesting habitats (Musick and Limpus 1997, pp. 140–142; Bolten 2003, p. 66). The presence of *Sargassum* is also important for the oceanic juvenile life stage, as it offers a concentrated, protected foraging area, with facilitated dispersal by the associated oceanic currents. Turtles in this stage use active and passive movements relative to oceanic currents and winds, with 75 percent of their time spent in the top 5 m (16 ft) of the water column (Archie Carr Center for Sea Turtle Research, unpublished data, as cited in NMFS and USFWS 2008, p. I-24).

The actual duration of the oceanic juvenile stage varies, with the size of loggerheads leaving the oceanic zone varying widely (Bjorndal *et al.* 2000, pp. 270–271). In the Atlantic, Bjorndal and colleagues (Bjorndal *et al.* 2000, p. 270; Bjorndal *et al.* 2003, p. 1246) estimated the duration of the oceanic juvenile stage to be between 7 and 11.5 years, with juveniles recruiting to neritic habitats in the western Atlantic over a size range of 46–64 cm (18–25 in) CCL (Bolten *et al.* 1993, p. 50; Turtle Expert Working Group 2009, p. 2). However, Snover (2002, p. 66) suggests a much longer oceanic juvenile stage duration for Northwest Atlantic loggerheads with a range of 9–24 years and a mean of 14.8 years over similar size classes.

The neritic juvenile stage begins when loggerheads exit the oceanic zone and enter the neritic zone (Bolten 2003, p. 66). After migrating to the neritic zone, juvenile loggerheads continue maturing until they reach adulthood. Some juveniles may periodically move between neritic and oceanic zones (Keinath 1993; Witzell 2002, p. 267; Bolten 2003, p. 66; Morreale and Standora 2005, p. 874; Mansfield 2006, p. 124;

McClellan and Read 2007, pp. 592–593; Eckert *et al.* 2008, p. 306; Mansfield *et al.* 2009).

The neritic zone also provides important foraging habitat, interesting (between nest-laying events) habitat, breeding habitat, overwintering habitat, and migratory habitat for adult loggerheads. Some adults may also periodically move between neritic and oceanic zones (Harrison and Bjorndal 2006, pp. 220–221). See Schroeder *et al.* (2003, pp. 119–122) for a review of the neritic adult life stage for the Atlantic Ocean.

The duration of the adult stage can be estimated for females from tag return data at nesting beaches. For the Northwest Atlantic nesting assemblages, data from Little Cumberland Island, Georgia, show reproductive longevity, and hence duration of the adult female stage, as long as 25 years (Dahlen *et al.* 2000, p. 62). This is likely an underestimate of the average reproductive life span given tag loss and incomplete surveys of nesting beaches at night. Comparable data for adult males do not exist.

In both oceanic and neritic zones, loggerheads are primarily carnivorous, although they do consume some plant matter as well (see Bjorndal 1997, pp. 202–204, and Dodd 1988, pp. 60–66, for reviews). Loggerheads feed on a wide variety of food items with ontogenetic (developmental) and regional differences in diet. Loggerhead diets have been described from just a few coastal regions, and little information is available about differences or similarities in diet at various life stages.

### *Recovery Units*

Five recovery units (management subunits of a listed entity that are geographically or otherwise identifiable and essential to the recovery of the listed entity) have been identified for the Northwest Atlantic population of the loggerhead sea turtle (NMFS and USFWS 2008, pp. II-2–II-6). Four of these recovery units represent nesting assemblages in the southeastern United States and were delineated based on genetic differences and a combination of geographic distribution of nesting densities, geographic

separation, and geopolitical boundaries. The fifth recovery unit includes all other nesting assemblages within the Northwest Atlantic.

The five recovery units for Northwest Atlantic loggerheads are:

*Northern Recovery Unit:* The Northern Recovery Unit is defined as loggerheads originating from nesting beaches from southern Virginia (the northern extent of the U.S. nesting range) south through the Florida–Georgia border.

*Peninsular Florida Recovery Unit:* The Peninsular Florida Recovery Unit is defined as loggerheads originating from nesting beaches from the Florida–Georgia border south through Pinellas County on the west coast of Florida, excluding the islands west of Key West, Florida.

*Dry Tortugas Recovery Unit:* The Dry Tortugas Recovery Unit is defined as loggerheads originating from nesting beaches throughout the islands located west of Key West, Florida, because these islands are geographically separated from other recovery units.

*Northern Gulf of Mexico Recovery Unit:* The Northern Gulf of Mexico Recovery Unit is defined as loggerheads originating from nesting beaches from Franklin County on the northwest Gulf coast of Florida through Texas (the western extent of the U.S. nesting range).

*Greater Caribbean Recovery Unit:* The Greater Caribbean Recovery Unit is composed of loggerheads originating from all other nesting assemblages within the Greater Caribbean (Mexico through French Guiana, The Bahamas, Lesser Antilles, and Greater Antilles).

## **Critical Habitat**

## *Background*

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with USFWS or NMFS, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even

in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

#### *Prudency Determination*

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following situations exist:

- (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or
- (2) such designation of critical habitat would not be beneficial to the species.

On September 22, 2011 (76 FR 58868), the Services jointly published a final rule revising the loggerhead's listing from a single worldwide threatened species to nine DPSs listed as either endangered or threatened species. While we did not publish a prudency determination, we did find that critical habitat was not determinable and stated that we would propose to designate critical habitat for the two DPSs (Northwest Atlantic Ocean DPS and North Pacific Ocean DPS) in which loggerheads occur within the United States' jurisdiction in a future rulemaking.

There is currently no identified imminent threat of take attributed to collection or vandalism of nesting beaches within the Northwest Atlantic Ocean DPS, and identification and mapping of specific areas in the terrestrial environment as critical habitat is not expected to create or increase any such threat. In the absence of finding that the designation of critical habitat would increase threats to a species, a prudent finding is warranted if there are any benefits to a critical habitat designation. Here, the potential benefits of designation include: (1) Focusing conservation activities on the most essential

features and areas; (2) providing educational benefits to State or county governments or private entities; and (3) preventing people from causing inadvertent harm to the species and beaches with active nesting. In short, because we have determined that the designation of critical habitat is not likely to increase the degree of threat to the species and may provide some benefit, we find that designation of terrestrial critical habitat is prudent for the Northwest Atlantic Ocean DPS.

#### *Critical Habitat Determinability*

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the species is determinable. Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

- (i) Information sufficient to perform required analyses of the impacts of the designation is lacking, or
- (ii) The biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

When critical habitat is not determinable, the Act allows the Services an additional year to publish a critical habitat designation (section 4(b)(6)(C)(ii)).

When the Services jointly published a final rule revising the loggerhead's listing from a single worldwide threatened species to nine DPSs, we lacked the comprehensive data and information necessary to identify and describe physical and biological features of the terrestrial and marine habitats of the loggerhead. Thus, we found designation of critical habitat to be "not determinable." Accordingly, USFWS has reviewed the available information pertaining to the biological needs of the species and habitat characteristics where the loggerheads in the Northwest Atlantic Ocean DPS nest on U.S. beaches. This and other information represent the best scientific data available and have led us to conclude that the designation of terrestrial critical habitat is determinable for the Northwest Atlantic Ocean DPS.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical and biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. Pursuant to our regulations, we designate critical habitat in areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species (50 CFR 424.12(e)).

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and

provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, may continue to be the subject of: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) section 9 of the Act's prohibitions on taking any individual of the species, including taking caused by actions that affect habitat. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, HCPs, or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.



### *Physical or Biological Features*

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features (PBFs) that are essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

- (1) Space for individual and population growth and for normal behavior;
- (2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
- (3) Cover or shelter;
- (4) Sites for breeding, reproduction, or rearing (or development) of offspring; and
- (5) Habitats that are protected from disturbance or are representative of the historical, geographic, and ecological distributions of a species.

We derive the specific physical or biological features essential for the loggerhead sea turtle from studies of this species' habitat, ecology, and life history as described below. Additional information can be found in the final listing rule published in the **Federal Register** on September 22, 2011 (76 FR 58868), and the Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*) (NMFS and USFWS 2008, entire).

Shaffer and Stein (2000, pp. 307–314) identify a methodology for conserving imperiled species known as the “three Rs”: representation, resiliency, and redundancy. Representation, or preserving some of everything, means conserving not just a species but its associated habitats. Resiliency and redundancy ensure there is enough of a species so it can survive into the future. Resiliency means ensuring that the habitat is adequate for a species and its representative components. Redundancy ensures an adequate number of sites and individuals. This methodology has been widely accepted as a

reasonable conservation strategy (Tear *et al.* 2005, p. 841). In applying this strategy to terrestrial critical habitat for loggerheads, we have determined that it is important to conserve: (1) Beaches that have the highest nesting densities (representation); (2) beaches that have a good geographic spatial distribution to ensure protection of genetic diversity (resiliency and redundancy); (3) beaches that collectively provide a good representation of total nesting (representation); and (4) beaches adjacent to the high density nesting beaches that can serve as expansion areas and provide sufficient habitat to accommodate and provide a rescue effect for nesting females whose primary nesting beach has been lost (resiliency and redundancy). Therefore, we have determined that the following physical or biological features are essential for the loggerhead sea turtle:

Physical or Biological Feature 1—*Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring*

The production of the next generation of loggerhead sea turtles results from a synergism of the effects of the ecological conditions in the foraging area on the energetics of the female and of the beach environmental conditions on development of the embryos. To be successful, reproduction must occur when environmental conditions support adult activity (e.g., sufficient quality and quantity of food in the foraging area, suitable beach structure for digging, nearby interesting habitat) (Georges *et al.* 1993, p. 2). The environmental conditions of the nesting beach must favor embryonic development and survival (i.e., modest temperature fluctuation, low salinity, high humidity, well drained, well aerated) (Mortimer 1982, p. 49; Mortimer 1990, pp. 809, 811). Additionally, the hatchlings must emerge to onshore and offshore conditions that enhance their chances of survival (e.g., less than 100 percent depredation, appropriate offshore currents for dispersal) (Georges *et al.* 1993, p. 2).

Terrestrial nesting habitat is the supralittoral zone of the beach where oviposition (egg laying), embryonic development, and hatching occur. Loggerheads nest on ocean beaches and occasionally on estuarine shorelines with suitable sand. For a beach to serve as nesting habitat, a nesting turtle must be able to access it. However, anthropogenic

structures (e.g., groins, jetties, breakwaters), as well as natural features (e.g., offshore sand bars), can act as barriers or deterrents to adult females attempting to access a beach. Adult females approaching the nesting beach may encounter these structures and either crawl around them, abort nesting for that night, or move to another section of beach to nest. Nests are typically laid between the high tide line and the dune front (Routa 1968, p. 293; Witherington 1986, pp. 16, 27; Hailman and Elowson 1992, p. 5).

Wood and Bjorndal (2000, entire) evaluated four environmental factors (slope, temperature, moisture, and salinity) and found that slope had the greatest influence on loggerhead nest-site selection on a beach in Florida. Loggerheads appear to prefer relatively narrow, steeply sloped, coarse-grained beaches, although nearshore contours may also play a role in nesting beach site selection (Provancha and Ehrhart 1987, p. 42).

Nest sites typically have steeper slopes than other sites on the beach, and steeper slopes usually indicate an area of the beach with a higher elevation (Wood and Bjorndal 2000, p. 126). Wood and Bjorndal (2000, p. 126) speculated that a higher slope could be a signal to turtles that they have reached an elevation where there is an increased probability of hatching success of nests. This is related to the nests being laid high enough on the beach to be less susceptible to repeated and prolonged tidal inundation and erosion. Nests laid at lower beach elevations are subject to a greater risk of repeated and prolonged tidal inundation and erosion, which can cause mortality of incubating egg clutches (Foley *et al.* 2006, pp. 38–39). Regardless, loggerheads will use a variety of different nesting substrates and beach slopes for nesting. They will also scatter their nests over the beach, likely to ensure that at least some nest sites will be successful as “placement of nests close to the sea increases the likelihood of inundation and egg loss to erosion whereas placement of nests farther inland increases the likelihood of desiccation, hatchling misorientation, and predation on nesting females, eggs, and hatchlings” (Wood and Bjorndal 2000).

Loggerhead sea turtles spread their reproductive effort both temporally and spatially. Spatial clumping occurs because loggerheads concentrate their nesting to a few

primary locations that are augmented by lower density, satellite sites. In addition, a few isolated, low-density sites are known (Miller *et al.* 2003, p. 126). Loggerheads show a high degree of nesting site fidelity (Miller *et al.* 2003, p. 127). Once an adult female has returned to the region where it hatched and selected a nesting beach, she will tend to re-nest in relatively close proximity (0–5 km [0–3 miles]) during successive nesting attempts within the same and subsequent nesting seasons, although a small percentage of turtles will utilize more distant nesting sites in the general area (Miller *et al.* 2003, pp. 127–128). Thus, a high-density nesting beach is the product of site fidelity and nesting success. A high-density nesting beach produces a large number of hatchlings that are recruited to the population resulting in a relatively higher number of females that will return to nest on those same beaches.

Sea turtles must have “deep, clean, relatively loose sand above the high-tide level” for successful nest construction (Hendrickson 1982, p. 54). Sand is classified as material predominately composed of carbonate, quartz, or similar material with a particle size distribution ranging between 0.062 mm and 4.76 mm (0.002 in and 0.187 in) (Wentworth and ASTM classification systems). Sea turtle eggs require a high-humidity substrate that allows for sufficient gas exchange for development (Mortimer 1990, p. 811; Miller 1997, pp. 67–68; Miller *et al.* 2003, pp. 129–130). Ackerman (1980, p. 575) found that the rate of growth and mortality of sea turtle embryos is related to respiratory gas exchange with embryonic growth slowing and mortality increasing in environments where gas exchange is reduced below naturally occurring levels.

Moisture conditions in the nest influence incubation period, hatching success, and hatchling size (McGehee 1990, pp. 254–257; Mortimer 1990, p. 811; Carthy *et al.* 2003, pp. 147–149). Laboratory experiments have shown that hatching success can be affected by unusually wet or dry hydric conditions (McGehee 1990, pp. 254–255). Proper moisture conditions are necessary for maximum hatching success (McGehee 1990, p. 251). In addition, water availability is known to influence the incubation environment of the embryos of turtles with flexible-shelled eggs by affecting nitrogen excretion (Packard *et al.* 1984, pp. 198–201), mobilization of calcium (Packard and Packard 1986, p. 404),

mobilization of yolk nutrients (Packard *et al.* 1985, p. 571), and energy reserves in the yolk at hatching (Packard *et al.* 1988, p. 122).

Loggerhead nests incubate for variable periods of time depending on sand temperatures (Mrosovsky and Yntema 1980, p. 272). The length of the incubation period (commonly measured from the time of egg deposition to hatchling emergence) is inversely related to nest temperature, such that between 26.0 °C and 32.0 °C (78.8 °F and 89.6 °F), a change of 1 °C (33.8 °F) adds or subtracts approximately 5 days (Mrosovsky 1980, p. 531). The warmer the sand surrounding the egg chamber, the faster the embryos develop (Mrosovsky and Yntema 1980, p. 272).

Sand temperatures prevailing during the middle third of the incubation period also determine the gender of hatchling sea turtles (Mrosovsky and Yntema 1980, p. 276; Yntema and Mrosovsky 1982, pp. 1014–1015). The pivotal temperature (i.e., the incubation temperature that produces equal numbers of males and females) in loggerheads is approximately 29.0 °C (84.2 °F) (Limpus *et al.* 1983, p. 3; Mrosovsky 1988, pp. 664–666; Marcovaldi *et al.* 1997, pp. 758–759). Incubation temperatures near the upper end of the tolerable range produce only female hatchlings while incubation temperatures near the lower end of the tolerable range produce only male hatchlings.

Loggerhead hatchlings pip (break through the egg shell) and escape from their eggs over a 1- to 3-day interval and move upward and out of the nest over a 2- to 4-day interval (Christens 1990, p. 400). The time from pipping to emergence ranges from 4 to 7 days with an average of 4.1 days (Godfrey and Mrosovsky 1997, p. 583). Hatchlings emerge from their nests en masse almost exclusively at night, likely using decreasing sand temperature as a cue (Hendrickson 1958, pp. 513–514; Mrosovsky 1968, entire; Witherington *et al.* 1990, pp. 1166–1167; Moran *et al.* 1999, p. 260). After an initial emergence, there may be secondary emergences on subsequent nights (Carr and Ogren 1960, p. 23; Witherington 1986, p. 36; Ernest and Martin 1993, pp. 10–11; Houghton and Hays 2001, p. 134).

Hatchlings use a progression of seafinding orientation cues to guide their movement from the nest to the marine environments (Lohmann and Lohmann 2003, entire). Hatchlings first use light cues to find the ocean. On natural beaches without artificial lighting, ambient light from the open sky creates a relatively bright horizon compared to the dark silhouette of the dune and vegetation landward of the nest. This contrast guides the hatchlings to the ocean (Daniel and Smith 1947, pp. 414–415; Limpus 1971, p. 387; Salmon *et al.* 1992, pp. 72–75; Witherington and Martin 1996, pp. 5–12; Witherington 1997, pp. 311–319). After reaching the surf, hatchlings swim and are swept through the surf zone, after which wave orientation occurs in the nearshore area and later magnetic field orientation as they proceed further toward open water (Lohmann and Lohmann 2003, entire).

Both nesting and hatchling sea turtles are adversely affected by the presence of artificial lighting on or near the beach (Witherington and Martin 1996, pp. 2–5, 12–13). Artificial lighting deters adult female loggerheads from emerging from the ocean to nest, and loggerheads emerging onto a beach abort nesting attempts at a greater frequency in lighted areas (Witherington 1992, pp. 34–37). Because adult females rely on visual brightness cues to find their way back to the ocean after nesting, those turtles that nest on artificially lighted beaches may become disoriented by artificial lighting and have difficulty finding their way back to the ocean (Witherington 1992, p. 38). Hatchling sea turtles have a robust seafinding behavior guided by visual cues (Mrosovsky and Carr 1967, pp. 228–230; Mrosovsky and Shettleworth 1968, pp. 214–218; Dickerson and Nelson 1989, entire; Witherington and Bjorndal 1991, pp. 146–148; Salmon *et al.* 1992, pp. 72–75; Witherington and Martin 1996, pp. 6–12; Lohmann *et al.* 1997, pp. 110–116; Lohmann and Lohmann 2003, pp. 45–47). Hatchlings unable to find the ocean, or delayed in reaching it, due to the presence of artificial beachfront lighting are likely to incur high mortality from dehydration, exhaustion, or predation (Carr and Ogren 1960, pp. 33–46; Ehrhart and Witherington 1987, pp. 97–98; Witherington and Martin 1996, pp. 12–13).

For loggerheads, it is important to conserve: (1) Beaches that have the highest

nesting densities (by State or region within a State); (2) beaches that have a good geographic spatial distribution to ensure protection of genetic diversity; (3) beaches that collectively provide a good representation of total nesting; and (4) beaches adjacent to the high-density nesting beaches that can serve as expansion areas. Since loggerheads nest on dynamic ocean beaches that may be significantly degraded or lost through natural processes (e.g., erosion) or upland development (e.g., armoring, lighting), the designation of occupied beaches adjacent to the highest density nesting beaches as critical habitat will help ensure the availability of nesting habitat if the primary high-density nesting beaches are temporarily or permanently lost.

Therefore, based on the information above, we identify extra-tidal or dry sandy beaches from the mean high water (MHW) (see definition at [http://tidesandcurrents.noaa.gov/datum\\_options.html](http://tidesandcurrents.noaa.gov/datum_options.html)) line to the toe of the secondary dune that are capable of supporting a high density of nests or serving as an expansion area for beaches with a high density of nests and that are well distributed within each State or region within a State and representative of total nesting to be a physical or biological feature for the species.

Physical or Biological Feature 2—*Habitats Protected from Disturbance or Representative of the Historical, Geographic, and Ecological Distributions of the Species*

Sea turtle nesting habitat is part of the highly dynamic and continually shifting coastal system, which includes oceanfront beaches, barrier islands, and inlets. These geologically dynamic coastal regions are controlled by natural coastal processes or activities that mimic these natural processes, including littoral or longshore drift (the process by which sediments move along the shoreline), onshore and offshore sand transport (natural erosion or accretion cycle), and tides and storm surge. The integrity of the habitat components depends upon daily tidal events; these processes are associated with the formation and movement of barrier islands, inlets, and other coastal landforms throughout the landscape.

There has been considerable loss or degradation of such habitats by humans from development, armoring, sand placement, and other activities to prevent or forestall erosion or inundation from shifting shorelines, as well as coastal storms and sea level rise resulting from climate change. Coastal dynamic processes are anticipated to accelerate due to sea level rise and an increase in frequency and intensity of coastal storms as a result of climate change.

Since sea turtles evolved in this dynamic system, they are dependent upon these ever-changing features for their continued survival and recovery. Sea turtles require nesting beaches where natural coastal processes or activities that mimic these natural processes will be able to continue well into the future to allow the formation of suitable beaches for nesting.

These physical processes benefit sea turtles by maintaining the nesting beaches through repeated cycles of destruction, alteration, and recovery of the beach and adjacent dune habitats. Coastal processes happen over a wide range of spatial and temporal scales. Wind, waves, tides, storms, and stream discharge are important driving forces in the coastal zone (Dingler 2005, p. 163). Thus, it is important that, where it can be allowed, the natural processes be maintained or any projects that address erosion or shoreline protection contain measures to reduce negative effects or are temporary in nature.

Therefore, based on the information above, we identify natural coastal processes or activities that mimic these natural processes to be a physical or biological feature for this species. It is important that loggerhead nesting beaches are allowed to respond naturally to coastal dynamic processes of erosion and accretion or mimic these processes.

#### Primary Constituent Elements for the Northwest Atlantic Ocean DPS of the Loggerhead Sea Turtle

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the loggerhead sea turtle in



areas occupied at the time of listing, focusing on the features' primary constituent elements (PCEs). We consider primary constituent elements to be those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the terrestrial primary constituent elements specific to the Northwest Atlantic Ocean DPS of the loggerhead sea turtle are:

(1) Primary Constituent Element 1—*Suitable nesting beach habitat that has (a) relatively unimpeded nearshore access from the ocean to the beach for nesting females and from the beach to the ocean for both post-nesting females and hatchlings and (b) is located above mean high water to avoid being inundated frequently by high tides.*

(2) Primary Constituent Element 2—*Sand that (a) allows for suitable nest construction, (b) is suitable for facilitating gas diffusion conducive to embryo development, and (c) is able to develop and maintain temperatures and a moisture content conducive to embryo development.*

(3) Primary Constituent Element 3—*Suitable nesting beach habitat with sufficient darkness to ensure nesting turtles are not deterred from emerging onto the beach and hatchlings and post-nesting females orient to the sea.*

#### *Special Management Considerations or Protection*

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features essential to the conservation of the species which may require special management considerations or protection. We have determined not only that special management considerations or

protection may be required, but that they are required within critical habitat areas to address these threats to the essential features of loggerhead sea turtle terrestrial habitat.

For loggerhead sea turtle terrestrial habitat, we have grouped the primary threats that may impact the habitat, thus necessitating special management or protection, into 12 categories:

- (1) Recreational beach use (beach cleaning, human presence [e.g., dog beach, special events, piers, and recreational beach equipment]);
- (2) Beach driving (essential and nonessential off-road vehicles, all-terrain vehicles, and recreational access and use);
- (3) Predation (depredation of eggs and hatchlings by native and nonnative predators);
- (4) Beach sand placement activities (beach nourishment, beach restoration, inlet sand bypassing, dredge material disposal, dune construction, emergency sand placement after natural disaster, berm construction, and dune and berm planting);
- (5) In-water and shoreline alterations (artificial in-water and shoreline stabilization measures (e.g., in-water erosion control structures, such as groins, breakwaters, jetties), inlet relocation, inlet dredging, nearshore dredging, and dredging and deepening channels);
- (6) Coastal development (residential and commercial development and associated activities including beach armoring (e.g., sea walls, geotextile tubes, rock revetments, sandbags, emergency temporary armoring); and activities associated with construction, repair, and maintenance of upland structures, stormwater outfalls, and piers);
- (7) Artificial lighting (direct and indirect lighting, skyglow, and bonfires);
- (8) Beach erosion (erosion due to aperiodic, short-term weather-related erosion events, such as atmospheric fronts, northeasters, tropical storms, and hurricanes);
- (9) Climate change (includes sea level rise);
- (10) Habitat obstructions (tree stumps, fallen trees, and other debris on the beach; nearshore sand bars; and ponding along beachfront seaward of dry beach);

(11) Human-caused disasters and response to natural and human-caused disasters (oil spills, oil spill response including beach cleaning and berm construction, and debris cleanup after natural disasters); and

(12) Military testing and training activities (troop presence, pyrotechnics and nighttime lighting, vehicles and amphibious watercraft usage on the beach, helicopter drops and extractions, live fire exercises, and placement and removal of objects on the beach).

*Recreational beach use:*

*Beach cleaning:* There is increasing demand in the southeastern United States, especially in Florida, for beach communities to carry out beach cleaning operations to improve the appearance of beaches for visitors and residents. Beach cleaning occurs on private beaches and on some municipal or county beaches that are used for nesting by loggerhead sea turtles. Beach cleaning activities effectively remove “seaweed, fish, glass, syringes, plastic, cans, cigarettes, shells, stone, wood, and virtually any unwanted debris” (H. Barber and Sons 2012, entire). This can include wrack material (organic material that is washed up onto the beach by surf, tides, and wind), the removal of which reduces the natural sand-trapping abilities of beaches and contributes to their destabilization. As beach cleaning vehicles and equipment move over the sand, sand is displaced downward, lowering the substrate. Although the amount of sand lost due to single sweeping actions may be small, it adds up considerably over a period of years (Neal *et al.* 2007, p. 219). In addition, since the beach cleaning vehicles and equipment also inhibit plant growth and open the area to wind erosion, the beach and dunes may become unstable. Beach cleaning “can result in abnormally broad unvegetated zones that are inhospitable to dune formation or plant colonization, thereby enhancing the likelihood of erosion” (Defeo *et al.* 2009, p. 4). This is also a concern because dunes and vegetation play an important role in minimizing the impacts of artificial beachfront lighting, which causes disorientation of sea turtle hatchlings and nesting turtles, by creating a barrier that prevents residential and commercial business lighting from being visible on the beach.

Beach cleaning occurs in a few locations in South Carolina and Alabama, but the most extensive beach cleaning activities occur in Florida, particularly southern Florida. However, a Florida Department of Environmental Protection permit, which includes conditions to protect sea turtles, is required. These permit conditions restrict the timing and nature of beach cleaning to ensure these activities avoid or minimize the potential for impacts to sea turtles and their nesting habitat.

*Human presence:* Human presence on the beach at night during the nesting season can reduce the quality of nesting habitat by deterring or disturbing nesting turtles and causing them to avoid otherwise suitable habitat. In addition, human foot traffic can make a beach less suitable for nesting and hatchling emergence by increasing sand compaction and creating obstacles to hatchlings attempting to reach the ocean (Hosier *et al.* 1981, p. 160).

Some beach communities, local governments, and State and Federal lands have management plans or agreements that include addressing human disturbance to minimize impacts to nesting and hatchling loggerhead sea turtles. Other beach communities and Federal, State, and local governments have best addressed human disturbance and presence on the beach with generally successful “Share the Beach” educational campaigns. The educational message in the campaigns focuses on beach user behavior when encountering a turtle on the beach—enjoy the experience but do not disturb the turtle.

*Recreational beach equipment:* The use and storage of lounge chairs, cabanas, umbrellas, catamarans, and other types of recreational equipment on the beach at night can also make otherwise suitable nesting habitat unsuitable by hampering or deterring nesting by adult females and trapping or impeding hatchlings during their nest-to-sea migration. The documentation of non-nesting emergences (also referred to as false crawls) at these obstacles is becoming increasingly common as more recreational beach equipment is left on the beach at night. Sobel (2002, p. 311) describes nesting turtles being deterred by wooden lounge chairs that prevented access to the upper beach.

Some beach communities, local governments, and State and Federal lands have management plans, agreements, or ordinances that address recreational equipment on the beach to minimize impacts to nesting and hatchling loggerhead sea turtles. Other beach communities and Federal, State, and local governments address recreational beach equipment with generally successful “Leave No Trace” and “Share the Beach” educational campaigns. The educational message in the campaigns focuses on removing recreational equipment from the nesting beach each night during the nesting season.

*Beach driving:*

Beach driving has been found to reduce the quality of loggerhead nesting habitat in several ways. In the southeastern United States, vehicle ruts on the beach have been found to prevent or impede hatchlings from reaching the ocean following emergence from the nest (Hosier *et al.* 1981, p. 160; Cox *et al.* 1994, p. 27; Hughes and Caine 1994, p. 237). Sand compaction by vehicles has been found to hinder nest construction and hatchling emergence from nests (Mann 1977, p. 96). Vehicle lights and vehicle movement on the beach after dark results in reduced habitat suitability, which can deter females from nesting and disorient hatchlings. If driving occurs at night, sea turtles could be run over and injured. Additionally, vehicle traffic on nesting beaches contributes to erosion, especially during high tides or on narrow beaches where driving is concentrated on the high beach and foredune.

Beach driving is prohibited on the majority of nesting beaches in the southeastern United States by law, regulation, management plan, or agreement. However, some vehicular driving is still allowed on private, local, State, and Federal beaches for recreation, commercial, or beach and natural resource management activities. In 1985, the Florida Legislature severely restricted vehicular driving on Florida’s beaches, except for cleanup, repair, or public safety. Five counties were exempted from the legislation and are allowed to continue vehicular access on coastal beaches due to the availability of less than 50 percent of its peak user demand for off-beach parking. The counties affected

by this exception are Volusia, St. Johns, Gulf, Nassau, and Flagler Counties, as well as limited vehicular access on Walton County beaches for boat launching. Volusia and St. Johns Counties, Florida, developed HCPs that minimize and mitigate the impacts of County-regulated driving and USFWS issued incidental take permits under section 10(a)(1)(B) of the Act. Gulf County has submitted an HCP to the Service in conjunction with an application for a section 10(a)(1)(B) permit that minimizes and mitigates the impacts of County-regulated driving on the beach.

*Predation:*

Predation of sea turtle eggs and hatchlings by native and nonnative species occurs on almost all nesting beaches. Predation by a variety of predators can considerably decrease sea turtle nest hatching success. The most common predators in the southeastern United States are ghost crabs (*Ocypode quadrata*), raccoons (*Procyon lotor*), feral hogs (*Sus scrofa*), foxes (*Urocyon cinereoargenteus* and *Vulpes vulpes*), coyotes (*Canis latrans*), armadillos (*Dasypus novemcinctus*), and fire ants (*Solenopsis invicta*) (Stancyk 1982, p. 145; Dodd 1988, p. 48). In the absence of nest protection programs in a number of locations throughout the southeastern United States, raccoons may depredate up to 96 percent of all nests deposited on a beach (Davis and Whiting 1977, p. 20; Stancyk *et al.* 1980, p. 290; Talbert *et al.* 1980, p. 712; Hopkins and Murphy 1981, p. 67; Schroeder 1981, p. 35; Labisky *et al.* 1986, pp. 14–15). In addition, nesting turtles harassed by predators (e.g., coyotes, red foxes) on the beach may abort nesting attempts (Hope 2012, pers. comm.). Thus, the presence of predators can affect the suitability of nesting habitat.

The most longstanding beach management program in the southeastern United States has been to reduce the destruction of nests by natural and introduced predators. Most major nesting beaches in the southeastern United States employ some type of lethal (trapping, hunting) or nonlethal (screen, cage) control of mammalian predators to reduce nest loss. Overall, nest protection activities have substantially reduced loggerhead nest depredations, although the magnitude of the reduction has not been quantified.

*Beach sand placement activities:*

Substantial amounts of sand are deposited along Gulf of Mexico and Atlantic Ocean beaches to protect coastal properties in anticipation of preventing erosion and what otherwise would be considered natural processes of overwash and island migration. Constructed beaches tend to differ from natural beaches in several important ways for sea turtles. They are typically wider, flatter, and more compact, and the sediments are moister than those on natural beaches (Nelson *et al.* 1987, p. 51; Ackerman *et al.* 1991, p. 22; Ernest and Martin 1999, pp. 8–9). On severely eroded sections of beach, where little or no suitable nesting habitat previously existed, sand placement can result in increased nesting (Ernest and Martin 1999, p. 37). The placement of sand on a beach with reduced dry foredune habitat may increase sea turtle nesting habitat if the placed sand is highly compatible (i.e., grain size, shape, color, etc.) with naturally occurring beach sediments in the area, and compaction and escarpment remediation measures are incorporated into the project. In addition, a nourished beach that is designed and constructed to mimic a natural beach system may benefit sea turtles more than an eroding beach it replaces. However, beach sand placement projects conducted under the USFWS's Statewide Programmatic Biological Opinion for the U.S. Army Corps of Engineers planning and regulatory sand placement activities (including post-disaster sand placement activities) in Florida and other individual biological opinions throughout the loggerhead's nesting range include required terms and conditions that minimize incidental take of turtles.

There are, however, a few important ephemeral impacts associated with beach sand placement activities. In most cases, a significantly larger proportion of turtles emerging on engineered beaches abandon their nesting attempts than turtles emerging on natural or pre-nourished beaches, even though more nesting habitat is available (Trindell *et al.* 1998, p. 82; Ernest and Martin 1999, pp. 47–49; Herren 1999, p. 44), with nesting success approximately 10 to 34 percent lower on nourished beaches than on control beaches during the first year post-nourishment. This reduction in nesting success is most pronounced during the first year following project construction and is most likely the

result of changes in physical beach characteristics (beach profile, sediment grain size, beach compaction, frequency and extent of escarpments) associated with the nourishment project (Ernest and Martin 1999, p. 48). During the first postconstruction year, the time required for turtles to excavate an egg chamber on untilled, hard-packed sands increases significantly relative to natural beach conditions. Also during the first postconstruction year, nests on nourished beaches are deposited significantly more seaward of the toe of the dune than nests on natural beaches. More nests are washed out on the wide, flat beaches of the nourished treatments than on the narrower steeply sloped natural beaches. This phenomenon may persist through the second postconstruction year and result from the placement of nests near the seaward edge of the beach berm where dramatic profile changes, caused by erosion and scarping, occur as the beach equilibrates to a more natural contour.

*In-water and shoreline alterations:*

Many navigable mainland or barrier island tidal inlets along the Atlantic and Gulf of Mexico coasts are stabilized with jetties or groins. Jetties are built perpendicular to the shoreline and extend through the entire nearshore zone and past the breaker zone to prevent or decrease sand deposition in the channel (Kaufman and Pilkey 1979, pp. 193–195). Groins are also shore-perpendicular structures that are designed to trap sand that would otherwise be transported by longshore currents and can cause downdrift erosion (Kaufman and Pilkey 1979, pp. 193–195).

These in-water structures have profound effects on adjacent beaches (Kaufman and Pilkey 1979, p. 194). Jetties and groins placed to stabilize a beach or inlet prevent normal sand transport, resulting in accretion of sand on updrift beaches and acceleration of beach erosion downdrift of the structures (Komar 1983, pp. 203–204; Pilkey *et al.* 1984, p. 44). Witherington *et al.* (2005, p. 356) found a significant negative relationship between loggerhead nesting density and distance from the nearest of 17 ocean inlets on the Atlantic coast of Florida. The effect of inlets in lowering nesting density was



observed both updrift and downdrift of the inlets, leading researchers to propose that beach instability from both erosion and accretion may discourage loggerhead nesting.

Following construction, the presence of groins and jetties may interfere with nesting turtle access to the beach, result in a change in beach profile and width (downdrift erosion, loss of sandy berms, and escarpment formation), trap hatchlings, and concentrate predatory fishes, resulting in higher probabilities of hatchling predation. In addition to decreasing nesting habitat suitability, construction or repair of groins and jetties during the nesting season may result in the destruction of nests, disturbance of females attempting to nest, and disorientation of emerging hatchlings from project lighting.

However, groins and jetties constructed in appropriate high erosion areas, or to offset the effects of shoreline armoring, may reestablish a beach where none currently exists, stabilize the beach in rapidly eroding areas and reduce the potential for escarpment formation, reduce destruction of nests from erosion, and reduce the need for future sand placement events by extending the interval between sand placement events. USFWS includes terms and conditions in its biological opinions for groin and jetty construction projects to eliminate or reduce impacts to nesting and hatchling sea turtles, sea turtle nests, and sea turtle nesting habitat.

*Coastal development:*

Coastal development not only causes the loss and degradation of suitable nesting habitat, but can result in the disruption of powerful coastal processes accelerating erosion and interrupting the natural shoreline migration. This may in turn cause the need to protect upland structures and infrastructure by armoring, which causes changes in, additional loss of, or impact to the remaining sea turtle habitat.

In the southeastern United States, numerous armoring or erosion control structures (e.g., bulkheads, seawalls, soil retaining walls, rock revetments, sandbags, geotextile tubes) that create barriers to nesting have been constructed to protect upland

residential and commercial development. Armoring is any rigid structure placed parallel to the shoreline on the upper beach to prevent both landward retreat of the shoreline and inundation or loss of upland property by flooding and wave action (Kraus and McDougal 1996, p. 692). Although armoring structures may provide short-term protection to beachfront property, they do little to promote or maintain sandy beaches used by loggerhead sea turtles for nesting. These structures influence natural shoreline processes and the physical beach environment, but the effects are not well understood. However, it is clear that armoring structures prevent long-term recovery of the beach and dune system (i.e., building of the back beach) by physically prohibiting dune formation from wave uprush and wind-blown sand. The proportion of coastline that is armored is approximately 3 percent (9 km (5.6 miles)) in North Carolina (Godfrey 2009, pers. comm.), 12 percent (29 km (18.0 miles)) in South Carolina (Griffin 2009, pers. comm.), 9 percent (14 km (8.7 miles)) in Georgia (Dodd 2009, pers. comm.), 18 percent (239 km (148.4 miles)) in Florida (Schroeder and Mosier 2000, p. 291), 6 percent (7.5 km (4.7 miles)) in Alabama (Morton and Peterson 2005, entire), and 0 percent along the Mississippi barrier islands (Morton and Peterson 2005, entire).

In addition to coastal armoring, there are a variety of other coastal construction activities that may affect sea turtles and their nesting habitat. These include construction, repair, and maintenance of upland structures and dune crossovers; installation of utility cables; installation and repair of public infrastructure (such as coastal highways and emergency evacuation routes); and construction equipment and lighting associated with any of these activities. Many of these activities alter nesting habitat, as well as directly harm adults, nests, and hatchlings. Most direct construction-related impacts can be avoided by requiring that nonemergency activities be performed outside of the nesting and hatching season. However, indirect effects can also result from the postconstruction presence of structures on the beach. The presence of these structures may cause adult females to return to the ocean without nesting, deposit their nests lower on the beach where they are more susceptible to frequent and prolonged tidal inundation, or select less suitable nesting sites.

Coastal development also contributes to habitat degradation by increasing light pollution. Both nesting and hatchling sea turtles are adversely affected by the presence of artificial lighting on or near the beach (Witherington and Martin 1996, pp. 2–5). See the threat category for *Artificial lighting* below for additional information.

Stormwater and other water source runoff from coastal development, including beachfront parking lots, building rooftops, roads, decks, and draining swimming pools adjacent to the beach, is frequently discharged directly onto Northwest Atlantic beaches and dunes either by sheet flow, through stormwater collection system outfalls, or through small-diameter pipes. These outfalls create localized erosion channels, prevent natural dune establishment, and wash out sea turtle nests (Florida Fish and Wildlife Conservation Commission, unpublished data).

*Artificial lighting:*

Experimental studies have shown that artificial lighting deters adult female turtles from emerging from the ocean to nest (Witherington 1992, pp. 36–38). Witherington (1986, p. 71) also found that loggerheads aborted nesting attempts at a greater frequency in lighted areas. In addition, because adult females rely on visual brightness cues to find their way back to the ocean after nesting, those turtles that nest on lighted beaches may become disoriented by artificial lighting and have difficulty finding their way back to the ocean. Although loggerhead turtles prefer dark beaches for nesting, many do nest in lighted areas. In doing so, they place the lives of their offspring at risk as artificial lighting can impair the ability of hatchlings to properly orient to the ocean once they leave their nests (Witherington and Martin 1996, pp. 7–13). Hatchlings, unable to find the ocean or delayed in reaching it, are likely to incur high mortality from dehydration, exhaustion, or predation (Carr and Ogren 1960, p. 23; Ehrhart and Witherington 1987, pp. 66–67; Witherington and Martin 1996, p. 11).

Based on hatchling orientation index surveys at nests located at 23 representative beaches in six counties around Florida in 1993 and 1994, Witherington *et al.* (1996,

entire) found that, by county, approximately 10 to 30 percent of nests showed evidence of hatchlings disoriented by lighting. From this survey and from measures of hatchling production (Florida Fish and Wildlife Conservation Commission, unpublished data), the actual number of hatchlings disoriented by lighting in Florida is likely in the hundreds of thousands per year. Mortality of disoriented hatchlings is likely very high (NMFS and USFWS 2008, p. I-43).

Efforts are underway to reduce light pollution on sea turtle nesting beaches. In the southeastern United States, the effects of light pollution on sea turtles are most extensive in Florida due to dense coastal development. Enforcement of mandatory lighting ordinances in Florida and other States has increased. The Florida Fish and Wildlife Conservation Commission, working in close coordination with USFWS, has developed a sea turtle lighting certification program that involves conducting workshops to educate all interested parties about the effects of lighting on sea turtles, the best lighting options to use near sea turtle nesting beaches, and the wide variety of light fixtures and bulbs available to manage lighting on their properties without negatively impacting sea turtles. In addition, sand placement projects typically include dune construction and these created dunes help minimize the effects of landward artificial lighting by blocking some of the light and creating a dark silhouette for nesting and hatchling turtle crawling to the ocean.

*Beach erosion:*

Natural beach erosion events may influence the quality of nesting habitat. Short-term erosion events (e.g., atmospheric fronts, northeasters, tropical storms, and hurricanes) are common phenomena throughout the Northwest Atlantic loggerhead nesting range and may vary considerably from year to year. Although these erosion events may affect loggerhead hatchling production, the results are generally localized and they rarely result in whole-scale losses over multiple nesting seasons. The negative effects of hurricanes on low-lying and developed shorelines used for nesting by loggerheads may be longer-lasting and a greater threat overall.

Hurricanes and other storm events can result in the direct loss of sea turtle nests, either by erosion or washing away of the nests by wave action and inundation or “drowning” of the eggs or preemergent hatchlings within the nest, or indirectly affect sea turtles by causing the loss of nesting habitat. Depending on their frequency, storms can affect sea turtles on either a short-term basis (nests lost for one season and temporary loss of nesting habitat) or a long-term basis (habitat unable to recover due to frequent storm events). The manner in which hurricanes affect sea turtle nesting also depends on their characteristics (winds, storm surge, rainfall), the time of year (within or outside of the nesting season), and where the northeast edge of the hurricane crosses land.

Climate change studies have indicated a trend toward increasing hurricane intensity (Emanuel 2005, p. 686; Webster *et al.* 2005, p. 1846; Karl *et al.* 2009, p. 114). When combined with the effects of sea level rise (see the threat category for *Climate change* below for additional information), there may be increased cumulative impacts from future storms.

USFWS acknowledges that we cannot fully address the threat of natural beach erosion facing loggerheads. However, we can determine how we respond to beach erosion events working with the States, local governments, and Federal agencies such as the Federal Emergency Management Agency (FEMA) and the U.S. Army Corps of Engineers. Emergency beach sand placement activities conducted under the USFWS’s Statewide Programmatic Biological Opinion for the U.S. Army Corps of Engineers planning and regulatory sand placement activities include requirements for post-disaster sand placement activities in Florida. In addition, USFWS and FEMA have two programmatic consultations for post-disaster response in Florida that cover replacement of pre-existing facilities and berm construction. These consultations have enabled a faster response to complete shore protection activities and protect sea turtle nesting.

*Climate change:*

Climate change has the potential to impact loggerhead sea turtles in the Northwest Atlantic. The decline in loggerhead nesting in Florida from 1998 to 2007, as well as the recent increase, appears to be tied to climatic conditions (Van Houtan and Halley 2011, p. 3). Global sea level during the 20<sup>th</sup> century rose at an estimated rate of about 1.7 millimeters (mm) (0.7 in) per year or an estimated 17 cm (6.7 in) over the entire 100-year period, a rate that is an order of magnitude greater than that seen during the several millennia that followed the end of the last ice age (Bindoff *et al.* 2007, p. 409). Global sea level is projected to rise in the 21<sup>st</sup> century at an even greater rate. In the southeastern United States, the U.S. Global Change Research Program stated that sea level is likely to increase on average up to 0.61 m (2 ft) or more by the end of the 21<sup>st</sup> century (Karl *et al.* 2009, p. 114). Although rapid changes in sea level are predicted, estimated timeframes and resulting water levels vary due to the uncertainty about global temperature projections and the rate of ice sheets melting and slipping into the ocean (Bindoff *et al.* 2007, pp. 409, 421).

Potential impacts of climate change to Northwest Atlantic loggerheads include beach erosion from rising sea levels, repeated inundation of nests, skewed hatchling sex ratios from rising incubation temperatures, and abrupt disruption of ocean currents used for natural dispersal during the complex life cycle (Fish *et al.* 2005, pp. 489–490; Fish *et al.* 2008, p. 336; Hawkes *et al.* 2009, pp. 139–141; Poloczanska *et al.* 2009, pp. 164–175). Along developed coastlines, and especially in areas where shoreline protection structures have been constructed to limit shoreline movement, rising sea levels will cause severe effects on loggerhead nesting habitat and nesting females and their eggs. The loss of habitat as a result of climate change could be accelerated due to a combination of other environmental and oceanographic changes such as an increase in the intensity of storms and/or changes in prevailing currents, both of which could lead to increased beach loss via erosion (Kennedy *et al.* 2002, pp. 7, 14, 23, 40; Meehl *et al.* 2007, pp. 783, 788). Thus, climate change impacts could have profound long-term impacts on loggerhead nesting populations in the Northwest Atlantic Ocean, but it is not possible to project the impacts at this point in time.

USFWS acknowledges that we cannot fully address the significant, long-term threat of climate change to loggerhead sea turtles. However, we can determine how we respond to the threat of climate change by providing protection to the known nesting sites of the turtle. We can also identify measures to protect nesting habitat from the actions (e.g., coastal armoring, sand placement) undertaken to respond to climate change that may potentially impact the Northwest Atlantic Ocean loggerhead DPS.

*Habitat obstructions:*

Both natural and anthropogenic features (e.g., offshore sand bars, ponding along the beachfront) can act as barriers or deterrents to adult females attempting to access a beach. In addition, hatchlings often must navigate through a variety of obstacles before reaching the ocean. These include natural (e.g., tree stumps, fallen trees) and human-made debris. Debris on the beach may interfere with a hatchling's progress toward the ocean. Research has shown that travel times of hatchlings from the nest to the water may be extended when traversing areas of heavy foot traffic or vehicular ruts (Hosier *et al.* 1981); the same is true of debris on the beach. Hatchlings may be upended and spend both time and energy in righting themselves. Some beach debris may have the potential to trap hatchlings and prevent them from successfully reaching the ocean. In addition, debris over the tops of nests may impede or prevent hatchling emergence.

*Human-caused disasters and response to natural and human-caused disasters:*

Oil spills threaten loggerhead sea turtles in the Northwest Atlantic. Oil spills in the vicinity of nesting beaches just prior to or during the nesting season place nesting females, incubating egg clutches, and hatchlings at significant risk from direct exposure to contaminants (Fritts and McGehee 1982, p. 38; Lutcavage *et al.* 1997, p. 395; Witherington 1999, p. 5), as well as negative impacts on nesting habitat. Annually about 1 percent of all sea turtle strandings along the U.S. east coast have been associated with oil, but higher rates of 3 to 6 percent have been observed in South Florida and Texas (Rabalais and Rabalais 1980, p. 126; Plotkin and Amos 1990, p. 742; Teas 1994, p. 9).

Oil cleanup activities can also be harmful. Earth-moving equipment can dissuade females from nesting and destroy nests, containment booms can entrap hatchlings, and lighting from nighttime activities can misdirect turtles (Witherington 1999, p. 5).

*Deepwater Horizon (Mississippi Canyon 252) Oil Spill:* The Deepwater Horizon (Mississippi Canyon 252) oil spill, which started April 20, 2010, discharged oil into the Gulf of Mexico through July 15, 2010. According to government estimates, between 379 and 757 million liters (100 and 200 million gallons) of oil were released into the Gulf of Mexico during this time. The U.S. Coast Guard estimates that more than 189 million liters (50 million gallons) of oil have been removed from the Gulf, or roughly a quarter of the spill amount. Additional impacts to natural resources may be attributed to the 7 million liters (1.84 million gallons) of dispersant that were applied to the spill. The U.S. Coast Guard, the States, and Responsible Parties that formed the Unified Area Command (with advice from Federal and State natural resource agencies) initiated protective measures and cleanup efforts by preparing contingency plans to deal with petroleum and other hazardous chemical spills for each State's coastline. These plans identified sensitive habitats, including all federally listed species' habitats, which received a higher priority for response actions and allowed for immediate habitat protective measures coinciding with cleanup activities.

Throughout the Deepwater Horizon oil spill response, the U.S. Coast Guard was responsible for and continues to oversee implementation and documentation of avoidance and minimization measures to protect trust resources, including sea turtles. Though containment of the well was completed in September 2010, other countermeasures, cleanup, and waste disposal are continuing and, therefore, a detailed analysis of the success of the avoidance and minimization measures has not been conducted. In addition, Natural Resource Damage Assessment studies regarding potential effects to fish and wildlife resources are currently being conducted along the northern Gulf of Mexico coast.



It is not yet clear what the immediate and long-term impacts of the Deepwater Horizon oil well blowout and uncontrolled release has had, and will have, on loggerhead sea turtles in the Gulf of Mexico.

*Military mission, testing, and training activities:*

*Troop presence:* The presence of soldiers and other personnel on the beach, particularly at night during nesting and hatching season, could result in harm or death to individual nesting turtles or hatchlings, as well as deter females from nesting. Training exercises require concentration and often involve inherently dangerous activities. A nesting sea turtle or emerging hatchling could be overlooked and injured or killed by training activities on the beach. Training activities also may require the use of pyrotechnics and lighting, and both nesting and hatchling sea turtles are adversely affected by the presence of artificial lighting on or near the beach (Witherington and Martin 1996, pp. 2–5). See the threat category for *Artificial lighting* above for additional information.

*Vehicles:* The use of vehicles for amphibious assault training, troop transport, helicopter landing drops and extraction, search and rescue, and unmanned aerial vehicle use all have the potential to injure or kill nesting females and emerging hatchlings. In addition, heavy vehicles have the potential to compact sand that may affect the ability of hatchlings to climb out of nests or create ruts that entrap hatchlings after emergence. See the threat category for *Beach driving* above for additional information.

*Live fire exercises:* Live fire exercises are inherently dangerous, and spent ammunition could injure or kill sea turtles and hatchlings, particularly at night. A nesting sea turtle or emerging hatchling could approach the beach area during an exercise and be harmed or killed.

*Placement or removal of objects on the beach:* Digging into the sand to place or remove objects (e.g., mine placement and extraction) could result in direct mortality of

developing embryos in nests within the training area for those nests that are missed during daily nesting surveys and thus not marked for avoidance. The exact number of these missed nests is not known. However, in two separate monitoring programs on the east coast of Florida where hand digging was performed to confirm the presence of nests and thus reduce the chance of missing nests through misinterpretation, trained observers still missed about 6 to 8 percent of the nests because of natural elements (Martin 1992, p. 3; Ernest and Martin 1993, pp. 23–24). This must be considered a conservative number, because missed nests are not always accounted for. In another study, Schroeder (1994, p. 133) found that, even under the best of conditions, about 7 percent of nests can be misidentified as false crawls by highly experienced sea turtle nest surveyors. Signs of hatchling emergence are very easily obliterated by the same elements that interfere with detection of nests.

USFWS consults with the Department of Defense under section 7 of the Act on their Integrated Natural Resources Management Plans, military mission, testing, and training activities that may affect nesting and hatchling sea turtles, sea turtle nests, and sea turtle nesting habitat. Efforts to minimize the effects of these activities including natural resource management have focused on adjusting the activity timing to minimize encounters with loggerheads and adjusting locations of activities to reduce overlap with sea turtle habitats.

#### *Criteria Used To Identify Critical Habitat*

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. We review available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we consider whether designating additional areas—outside those currently occupied as well as those occupied at the time of listing—is necessary to ensure the conservation of the species. Here, we are proposing to designate critical habitat in areas within the geographical area occupied by the species at the time of listing in 2011 (50 CFR 17.11(h)). We are not currently proposing to designate any areas outside the

geographical area occupied by the species because occupied areas are sufficient for the conservation of the species.

Although the loggerhead sea turtle occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans (Dodd 1988, p. 16), under our regulations, critical habitat can only be designated in areas under U.S. jurisdiction (50 CFR 424.12(h)). Because loggerhead sea turtle nesting in the United States only occurs within the Northwest Atlantic Ocean DPS, we have defined the terrestrial portion of the geographical area occupied for the loggerhead sea turtle as those U.S. areas in the Northwest Atlantic Ocean DPS where nesting has been documented for the most part annually for the 10-year period from 2002 to 2011 as this time period represents the most consistent and standardized nest count surveys (Florida Fish and Wildlife Conservation Commission 2012, entire; Georgia Department of Natural Resources 2012, entire; Gulf Islands National Seashore 2012a, entire; Gulf Islands National Seashore 2012b, entire; North Carolina Wildlife Resources Commission 2012, entire; Share the Beach 2012, entire; South Carolina Department of Natural Resources (SCDNR) 2012, entire).

As described in the Background section above, five recovery units have been identified for the Northwest Atlantic population of the loggerhead sea turtle (NMFS and USFWS 2008, pp. II-2–II-6). Four of these recovery units represent nesting assemblages in the southeastern United States and were delineated based on genetic differences and a combination of geographic distribution of nesting densities, geographic separation, and geopolitical boundaries. The fifth recovery unit (Greater Caribbean Recovery Unit) includes all nesting assemblages within the Greater Caribbean, which includes Puerto Rico and the U.S. Virgin Islands. No loggerhead sea turtle nesting has ever been documented in Puerto Rico (Diez 2012, pers. comm.). Only two loggerhead sea turtles have been documented as nesting in the U.S. Virgin Islands, both on Buck Island Reef National Monument off the north coast of St. Croix (Pollock *et al.* 2009, entire) where nesting has been documented since 2003. Therefore, although some loggerhead sea turtle nesting has been documented on beaches under U.S. jurisdiction within the Greater Caribbean Recovery Unit, we do not propose to designate any critical habitat there due to

the very low number of nests laid there. The four recovery units for which we propose to designate terrestrial critical habitat are the Northern Recovery Unit, Peninsular Florida Recovery Unit, Dry Tortugas Recovery Unit, and Northern Gulf of Mexico Recovery Unit.

All terrestrial units proposed for designation as critical habitat are currently occupied by the loggerhead sea turtle and contain the physical and biological features, occur within the species' geographical range, and contain one or more of the PCEs sufficient to support the terrestrial life-history processes of the species.

The selected primary beaches have the highest nesting densities within each of the four recovery units, have a good geographic spatial distribution that will help ensure the protection of genetic diversity, and collectively provide a good representation of total nesting. The selected beaches adjacent to the primary high-density nesting beaches currently support loggerhead nesting and can serve as expansion areas should the high-density nesting beaches be significantly degraded or temporarily or permanently lost through natural processes or upland development. Thus, the amount and distribution of critical habitat being proposed for designation for terrestrial habitat will conserve recovery units of the Northwest Atlantic Ocean DPS of the loggerhead sea turtle by:

- (1) Maintaining their existing nesting distribution;
- (2) Allowing for movement between beach areas depending on habitat availability (response to changing nature of coastal beach habitat) and supporting genetic interchange;
- (3) Allowing for an increase in the size of each recovery unit to a level where the threats of genetic, demographic, and normal environmental uncertainties are diminished; and
- (4) Maintaining their ability to withstand local or unit level environmental fluctuations or catastrophes.

We used the following process to select specific areas in the terrestrial environment as critical habitat units for the Northwest Atlantic Ocean DPS of the

loggerhead sea turtle that contain the PBFs and PCEs. For each recovery unit, we looked at nesting densities by State or regions within a State (PBF # 1) to ensure a good spatial distribution of critical habitat. This approach was relatively straightforward for the Northern Recovery Unit and the Northern Gulf of Mexico Recovery Unit, and for the Dry Tortugas Recovery Unit where we propose to designate all islands west of Key West where loggerhead nesting has been documented as terrestrial critical habitat based on the unit's small size. However, the approach used for the Peninsular Florida Recovery Unit was more complex. The methodology used for identifying critical habitat was developed with the assistance of five State agency technical consultants with sea turtle expertise in North Carolina, South Carolina, Georgia, and Florida. The methodology is described by recovery unit below.

#### Northern Recovery Unit

For the Northern Recovery Unit, we used loggerhead nest counts from 2006–2011 to calculate mean nesting density for each beach. We defined beach segments as islands or mainland beaches separated by creeks, inlets, or sounds. However, in some cases, for long contiguous stretches of habitat with no natural features, we used political boundaries to delineate beaches (e.g., Myrtle Beach).

We divided beach nesting densities into four equal groups by State and selected beaches that were within the top 25 percent (highest nesting densities) for designation as critical habitat. These high nesting density beaches along with the beaches adjacent to them as described below encompassed the majority of nesting within the recovery unit. The reason we determined high-density nesting beaches within each State, rather than the entire Northern Recovery Unit, was that doing so allowed for the inclusion of beaches near the northern extent of the range (North Carolina) that would otherwise be considered low density when compared with beaches further south (Georgia and South Carolina), ensuring a good spatial distribution. Although some loggerhead sea turtle nesting regularly occurs in Virginia, we do not propose to designate any critical habitat there due

to the very low number of nests (less than 10 annually from 1992 to 2011) laid in the State.

We also identified adjacent beaches for each of the high-density nesting beaches based on current knowledge about nest site fidelity. Loggerheads are known to exhibit high site fidelity to individual nesting beaches. In a study in Georgia, 55 percent (12 of 22) of nesting females tracked during the internesting period used a single island for nesting, while 40 percent (9 of 22) used two islands (Scott 2006, p. 51). Protecting beaches adjacent to high-density nesting beaches should provide sufficient habitat to accommodate and provide a rescue effect for nesting females whose primary nesting beach has been lost. Although these areas currently support nesting, they will facilitate recovery by providing additional nesting habitat for population expansion. Therefore, in the Northern Recovery Unit, we selected one island to the north and one island to the south, where appropriate, of each of the high-density nesting beaches identified for inclusion as critical habitat. Islands were selected because nesting occurs on the islands and not the mainland beaches.

We identified 39 units in the Northern Recovery Unit for designation as terrestrial critical habitat for the loggerhead sea turtle. However, we have exempted one of the identified units (Marine Corps Base Camp Lejeune (Onslow Beach)) from critical habitat designation under section 4(a)(3) of the Act (see Exemptions section below). The remaining 38 units encompass 393.7 km (244.7 miles) of Atlantic Ocean shoreline: 8 units occur in North Carolina, 22 in South Carolina, and 8 in Georgia. These 38 areas encompass approximately 86 percent of the documented nesting (numbers of nests) within the recovery unit.

#### Peninsular Florida Recovery Unit

For the Peninsular Florida Recovery Unit, we took a similar approach to the one used for the Northern Recovery Unit. However, we used recent information on loggerhead genetics within the recovery unit (Shamblin *et al.* 2011, entire) to break the

unit into smaller regions for the purpose of assessing beach nesting densities (analogous to assessing nesting densities by State for the Northern Recovery Unit).

Within the southeastern United States, Shamblin *et al.* (2011, p. 585) supported recognition of a minimum of six distinct units based solely on genetics. Four of these genetic units occur fully or partially within the Peninsular Florida Recovery Unit: (1) northern, (2) central eastern Florida, (3) southern Florida (southeastern and southwestern), and (4) central western Florida. We used these four regions identified by Shamblin *et al.* (2011, p. 585) for our assessment, but split southern Florida into southeastern and southwestern regions based on additional genetic analyses (Shamblin 2012, pers. comm.). We included the Florida Keys in Monroe County from Key West and east in the southeastern region because, even though the sample sizes for loggerhead genetics on these islands are too small to make any definitive determinations, they do indicate that loggerheads nesting in this area are least likely to group out with those in the southwestern region (Shamblin 2012, pers. comm.).

Therefore, we split the Peninsular Florida Recovery Unit into the following five regions for an assessment of nesting densities based on recovery unit boundaries (NMFS and USFWS 2008, pp. II-2–II-6) and recent genetic analyses (Shamblin *et al.* 2011, p. 585; Shamblin 2012, pers. comm.):

- (1) Northern Florida – Florida–Georgia border to Ponce Inlet;
- (2) Central Eastern Florida – Ponce Inlet to Fort Pierce Inlet;
- (3) Southeastern Florida – Fort Pierce Inlet to Key West in Monroe County;
- (4) Central Western Florida – Pinellas County to San Carlos Bay off Lee County;

and

- (5) Southwestern Florida – San Carlos Bay off Lee County to Sandy Key in northwest Monroe County.

The next step for the Peninsular Florida Recovery Unit was to delineate beaches within these five regions. For the Florida Atlantic Coast from the Florida–Georgia border through central eastern Monroe County, and for the Florida Gulf Coast from the Pinellas

County–Pasco County border through northwestern Monroe County, we first defined beach segments as islands or mainland beaches separated by inlets, cuts, rivers, creeks, bays, sounds, passes, and channels. Note that, for the Miami Beaches area, we did not use the Haulover Cut to delineate beaches north and south of this water feature. The reason for this is that the permit holder survey area for the Miami Beaches occurs both north and south of the Haulover Cut, and the nesting data could not readily be separated. In this situation, the nesting density analysis included data that covered the entire survey area from the south end of Golden Beach to Government Cut.

After breaking out beach segments using inlets and other water features, we determined that the identified beach segments were overly large in some areas for an accurate assessment of nesting densities. Calculating nesting densities for overly large areas could result in some high-density nesting beaches not being identified because they would be averaged in with adjacent lower density nesting beaches. To address this issue, we next used information available on turtle nest site fidelity to further separate beach segments. Nest site fidelity varies among females, with some females laying multiple nests on a relatively small section of beach and some laying their nests over a much larger section of beach. Schroeder *et al.* (2003, p. 119) compiled reported information on mean distances between the nest sites of individual loggerheads, with the reported averages of females nesting on the Florida Atlantic coast varying from 3.0 to 17.48 km (1.9 to 10.9 miles). In Southwest Florida, Tucker (2010, p. 51) reported a mean nest site fidelity of 28.1 km (17.5 miles) for all nests, but 16.9 km (10.5 miles) if the first nests were omitted to account for each turtle’s navigational correction. Based on this information, we decided to use distances of approximately 20.0 km (12.4 miles) to further separate out beach segments. We used this 20.0-km (12.4-mile) target in concert with sea turtle permit holder nesting survey area boundaries to delineate beaches for the nesting density analysis.

For the Florida Keys in Monroe County, we grouped the islands from Key West and east where loggerhead nesting has been documented into three separate segments: (1) Upper segment consisting of Lower Matecumbe Key and Long Key; (2) Middle segment



consisting of Little Crawl Key, Fat Deer Key, Key Colony Beach (formerly called Shelter Key), and Vaca Key; and (3) Lower segment consisting of Bahia Honda Key, Big Pine Key, and Key West. Note that Sandy Key in northwestern Monroe County was grouped with the Southwestern Florida Region.

Once we defined the beaches by region within the Peninsular Florida Recovery Unit, we used the same approach described above for the Northern Recovery Unit. We divided beach nesting densities into four equal groups by region and selected beaches that were within the top 25 percent (highest nesting densities) for designation as critical habitat. These high density nesting beaches along with the beaches adjacent to them as described below encompassed the majority of nesting within the recovery unit. The reason we determined high-density nesting beaches within each region (rather than the entire Peninsular Florida Recovery Unit) was to ensure the inclusion of beaches that would otherwise be considered low density when compared with beaches along the southeastern Florida coast and thus ensure a good spatial distribution of critical habitat units within the recovery unit.

We also identified adjacent areas for each of the high-density nesting beaches based on current knowledge about nest site fidelity. Protecting beaches adjacent to high-density nesting beaches should provide sufficient habitat to accommodate and provide a rescue effect for nesting females whose primary nesting beach has been lost. To identify adjacent beaches, we again used information available on turtle nest site fidelity. Therefore, for the Peninsular Florida Recovery Unit, we selected adjacent beaches approximately 20.0 km (12.4 miles) to the north and 20.0 km (12.4 miles) to the south, where appropriate, of each of the high-density nesting beaches identified for inclusion as critical habitat. The selected adjacent beaches were based on permit holder survey area boundaries with one or more permit holder survey areas being included depending on the length of the survey areas. Within these adjacent areas for each of the high-density nesting beaches, we did not include segments that were highly urbanized, highly erosional, or prone to repeated flooding.

Although no beaches in the Florida Keys east of Key West were selected using the above process, we decided to include beaches on two Keys to ensure good spatial distribution of loggerhead nesting in the southern portion of the range for this recovery unit. The Keys (Long Key and Bahia Honda Key) we are proposing to designate as terrestrial critical habitat address this need for good spatial distribution of nesting. In addition, these beaches are unique from the other beaches we are proposing to designate in that they are limestone islands with narrow, low-energy beaches (beaches where waves are not powerful); they have carbonate sands; and they are relatively close to the major offshore currents that are known to facilitate the dispersal of post-hatchling loggerheads.

We identified 37 units in the Peninsular Florida Recovery Unit for designation as terrestrial critical habitat for the loggerhead sea turtle. However, we have exempted two of the identified units (Cape Canaveral Air Force Station and Patrick Air Force Base) from critical habitat designation under section 4(a)(3) of the Act (see Exemptions section below). The remaining 35 units encompass 364.9 km (226.7 miles) of Atlantic Ocean shoreline and 198.8 km (123.5 miles) of Gulf of Mexico shoreline totaling 563.7 km (350.2 miles) of shoreline in this recovery unit: 18 units occur along the Atlantic Ocean coast, and 17 units occur along the Gulf of Mexico coast. These 35 units encompass approximately 87 percent of the documented nesting (numbers of nests) within the recovery unit.

#### Dry Tortugas Recovery Unit

For the Dry Tortugas Recovery Unit, we propose to designate all islands west of Key West, Florida, where loggerhead nesting has been documented, as terrestrial critical habitat due to the extremely small size of this recovery unit. We identified four units in the Dry Tortugas Recovery Unit for designation as terrestrial critical habitat for the loggerhead sea turtle. These four units encompass 14.5 km (9.0 miles) of Gulf of Mexico shoreline. These four units encompass 100 percent of the nesting (numbers of nests) where loggerhead nesting is known to occur within the recovery unit.

### Northern Gulf of Mexico Recovery Unit

For the Northern Gulf of Mexico Recovery Unit, we used loggerhead nest counts from 2006–2011 to calculate mean nesting density for each beach. We defined beach segments as islands or mainland beaches separated by cuts, bays, sounds, or passes. Note that we did not use Crooked Island Sound, St. Andrews Bay Entrance Channel, and Destin Pass to delineate beaches west and east of these water features. The reason for this is that the permit holder survey areas for these three locations occur both west and east of the water feature, and the nesting data could not readily be separated. In these situations, the nesting density analysis included data that covered the entire survey areas on both sides of the water feature.

After breaking out beach segments using cuts and other water features, we determined that the identified beach segments were overly large in some areas for an accurate assessment of nesting densities. Calculating nesting densities for overly large areas could result in some high-density nesting beaches not being identified because they would be averaged in with adjacent lower density nesting beaches. To address this issue, we used political boundaries and information available on turtle nest site fidelity to further separate beach segments. Although some preliminary information on nest site fidelity is available for the Northern Gulf of Mexico Recovery Unit, it was not sufficient to determine average distances between nest sites within a season for nesting females in this recovery unit. Therefore, as described in the Peninsular Florida Recovery Unit section above, we decided to use distances of approximately 20.0 km (12.4 miles) to further separate out beach segments based on available information on nest site fidelity. We used this 20.0-km (12.4-mile) target in concert with sea turtle permit holder nesting survey area boundaries to delineate beaches for the nesting density analysis.

Once we defined the beaches by State within the Northern Gulf of Mexico Recovery Unit, we used a similar approach as the one described above for the Northern Recovery Unit. For Mississippi, nesting data are not collected regularly or in a standardized manner. Prior to 2006, the National Park Service annually conducted aerial

sea turtle nesting surveys once a week during the nesting season on the Mississippi District of Gulf Islands National Seashore. Aerial surveys were conducted over Cat, West Ship, East Ship, Horn, and Petit Bois Islands. All nests sighted during aerial surveys appeared to be loggerhead nests. The total number of nests for a season ranged from 0 to approximately 15, although aerial survey methods and frequency may have missed nests. Although regular surveys have not been conducted since 2005, loggerhead nesting was documented in 2010 and 2011 during the Deepwater Horizon event response efforts. Horn and Petit Bois Islands have had the most nests; the other islands have had occasional nests. For Alabama and the Florida Panhandle, we divided beach nesting densities into four equal groups by State and selected beaches that were within the top 25 percent (highest nesting densities) for designation as critical habitat. These high density nesting beaches along with the beaches adjacent to them as described below encompassed the majority of nesting within the recovery unit. The reason we determined high-density nesting beaches within each State (rather than the entire Northern Gulf of Mexico Recovery Unit) was that it allowed consideration for the inclusion of beaches near the western extent of the range that would otherwise be considered low density when compared with beaches in Alabama and the Florida Panhandle, thus ensuring a good spatial distribution. While nesting in Mississippi may be considered low density compared to Alabama and the Florida Panhandle, the nesting numbers were much higher than those in Louisiana and Texas. Thus, although some loggerhead sea turtle nesting likely regularly occurs in Louisiana and Texas, we do not propose to designate any critical habitat there due to the very low number of nests (less than 10 annually in each State from 2002 to 2011) known to be laid in these States.

We also identified adjacent areas for each of the high-density nesting beaches in Alabama and the Florida Panhandle based on current knowledge about nest site fidelity. Protecting beaches adjacent to high-density nesting beaches should provide sufficient habitat to accommodate and provide a rescue effect for nesting females whose primary nesting beach has been lost. To identify adjacent beaches, we again used information available on turtle nest site fidelity. Although some preliminary information on nest site fidelity is available for the Northern Gulf of Mexico Recovery Unit, it was not sufficient

to determine average distances between nest sites within a season for nesting females in this recovery unit. Therefore, we used available information on nest site fidelity for the Peninsular Florida Recovery Unit and selected adjacent beaches approximately 20.0 km (12.4 miles) to the west and 20.0 km (12.4 miles) to the east, where appropriate, of each of the high-density nesting beaches identified for inclusion as critical habitat. The selected adjacent beaches were based on permit holder survey area boundaries with one or more permit holder survey areas being included depending on the length of the survey areas. Within these adjacent areas for each of the high-density nesting beaches, we did not include segments that were highly urbanized, highly erosional, or prone to repeated flooding.

We identified 14 units in the Northern Gulf of Mexico Recovery Unit for designation as terrestrial critical habitat for the loggerhead sea turtle. However, we have exempted one of the identified units (Eglin Air Force Base (Cape San Blas)) from critical habitat designation under section 4(a)(3) of the Act (see Exemptions section below). The remaining 13 units encompass 218.0 km (135.5 miles) of Gulf of Mexico shoreline: 2 units occur in Mississippi, 3 in Alabama, and 8 in the Florida Panhandle. These 13 units encompass approximately 75 percent of the documented nesting (numbers of nests) within the recovery unit. The percentage of nesting is based on data from the Florida Panhandle and Alabama only.

When determining proposed critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features necessary for the loggerhead sea turtle. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse

modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

The critical habitat designation is defined by the maps, as modified by any accompanying regulatory text, presented at the end of this document in the rule portion. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on <http://www.regulations.gov> at Docket No. FWS-R4-ES-2012-0103, on our Internet site <http://www.fws.gov/northflorida>, and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

In order to translate the selection process above to the areas on the ground, we used the following methodology to identify the mapped boundaries of critical habitat for the Northwest Atlantic Ocean loggerhead DPS:

(1) Each unit was digitally mapped in Google Earth imagery using the unit boundary descriptions.

(2) Where feasible, natural or artificial features (inlets, channels, creeks, bays and sounds), political boundaries (County or City), or map-depicted land ownership (Federal, State, or local) were used as unit boundaries.

(3) Where features to be used as boundaries were highly dynamic, such as inlets, boundaries were distinguished using records of the sea turtle nesting in that area.

(4) Where natural, artificial, or political features, or land ownership could not be used for unit boundaries, boundaries were delineated by geographic means (latitude and longitude, decimal degree points).

(5) Data layers defining map units were created using Google Earth imagery, then refined using Bing imagery. Unit descriptions were then mapped using North America Lambert Conformal Conic coordinates.

### **Proposed Critical Habitat Designation**

We are proposing 1,189.9 km (739.3 miles) in 90 units in the terrestrial environment as critical habitat for the loggerhead sea turtle. Under section 4(a)(3) of the Act, we have exempted four additional units that were identified for inclusion as critical habitat (see Exemptions section below). The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat in the terrestrial environment for the Northwest Atlantic Ocean DPS of the loggerhead sea turtle. The 90 areas we propose as critical habitat and the approximate shoreline length and Federal, State, and private and other (counties and municipalities) ownership of each proposed critical habitat unit are shown in Table 1.

TABLE 1. Proposed critical habitat units for the loggerhead sea turtle by recovery unit. Beach length estimates reflect the linear distance along the nesting beach shoreline within critical habitat unit boundaries. All units are occupied.

#### Northern Recovery Unit

<b>Critical Habitat Unit</b>	<b>Length of Unit in kilometers (miles)</b>	<b>Federal</b>	<b>State</b>	<b>Private and Other (counties and municipalities)</b>
<b>North Carolina</b>				
LOGG-T-NC-01: Bogue Banks, Carteret County	38.9 (24.2)	0 (0)	4.6 (2.9)	34.3 (21.3)
LOGG-T-NC-02: Bear Island, Onslow County	6.6 (4.1)	0 (0)	6.6 (4.1)	0 (0)
LOGG-T-NC-03: Topsail Island, Onslow and Pender Counties	35.0 (21.8)	0 (0)	0 (0)	35.0 (21.8)
LOGG-T-NC-04: Lea-Hutaff Island, Pender County	6.1 (3.8)	0 (0)	0.5 (0.3)	5.6 (3.5)

LOGG-T-NC-05: Pleasure Island, New Hanover County	18.6 (11.5)	0 (0)	6.8 (4.2)	11.8 (7.3)
LOGG-T-NC-06: Bald Head Island, Brunswick County	15.1 (9.4)	0 (0)	5.8 (3.6)	9.3 (5.8)
LOGG-T-NC-07: Oak Island, Brunswick County	20.9 (13.0)	0 (0)	0 (0)	20.9 (13.0)
LOGG-T-NC-08: Holden Beach, Brunswick County	13.4 (8.3)	0 (0)	0 (0)	13.4 (8.3)
<b>North Carolina State Totals</b>	<b>154.6 (96.1)</b>	<b>0 (0)</b>	<b>24.3 (15.1)</b>	<b>130.3 (81.0)</b>
<b>South Carolina</b>				
LOGG-T-SC-01: North Island, Georgetown County	13.2 (8.2)	0 (0)	13.2 (8.2)	0 (0)
LOGG-T-SC-02: Sand Island, Georgetown County	4.7 (2.9)	0 (0)	4.7 (2.9)	0 (0)
LOGG-T-SC-03: South Island, Georgetown County	6.7 (4.2)	0 (0)	6.7 (4.2)	0 (0)
LOGG-T-SC-04: Cedar Island, Georgetown County	4.1 (2.5)	0 (0)	4.1 (2.5)	0 (0)
LOGG-T-SC-05: Murphy Island, Charleston County	8.0 (5.0)	0 (0)	8.0 (5.0)	0 (0)



LOGG-T-SC-06: Cape Island, Charleston County	8.3 (5.1)	8.3 (5.1)	0 (0)	0 (0)
LOGG-T-SC-07: Lighthouse Island, Charleston County	5.3 (3.3)	5.3 (3.3)	0 (0)	0 (0)
LOGG-T-SC-08: Raccoon Key, Charleston County	4.8 (3.0)	4.8 (3.0)	0 (0)	0 (0)
LOGG-T-SC-09: Folly Island, Charleston County	11.2 (7.0)	0 (0)	0 (0)	11.2 (7.0)
LOGG-T-SC-10: Kiawah Island, Charleston County	17.0 (10.6)	0 (0)	0 (0)	17.0 (10.6)
LOGG-T-SC-11: Seabrook Island, Charleston County	5.8 (3.6)	0 (0)	0 (0)	5.8 (3.6)
LOGG-T-SC-12: Botany Bay Island and Botany Bay Plantation, Charleston County	6.6 (4.1)	0 (0)	4.0 (2.5)	2.6 (1.6)
LOGG-T-SC-13: Interlude Beach, Charleston County	0.9 (0.6)	0 (0)	0.9 (0.6)	0 (0)
LOGG-T-SC-14: Edingsville Beach, Charleston County	2.7 (1.7)	0 (0)	0 (0)	2.7 (1.7)
LOGG-T-SC-15: Edisto Beach State	2.2 (1.4)	0 (0)	2.2 (1.4)	0 (0)

Park, Colleton County				
LOGG-T-SC-16: Edisto Beach, Colleton County	6.8 (4.2)	0 (0)	0 (0)	6.8 (4.2)
LOGG-T-SC-17: Pine Island, Colleton County	1.2 (0.7)	0 (0)	1.2 (0.7)	0 (0)
LOGG-T-SC-18: Otter Island, Colleton County	4.1 (2.5)	0 (0)	4.1 (2.5)	0 (0)
LOGG-T-SC-19: Harbor Island, Beaufort County	2.9 (1.8)	0 (0)	0 (0)	2.9 (1.8)
LOGG-T-SC-20: Little Capers Island, Beaufort County	4.6 (2.9)	0 (0)	0 (0)	4.6 (2.9)
LOGG-T-SC-21: St. Phillips Island, Beaufort County	2.3 (1.4)	0 (0)	0 (0)	2.3 (1.4)
LOGG-T-SC-22: Bay Point Island, Beaufort County	4.3 (2.7)	0 (0)	0 (0)	4.3 (2.7)
<b>South Carolina State Totals</b>	<b>127.7 (79.3)</b>	<b>18.4 (11.4)</b>	<b>48.9 (30.4)</b>	<b>60.4 (37.5)</b>
<b>Georgia</b>				
LOGG-T-GA-01: Little Tybee Island, Chatham County	8.6 (5.3)	0 (0)	8.6 (5.3)	0 (0)
LOGG-T-GA-02: Wassaw Island,	10.1 (6.3)	9.8 (6.1)	0 (0)	0.3 (0.2)

Chatham County				
LOGG-T-GA-03: Ossabaw Island, Chatham County	17.1 (10.6)	0 (0)	17.1 (10.6)	0 (0)
LOGG-T-GA-04: St. Catherines Island, Liberty County	18.4 (11.5)	0 (0)	0 (0)	18.4 (11.5)
LOGG-T-GA-05: Blackbeard Island, McIntosh County	13.5 (8.4)	13.5 (8.4)	0 (0)	0 (0)
LOGG-T-GA-06: Sapelo Island, McIntosh County	9.3 (5.8)	0 (0)	9.3 (5.8)	0 (0)
LOGG-T-GA-07: Little Cumberland Island, Camden County	4.9 (3.0)	0 (0)	0 (0)	4.9 (3.0)
LOGG-T-GA-08: Cumberland Island, Camden County	29.7 (18.4)	25.2 (15.7)	0 (0)	4.5 (2.8)
<b>Georgia State Totals</b>	<b>111.5 (69.3)</b>	<b>48.4 (30.1)</b>	<b>34.9 (21.7)</b>	<b>28.1 (17.5)</b>
<b>NORTHERN RECOVERY UNIT TOTALS</b>	<b>393.7 (244.7)</b>	<b>66.8 (41.5)</b>	<b>109.2 (67.9)</b>	<b>217.7 (135.3)</b>

#### Peninsular Florida Recovery Unit

Critical Habitat Unit	Length of Unit in kilometers (miles)	Private and Other (counties and		
		Federal	State	

				<b>municipalities)</b>
<b>Florida</b>				
LOGG-T-FL-01: South Duval County Beaches–Old Ponte Vedra, Duval and St. Johns Counties	25.2 (15.6)	0 (0)	0 (0)	25.2 (15.6)
LOGG-T-FL-02: Guana Tolomato Matanzas NERR–St. Augustine Inlet, St. Johns County	24.1 (15.0)	0 (0)	7.2 (4.4)	17.0 (10.6)
LOGG-T-FL-03: St. Augustine Inlet–Matanzas Inlet, St. Johns County	22.4 (14.0)	1.4 (0.9)	5.6 (3.5)	15.4 (9.6)
LOGG-T-FL-04: River to Sea Preserve at Marineland–North Peninsula State Park, Flagler and Volusia Counties	31.8 (19.8)	0 (0)	6.1 (3.8)	25.7 (16.0)
LOGG-T-FL-05: Ormond-by-the-Sea–Granada Blvd, Volusia County	11.1 (6.9)	0 (0)	0 (0)	11.1 (6.9)
LOGG-T-FL-06: Canaveral National Seashore North, Volusia County	18.2 (11.3)	18.2 (11.3)	0 (0)	0 (0)
LOGG-T-FL-07:	28.4 (17.6)	28.4 (17.6)	0 (0)	0 (0)

Canaveral National Seashore South–Merritt Island National Wildlife Refuge (NWR)-Kennedy Space, Brevard County				
LOGG-T-FL-08: Central Brevard Beaches, Brevard County	19.5 (12.1)	0 (0)	0 (0)	19.5 (12.1)
LOGG-T-FL-09: South Brevard Beaches, Brevard County	20.8 (12.9)	4.2 (2.6)	1.5 (1.0)	15.0 (9.3)
LOGG-T-FL-10: Sebastian Inlet–Indian River Shores, Indian River County	21.4 (13.3)	0.9 (0.6)	3.2 (2.0)	17.4 (10.8)
LOGG-T-FL-11: Fort Pierce Inlet–St. Lucie Inlet, St. Lucie and Martin Counties	35.2 (21.9)	0 (0)	0 (0)	35.2 (21.9)
LOGG-T-FL-12: St. Lucie Inlet–Jupiter Inlet, Martin and Palm Beach Counties	24.9 (15.5)	4.8 (3.0)	3.7 (2.3)	16.4 (10.2)
LOGG-T-FL-13: Jupiter Inlet–Lake Worth Inlet, Palm Beach County	18.8 (11.7)	0 (0)	2.5 (1.5)	16.3 (10.1)
LOGG-T-FL-14: Lake Worth Inlet–Boynton	24.3 (15.1)	0 (0)	0 (0)	24.3 (15.1)

Inlet, Palm Beach County				
LOGG-T-FL-15: Boynton Inlet–Boca Raton Inlet, Palm Beach County	22.6 (14.1)	0 (0)	0 (0)	22.6 (14.1)
LOGG-T-FL-16: Boca Raton Inlet–Hillsboro Inlet, Palm Beach and Broward Counties	8.3 (5.2)	0 (0)	0 (0)	8.3 (5.2)
LOGG-T-FL-17: Long Key, Monroe County	4.2 (2.6)	0 (0)	4.2 (2.6)	0 (0)
LOGG-T-FL-18: Bahia Honda Key, Monroe County	3.7 (2.3)	0 (0)	3.7 (2.3)	0 (0)
LOGG-T-FL-19: Longboat Key, Manatee and Sarasota Counties	16.0 (9.9)	0 (0)	0 (0)	16.0 (9.9)
LOGG-T-FL-20: Siesta and Casey Keys, Sarasota County	20.8 (13.0)	0 (0)	0 (0)	20.8 (13.0)
LOGG-T-FL-21: Venice Beaches and Manasota Key, Sarasota and Charlotte Counties	26.0 (16.1)	0 (0)	1.9 (1.2)	24.1 (15.0)
LOGG-T-FL-22: Knight, Don Pedro, and Little Gasparilla Islands, Charlotte	10.8 (6.7)	0 (0)	1.9 (1.2)	8.9 (5.5)

County				
LOGG-T-FL-23: Gasparilla Island, Charlotte and Lee Counties	11.2 (6.9)	0 (0)	1.5 (1.0)	9.6 (6.0)
LOGG-T-FL-24: Cayo Costa, Lee County	13.5 (8.4)	0 (0)	13.2 (8.2)	0.3 (0.2)
LOGG-T-FL-25: Captive Island, Lee County	7.6 (4.7)	0 (0)	0 (0)	7.6 (4.7)
LOGG-T-FL-26: Sanibel Island West, Lee County	12.2 (7.6)	0 (0)	0 (0)	12.2 (7.6)
LOGG-T-FL-27: Little Hickory Island, Lee and Collier Counties	8.7 (5.4)	0 (0)	0 (0)	8.7 (5.4)
LOGG-T-FL-28: Wiggins Pass–Clam Pass, Collier County	7.7 (4.8)	0 (0)	2.0 (1.2)	5.7 (3.6)
LOGG-T-FL-29: Clam Pass - Doctors Pass, Collier County	4.9 (3.0)	0 (0)	0 (0)	4.9 (3.0)
LOGG-T-FL-30: Keewaydin Island and Sea Oat Island, Collier County	13.1 (8.1)	0 (0)	12.4 (7.7)	0.7 (0.5)
LOGG-T-FL-31: Cape Romano, Collier County	9.2 (5.7)	0 (0)	7.2 (4.5)	2.0 (1.2)
LOGG-T-FL-32: Ten Thousand Islands	7.8 (4.9)	2.9 (1.8)	4.9 (3.1)	0 (0)

North, Collier County				
LOGG-T-FL-33: Highland Beach, Monroe County	7.2 (4.5)	7.2 (4.5)	0 (0)	0 (0)
LOGG-T-FL-34: Graveyard Creek– Shark Point, Monroe County	0.9 (0.6)	0.9 (0.6)	0 (0)	0 (0)
LOGG-T-FL-35: Cape Sable, Monroe County	21.3 (13.2)	21.3 (13.2)	0 (0)	0 (0)
<b>Florida State Totals</b>	<b>563.7 (350.2)</b>	<b>90.3 (56.1)</b>	<b>82.6 (51.3)</b>	<b>390.9 (242.9)</b>
<b>PENINSULAR FLORIDA RECOVERY UNIT TOTALS</b>	<b>563.7 (350.2)</b>	<b>90.3 (56.1)</b>	<b>82.6 (51.3)</b>	<b>390.9 (242.9)</b>

#### Dry Tortugas Recovery Unit

Critical Habitat Unit	Length of Unit in kilometers (miles)	Florida		
		Federal	State	Private and Other (counties and municipalities)
LOGG-T-FL-36: Dry Tortugas, Monroe County	6.3 (3.9)	6.3 (3.9)	0 (0)	0 (0)
LOGG-T-FL-37: Marquesas Keys, Monroe County	5.6 (3.5)	5.6 (3.5)	0 (0)	0 (0)
LOGG-T-FL-38: Boca	1.3 (0.8)	1.3 (0.8)	0 (0)	0 (0)



Grande Key, Monroe County				
LOGG-T-FL-39: Woman Key, Monroe County	1.3 (0.8)	1.3 (0.8)	0 (0)	0 (0)
<b>Florida State Totals</b>	<b>14.5 (9.0)</b>	<b>14.5 (9.0)</b>	<b>0 (0)</b>	<b>0 (0)</b>
<b>DRY TORTUGAS RECOVERY UNIT TOTALS</b>	<b>14.5 (9.0)</b>	<b>14.5 (9.0)</b>	<b>0 (0)</b>	<b>0 (0)</b>

### Northern Gulf of Mexico Recovery Unit

Critical Habitat Unit	Length of Unit in kilometers (miles)			
		Federal	State	Private and Other (counties and municipalities)
<b>Mississippi</b>				
LOGG-T-MS-01: Horn Island, Jackson County	18.6 (11.5)	17.7 (11.0)	0 (0)	0.8 (0.5)
LOGG-T-MS-02: Petit Bois Island, Jackson County	9.8 (6.1)	9.8 (6.1)	0 (0)	0 (0)
<b>Mississippi State Totals</b>	<b>28.4 (17.6)</b>	<b>27.5 (17.1)</b>	<b>0 (0)</b>	<b>0.8 (0.5)</b>
<b>Alabama</b>				
LOGG-T-AL-01: Mobile Bay–Little Lagoon Pass, Baldwin	28.0 (17.4)	5.4 (3.4)	3.1 (1.9)	19.5 (12.1)

County				
LOGG-T-AL-02: Gulf State Park–Perdido Pass, Baldwin County	10.7 (6.7)	0 (0)	3.5 (2.2)	7.3 (4.5)
LOGG-T-AL-03: Perdido Pass–Florida-Alabama line, Baldwin County	3.3 (2.0)	0 (0)	1.7 (1.0)	1.6 (1.0)
<b>Alabama State Totals</b>	<b>42.0 (26.1)</b>	<b>5.4 (3.4)</b>	<b>8.2 (5.1)</b>	<b>28.3 (17.6)</b>
<b>Florida</b>				
LOGG-T-FL-40: Perdido Key, Escambia County	20.2 (12.6)	11.0 (6.8)	2.5 (1.6)	6.7 (4.2)
LOGG-T-FL-41: Mexico Beach and St. Joe Beach, Bay and Gulf Counties	18.7 (11.7)	0 (0)	0 (0)	18.7 (11.7)
LOGG-T-FL-42: St. Joseph Peninsula, Gulf County	23.5 (14.6)	0 (0)	15.5 (9.7)	8.0 (4.9)
LOGG-T-FL-43: Cape San Blas, Gulf County	11.0 (6.8)	0 (0)	0.1 (0.1)	10.8 (6.7)
LOGG-T-FL-44: St. Vincent Island, Franklin County	15.1 (9.4)	15.1 (9.4)	0 (0)	0 (0)
LOGG-T-FL-45: Little St. George Island, Franklin County	15.4 (9.6)	0 (0)	15.4 (9.6)	0 (0)
LOGG-T-FL-46: St. George Island, Franklin	30.7 (19.1)	0 (0)	14.0 (8.7)	16.7 (10.4)

County:				
LOGG-T-FL-47: Dog Island, Franklin County	13.1 (8.1)	0 (0)	0 (0)	13.1 (8.1)
<b>Florida State Totals</b>	<b>147.7 (91.8)</b>	<b>26.1 (16.2)</b>	<b>47.5 (29.5)</b>	<b>74.0 (46.0)</b>
<b>NORTHERN GULF OF MEXICO RECOVERY UNIT TOTALS</b>	<b>218.0 (135.5)</b>	<b>59.0 (36.7)</b>	<b>55.8 (34.7)</b>	<b>103.2 (64.2)</b>

Note: Linear distances may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the loggerhead sea turtle, below.

### **Northern Recovery Unit**

#### **North Carolina**

***LOGG-T-NC-01 – Bogue Banks, Carteret County:*** This unit consists of 38.9 km (24.2 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway and Bogue Sound. The unit extends from Beaufort Inlet to Bogue Inlet. The unit includes lands from the MHW line landward to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is Fort Macon State Park, which is managed by the North Carolina Division of Parks and Recreation. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-NC-02) that has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, artificial

lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-NC-02 – Bear Island, Onslow County:*** This unit consists of 6.6 km (4.1 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway and salt marsh. The unit extends from Bogue Inlet to Bear Inlet. The unit includes lands from the MHW line landward to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). The island is managed by the North Carolina Division of Parks and Recreation as Hammocks Beach State Park. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-NC-03 – Topsail Island, Onslow and Pender Counties:*** This unit consists of 35.0 km (21.8 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Chadwick Bay, Alligator Bay, Goose Bay, Rogers Bay, Everett Bay, Spicer Bay, Waters Bay, Stump Sound, Banks Channel, and salt marsh. The unit extends from New River Inlet to New Topsail Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The local municipality portion is the North Topsail Beach Park, which is managed by the Town of North Topsail Beach. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement activities, in-

water and shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-NC-04 – Lea-Hutaff Island, Pender County:*** This unit consists of 6.1 km (3.8 miles) of island shoreline along the Atlantic Ocean. Following the closure of Old Topsail Inlet in 1998, two islands, Lea Island and Hutaff Island, joined to form what is now a single island referred to as Lea-Hutaff Island. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Topsail Sound, Eddy Sound, Long Point Channel, Green Channel, and salt marsh. The unit extends from New Topsail Inlet to Rich Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is part of the Lea Island State Natural Area, which includes most of the original Lea Island, and is owned by the North Carolina Division of Parks and Recreation and managed by Audubon North Carolina. The remainder of the original Lea Island is privately owned. The original Hutaff Island is entirely privately owned. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-NC-03) that has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, climate change, beach erosion, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-NC-05 – Pleasure Island, New Hanover County:*** This unit consists of 18.6 km (11.5 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Cape Fear River, Upper Midnight Channel Range, Lower Midnight Channel Range, Reaves Point Channel Range, Horseshoe Shoal Channel Range, Snow Marsh Channel Range, and The Basin (bay). The unit extends from Carolina Beach Inlet to 33.91433 N, 77.94408 W (historic location of Corncake Inlet). The unit includes lands from the MHW line to the toe of the

secondary dune or developed structures. Land in this unit is in State, private, and other ownership (see Table 1). The State portion is Fort Fisher State Recreation Area, which is managed by the North Carolina Division of Parks and Recreation. The local municipality portion includes half of Freeman Park Recreation Area, which is managed by the Town of Carolina Beach. The County portion includes the other half of Freeman Park Recreation Area, which is also managed by the Town of Carolina Beach under an interlocal agreement with New Hanover County. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-NC-06) that has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-NC-06 – Bald Head Island, Brunswick County:*** This unit consists of 15.1 km (9.4 miles) of island shoreline along the Atlantic Ocean. The island is part of the Smith Island Complex, which is a barrier spit that includes Bald Head, Middle, and Bluff Islands. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Cape Fear River, Battery Island Channel, Lower Swash Channel Range, Buzzard Bay, Smith Island Range, Southport Channel, and salt marsh. The unit extends from 33.91433 N, 77.94408W (historic location of Corncake Inlet) to the mouth of the Cape Fear River. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private and other ownership (see Table 1). The State portion is Bald Head State Natural Area. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, coastal development, climate change, beach

erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-NC-07 – Oak Island, Brunswick County:*** This unit consists of 20.9 km (13.0 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Cape Fear River, Eastern Channel, and salt marsh. The unit extends from the mouth of the Cape Fear River to Lockwoods Folly Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-NC-08 – Holden Beach, Brunswick County:*** This unit consists of 13.4 km (8.3 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Elizabeth River, Montgomery Slough, Boone Channel, and salt marsh. The unit extends from Lockwoods Folly Inlet to Shallotte Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-NC-07) that has high-density nesting by loggerhead sea turtles in North Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

## South Carolina

***LOGG-T-SC-01 – North Island, Georgetown County:*** This unit consists of 13.2 km (8.2 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Winyah Bay, Mud Bay, Oyster Bay, and salt marsh. The unit extends from North Inlet to Winyah Bay. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is part of the Tom Yawkey Wildlife Center Heritage Preserve, which is managed by the South Carolina Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-02) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, artificial lighting, habitat obstructions, human-caused disasters, and response to disasters. The Tom Yawkey Wildlife Center has a management plan that includes procedures for the implementation of sea turtle nesting surveys, nest marking, feral hog removal, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (Dozier 2006, pp. 31, 64–65).

***LOGG-T-SC-02 – Sand Island, Georgetown County:*** This unit consists of 4.7 km (2.9 miles) of island shoreline along the Atlantic Ocean and Winyah Bay. The island is separated from the mainland by the Atlantic Intracoastal Waterway and salt marsh. The unit extends from Winyah Bay to 33.17534 N, 79.19206 W (northern boundary of an unnamed inlet separating Sand Island and South Island). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is part of the Tom Yawkey Wildlife Center Heritage Preserve, which is managed by the South Carolina Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This



unit has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, in-water and shoreline alterations, beach erosion, climate change, artificial lighting, human-caused disasters, and response to disasters. The Tom Yawkey Wildlife Center has a management plan that includes procedures for the implementation of sea turtle nesting surveys, nest marking, feral hog removal, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (Dozier 2006, pp. 31, 64–65).

***LOGG-T-SC-03 – South Island, Georgetown County:*** This unit consists of 6.7 km (4.2 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, North Santee Bay, and salt marsh. The unit extends from 33.17242 N, 79.19366 W (southern boundary of an unnamed inlet separating Sand Island and South Island) to North Santee Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is part of the Tom Yawkey Wildlife Center Heritage Preserve, which is managed by the South Carolina Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, beach erosion, climate change, artificial lighting, human-caused disasters, and response to disasters. The Tom Yawkey Wildlife Center has a management plan that includes procedures for the implementation of sea turtle nesting surveys, nest marking, feral hog removal, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (Dozier 2006, pp. 31, 64–65).

***LOGG-T-SC-04 – Cedar Island, Georgetown County:*** This unit consists of 4.1 km (2.5 miles) of island shoreline along the Atlantic Ocean and North Santee Inlet. The island is

separated from the mainland by the Atlantic Intracoastal Waterway and salt marsh. The unit extends from North Santee Inlet to South Santee Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is part of the Santee Coastal Reserve Wildlife Management Area, which is managed by the South Carolina Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-03) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters. The Santee Coastal Reserve Wildlife Management Area has a draft management plan that includes recommendations to reduce sea turtle nest depredation by raccoons (South Carolina Department of Natural Resources 2002, p. 21), but there is currently no other management for protection of loggerhead sea turtle nests.

***LOGG-T-SC-05 – Murphy Island, Charleston County:*** This unit consists of 8.0 km (5.0 miles) of island shoreline along the Atlantic Ocean and South Santee Inlet. The island is separated from the mainland by the Atlantic Intracoastal Waterway and inland marsh. The unit extends from South Santee Inlet to 33.08335 N, 79.34285 W. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is part of the Santee Coastal Reserve Wildlife Management Area, which is managed by the South Carolina Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-06) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters. The Santee Coastal Reserve Wildlife Management Area has a draft management plan that includes recommendations to reduce sea turtle nest

depredation by raccoons (South Carolina Department of Natural Resources 2002, p. 21), but there is currently no other management for protection of loggerhead sea turtle nests.

***LOGG-T-SC-06 – Cape Island, Charleston County:*** This unit consists of 8.3 km (5.1 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Cape Romain Harbor, coastal islands, and salt marsh. The unit extends from Cape Romain Inlet to 33.00988 N, 79.36529 W (northern boundary of an unnamed inlet between Cape Island and Lighthouse Island). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is the northernmost island in the Cape Romain National Wildlife Refuge (NWR), which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina. It is the highest nesting density beach in the Northern Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, in-water and shoreline alterations, beach erosion, climate change, human-caused disasters, and response to disasters. Cape Romain NWR has a Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2010a, pp. 45–46).

***LOGG-T-SC-07 – Lighthouse Island, Charleston County:*** This unit consists of 5.3 km (3.3 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from 33.01306 N, 79.36659 W (southern boundary of an unnamed inlet between Cape Island and Lighthouse Island) to Key Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Cape Romain NWR, which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea

turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, in-water and shoreline alterations, beach erosion, climate change, human-caused disasters, and response to disasters. Cape Romain NWR has a Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2010a, pp. 45–46).

***LOGG-T-SC-08 – Raccoon Key, Charleston County:*** This unit consists of 4.8 km (3.0 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from Raccoon Creek Inlet to Five Fathom Creek Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Cape Romain NWR, which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-07) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, in-water and shoreline alterations, beach erosion, climate change, human-caused disasters, and response to disasters. Cape Romain NWR has a Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2010a, pp. 45–46).

***LOGG-T-SC-09 – Folly Island, Charleston County:*** This unit consists of 11.2 km (7.0 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Folly River, a network of coastal islands, and salt marsh. The unit extends from Lighthouse Inlet to Folly River Inlet. The

unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State, and private and other ownership (see Table 1). The Lighthouse Inlet Heritage Preserve, is owned by the County, with a 10 percent undivided interest from the South Carolina Department of Natural Resource. The Folly Beach County Park is owned by the County. Both are managed by the Charleston County Park and Recreation Commission. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-10) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBF in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach sand placement activities, in-water and shoreline alterations, coastal development, beach erosion, climate change, artificial lighting, human-caused disasters, and response to disasters. The City of Folly Beach has a beach management plan that includes measures to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (City of Folly Beach 1991, pp. 32–35). These measures apply to both the private and other lands within this critical habitat unit.

***LOGG-T-SC-10 – Kiawah Island, Charleston County:*** This unit consists of 17.0 km (10.6 miles) of island shoreline along the Atlantic Ocean and Stono Inlet. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Wadmalaw Island, Johns Island, Kiawah River, and salt marsh. The unit extends from Stono Inlet to Captain Sam’s Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The County portion includes Kiawah Beachwalker Park and Isle of Palms County Park, which are managed by the Charleston County Park and Recreation Commission. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, beach erosion, climate change, human-caused disasters, and response to disasters. The Town of Kiawah Island has a Local Comprehensive Beach

Management Plan that describes actions, such as nest monitoring, education, pet and vehicular restrictions, and a lighting ordinance, taken by the Town to minimize impacts to nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (Town of Kiawah Island 2006, pp. 4-11–4-13). These measures apply to both the private and other lands within this critical habitat unit although the degree of implementation is uncertain.

***LOGG-T-SC-11 – Seabrook Island, Charleston County:*** This unit consists of 5.8 km (3.6 miles) of island shoreline along the Atlantic Ocean and North Edisto Inlet. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Wadmalaw Island, Johns Island, and salt marsh. The unit extends from Captain Sam’s Inlet to North Edisto Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from adjacent units (LOGG-T-SC-10 and LOGG-T-SC-12) that have high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, coastal development, beach erosion, climate change, artificial lighting, human-caused disasters, and response to disasters. The Town of Seabrook Island has a beach management plan that includes the implementation of sea turtle nesting surveys, nest marking, and actions to minimize human disturbance impacts to nesting and hatchling loggerhead sea turtles (Town Council of Seabrook 1991, p. 15). These measures apply to the private lands within this critical habitat unit although the degree of implementation is uncertain.

***LOGG-T-SC-12 – Botany Bay Island and Botany Bay Plantation, Charleston County:*** This unit consists of 6.6 km (4.1 miles) of island shoreline along the Atlantic Ocean and North Edisto Inlet. It includes the shoreline of Botany Bay Island and Botany Bay Plantation, which is located on the north end of Edisto Island. Botany Bay Island and Botany Bay Plantation were originally separated by South Creek Inlet. However, due to beach accretion on the south end of Botany Bay Island, it is now continuous with Botany

Bay Plantation. This unit is separated from the mainland by the Atlantic Intracoastal Waterway, Ocella Creek, Townsend River, South Creek Inlet, a network of coastal islands, and salt marsh. The unit extends from North Edisto Inlet to 32.53710 N, 80.24614 W (northern boundary of an unnamed inlet separating Botany Bay Plantation and Interlude Beach). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private and other ownership (see Table 1). The Botany Bay Island portion is privately owned; however, the owner has placed a conservation easement on the property with The Nature Conservancy. The State portion is part of the Botany Bay Plantation Wildlife Management Area Heritage Preserve, which is managed by the South Carolina Department of Natural Resources.

This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters. The Botany Bay Plantation Wildlife Management Area Heritage Preserve has a management plan that includes the implementation of sea turtle nesting surveys, nest marking, actions to minimize human disturbance, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (South Carolina Department of Natural Resources 2009, p. 12).

***LOGG-T-SC-13 – Interlude Beach, Charleston County:*** This unit consists of 0.9 km (0.6 mile) of island shoreline along the Atlantic Ocean. This unit includes a section of Edisto Island, which is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from 32.53636 N, 80.24647 W (southern boundary of an unnamed inlet separating Interlude Beach and Botany Bay Plantation) to Frampton Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is part of the Botany Bay Plantation Wildlife Management

Area Heritage Preserve, which is managed by the South Carolina Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from adjacent units (LOGG-T-SC-12 and LOGG-T-SC-14) that have high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, beach erosion, climate change, human-caused disasters, and response to disasters. The Botany Bay Plantation Wildlife Management Area Heritage Preserve has a management plan that includes the implementation of sea turtle nesting surveys, nest marking, actions to minimize human disturbance, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (South Carolina Department of Natural Resources 2009, p. 12).

***LOGG-T-SC-14 – Edingsville Beach, Charleston County:*** This unit consists of 2.7 km (1.7 miles) of island shoreline along the Atlantic Ocean. This unit includes a section of Edisto Island, which is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from Frampton Inlet to Jeremy Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, beach erosion, climate change, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-SC-15 – Edisto Beach State Park, Colleton County:*** This unit consists of 2.2 km (1.4 miles) of island shoreline along the Atlantic Ocean. This unit includes a section of Edisto Island, which is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from Jeremy Inlet to 32.50307 N, 80.29625 W (State Park boundary separating Edisto Beach State



Park and the Town of Edisto Beach). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is managed by the South Carolina Department of Parks, Recreation, and Tourism as the Edisto Beach State Park. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, artificial lighting, human-caused disasters, and response to disasters. The Edisto Beach State Park has a General Management Plan that includes the implementation of sea turtle nesting surveys, nest marking, and education intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Edisto Beach State Park 2010, pp. 17–18, 21–22).

***LOGG-T-SC-16 – Edisto Beach, Colleton County:*** This unit consists of 6.8 km (4.2 miles) of island shoreline along the Atlantic Ocean and South Edisto River. This unit includes a section of Edisto Island, which is separated from the mainland by the Atlantic Intracoastal Waterway, Big Bay Creek, a network of coastal islands, and salt marsh. The unit extends from 32.50307 N, 80.29625 W (State Park boundary separating Edisto Beach State Park and the Town of Edisto Beach) to South Edisto Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. The unit occurs within the town limits of Edisto Beach. Land in this unit is in private and other ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-16) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, beach erosion, climate change, artificial lighting, human-caused disasters, and response to disasters. The Town of Edisto Beach has a Local Comprehensive Beach Management Plan that includes the implementation of sea turtle nesting surveys, nest marking, and beach management to protect nesting and hatchling loggerhead sea turtles

from anthropogenic disturbances (Town of Edisto Beach 2011, p. 25). These measures apply to the private lands within this critical habitat unit although the degree of implementation is uncertain.

***LOGG-T-SC-17 – Pine Island, Colleton County:*** This unit consists of 1.2 km (0.7 mile) of island shoreline along the South Edisto Inlet. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Fish Creek, a network of coastal islands, and salt marsh. The unit extends from South Edisto River to 32.49266 N, 80.36846 W (northern boundary of an unnamed inlet to Fish Creek). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is managed by the South Carolina Department of Natural Resources as part of the Ashepoo-Combahee-Edisto (ACE) Basin National Estuarine Research Reserve (NERR). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-18) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-SC-18 – Otter Island, Colleton County:*** This unit consists of 4.1 km (2.5 miles) of island shoreline along the Atlantic Ocean and Saint Helena Sound. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Ashepoo River, a network of coastal islands, and salt marsh. The unit extends from Fish Creek Inlet to Saint Helena Sound. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). It is part of the St. Helena Sound Heritage Preserve and the ACE Basin Estuarine Research Reserve, which are managed by the South Carolina Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina.

This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-SC-19 – Harbor Island, Beaufort County:*** This unit consists of 2.9 km (1.8 miles) of island shoreline along the Atlantic Ocean and Saint Helena Sound. The island is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from Harbor Inlet to Johnson Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-18) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, artificial lighting, habitat obstructions, human-caused disasters, and response to disasters. Beaufort County has a Comprehensive Beach Management Plan that includes the implementation of sea turtle nesting surveys, nest marking, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (Beaufort County Planning Board 2010, p. 5-19). These measures apply to the private lands within this critical habitat unit.

***LOGG-T-SC-20 – Little Capers Island, Beaufort County:*** This unit consists of 4.6 km (2.9 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from “Pritchards Inlet” (there is some uncertainty about the true name of this water feature) located at 32.29009 N, 80.54459 W to Trenchards Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). This unit

was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-21) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, artificial lighting, habitat obstructions, human-caused disasters, and response to disasters. Beaufort County has a Comprehensive Beach Management Plan that includes the implementation of sea turtle nesting surveys, nest marking, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (Beaufort County Planning Board 2010, p. 5-19). These measures apply to the private lands within this critical habitat unit.

***LOGG-T-SC-21 – St. Phillips Island, Beaufort County:*** This unit consists of 2.3 km (1.4 miles) of island shoreline along the Atlantic Ocean and Trenchards Inlet. The island is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from Trenchards Inlet to Morse Island Creek Inlet East. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). Although privately owned, the island is protected in perpetuity by a conservation easement with The Nature Conservancy. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-SC-22 – Bay Point Island, Beaufort County:*** This unit consists of 4.3 km (2.7 miles) of island shoreline along the Atlantic Ocean and Port Royal Sound. The island is separated from the mainland by the Atlantic Intracoastal Waterway, a network of coastal islands, and salt marsh. The unit extends from Morse Island Creek Inlet East along the

Atlantic Ocean shoreline to Morse Island Creek Inlet West along the Port Royal Sound shoreline. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-SC-21) that has high-density nesting by loggerhead sea turtles in South Carolina. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, beach driving, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

## **Georgia**

***LOGG-T-GA-01 – Little Tybee Island, Chatham County:*** This unit consists of 8.6 km (5.3 miles) of island shoreline along the Atlantic Ocean. Little Tybee Island is not a specific island, rather it is a complex of several small, low-lying islands, including Myrtle and Williamson Islands, that are separated by tidal flows, creeks, or sloughs. The island complex is separated from the mainland by the Atlantic Intracoastal Waterway, Tybee Creek, Bull River, a network of coastal islands, and salt marsh. The unit extends from Tybee Creek Inlet to Wassaw Sound. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). The island is owned by the Georgia Department of Natural Resources and managed by The Nature Conservancy as the Little Tybee Island Natural Heritage Preserve. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-GA-02) that has high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, beach erosion, climate change, human-caused disasters, and response to disasters. The Georgia Department of Natural Resources signed a Memorandum of Agreement with the U.S. Fish and Wildlife Service, National Park Service, St. Catherines

Island Foundation, Jekyll Island Authority, City of Tybee Island, Glynn County, Little Cumberland Island Homeowners Association, and Little St. Simons Island, Ltd. mandating that land owned by the State adhere to actions listed in the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

***LOGG-T-GA-02 – Wassaw Island, Chatham County:*** This unit consists of 10.1 km (6.3 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Romerly Marshes, Odingsell River, and a network of coastal islands. The unit extends from Wassaw Sound to Ossabaw Sound. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal and private ownership (see Table 1). The majority of the island is managed by USFWS as the Wassaw NWR. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, habitat obstructions, human-caused disasters, and response to disasters.

Wassaw NWR is part of the Savannah Coastal Refuges Complex, which has a draft Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2010b, pp. 37, 104). USFWS signed a Memorandum of Agreement with the Georgia Department of Natural Resources, National Park Service, St. Catherines Island Foundation, Jekyll Island Authority, City of Tybee Island, Glynn County, Little Cumberland Island Homeowners Association, and Little St. Simons Island, Ltd. mandating that land owned by the Refuge adhere to actions listed in the Management

Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

***LOGG-T-GA-03 – Ossabaw Island, Chatham County:*** This unit consists of 17.1 km (10.6 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Bear River, a network of coastal islands, and extensive salt marshes. Ossabaw Island is divided into four contiguous sections of beach: Bradley (North), North Middle, South Middle, and South beaches. The unit extends from Ogeechee River to St. Catherines Sound. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). The island is managed by the Georgia Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach erosion, climate change, human-caused disasters, and response to disasters.

A Comprehensive Management Plan for Ossabaw Island includes actions to minimize human disturbance and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 2001, pp. 37, 40, 43). The Georgia Department of Natural Resources signed a Memorandum of Agreement with the U.S. Fish and Wildlife Service, National Park Service, St. Catherines Island Foundation, Jekyll Island Authority, City of Tybee Island, Glynn County, Little Cumberland Island Homeowners Association, and Little St. Simons Island, Ltd. mandating that land owned by the State adhere to actions listed in the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle

nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

***LOGG-T-GA-04 – St. Catherines Island, Liberty County:*** This unit consists of 18.4 km (11.5 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, North Newport River, South Newport River, a network of coastal islands, and extensive salt marshes. The unit extends from St. Catherines Sound to Sapelo Sound. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from adjacent units (LOGG-T-GA-03 and LOGG-T-GA-05) that have high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, habitat obstructions, beach erosion, climate change, human-caused disasters, and response to disasters. The St. Catherines Island Foundation signed a Memorandum of Agreement with the Georgia Department of Natural Resources, U.S. Fish and Wildlife Service, National Park Service, Jekyll Island Authority, City of Tybee Island, Glynn County, Little Cumberland Island Homeowners Association, and Little St. Simons Island, Ltd. mandating that land owned by the Foundation adhere to actions listed in the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

***LOGG-T-GA-05 – Blackbeard Island, McIntosh County:*** This unit consists of 13.5 km (8.4 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Blackbeard Creek, Mud River, a network of coastal islands, and extensive salt marshes. The unit extends from Sapelo



Sound to Cabretta Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). The island is managed by USFWS as the Blackbeard Island NWR. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, habitat obstructions, beach erosion, climate change, human-caused disasters, and response to disasters. Blackbeard Island NWR is part of the Savannah Coastal Refuges Complex, which has a draft Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2010b, pp. 125, 136).

USFWS signed a Memorandum of Agreement with the Georgia Department of Natural Resources, National Park Service, St. Catherines Island Foundation, Jekyll Island Authority, City of Tybee Island, Glynn County, Little Cumberland Island Homeowners Association, and Little St. Simons Island, Ltd. mandating that land owned by the Refuge adhere to actions listed in the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

***LOGG-T-GA-06 – Sapelo Island, McIntosh County:*** This unit consists of 9.3 km (5.8 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Doboy Sound, Mud Creek, Teakettle Creek, a network of coastal islands, and extensive salt marshes. Sapelo Island is divided into two contiguous sections of beach: Nannygoat and Cabretta beaches. The unit extends from Cabretta Inlet to Doboy Sound. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State

ownership (see Table 1). The island is managed by the Georgia Department of Natural Resources. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-GA-05) that has high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, poaching, beach driving, predation, beach erosion, climate change, human-caused disasters, and response to disasters.

A Comprehensive Management Plan for Sapelo Island includes actions to minimize human disturbance and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1998, pp. 5, 36, 55). The Georgia Department of Natural Resources signed a Memorandum of Agreement with the U.S. Fish and Wildlife Service, National Park Service, St. Catherines Island Foundation, Jekyll Island Authority, City of Tybee Island, Glynn County, Little Cumberland Island Homeowners Association, and Little St. Simons Island, Ltd. mandating that land owned by the State adhere to actions listed in the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

***LOGG-T-GA-07 – Little Cumberland Island, Camden County:*** This unit consists of 4.9 km (3.0 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Cumberland River, and salt marsh. The unit extends from St. Andrew Sound to Christmas Creek. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). Although Little Cumberland Island is privately owned, it lies within the boundaries of Cumberland Island National Seashore and is recognized as a Special Use Zone where private property owners have entered into

an agreement with the National Park Service. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-GA-08) that has high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach erosion, climate change, human-caused disasters, and response to disasters.

The Little Cumberland Island Homeowners Association signed a Memorandum of Agreement with the Georgia Department of Natural Resources, U.S. Fish and Wildlife Service, National Park Service, St. Catherines Island Foundation, Jekyll Island Authority, City of Tybee Island, Glynn County, and Little St. Simons Island, Ltd. mandating that land owned by the Association adhere to actions listed in the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

***LOGG-T-GA-08 – Cumberland Island, Camden County:*** This unit consists of 29.7 km (18.4 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Cumberland River, Cumberland Sound, Brickhill River, a network of coastal islands, and extensive salt marsh. The unit extends from Christmas Creek to St. Marys River. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal and private ownership (see Table 1). The Federal portion is part of Cumberland Island National Seashore, which is managed by the National Park Service. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in Georgia. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations

or protections to ameliorate the threats of recreational use, beach driving, predation, beach erosion, climate change, human-caused disasters, and response to disasters.

Cumberland Island National Seashore has a General Management Plan that includes predator removal and dune preservation intended to minimize impacts to nesting and hatchling loggerhead sea turtles (National Park Service 1984, pp. 22–23). The National Park Service signed a Memorandum of Agreement with the Georgia Department of Natural Resources, U.S. Fish and Wildlife Service, St. Catherines Island Foundation, Jekyll Island Authority, City of Tybee Island, Glynn County, and Little St. Simons Island, Ltd. mandating that land owned by the Cumberland Island National Seashore adhere to actions listed in the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia. This includes working with partners on the implementation of sea turtle nesting surveys, nest marking and protection, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (Georgia Department of Natural Resources 1994, pp. 6–9).

## **Peninsular Florida Recovery Unit**

### **Northern Florida Region**

#### ***LOGG-T-FL-01 – South Duval County Beaches - Old Ponte Vedra, Duval and St.***

***Johns Counties:*** This unit consists of 25.2 km (15.6 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Pablo Creek, and Lake Ponte Vedra. The unit extends from the south boundary of Kathryn Abbey Hanna Park in Duval County to the north boundary of the Guana Tolomato Matanzas National Estuarine Research Reserve in St. Johns County. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-02) that has high-density nesting by loggerhead sea turtles in the Northern Florida Region of the Peninsular Florida Recovery

Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement activities, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

St. Johns County has an HCP titled “A Plan for the Protection of Sea Turtles and Anastasia Island Beach Mice on the Beaches of St. Johns County, Florida” that includes sea turtle monitoring, nest protection from vehicles on the beach, a beach lighting management plan, beach horseback riding registration and education, and reestablishment of a dune at Porpoise Point (St. Johns County Planning Division 2003, p. 32). These measures apply to the private lands within this critical habitat unit and are intended to minimize and mitigate impacts to nesting and hatchling loggerhead sea turtles as a result of the County-authorized beach driving.

***LOGG-T-FL-02 – Guana Tolomato Matanzas National Estuarine Research Reserve - St. Augustine Inlet, St. Johns County:*** This unit consists of 24.1 km (15.0 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway. The unit extends from the north boundary of the Guana Tolomato Matanzas NERR to St. Augustine Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State, private, and other ownership (see Table 1). The State portion is part of the Guana Tolomato Matanzas NERR, which is managed by the Florida Department of Environmental Protection (FDEP) Coastal and Aquatic Managed Areas. The County portion is Vilano Oceanfront Park, which is managed by the St. Johns County Recreation and Parks Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Northern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement activities, in-water and shoreline alterations, coastal development,

climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

The Guana Tolomato Matanzas National Estuarine Research Reserve has a management plan that includes the implementation of nesting surveys, nest marking, education, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (FDEP 2009a, pp. 81, 162). St. Johns County has an HCP titled “A Plan for the Protection of Sea Turtles and Anastasia Island Beach Mice on the Beaches of St. Johns County, Florida” that covers the remainder of the unit. The HCP includes sea turtle monitoring, nest protection from vehicles on the beach, a beach lighting management plan, beach horseback riding registration and education, and reestablishment of a dune at Porpoise Point (St. Johns County Planning Division 2003, p. 32). These measures apply to both the private and other lands within this critical habitat unit and are intended to minimize and mitigate impacts to nesting and hatchling loggerhead sea turtles as a result of the County-authorized beach driving.

***LOGG-T-FL-03 – St. Augustine Inlet - Matanzas Inlet, St. Johns County:*** This unit consists of 22.4 km (14.0 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Matanzas River, which is part of the Atlantic Intracoastal Waterway. The unit extends from St. Augustine Inlet to Matanzas Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal, State, and private ownership (see Table 1). The Federal portion is Fort Matanzas National Monument, which is managed by the National Park Service. The State portion is Anastasia State Park, which is managed by FDEP. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from adjacent units (LOGG-T-FL-02 and LOGG-T-FL-04) that have high-density nesting by loggerhead sea turtles in the Northern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement

activities, in-water and shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

St. Johns County has an HCP titled “A Plan for the Protection of Sea Turtles and Anastasia Island Beach Mice on the Beaches of St. Johns County, Florida” that includes sea turtle monitoring, nest protection from vehicles on the beach, a beach lighting management plan, beach horseback riding registration and education, and reestablishment of the dune at Porpoise Point (St. Johns County Planning Division 2003, p. 32). These measures apply to the private lands within this critical habitat unit and are intended to minimize and mitigate impacts to nesting and hatchling loggerhead sea turtles as a result of the County-authorized beach driving. The Anastasia State Park Unit Management Plan addresses the species in the State portion of the unit. The Unit Management Plan includes procedures for the implementation of sea turtle nesting surveys, nest marking, removal of nonnative species (feral cats, feral hogs, and nine-banded armadillos) when encountered and native species (raccoons) when excessive depredation is documented, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2004a, pp. 5, 17–19). Fort Matanzas National Monument has a General Management Plan that includes exotic organism removal if necessary and possible, which may protect nesting and hatchling loggerhead sea turtles (National Park Service 1982a, p. 27). This Management Plan is being revised.

***LOGG-T-FL-04 – River to Sea Preserve at Marineland - North Peninsula State Park, Flagler and Volusia Counties:*** This unit consists of 31.8 km (19.8 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Matanzas River, which is part of the Atlantic Intracoastal Waterway, and Smith Creek. The unit extends from the north boundary of the River to Sea Preserve at Marineland to the south boundary of North Peninsula State Park. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State, private, and other ownership (see Table 1). The State portion is North Peninsula State Park, which is managed by FDEP. The County portion includes the River to Sea Preserve at Marineland and Varn Park, which are managed by the Flagler County Parks

and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Northern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement activities, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

The North Peninsula State Park Unit Management Plan addresses the species in the State portion of the unit. The Unit Management Plan includes procedures for the implementation of sea turtle nesting surveys, nest marking, removal of nonnative species (feral cats, feral hogs, and nine-banded armadillos) when encountered, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2006a, pp. 15–16). Volusia County has an HCP titled “A Plan for the Protection of Sea Turtles on the Beaches of Volusia County, Florida” that includes sea turtle nest monitoring, nest protection from vehicles on the beach, the operation of a rehabilitation center, public education, dune restoration, artificial light management, and a washback watchers program (Volusia County Environmental Management 2008, pp. 164–170). Although no public beach driving occurs within the North Peninsula State Park in northern Volusia County, the HCP addresses potential incidental take of loggerhead sea turtles by county emergency vehicles. These measures apply to the private lands within this critical habitat unit and are intended to minimize and mitigate impacts to nesting and hatchling loggerhead sea turtles as a result of the County-authorized beach driving.

***LOGG-T-FL-05 – Ormond-by-the-Sea - Granada Blvd, Volusia County:*** This unit consists of 11.1 km (6.9 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway. The unit extends from the south boundary of North Peninsula State Park to Granada Boulevard in Ormond Beach. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit



was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Northern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, beach sand placement activities, coastal development, climate change, beach erosion, coastal development, artificial lighting, human-caused disasters, and response to disasters.

Volusia County has an HCP titled “A Plan for the Protection for Sea Turtles on the Beaches of Volusia County, Florida” that includes sea turtle nest monitoring, nest protection from vehicles on the beach, the operation of a rehabilitation center, public education, dune restoration, artificial light management, and a washback watchers program (Volusia County Environmental Management 2008, pp. 164–170). These measures apply to the private lands within this critical habitat unit and are intended to minimize and mitigate impacts to nesting and hatchling loggerhead sea turtles as a result of the County-authorized beach driving.

### **Central Eastern Florida Region**

***LOGG-T-FL-06 – Canaveral National Seashore North, Volusia County:*** This unit consists of 18.2 km (11.3 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Mosquito Lagoon, and a network of coastal islands. The unit extends from the north boundary of Canaveral National Seashore to the Volusia–Brevard County line. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Canaveral National Seashore, which is managed by the National Park Service. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-07) that has high-density nesting by loggerhead sea turtles in the Central Eastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management

considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. Canaveral National Seashore has a General Management Plan that includes beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 1982b, p. 52).

***LOGG-T-FL-07 – Canaveral National Seashore South - Merritt Island NWR–Kennedy Space Center, Brevard County:*** This unit consists of 28.4 km (17.6 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Mosquito Lagoon, Indian River Lagoon, Merritt Island, and scattered coastal islands. The unit extends from the Volusia–Brevard County line to the south boundary of Merritt Island NWR–Kennedy Space Center (Merritt Island NWR was established in 1963 as an overlay of the National Aeronautics and Space Administration’s (NASA) John F. Kennedy Space Center). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). The northern portion is part of the Canaveral National Seashore in Brevard County, which is managed by the National Park Service. The southern portion is part of Merritt Island NWR–Kennedy Space Center, which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Eastern Florida Region of the Peninsular Florida Recovery Unit. (Note: Although the mean nesting densities in this unit were not in the top 25 percent of nesting for the Central Eastern Florida Region, the unit was included because of the still high nesting density that occurs here and to ensure a good spatial distribution of nesting within this region.)

This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of predation, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Canaveral National Seashore has a General Management Plan that includes beach management to protect nesting and hatchling loggerhead sea turtles from

anthropogenic disturbances (National Park Service 1982b, p. 52). Merritt Island NWR has a Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2008a, pp. 82, 93–94).

***LOGG-T-FL-08 – Central Brevard Beaches, Brevard County:*** This unit consists of 19.5 km (12.1 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Indian River Lagoon, Banana River, and Merritt Island. The unit extends from the south boundary of Patrick Air Force Base to the north boundary of Archie Carr NWR. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The County portion includes Paradise Beach North, Spessard Holland North Beach Park, Spessard Holland South Beach Park, and Ocean Ridge Sanctuary, which are managed by the Brevard County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Eastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, coastal development, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-09 – South Brevard Beaches, Brevard County:*** This unit consists of 20.8 km (12.9 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Indian River Lagoon, and scattered coastal islands. The unit extends from the north boundary of Archie Carr NWR to Sebastian Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal, State, private, and other ownership (see Table 1). The Federal portion is part of Archie Carr NWR,

which is managed by USFWS. The State portion is part of Sebastian Inlet State Park, which is managed by FDEP. The Brevard County portion includes Sea Oats Park, Coconut Point Park, Ponce Landing and Coconut Point Sanctuary, Twin Shores Park, Hog Point Sanctuary, Apollo Eleven Park, Martine Hammock Sanctuary, Judith Resnick Memorial Park, Barrier Island Ecosystem Center, and Louis Bonsteel III Memorial Park, which are managed by the Brevard County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Eastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

Archie Carr NWR has a Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2008b, pp. 74–76). Sebastian Inlet State Park has a Unit Management Plan that includes procedures for the implementation of sea turtle nesting surveys, nest marking, nonnative species removal when encountered (feral cats, feral hogs, and nine-banded armadillos), problem native species removal (raccoons), and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2008a, pp. 39–41).

***LOGG-T-FL-10 – Sebastian Inlet - Indian River Shores, Indian River County:*** This unit consists of 21.4 km (13.3 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Indian River Lagoon, Indian River Narrows, a network of coastal islands, and salt marsh. The unit extends from Sebastian Inlet to the Indian River Shores southern city limits. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal, State, private, and other ownership (see Table 1). The Federal portion is part of Archie Carr NWR, which is managed by USFWS. The

State portion is part of Sebastian Inlet State Park, which is managed by the Florida Department of Environmental Protection. The County portion includes Treasure Shores Park, Golden Sands Park, and Captain Forster Hammock Preserve, which are managed by the Indian River County Public Works Division. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-09) that has high-density nesting by loggerhead sea turtles in the Central Eastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

The Archie Carr NWR has a Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2008b, pp. 74–76). The Sebastian Inlet State Park has a Unit Management Plan that includes procedures for the implementation of sea turtle nesting surveys, nest marking, removal of nonnative species (feral cats, feral hogs, and nine-banded armadillos) when encountered and problem native species (raccoons), and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2008a, pp. 39–41). Indian River County has an HCP titled “Habitat Conservation Plan for the Protection of Sea Turtles on the Eroding Beaches of Indian River County, Florida” that covers the beaches outside of the State Park and Refuge, and includes sea turtle nest monitoring, nest protection from armoring construction, artificial light management, education, land management, and predator control (Indian River County Public Works Department 2003, pp. 105–108, 113–117, 123–126). These measures apply to both the private and other lands within this proposed critical habitat unit and are intended to minimize and mitigate impacts to nesting and hatchling loggerhead sea turtles as a result of the County-authorized emergency beach armoring.

## **Southeastern Florida Region**

### ***LOGG-T-FL-11 – Fort Pierce Inlet - St. Lucie Inlet, St. Lucie and Martin Counties:***

This unit consists of 35.2 km (21.9 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway and the Indian River Lagoon. The unit extends from Fort Pierce Inlet to St. Lucie Inlet. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The St. Lucie County portion includes Blind Creek Natural Area and John Brooks Park, which are managed by the St. Lucie County Environmental Resources Department. The St. Lucie County portion also includes Fredrick Douglas Memorial Park, Ocean Bay, Blind Creek Beach, and Dollman Tract, which are managed by the St. Lucie Parks, Recreation, and Facility Department. The Martin County portion includes Glasscock Beach Park, Sea Turtle Park, Jensen Beach Park, Muscara, Bob Graham Beach Park, Curtis Beach Park, Beachwalk Pasley, Bryn Mawr Beach, Virginia Forrest Beach Park, Tiger Shores Beach, Stuart Beach Park and Addition, Santa Lucea, Olsen Property, Clifton S. Perry Beach, House of Refuge Park, Chastain Beach Park, and Bathtub Beach Park, which are managed by the Martin County Parks and Recreation Department.

This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southeastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. John Brooks Park has a management plan that includes protection of nests and nonnative species removal to minimize impacts to nesting and hatchling loggerhead sea turtles (St. Lucie County Environmental Resources Department 2008, p. 29). Blind Creek Natural Area has a draft management plan that includes nonnative plant (*Casuarina equisetifolia* (Australian

pine)) removal to minimize impacts to nesting and hatchling loggerhead sea turtles (St. Lucie County Environmental Resources Department 2011, p. 26).

***LOGG-T-FL-12 – St. Lucie Inlet - Jupiter Inlet, Martin and Palm Beach Counties:***

This unit consists of 24.9 km (15.5 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Great Pocket, Peck Lake, Hobe Sound, South Jupiter Narrows, Jupiter Sound, and a network of coastal islands. The unit extends from St. Lucie Inlet to Jupiter Inlet. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal, State, private, and other ownership (see Table 1). The Federal portion is Hobe Sound NWR, which is managed by USFWS. The State portion is St. Lucie Inlet Preserve State Park, which is managed by FDEP. The County portion is Coral Cove Park, which is managed by the Palm Beach County Parks and Recreation Department. A portion of the private lands includes Blowing Rocks Preserve, which is owned and managed by The Nature Conservancy. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southeastern Florida Region of the Peninsular Florida Recovery Unit.

This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Hobe Sound NWR has a Comprehensive Conservation Plan that includes working with partners on the implementation of sea turtle nesting surveys, nest marking, education, nonnative species removal, and minimizing human disturbance intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2006, pp. 81–86). St. Lucie Inlet Preserve State Park has a Unit Management Plan that includes maintaining a long-term data set of sea turtle nests, removal of nonnative species (feral cats) when encountered and problem native species (raccoons), and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2002a, pp. 20–21).

***LOGG-T-FL-13 – Jupiter Inlet–Lake Worth Inlet, Palm Beach County:*** This unit consists of 18.8 km (11.7 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Lake Worth Creek, Lake Worth, Munyon Island, Little Munyon Island, Singer Island, and Peanut Island. The unit extends from Jupiter Inlet to Lake Worth Inlet. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State, private, and other ownership (see Table 1). The State portion is John D. MacArthur Beach State Park, which is managed by FDEP. The County portion includes Jupiter Beach Park, Carlin Park, Radnor, Juno Dunes Natural Area, and Loggerhead Park, which are managed by the Palm Beach County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southeastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach placement activities, in-water and shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. John D. MacArthur Beach State Park has a Unit Management Plan that includes procedures for the implementation of sea turtle nesting surveys, nest marking, artificial lighting management, problem species removal, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2005a, pp. 20–21).

***LOGG-T-FL-14 – Lake Worth Inlet–Boynton Inlet, Palm Beach County:*** This unit consists of 24.3 km (15.1 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Lake Worth, and scattered coastal islands. The unit extends from Lake Worth Inlet to Boynton Inlet. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southeastern Florida Region of the Peninsular



Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-15 – Boynton Inlet–Boca Raton Inlet, Palm Beach County:*** This unit consists of 22.6 km (14.1 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Lake Rogers, Lake Wyman, and Lake Boca Raton. The unit extends from Boynton Inlet to Boca Raton Inlet. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The County portion is Ocean Ridge Hammock Park, which is managed by the Palm Beach County Parks and Recreation Department. The municipality portion includes Spanish River Park, Red Reef Park, and South Beach Park, which are managed by the City of Boca Raton. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from adjacent units (LOGG-T-FL-14 and LOGG-T-FL-16) that have high-density nesting by loggerhead sea turtles in the Southeastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-16 – Boca Raton Inlet–Hillsboro Inlet, Palm Beach and Broward Counties:*** This unit consists of 8.3 km (5.2 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway and the Hillsboro River. The unit extends from Boca Raton Inlet to Hillsboro Inlet. This

unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The County portion is South Inlet Park, which is managed by the Palm Beach County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southeastern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-17 – Long Key, Monroe County:*** This unit consists of 4.2 km (2.6 miles) of island shoreline along the Atlantic Ocean. The island is bordered on the east by the Atlantic Ocean, on the west by Florida Bay, and on the north and south by natural channels between Keys (Fiesta Key to the north and Conch Key to the south). This unit extends from the natural channel between Fiesta Key and Long Key to the natural channel between Long Key and Conch Key. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). The island is managed by FDEP as Long Key State Park. This unit was occupied at the time of listing and is currently occupied. This unit was included to ensure conservation of the unique nesting habitat in the Florida Keys. Nesting beaches in the Florida Keys are unique from the other beaches in the Peninsular Florida Recovery Unit in that they are limestone islands with narrow, low-energy beaches (beaches where waves are not powerful); they have carbonate sands; and they are relatively close to the major offshore currents that facilitate the dispersal of post-hatchling loggerheads. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, sand beach placement activities, climate change, beach erosion, human-caused disasters, and response to disasters. Long Key State Park has a Unit Management Plan

that includes procedures for the implementation of sea turtle nesting surveys, nest marking, problem species removal, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2004b, pp. 18–19).

***LOGG-T-FL-18 – Bahia Honda Key, Monroe County:*** This unit consists of 3.7 km (2.3 miles) of island shoreline along the Atlantic Ocean. The island is bordered on the east by the Atlantic Ocean, on the west by Florida Bay, and on the north and south by natural channels between Keys (Ohio Key to the north and Spanish Harbor Key to the south). This unit extends from the natural channel between Ohio Key and Bahia Honda Key to the natural channel between Bahia Honda Key and Spanish Harbor Key. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). The island is managed by FDEP as Bahia Honda State Park. This unit was occupied at the time of listing and is currently occupied. This unit was included to ensure conservation of the unique nesting habitat in this Florida Keys. Nesting beaches in the Florida Keys are unique from the other beaches in the Peninsular Florida Recovery Unit in that they are limestone islands with narrow, low-energy beaches; they have carbonate sands; and they are relatively close to the major offshore currents that are known to facilitate the dispersal of post-hatchling loggerheads. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. Bahia Honda State Park has a Unit Management Plan that includes procedures for the implementation of sea turtle nesting surveys and nest marking intended to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2003a, pp. 18–20).

### **Central Western Florida Region**

***LOGG-T-FL-19 – Longboat Key, Manatee and Sarasota Counties:*** This unit consists of 16.0 km (9.9 miles) of island shoreline along the Gulf of Mexico. The island is

separated from the mainland by Sarasota Pass. The unit extends from Longboat Pass to New Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-20) that has high-density nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-20 – Siesta and Casey Keys, Sarasota County:*** This unit consists of 20.8 km (13.0 miles) of island shoreline along the Gulf of Mexico. It includes the shoreline of Siesta Key and Casey Key, which were originally two separate islands divided by Midnight Pass. When Midnight Pass was closed in 1983, the two islands were combined into a single island. The island is separated from the mainland by the Intracoastal Waterway, Roberts Bay, Little Sarasota Bay, Dryman Bay, Blackburn Bay, and scattered coastal islands. The unit extends from Big Sarasota Pass to Venice Inlet. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The County portion includes Turtle Beach County Park and Palmer Point County Park, which are managed by the Sarasota County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters,

and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-21 – Venice Beaches and Manasota Key, Sarasota and Charlotte***

**Counties:** This unit consists of 26.0 km (16.1 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Intracoastal Waterway, Roberts Bay, Red Lake, Lemon Bay, and scattered coastal islands. The unit extends from Venice Inlet to Stump Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State, private, and other ownership (see Table 1). The State portion is Stump Pass Beach State Park, which is managed by FDEP. The Sarasota County portion includes Service Club Park, Brohard Beach, Paw Beach, Caspersen Beach County Park, and Blind Pass Park, which are managed by the Sarasota County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Stump Pass Beach State Park has a Unit Management Plan that includes procedures for the implementation of sea turtle nesting surveys, nest marking, education, problem species (raccoons) removal, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2003b, pp. 4–5).

***LOGG-T-FL-22 – Knight, Don Pedro, and Little Gasparilla Islands, Charlotte County:***

This unit consists of 10.8 km (6.7 miles) of island shoreline along the Gulf of Mexico. It includes the shoreline of Knight Island, Don Pedro Island, and Little Gasparilla Island, which were originally three separate islands divided by passes. When the passes closed during the 1960s, the three islands were combined into a single island. The island is separated from the mainland by the Intracoastal Waterway, Lemon Bay, Placida Harbor,

and scattered keys and islands. The unit extends from Stump Pass to Gasparilla Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is Don Pedro Island State Park, which is managed by FDEP. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Don Pedro Island State Park has a Unit Management Plan that includes procedures for the implementation of nesting surveys, nest marking, education, problem species removal, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2001a, pp. 16–20).

***LOGG-T-FL-23 – Gasparilla Island, Charlotte and Lee Counties:*** This unit consists of 11.2 km (6.9 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Intracoastal Waterway, Gasparilla Sound, Charlotte Harbor, Turtle Bay, Bull Bay, and a network of keys. The unit extends from Gasparilla Pass to Boca Grande Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is Gasparilla Island State Park, which is managed by FDEP. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Gasparilla Island State Park has a Unit Management Plan that includes procedures for the implementation

of nesting surveys, nest marking, terrestrial predator control, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2002b, p. 4).

***LOGG-T-FL-24 – Cayo Costa, Lee County:*** This unit consists of 13.5 km (8.4 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Intracoastal Waterway, Pine Island Sound, Matlacha Pass, Pelican Bay, Primo Bay, Pine Island, Little Pine Island, and numerous smaller keys and islands. The unit extends from Boca Grande Pass to Captiva Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is Cayo Costa State Park, which is managed by FDEP. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-23) that has high-density nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, climate change, beach erosion, human-caused disasters, and response to disasters. Cayo Costa State Park has a Unit Management Plan that includes procedures for the implementation of nesting surveys, nest marking, terrestrial predator control, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2005b, pp. 14, 30).

***LOGG-T-FL-25 – Captiva Island, Lee County:*** This unit consists of 7.6 km (4.7 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Intracoastal Waterway, Pine Island Sound, Matlacha Pass, San Carlos Bay, Pine Island, and scattered keys and islands. The unit extends from Redfish Pass to Blind Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-26) that has high-density

nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-26 – Sanibel Island West, Lee County:*** This unit consists of 12.2 km (7.6 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Intracoastal Waterway, San Carlos Bay, Pine Island Sound, Matlacha Pass, Pine Island, and numerous keys and islands. The unit extends from Blind Pass to Tarpon Bay Road. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The municipality portion includes Silver Key and Bowman’s Beach Regional Park, which are managed by the City of Sanibel Natural Resources Department. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Central Western Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

### **Southwestern Florida Region**

***LOGG-T-FL-27 – Little Hickory Island, Lee and Collier Counties:*** This unit consists of 8.7 km (5.4 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by Estero Bay, Hogue Channel, Fish Trap Bay, Little Hickory Bay, Big Hickory Island, and extensive mangroves and mangrove islands. The unit extends



from Big Hickory Pass to Wiggins Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private and other ownership (see Table 1). The Collier County portion is Barefoot Beach County Preserve Park, which is managed by the Collier County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-26) that has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, habitat obstructions, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-28 – Wiggins Pass - Clam Pass, Collier County:*** This unit consists of 7.7 km (4.8 miles) of mainland shoreline along the Gulf of Mexico. This section of the mainland is bounded on the west by Vanderbilt Channel, Vanderbilt Lagoon, Inner Clam Bay, and extensive mangrove vegetative shorelines. The unit extends from Wiggins Pass to Clam Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State, private, and other ownership (see Table 1). The State portion is Delnor–Wiggins Pass State Park, which is managed by FDEP. The County portion is Vanderbilt Beach County Park, which is managed by the Collier County Parks and Recreation Department. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-30) that has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Delnor–Wiggins Pass State Park has a Unit Management Plan that includes

procedures for the implementation of nesting surveys, nest marking, terrestrial predator control, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2009b, pp. 16–23).

***LOGG-T-FL-29 – Clam Pass - Doctors Pass, Collier County:*** This unit consists of 4.9 km (3.0 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by Moorings Bay, Outer Doctors Bay, Inner Doctors Bay, Venetian Bay, and Outer Clam Bay. The unit extends from Clam Pass to Doctors Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-30) that has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-30 – Keewaydin Island and Sea Oat Island, Collier County:*** This unit consists of 13.1 km (8.1 miles) of island shoreline along the Gulf of Mexico. These islands are separated from the mainland by Dollar Bay, Bartell Bay, Periwinkle Bay, Rookery Bay, Hall Bay, Nature Conservancy Bay, Johnson Bay, Shell Bay, Sand Hill Bay, Hall Bay, Little Marco Pass, and a network of mangroves, coastal islands, and salt marsh. The unit extends from Gordon Pass to Big Marco Pass. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State and part of the private ownership (National Audubon Society) portions are part of the Rookery Bay National Estuarine Research Reserve (NERR), which is managed by FDEP’s Office of Coastal and Aquatic Managed Areas. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the

Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, beach sand placement activities, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Rookery Bay NERR has a management plan that includes working with partners for the implementation of nesting surveys, nest marking, terrestrial predator control, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2012a, pp. 62–77, 223, 269).

***LOGG-T-FL-31 – Cape Romano, Collier County:*** This unit consists of 9.2 km (5.7 miles) of island shoreline along the Gulf of Mexico and Gullivan Bay. Cape Romano is a coastal island complex within the Rookery Bay National Estuarine Research Reserve (NERR) and is located off the southwest coast of Florida in Collier County. Loggerhead sea turtle nesting has been regularly monitored and documented within this island complex. This island complex is separated from the mainland by Caxambas Bay, Grassy Bay, Barfield Bay, Goodland Bay, Gullivan Bay, and a network of other keys and islands. From north to south, the islands and keys included in this unit are: Kice Island, Big Morgan Island, Morgan Keys, Carr Island, and Cape Romano Island. Kice Island is in State ownership and is part of Rookery Bay NERR. It has 3.9 km (2.4 miles) of shoreline. Big Morgan Island is in State ownership (as part of Rookery Bay NERR) and other ownership. It has 1.4 km (0.9 miles) of shoreline. Morgan Key is in State ownership (as part of Rookery Bay NERR) and other ownership. It has 0.7 km (0.4 miles) of shoreline. Carr Island is in State ownership and is part of Rookery Bay NERR. It has 0.3 km (0.2 miles) of shoreline. Cape Romano is in State ownership (as part of Rookery Bay NERR) and other ownership. It has 2.9 km (1.8 miles) of shoreline. The unit extends from Caxambas Pass to Gullivan Bay. This unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and other ownership (see Table 1). The State portion is part of the Rookery Bay NERR, which is owned by the State of Florida and managed by FDEP’s Office of Coastal and Aquatic Managed Areas.

This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. Rookery Bay NERR has a management plan that includes working with partners for the implementation of nesting surveys, nest marking, terrestrial predator control, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2012a, pp. 62–77, 223, 269).

***LOGG-T-FL-32 – Ten Thousand Islands North, Collier County:*** This unit consists of 7.8 km (4.9 miles) of island shoreline along the Gulf of Mexico. The Ten Thousand Islands are a chain of islands and mangrove islets off the southwest coast of Florida in Collier and Monroe Counties. This unit includes nine keys where loggerhead sea turtle nesting has been documented within the northern part of the Ten Thousand Islands in Collier County in both the Ten Thousand Islands NWR and the Rookery Bay National Estuarine Research Reserve (NERR). These keys are separated from the mainland by Sugar Bay, Palm Bay, Blackwater Bay, Buttonwood Bay, Pumpkin Bay, Santana Bay, and a network of keys and islands. From west to east and north to south, these nine keys are: Coon Key, Brush Island, B Key, Turtle Key, Gullivan Key, White Horse Key, Hog Key, Panther Key, and Round Key.

Coon Key is part of Ten Thousand Islands NWR and has 0.4 km (0.2 mile) of shoreline. Brush Island is in State ownership and is part of Rookery Bay NERR. It has 0.6 km (0.4 mile) of shoreline. B Key (25.89055 N, 81.59641 W) is in Federal and State ownership and is part of both Ten Thousand Islands NWR and Rookery Bay NERR. It has 0.5 km (0.3 mile) of shoreline. Turtle Key is in State ownership and is part of Rookery Bay NERR. It has 0.5 km (0.3 mile) of shoreline. Gullivan Key is in State ownership and is part of Rookery Bay NERR. It has 1.1 km (0.7 mile) of shoreline.

White Horse Key is in State ownership and is part of Rookery Bay NERR. It has 1.6 km (1.0 mile) of shoreline. Hog Key is in Federal and State ownership and is part of both Ten Thousand Islands NWR and Rookery Bay NERR. It has 0.9 km (0.6 mile) of shoreline. Panther Key is in Federal ownership and is part of Ten Thousand Islands NWR. It has 2.0 km (1.3 miles) of shoreline. Round Key is in Federal ownership and is part Ten Thousand Islands NWR. It has 0.3 km (0.2 mile) of shoreline.

The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal and State ownership (see Table 1). The Ten Thousand Islands NWR portion is managed by USFWS. The Rookery Bay NERR portion is managed by FDEP's Office of Coastal and Aquatic Managed Areas. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-31) that has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. Rookery Bay NERR has a management plan that includes working with partners for the implementation of nesting surveys, nest marking, terrestrial predator control, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2012a, pp. 62–77, 223, 269). Thousand Islands NWR has a Comprehensive Conservation Plan that includes implementation of nesting surveys, nest marking, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2001, pp. 12, 20–22).

***LOGG-T-FL-33 – Highland Beach, Monroe County:*** This unit consists of 7.2 km (4.5 miles) of island (Key McLaughlin) shoreline along the Gulf of Mexico. The island is separated from the mainland by Rogers River Bay, Big Bay, Big Lostmans Bay, extensive salt marsh, and a network of keys and islands. The unit extends from First Bay to Rogers River Inlet. The unit includes lands from the MHW line to the toe of the

secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Everglades National Park, which is managed by the National Park Service. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-34) that has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, climate change, beach erosion, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-34 – Graveyard Creek–Shark Point, Monroe County:*** This unit consists of 0.9 km (0.6 mile) of mainland shoreline along the Gulf of Mexico. The unit extends from Shark Point (25.38796 N, 81.14933 W) to Graveyard Creek Inlet. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Everglades National Park, which is managed by the National Park Service. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-FL-35 – Cape Sable, Monroe County:*** This unit consists of 21.3 km (13.2 miles) of mainland shoreline along the Gulf of Mexico. The unit extends from the north boundary of Cape Sable at 25.25924 N, 81.16687 W to the south boundary of Cape Sable at 25.12470 N, 81.06681 W. Land in this unit is in Federal ownership (see Table 1). It is part of the Everglades National Park, which is managed by the National Park Service. The unit includes lands from the MHW line to the toe of the secondary dune or developed

structures. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Southwestern Florida Region of the Peninsular Florida Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

### **Dry Tortugas Recovery Unit**

***LOGG-T-FL-36 – Dry Tortugas, Monroe County:*** This unit consists of 6.3 km (3.9 miles) of shoreline along the Gulf of Mexico. The Dry Tortugas are a small group of seven islands located at the end of the Florida Keys about 108 km (67 miles) west of Key West. This unit includes six islands where loggerhead sea turtle nesting has been documented within the Dry Tortugas. From west to east, these six islands are: Loggerhead Key, Garden Key, Bush Key, Long Key, Hospital Key, and East Key. Loggerhead Key is the largest island in the chain and has 2.4 km (1.5 miles) of beach. Garden Key, the second largest island in the chain, is 4.0 km (2.5 miles) east of Loggerhead Key and has 0.8 km (0.5 mile) of beach. Bush Key is located 0.1 km (0.1 mile) east of Garden Key and has 2.0 km (1.3 mile) of beach; Bush Key is occasionally connected to Garden Key by a sand bar. Long Key is located 0.1 km (0.1 mile) south of the eastern end of Bush Key and has 0.3 km (0.2 mile) of beach; Long Key is occasionally connected to Bush Key by a sand bar. Hospital Key is located 2.5 km (1.6 miles) northeast of Garden Key and Bush Key and has 0.2 km (0.1 mile) of beach. East Key is located 0.6 km (0.3 miles) east of Middle Key (Middle Key is not included in the unit) and has 0.6 km (0.3 mile) of beach.

The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Dry Tortugas National Park, which is managed by the National Park Service. This unit was occupied at the time of listing and is currently occupied. This unit was included

because of the extremely small size of the Dry Tortugas Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, habitat obstructions, human-caused disasters, and response to disasters. Dry Tortugas National Park has a General Management Plan that includes special protection zones intended to manage the beach to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 2000, p. 38).

***LOGG-T-FL-37 – Marquesas Keys, Monroe County:*** This unit consists of 5.6 km (3.5 miles) of shoreline along the Gulf of Mexico. The Marquesas Keys are a small group of eight islands located at the end of the Florida Keys about 29.3 km (18.2 miles) west of Key West. This unit includes four islands where loggerhead sea turtle nesting has been documented within the Marquesas Keys: Marquesas Key, Unnamed Key 1, Unnamed Key 2, and Unnamed Key 3. Marquesas Key is the largest key in the northeastern region of the island group and has 3.8 km (2.4 miles) of shoreline. Unnamed Keys 1, 2, and 3 are at the far westernmost side of the island group. Unnamed Key 1 is the northernmost key of the three and has 0.4 km (0.2 mile) of shoreline. Unnamed Key 2 is just south of Unnamed Key 1 and has 1.0 km (0.6 mile) of shoreline. Unnamed Key 3 is southwest of Unnamed Key 2 and has 0.5 km (0.3 mile) of shoreline.

The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). The Marquesas Keys are part of the Key West NWR, which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit was included because of the extremely small size of the Dry Tortugas Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, climate change, beach erosion, human-caused disasters, and response to disasters. Key West NWR is included within the Lower Florida Keys National Wildlife Refuges Comprehensive Conservation Plan, which includes implementation of nesting surveys,



nest marking, debris removal, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2009, pp. 67–68).

***LOGG-T-FL-38 – Boca Grande Key, Monroe County:*** This unit consists of 1.3 km (0.8 mile) of island shoreline along the Gulf of Mexico. Boca Grande Key is one of the outlying islands of the Florida Keys and is located about 18.9 km (11.7 miles) west of Key West. The unit extends from 24.53767 N, 82.00763 W (at the northern end of the key) to 24.52757 N, 82.00581 W (at the southern end of the key). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Key West NWR, which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit was included because of the extremely small size of the Dry Tortugas Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, climate change, beach erosion, human-caused disasters, and response to disasters. Key West NWR is included within the Lower Florida Keys National Wildlife Refuges Comprehensive Conservation Plan, which includes implementation of nesting surveys, nest marking, debris removal, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2009, pp. 67–68).

***LOGG-T-FL-39 – Woman Key, Monroe County:*** This unit consists of 1.3 km (0.8 mile) of island shoreline along the Gulf of Mexico. Woman Key is one of the outlying islands of the Florida Keys and is located about 15.9 km (9.9 miles) west of Key West. The unit extends from 24.52452 N, 81.97893 W (at the western end of the key) to 24.52385 N, 81.96680 W (at the eastern end of the key). The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). It is part of the Key West NWR, which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit was included because of the extremely small size of the Dry Tortugas Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special

management considerations or protections to ameliorate the threats of recreational use, climate change, beach erosion, human-caused disasters, and response to disasters. Key West NWR is included within the Lower Florida Keys National Wildlife Refuges Comprehensive Conservation Plan, which includes implementation of nesting surveys, nest marking, debris removal, and predator removal intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2009, pp. 67–68).

## **Northern Gulf of Mexico Recovery Unit**

### **Mississippi**

***LOGG-T-MS-01 – Horn Island, Jackson County:*** This unit consists of 18.6 km (11.5 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Gulf Intracoastal Waterway, Mississippi Sound, Pascagoula Bay, and scattered coastal islands. The unit extends from Dog Keys Pass to the easternmost point of the ocean facing island shore. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal and private ownership (see Table 1). The Federal portion is part of the Gulf Islands National Seashore, Mississippi District, which is managed by the National Park Service. This unit was occupied at the time of listing and is currently occupied. Nesting was confirmed by weekly aerial surveys prior to 2006. Although regular surveys have not been conducted since 2005, loggerhead nesting was documented in 2010 and 2011 during the Deepwater Horizon event response efforts. This unit was included because Horn Island has been documented as one of two islands in Mississippi with the greatest number of nests.

This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. The existing Gulf Islands National Seashore General Management Plan includes controlling nonnative species to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 1978, p. 46). The

management plan is being revised and a draft is under review. The draft Gulf Islands National Seashore General Management Plan includes management efforts that would emphasize sea turtle nest monitoring and closure areas around nests intended to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 2011, p. 85).

***LOGG-T-MS-02 – Petit Bois Island, Jackson County:*** This unit consists of 9.8 km (6.1 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Gulf Intracoastal Waterway, Mississippi Sound, Point Aux Chenes Bay, scattered coastal islands, and salt marsh. The unit extends from Horn Island Pass to Petit Bois Pass. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). Petit Bois Island is part of the Gulf Islands National Seashore, Mississippi District, which is managed by the National Park Service. This unit was occupied at the time of listing and is currently occupied. Nesting was confirmed by weekly aerial surveys prior to 2006. Although regular surveys have not been conducted since 2005, loggerhead nesting was documented in 2010 and 2011 during Deepwater Horizon event response efforts. This unit was included because Petit Bois Island has been documented as one of two islands in Mississippi with the greatest number of nests.

This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, human-caused disasters, and response to disasters. The existing Gulf Islands National Seashore General Management Plan includes controlling nonnative species to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 1978, p. 46). The management plan is being revised, and a draft is under review. The draft Gulf Islands National Seashore General Management Plan includes management efforts that would emphasize sea turtle nest monitoring and closure areas around nests intended to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 2011, p. 85).

## Alabama

***LOGG-T-AL-01 – Mobile Bay–Little Lagoon Pass, Baldwin County:*** This unit consists of 28.0 km (17.4 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Gulf Intracoastal Waterway, Bon Secour Bay, and Little Lagoon. The unit extends from Mobile Bay Inlet to Little Lagoon Pass. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal, State, and private ownership (see Table 1). The Federal portion includes part of the Bon Secour NWR and four Bureau of Land Management (BLM) parcels, which are managed by USFWS. The State portion includes Fort Morgan State Park, which is managed by USFWS. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in Alabama. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. Bon Secour NWR has a Comprehensive Conservation Plan that includes working with partners for the implementation of nesting surveys, nest marking, education, minimizing human disturbance, predator removal, and other conservation efforts intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2005, pp. 54–55).

***LOGG-T-AL-02 – Gulf State Park–Perdido Pass, Baldwin County:*** This unit consists of 10.7 km (6.7 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Gulf Intracoastal Coastal Waterway, Shelby Lakes, Little Lake, Portage Creek, Wolf Bay, Bay La Launch, Cotton Bayou, and Terry Cove. The unit extends from the west boundary of Gulf State Park to Perdido Pass. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is part of Gulf State Park, which is managed by the Alabama State Parks. This unit was occupied at the time of listing and is currently occupied. This unit has high-

density nesting by loggerhead sea turtles in Alabama. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, coastal development, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

***LOGG-T-AL-03 – Perdido Pass–Florida-Alabama line, Baldwin County:*** This unit consists of 3.3 km (2.0 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Gulf Intracoastal Waterway, Old River, Bayou St. John, Terry Cover, Amica Bay, and coastal islands. The unit extends from Perdido Pass to the Alabama–Florida border. This area is referred to as Alabama Point. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is part of Gulf State Park, which is managed by the Alabama State Parks. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-AL-02) that has high-density nesting by loggerhead sea turtles in Alabama. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, beach sand placement activities, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

## **Florida**

***LOGG-T-FL-40 – Perdido Key, Escambia County:*** This unit consists of 20.2 km (12.6 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Gulf Intracoastal Waterway, Old River, Perdido Bay, Big Lagoon, and coastal islands. The unit extends from the Alabama–Florida border to Pensacola Pass. The unit includes lands from the MHW line to the toe of the secondary dune or developed

structures. Land in this unit is in Federal, State, and private ownership (see Table 1). The Federal portion is part of Gulf Islands National Seashore, Florida District, which is managed by the National Park Service. The State portion is Perdido Key State Park, which is managed by FDEP. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-AL-02) that has high-density nesting by loggerhead sea turtles in the Alabama portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, beach sand placement activities, in-water and shoreline alterations, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

The existing Gulf Islands National Seashore General Management Plan includes controlling nonnative species to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 1978, p. 46). The management plan is being revised, and a draft is under review. The draft Gulf Islands National Seashore General Management Plan includes management efforts that would emphasize sea turtle nest monitoring and closure areas around nests intended to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (National Park Service 2011, p. 77). Perdido Key State Park has a Unit Management Plan that includes procedures for the implementation of nesting surveys, nest marking, terrestrial predator control, debris removal, artificial light reduction in adjacent developed areas, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2006b, p. 5).

***LOGG-T-FL-41 – Mexico Beach and St. Joe Beach, Bay and Gulf Counties:*** This unit consists of 18.7 km (11.7 miles) of mainland shoreline along the Gulf of Mexico. The unit extends from the eastern boundary of Tyndall Air Force Base to Gulf County Canal in St. Joseph Bay. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private ownership (see Table 1). This unit was occupied at the time of listing and is currently occupied. This

unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-42) that has high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, in-water and shoreline alterations, beach sand placement activities, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this unit.

***LOGG-T-FL-42 – St. Joseph Peninsula, Gulf County:*** This unit consists of 23.5 km (14.6 miles) of a spit shoreline along the Gulf of Mexico. The spit is separated from the mainland by St. Joseph Bay. The unit extends from St. Joseph Bay to the west boundary of Eglin Air Force Base. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion includes T.H. Stone Memorial St. Joseph Peninsula State Park and part of the St. Joseph Bay Aquatic Preserve, which are managed by FDEP. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach sand placement activities, beach driving, predation, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters.

T.H. Stone Memorial St. Joseph Peninsula State Park has a Unit Management Plan that includes procedures for the implementation of nesting surveys, nest marking, terrestrial predator control, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2001b, pp. 4–5, 18). The St. Joseph Bay Aquatic Preserve Management Plan includes working with partners on the implementation of nesting surveys, nest marking, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances

(FDEP 2008b, pp. 50–51, 77). Gulf County has a draft HCP that could include sea turtle nest monitoring, nest protection from vehicles on the beach, public education, artificial light management, land acquisition, beach horseback riding ordinance enforcement, and predator control. These measures apply to the private lands within this critical habitat unit and are intended to minimize and mitigate impacts to nesting and hatchling loggerhead sea turtles as a result of the County-authorized beach driving (Gulf County Board of County Commissioners 2004, pp. 5-6–5-10).

***LOGG-T-FL-43 – Cape San Blas, Gulf County:*** This unit consists of 11.0 km (6.8 miles) of mainland and spit shoreline along the Gulf of Mexico. The unit extends from the east boundary of Eglin Air Force Base to Indian Pass. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State, private, and other ownership (see Table 1). The State portion is part of St. Joseph Bay State Buffer Preserve, which is managed by FDEP. The County portion is Salinas Park, which is managed by Gulf County. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from adjacent units (LOGG-T-FL-42 and LOGG-T-FL-44) that have high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving, predation, coastal development, climate change, beach erosion, artificial lighting, habitat obstructions, human-caused disasters, and response to disasters. The draft St. Joseph Bay State Buffer Preserve Management Plan includes predator control (FDEP 2012b, p. 33).

***LOGG-T-FL-44 – St. Vincent Island, Franklin County:*** This unit consists of 15.1 km (9.4 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by St. Vincent Sound. The unit extends from Indian Pass to West Pass. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in Federal ownership (see Table 1). This unit is managed by USFWS as the St. Vincent NWR. This unit was occupied at the time of listing and is



currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. St. Vincent NWR has a draft Comprehensive Conservation Plan that includes the implementation of nesting surveys, nest marking, education, minimizing human disturbance, predator removal, and other conservation efforts intended to minimize impacts to nesting and hatchling loggerhead sea turtles (USFWS 2012, pp. 64–65).

***LOGG-T-FL-45 – Little St. George Island, Franklin County:*** This unit consists of 15.4 km (9.6 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by Apalachicola Bay and St. Vincent Sound. The unit extends from West Pass to Bob Sikes Cut. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State ownership (see Table 1). This unit is managed by FDEP as the Apalachicola NERR. This unit was occupied at the time of listing and is currently occupied. This unit has high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. The existing Apalachicola NERR Management Plan includes working with partners on the implementation of nesting surveys and controlling nonnative species to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 1998, pp. 78, 126, 161). The management plan is being revised, and a draft is under review. The draft management plan includes working with partners on the implementation of nesting surveys, nest marking, predator removal, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2011, pp. 48–49, 73–76).

***LOGG-T-FL-46 – St. George Island, Franklin County:*** This unit consists of 30.7 km (19.1 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by the Intracoastal Waterway, Apalachicola Bay, and East Bay. The unit extends from Bob Sikes Cut to East Pass. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in State and private ownership (see Table 1). The State portion is Dr. Julian G. Bruce St. George Island State Park, which is managed by FDEP. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-45) that has high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, predation, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. The Dr. Julian G. Bruce St. George Island State Park has a Unit Management Plan that includes procedures for the implementation of nesting surveys, nest marking, terrestrial predator control, debris removal, artificial light reduction in adjacent developed areas, education, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (FDEP 2003c, pp. 16–18).

***LOGG-T-FL-47 – Dog Island, Franklin County:*** This unit consists of 13.1 km (8.1 miles) of island shoreline along the Gulf of Mexico. The island is separated from the mainland by St. George Sound. The unit extends from East Pass to St. George Sound. The unit includes lands from the MHW line to the toe of the secondary dune or developed structures. Land in this unit is in private conservation ownership (The Nature Conservancy) (see Table 1). The unit includes the Jeff Lewis Wilderness Preserve, which is owned and managed by The Nature Conservancy. This unit was occupied at the time of listing and is currently occupied. This unit supports expansion of nesting from an adjacent unit (LOGG-T-FL-45) that has high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit. This unit contains all of the PBFs and PCEs. The PBFs in this unit may require special management considerations or protections to ameliorate the threats of recreational use, beach driving,

predation, climate change, beach erosion, artificial lighting, human-caused disasters, and response to disasters. At this time, we are not aware of any management plans that address this species in this area.

## **Effects of Critical Habitat Designation**

### *Section 7 Consultation*

Section 7(a)(2) of the Act requires Federal agencies, including USFWS, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with USFWS on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5<sup>th</sup> and 9<sup>th</sup> Circuit Courts of Appeals have invalidated our regulatory definition of “destruction or adverse modification” (50 CFR 402.02) (see *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F. 3d 1059 (9<sup>th</sup> Cir. 2004) and *Sierra Club v. U.S. Fish and Wildlife Service et al.*, 245 F.3d 434, 442 (5<sup>th</sup> Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of

Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from USFWS under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

- (1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or
- (2) A biological opinion for Federal actions that may affect, or are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define “reasonable and prudent alternatives” (at 50 CFR 402.02) as alternative actions identified during consultation that:

- (1) Can be implemented in a manner consistent with the intended purpose of the action;
- (2) Can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction;
- (3) Are economically and technologically feasible; and
- (4) Would, in the Director’s opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a

reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

*Application of the "Adverse Modification" Standard*

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for the loggerhead sea turtle. As discussed above, the role of critical habitat is to support life-history needs of the species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the loggerhead sea turtle. These activities include, but are not limited to:

(1) Actions that would significantly alter beach sand characteristics. Such activities could include, but are not limited to, beach sand placement and beach driving. These activities may lead to changes to the nest incubation environment by altering gas exchange, moisture content, temperature, and hardness of the nesting substrate to levels that eliminate or reduce the suitability of habitat necessary for successful reproduction of the loggerhead sea turtle. However, beach sand placement projects conducted under the FWS's Statewide Programmatic Biological Opinion for the U.S. Army Corps of Engineers planning and regulatory sand placement activities (including post-disaster sand placement activities) in Florida and other individual biological opinions throughout the loggerhead's nesting range include required terms and conditions that minimize incidental take of turtles and, if incorporated, the sand placement projects are not expected to result in adverse modification of critical habitat.

(2) Actions that would significantly decrease adult female access to nesting habitat or hinder hatchling sea turtles emerging from the nest from reaching the ocean. Such activities could include, but are not limited to, coastal residential and commercial development, beach armoring, groin construction, and construction of other erosion control devices. These structures could act as barriers or deterrents to adult females attempting to access a beach to levels that eliminate or reduce the suitability of habitat necessary for successful reproduction of the loggerhead sea turtle.

(3) Actions that would significantly alter natural lighting levels. Such activities could include, but are not limited to, lighting of coastal residential and commercial structures, street lighting, bridge lighting, and other development or road infrastructure. These activities could increase the levels of artificial lighting visible from the beach and act as a deterrent to adult females attempting to access a beach or disorient hatchlings emerging from the nest and crawling to the ocean. Increased levels may eliminate or reduce the suitability of habitat necessary for successful reproduction of the loggerhead sea turtle.

## **Exemptions**

*Application of Section 4(a)(3) of the Act*

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

- (1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;
- (2) A statement of goals and priorities;
- (3) A detailed description of management actions to be implemented to provide for these ecological needs; and
- (4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: “The Secretary shall not designate as critical habitat any lands or other geographic areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.”

We consult with the military on the development and implementation of INRMPs

for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the proposed critical habitat designation for the loggerhead sea turtle to determine if they are exempt under section 4(a)(3) of the Act. The following areas are Department of Defense lands with completed, USFWS-approved INRMPs within the proposed critical habitat designation.

#### Approved INRMPs

##### *Marine Corps Base Camp Lejeune (Onslow Beach), NC, 12.4 km (7.7 miles)*

Marine Corps Base Camp Lejeune is the Marine Corps' largest amphibious training base and is home to 47,000 marines and sailors, the largest single concentration of marines in the world. The mission of Camp Lejeune is to train and maintain combat-ready units for expeditionary deployment anywhere in the world. Onslow Beach, one of two stretches of beach on the base, is used to support amphibious operations. Operations at the beach range from daily exercises by 2nd Amphibious Assault Battalion and Joint Armed Services training to periodic, large-scale training such as the quarterly Capability Exercises, which include explosives on the beach, inland artillery fire, and three Landing Craft Air Cushioned and 10 to 12 Amphibious Assault Vehicle landings (Marine Corps Base Camp Lejeune 2006, p. 1-10 and Appendix E).

Camp Lejeune encompasses an estimated 57,870 hectares (143,000 acres), including the onshore, nearshore, and surf areas in and adjacent to the Atlantic Ocean and the New River, in Onslow County, North Carolina. Onslow Beach consists of 12.4 km (7.7 miles) of island shoreline along the Atlantic Ocean. The island on which Onslow Beach is located is separated from the mainland by the Atlantic Intracoastal Waterway, Banks Channel, Salliers Bay, Wards Channel, and salt marsh. The boundaries of the island are from Browns Inlet to New River Inlet. Onslow Beach, which has been monitored for sea turtle nesting since 1979, has high-density nesting by loggerhead sea turtles in North Carolina.



The Marine Corps Base Camp Lejeune INRMP is a planning document that guides the management and conservation of natural resources under the installation's control. The INRMP was prepared to assist installation staff and users in managing natural resources more effectively so as to ensure that installation lands remain available and in good condition to support the installation's military mission. Camp Lejeune published its first INRMP in 2001 to guide resources management on the installation for the years 2002–2006. A revised INRMP was prepared in 2006 for the years 2007–2011. The existing INRMP will remain in use until its next revision, which the installation is preparing to initiate.

The 2006 INRMP includes the implementation of sea turtle nesting surveys, nest marking, and beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances (Marine Corps Base Camp Lejeune 2006, pp. 4-14–4-15). The INRMP identifies the goal of contributing to the recovery of the loggerhead sea turtle through development of ecosystem management-based strategies. The INRMP identifies the following management and protective measures to achieve this goal:

- (1) Conduct nightly or morning ground sea turtle nest surveys on Onslow Beach during the nesting season;
- (2) Conduct aerial surveys for sea turtle nests on Brown's Island and North Onslow Beach;
- (3) Protect sea turtle nest sites with cages and restrictive signage;
- (4) Move sea turtle nests that are in the amphibious training beach;
- (5) Impose driving restrictions on Onslow Beach during the sea turtle nesting season, including restrictions to protect sensitive habitat south of Onslow South Tower;
- (6) Rake ruts in front of sea turtle nests;
- (7) Reduce sources of artificial lighting on Onslow Beach; and
- (8) Monitor recreational or training impacts to Onslow Beach during the sea turtle nesting season.

In a letter dated October 25, 2012, Marine Corps Base Camp Lejeune provided information detailing its commitments to conduct additional activities that will benefit

loggerhead sea turtles on Onslow Beach and Brown's Island. The commitments listed above will continue and will be added to the base's next INRMP. In addition, the following activities will be conducted and added to the next INRMP:

(1) Control sea turtle nest predators by implementing trapping to ensure that the annual rate of mammalian predator rate is 10 percent or lower; and

(2) Manage lighting by ensuring that all fixtures and bulbs conform to the guidelines in the technical report titled "Understanding, Assessing, and Resolving Light Pollution Problems on Sea Turtle Nesting Beaches" (Witherington and Martin 1996, pp. 20–27). Marine Corps Base Camp Lejeune will conduct a sea turtle lighting survey and submit a plan to retrofit any lights visible from the nesting beach. The plan will be reviewed and approved by USFWS prior to installation or replacement of lights.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the Marine Corps Base Camp Lejeune INRMP and that conservation efforts identified in the INRMP will provide a benefit to the loggerhead sea turtle. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3) of the Act. We are not including 12.4 km (7.7 miles) of habitat in this proposed critical habitat designation because of this exemption.

*Cape Canaveral Air Force Station, Brevard County, FL, 21.0 km (13.0 miles)*

Cape Canaveral Air Force Station is part of the 45<sup>th</sup> Space Wing, a unit of Air Force Space Command, whose mission is to assure access to the high frontier and to support global operations. The 45<sup>th</sup> Space Wing currently operates a number of rockets and missiles, including the Delta IV and Atlas V, and provides support for the Department of Defense, NASA, and commercial manned and unmanned space programs.

Cape Canaveral Air Force Station is situated on the Canaveral Peninsula along the Atlantic Coast in Brevard County, Florida, and occupies 6,394 hectares (15,800 acres). The installation's beach consists of 21.0 km (13.0 miles) of island shoreline along the

Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, the Barge Channel, Banana River, Indian River Lagoon, Merritt Island, and Harrison Island. The boundaries of the installation are from the south boundary of Merritt Island NWR–Kennedy Space Center (Merritt Island NWR was established in 1963 as an overlay of NASA’s John F. Kennedy Space Center) to Port Canaveral. Cape Canaveral Air Force Station is adjacent to a critical habitat unit (LOGG-T-FL-07) that has high-density nesting by loggerhead sea turtles in the Central Eastern Florida Region of the Peninsular Florida Recovery Unit.

Cape Canaveral Air Force Station (CCAFS) is covered by the 45<sup>th</sup> Space Wing 2008 INRMP, a planning document that guides the management and conservation of natural resources under the Space Wing’s control. The INRMP was prepared to manage natural resources in compliance with relevant statutes, executive orders, Presidential memoranda, regulations, and Air Force-specific requirements. The INRMP integrates the 45<sup>th</sup> Space Wing’s natural resources management program with ongoing mission activities for sustainability while conserving and protecting natural resources. The 45<sup>th</sup> Space Wing is committed to a proactive, interdisciplinary management strategy focused on an ecosystem-based approach to natural resources management. This strategy includes the Air Force objective of sustaining and restoring natural resources to uphold operational capabilities while complying with Federal, State, and local standards that protect and conserve wildlife, habitat, and the surrounding watershed.

The 2008 INRMP includes the implementation of sea turtle nesting surveys, nest marking, predator control, and exterior lighting management to conserve loggerhead sea turtles and their habitat (45<sup>th</sup> Space Wing 2008, pp. 64–71 and Tab A). The INRMP identifies the need to develop and implement programs to protect and conserve federally listed threatened and endangered plants and wildlife, including the loggerhead sea turtle. The INRMP identifies the following management and protective measures to achieve this goal:

- (1) Monitor sea turtle nesting activities;
- (2) Manage lighting (i.e., use of sea turtle friendly low pressure sodium and

amber light-emitting diode (LED) shielded lighting in compliance with the Endangered Species Act for facilities that require illumination); and

(3) Control sea turtle nest predators.

In a letter dated October 10, 2012, the 45<sup>th</sup> Space Wing provided information detailing its commitments to conduct activities that benefit loggerheads on the beaches of Cape Canaveral Air Force Station and Patrick Air Force Base. These commitments will be added to their next INRMP and include:

(1) Monitor sea turtle nesting activities by participating in the Statewide Nesting Beach Survey and Index Nesting Beach Survey programs and conducting hatchling productivity assessments;

(2) Control sea turtle nest predators by implementing trapping at the first sign of tracks on the beach at PAFB; controlling raccoons, coyotes, and feral hogs within 0.8 km (0.5 mile) of the beach at CCAFS; and installing predator-proof trash receptacles if needed; and

(3) Manage lighting by ensuring that all fixtures and bulbs follow the Space Wing Instruction (SWI) 32-7001, which has been reviewed and approved by USFWS, prior to installation or replacement. Any lights that do not follow the SWI 32-7001 require a USFWS-approved Light Management Plan.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the 45<sup>th</sup> Space Wing INRMP and that conservation efforts identified in the INRMP will provide a benefit to the loggerhead sea turtle. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3) of the Act. We are not including 21.0 km (13.0 miles) of habitat in this proposed critical habitat designation because of this exemption.

*Patrick Air Force Base, Brevard County, FL, 6.6 km (4.1 miles)*

Patrick Air Force Base is also part of the 45<sup>th</sup> Space Wing (see discussion for

Cape Canaveral above) and is presently the home of Headquarters, 45<sup>th</sup> Space Wing. Patrick Air Force Base is located on a barrier island on the central east coast of Florida in Brevard County and covers 810 hectares (2,002 acres) of developed land and some coastal dune and estuarine habitat. The installation's beach consists of 6.6 km (4.1 miles) of island shoreline along the Atlantic Ocean. The island is separated from the mainland by the Atlantic Intracoastal Waterway, Indian River Lagoon, Banana River, and Merritt Island. The boundaries of the installation are from the south boundary of the city of Cocoa Beach (28.2720 N, 80.6055 W) to the north boundary of the town of Satellite Beach (28.2127 N, 80.5973 W). Patrick Air Force Base has high-density nesting by loggerhead sea turtles in the Central Eastern Florida Region of the Peninsular Florida Recovery Unit.

Like Cape Canaveral Air Force Station, Patrick Air Force Base is governed by the 45<sup>th</sup> Space Wing 2008 INRMP. As with Cape Canaveral Air Force Station, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the 45<sup>th</sup> Space Wing INRMP and that conservation efforts identified in the INRMP will provide a benefit to the loggerhead sea turtle. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3) of the Act. We are not including 6.6 km (4.1 miles) of habitat in this proposed critical habitat designation because of this exemption.

*Eglin Air Force Base (Cape San Blas), Gulf County, FL, 4.8 km (3.0 miles)*

Eglin Air Force Base is the largest forested military reservation in the United States and supports a multitude of military testing and training operations, as well as many diverse species and habitats. Eglin's missions include the 7<sup>th</sup> Special Forces Group (Airborne) beddown, Amphibious Ready Group/Marine Expeditionary Unit, Stand-off Precision Guided Missile, and Massive Ordnance Air Blast.

Eglin Air Force Base, also known as the Eglin Military Complex, is located in Santa Rosa, Okaloosa, Walton, and Gulf Counties in Northwest Florida and the Gulf of

Mexico and occupies 261,428 hectares (464,000 acres). The Eglin Military Complex includes the mainland Reservation located in Santa Rosa, Okaloosa, and Walton Counties, as well as a small parcel (389 hectares (962 acres)) on Cape San Blas in Gulf County, Florida. Eglin's Cape San Blas parcel consists of 4.8 km (3.0 miles) of spit shoreline along the Gulf of Mexico. The spit is separated from the mainland by St. Joseph Bay. The boundaries of Eglin's Cape San Blas parcel are from 29.67680 N 85.36351 W to 29.67608 N 85.33394 W. Eglin's Cape San Blas parcel also contains U.S. Federal Reserve property, but the entire parcel is under Eglin's management. Eglin's Cape San Blas parcel has high-density nesting by loggerhead sea turtles in the Florida portion of the Northern Gulf of Mexico Recovery Unit.

The 2012 Eglin Air Force Base INRMP is a planning document that guides the management and conservation of natural resources under the installation's control. It provides interdisciplinary strategic guidance for the management of natural resources in support of the military mission within the land and water ranges of the Eglin Military Complex. The Eglin Air Force Base INRMP integrates and prioritizes wildlife, fire, and forest management activities to protect and effectively manage the Complex's aquatic and terrestrial environments, and ensure "no net loss" in the operational capability of these resources to support Eglin test and training missions.

The 2012 INRMP has a revised sea turtle chapter that includes the implementation of sea turtle nesting surveys, nest marking, predator control, and exterior lighting management to conserve loggerhead sea turtles and their habitat (Eglin Air Force Base 2012, pp. 8-7–8-16). The INRMP identifies the need to develop and implement programs to protect and conserve federally listed endangered and threatened plants and wildlife, including the loggerhead sea turtle. The INRMP identifies the following management and protective measures to achieve this goal:

- (1) Monitor sea turtle nesting activities;
- (2) Manage lighting (i.e., using sea turtle friendly, low-pressure sodium lighting at all test sites, turning off lights not necessary for safety, lowering lights, or properly shielding lights);

- (3) Implement dune protection as needed; and
- (4) Control sea turtle nest predators by implementing trapping either as soon as a nest is found to have been depredated or if deemed necessary by biologists.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the Eglin Air Force Base INRMP and that conservation efforts identified in the INRMP will provide a benefit to the loggerhead sea turtle. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3) of the Act. We are not including 4.8 km (3.0 miles) of habitat in this proposed critical habitat designation because of this exemption.

## **Exclusions**

### *Application of Section 4(b)(2) of the Act*

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

Under section 4(b)(2) of the Act, we may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of

excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion would not result in the extinction of the species. We will consider whether to exclude from critical habitat designation areas in St. Johns, Volusia, and Indian River Counties, Florida, that are covered under habitat conservation plans that include the loggerhead sea turtle as a covered species.

### Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we are preparing an analysis of the economic impacts of the proposed critical habitat designation.

The proposed critical habitat areas include Federal, State, private, and other (local government) lands, where shoreline protection activities (e.g., sand placement, coastal armoring, groin installation) and recreational activities may occur and may be affected by the designation. In addition, activities, such as bridge and highway construction and beachfront lighting projects, on lands adjacent to proposed critical habitat areas may be affected. Other land uses that may be affected will be identified as we develop the draft economic analysis for the proposed designation.

We will announce the availability of the draft economic analysis as soon as it is completed, at which time we will seek public review and comment. At that time, copies of the draft economic analysis will be available for downloading from the Internet at <http://www.regulations.gov>, or by contacting the North Florida Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**). During the development of a final designation, we will consider economic impacts based on information in our economic analysis, public comments, and other new information, and areas may be excluded from the final critical habitat designation under section 4(b)(2) of the Act and



our implementing regulations at 50 CFR 424.19.

### National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense where a national security impact might exist. As discussed above, we have exempted from the proposed designation of critical habitat under section 4(a)(3) of the Act those Department of Defense lands with completed INRMPs determined to provide a benefit to the loggerhead sea turtle but where a national security impact may exist. We have not identified any other lands owned or managed by the Department of Defense within the lands proposed for critical habitat designation. Accordingly, we are not proposing to exclude any lands based on national security impacts under section 4(b)(2) of the Act in this proposed critical habitat rule.

### Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors, including whether the landowners have developed any HCPs or other management plans for the area, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

We are considering for exclusion from critical habitat areas (all or portions of LOGG-T-FL-01, LOGG-T-FL-02, LOGG-T-FL-03, LOGG-T-FL-04, LOGG-T-FL-05, and LOGG-T-FL-10) in St. Johns, Volusia, and Indian River Counties, Florida, that are covered under an HCP, because the HCPs incorporate measures that provide a benefit for the conservation of the loggerhead sea turtle. We are not considering any additional exclusions at this time from the proposed designation under section 4(b)(2) of the Act

based on partnerships, management, or protection afforded by cooperative management efforts. In this proposed rule, we are seeking input from the public as to whether or not the Secretary should exercise his discretion to exclude the HCP areas or other such areas under management that benefit the loggerhead sea turtle from the final critical habitat designation. (Please see the **Information Requested** section of this proposed rule for instructions on how to submit comments.)

### **Peer Review**

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that our critical habitat designation is based on scientifically sound data, assumptions, and analyses. We have invited these peer reviewers to comment during this public comment period.

We will consider all comments and information received during this comment period on this proposed rule during our preparation of a final determination. Accordingly, the final decision may differ from this proposal.

### **Public Hearings**

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in the **ADDRESSES** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

### **Required Determinations**

*Regulatory Planning and Review—Executive Order 12866*

*Regulatory Planning and Review (Executive Orders 12866 and 13563)*

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

*Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency must publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification

statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include such businesses as manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and forestry and logging operations with fewer than 500 employees and annual business less than \$7 million. To determine if potential economic impacts on these small entities are significant, we will consider the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

Importantly, the incremental impacts of a rule must be *both* significant and substantial to prevent certification of the rule under the RFA and to require the preparation of an initial regulatory flexibility analysis. If a substantial number of small entities are affected by the proposed critical habitat designation, but the per-entity economic impact is not significant, USFWS may certify. Likewise, if the per-entity economic impact is likely to be significant, but the number of affected entities is not substantial, USFWS may also certify.

The USFWS’s current understanding of recent case law is that Federal agencies are only required to evaluate the potential impacts of rulemaking on those entities directly regulated by the rulemaking; therefore, they are not required to evaluate the potential impacts to those entities not directly regulated. The designation of critical habitat for an endangered or threatened species only has a regulatory effect where a Federal action

agency is involved in a particular action that may affect the designated critical habitat. Under these circumstances, only the Federal action agency is directly regulated by this designation, and, therefore, USFWS may limit its evaluation of the potential impacts to those identified for Federal action agencies. Under this interpretation, there is no requirement under the RFA to evaluate the potential impacts to entities not directly regulated, such as small businesses. However, Executive Orders 12866 and 13563 direct Federal agencies to assess costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consequently, it is the current practice of USFWS to assess to the extent practicable these potential impacts if sufficient data are available, whether or not this analysis is believed by USFWS to be strictly required by the RFA. In other words, while the effects analysis required under the RFA is limited to entities directly regulated by the rulemaking, the effects analysis under the Act, consistent with the Executive Order regulatory analysis requirements, can take into consideration impacts to both directly and indirectly impacted entities, where practicable and reasonable.

We acknowledge, however, that in some cases, third-party proponents of the action subject to permitting or funding may participate in a section 7 consultation, and thus may be indirectly affected. We believe it is good policy to assess these impacts if we have sufficient data before us to complete the necessary analysis, whether or not this analysis is strictly required by the RFA. While this regulation does not directly regulate these entities, in our draft economic analysis we will conduct a brief evaluation of the potential number of third parties participating in consultations on an annual basis in order to ensure a more complete examination of the incremental effects of this proposed rule in the context of the RFA.

In conclusion, we believe that, based on our interpretation of directly regulated entities under the RFA and relevant case law, this designation of critical habitat will only directly regulate Federal agencies, which are not by definition small business entities. And as such, we certify that, if promulgated, this designation of critical habitat would not have a significant economic impact on a substantial number of small business entities.

Therefore, an initial regulatory flexibility analysis is not required. However, though not necessarily required by the RFA, in our draft economic analysis for this proposal we will consider and evaluate the potential effects to third parties that may be involved with consultations with Federal action agencies related to this action.

*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. Natural gas and oil activities in State and Federal waters occur offshore of the States of Alabama, Mississippi, and Florida in the Gulf of Mexico (GOM) where critical habitat is proposed for the species. Potential direct and indirect affects to proposed critical habitat could result from associated oil and gas activities, including but not limited to pipeline installation and maintenance, coastal based facilities, boat vessel traffic, and spills. USFWS and the Bureau of Ocean Energy and Management (BOEM) have a long history of intra-agency coordination and consultation under the Act on offshore outer continental shelf (OCS) oil and gas since the 1970s. Consultation occurs on the Five-year Multi-lease Sale Program and then on each individual lease sale in the Program as they occur. As a result, regulations and other measures are in place to minimize impacts of natural gas and oil exploration, development, production, and abandonment in the GOM OCS. The regulations and measures are generally not considered a substantial cost compared with overall project costs and are already being implemented by oil and gas companies.

The most recent consultation completed was for the GOM OCS 2007–2012 Program and Supplemental Lease Sales 2009–2012 and the initial coordination on the proposed 2012–2017 Programs. Individual lease sales consultations have been completed for the 2007–2012 and 2009–2012 Programs. Most of the eastern GOM, including the Straits of Florida (Alabama and Florida), remains under a Congressionally mandated moratorium and is not proposed for new leasing in either the 2007–2012 or 2012–2017 Programs. BOEM will move forward with an environmental analysis for

potential seismic studies in the Mid- and South Atlantic planning areas (Florida Atlantic coast, Georgia, South Carolina, and North Carolina), but no lease sales will be scheduled in the Atlantic until at least mid-2017.

The States of Mississippi and Alabama have oil and gas programs in their respective State waters. USFWS only conducts consultation in accordance with the Act on oil and gas activities within State waters where there is a Federal nexus (discharge, wetland impacts, or navigation permits).

No other activities associated with energy supply, distribution, or use, are anticipated within the proposed critical habitat. We do not expect the designation of this proposed critical habitat to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)-(7). “Federal intergovernmental mandate” includes a regulation that “would impose an enforceable duty upon State, local, or tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and tribal governments under entitlement

authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or tribal governments “lack authority” to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule will significantly or uniquely affect small governments. A portion of the lands being proposed for critical habitat designation are owned by State, County, or local municipalities. Small governments will be affected only to the extent that any programs having Federal funds, permits, or other authorized activities must ensure that their actions will not adversely affect the critical habitat. Therefore, a Small Government Agency Plan is not required. However, we will further



evaluate this issue as we conduct our economic analysis, and review and revise this assessment if appropriate.

*Takings—Executive Order 12630*

In accordance with Executive Order 12630 (“Government Actions and Interference with Constitutionally Protected Private Property Rights”), this rule is not anticipated to have significant takings implications. As discussed above, the designation of critical habitat affects only Federal actions. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. Due to current public knowledge of the species protections and the prohibition against take of the species both within and outside of the proposed areas we do not anticipate that property values will be affected by the critical habitat designation. However, we have not yet completed the economic analysis for this proposed rule. Once the economic analysis is available, we will review and revise this preliminary assessment as warranted, and prepare a Takings Implication Assessment.

*Federalism—Executive Order 13132*

In accordance with Executive Order 13132 (Federalism), this proposed rule does not have significant Federalism effects. A Federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this proposed critical habitat designation with appropriate State resource agencies in North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi. The designation of critical habitat in areas currently occupied by the loggerhead sea turtle may impose nominal additional regulatory restrictions to those currently in place and, therefore, may have little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments because the areas that contain the physical

or biological features essential to the conservation of the species are more clearly defined, and the elements of the features necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

*Civil Justice Reform—Executive Order 12988*

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the applicable standards set forth in sections 3(a) and 3(b)(2) of the Order. To assist the public in understanding the habitat needs of the species, the rule identifies the elements of physical or biological features essential to the conservation of the species. The designated areas of critical habitat are presented on maps, and the rule provides several options for the interested parties to obtain more detailed location information, if desired.

*Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or

sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

*National Environmental Policy Act (42 U.S.C. 4321 et seq.)*

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

*Government-to-Government Relationship with Tribes*

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We determined that there are no tribal lands that were occupied by the loggerhead sea turtle at the time of listing that contain the features essential for conservation of the species. Therefore, we are not proposing to designate critical habitat for the loggerhead sea turtle on tribal lands.

*Clarity of the Rule*

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in the **ADDRESSES** section. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

### **References Cited**

A complete list of references cited in this rulemaking is available on the Internet at <http://www.regulations.gov> and upon request from the North Florida Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Authors**

The primary authors of this package are the staff members of the North Florida Ecological Services Office.

### **List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

### **Proposed Regulation Promulgation**

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

#### **PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS**

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. In § 17.11(h), revise the entry for “Sea turtle, loggerhead, Northwest Atlantic Ocean” under “Reptiles” in the List of Endangered and Threatened Wildlife to read as follows:

#### **§ 17.11 Endangered and threatened wildlife.**

\* \* \* \* \*

(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						

\* \* \* \* \*

REPTILES

\* \* \* \* \*

Sea turtle, loggerhead, Northwest Atlantic Ocean	<i>Caretta caretta</i>	Northwest Atlantic Ocean Basin	Northwest Atlantic Ocean north of the equator, south of 60° N. Lat., and west of 40° W. Long	T	794	17.95(c)	NA
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3. In § 17.95, amend paragraph (c) by adding an entry for “Loggerhead Sea Turtle, Northwest Atlantic Ocean (*Caretta caretta*),” in the same alphabetical order that the species appears in the table at § 17.11(h), to read as follows:

**§ 17.95 Critical habitat—fish and wildlife.**

\* \* \* \* \*

(c) Reptiles.

\* \* \* \* \*

Loggerhead Sea Turtle, Northwest Atlantic Ocean (*Caretta caretta*)

(1) Critical habitat units are depicted for the following areas on the maps below:

(i) North Carolina—Brunswick, Carteret, New Hanover, Onslow, and Pender Counties;

(ii) South Carolina—Beaufort, Charleston, Colleton, and Georgetown Counties;

(iii) Georgia—Camden, Chatham, Liberty, and McIntosh Counties;

(iv) Florida—Bay, Brevard, Broward, Charlotte, Collier, Duval, Escambia, Flagler, Franklin, Gulf, Indian River, Lee, Manatee, Martin, Monroe, Palm Beach, Sarasota, St. Johns, St. Lucie, and Volusia Counties;

(v) Alabama—Baldwin County; and

(vi) Mississippi—Jackson County.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the Northwest Atlantic Ocean distinct population segment of the loggerhead sea turtle are the extra-tidal or dry sandy beaches from the mean high-water line to the toe of the secondary dune, which are capable of supporting a high density of nests or serving as an expansion area for beaches with a high density of nests and that are well distributed within each State, or region within a State, and representative of total nesting, consisting of three components:

(i) Primary Constituent Element 1—Suitable nesting beach habitat that (A) Has relatively unimpeded nearshore access from the ocean to the beach for nesting females and from the beach to the ocean for both postnesting females and hatchlings and (B) Is located above mean high water to avoid being inundated frequently by high tides.

(ii) Primary Constituent Element 2—Sand that (A) Allows for suitable nest construction, (B) Is suitable for facilitating gas diffusion conducive to embryo development, and (C) Is able to develop and maintain temperatures and a moisture content conducive to embryo development.

(iii) Primary Constituent Element 3—Suitable nesting beach habitat with sufficient darkness to ensure that nesting turtles are not deterred from emerging onto the beach and hatchlings and postnesting females orient to the sea.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on [INSERT DATE 30 DAYS AFTER PUBLICATION DATE FOR THE FINAL RULE].

(4) Critical habitat map units. Data layers defining map units were created using Google Earth imagery, then refined using Bing imagery. Unit descriptions were then mapped using North America Lambert Conformal Conic coordinates. The maps in this entry, establish the boundaries of the critical habitat designation. The coordinates or plot



points or both on which each map is based are available to the public at the Service's internet site, (<http://www.fws.gov/northflorida>), (<http://www.regulations.gov> at Docket No. FWS-R4-ES-2012-0103, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the USFWS regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) Note: Index Map follows:

(6) Index Map of Critical Habitat Units in the Northern Recovery Unit:

(7) Units:

- (i) LOGG-T-NC-01 - Boque Banks, Carteret County, North Carolina.
- (ii) LOGG-T-NC-02 - Bear Island, Onslow County, North Carolina.
- (iii) LOGG-T-NC-03 - Topsail Island, Onslow and Pender Counties, North Carolina.
- (iv) LOGG-T-NC-04 - Lea-Hutaff Island, Pender County, North Carolina.

- (A) (1) LOGG-T-NC-01 - Boque Banks: This unit consists of 38.9 km (24.2 miles) of island shoreline along the Atlantic Ocean and extends from Beaufort Inlet to Bogue Inlet.
- (2) LOGG-T-NC-02 - Bear Island: This unit consists of 6.6 km (4.1 miles) of island shoreline along the Atlantic Ocean and extends from Bogue Inlet to Bear Inlet.
- (3) LOGG-T-NC-03 - Topsail Island: This unit consists of 35.0 km (21.8 miles) of island shoreline along the Atlantic Ocean and extends from New River Inlet to New Topsail Inlet.
- (4) LOGG-T-NC-04 - Lea-Hutaff Island: This unit consists of 6.1 km (3.8 miles) of island shoreline along the Atlantic Ocean and extends from New Topsail Inlet to Rich Inlet.

- (B) Note: Map of Units LOGG-T-NC-01, LOGG-T-NC-02, LOGG-T-NC-03, and LOGG-T-NC-04: North Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle: Boque Banks, Bear Island, Topsail Island, and Lea-Hutaff Island, follows:

- (8) Units:
- (i) LOGG-T-NC-05 - Pleasure Island, New Hanover County, North Carolina.
  - (ii) LOGG-T-NC-06 - Bald Head Island, Brunswick County, North Carolina.
  - (iii) LOGG-T-NC-07 - Oak Island, Brunswick County, North Carolina.
  - (iv) LOGG-T-NC-08 - Holden Beach, Brunswick County, North Carolina.
- (A)
- (1) LOGG-T-NC-05 - Pleasure Island: This unit consists of 18.6 km (11.5 miles) of island shoreline along the Atlantic Ocean and extends from Carolina Beach Inlet to 33.91433 N, 77.94408 W (historic location of Corncake Inlet).
  - (2) LOGG-T-NC-06 - Bald Head Island: This unit consists of 15.1 km (9.4 miles) of island shoreline along the Atlantic Ocean and extends from 33.91433 N, -77.94408 W (historic location of Corncake Inlet) to the mouth of the Cape Fear River.
  - (3) LOGG-T-NC-07 - Oak Island: This unit consists of 20.9 km (13.0 miles) of island shoreline along the Atlantic Ocean and extends from the mouth of the Cape Fear River to Lockwoods Folly Inlet.
  - (4) LOGG-T-NC-08 - Holden Beach: This unit consists of 13.4 km (8.3 miles) of island shoreline along the Atlantic Ocean and extends from Lockwoods Folly Inlet to Shallotte Inlet.
- (B) Note: Map of Units LOGG-T-NC-05, LOGG-T-NC-06, LOGG-T-NC-07, and LOGG-T-NC-08: North Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (9) Units:
- (i) LOGG-T-SC-01 - North Island, Georgetown County, South Carolina.
  - (ii) LOGG-T-SC-02 - Sand Island, Georgetown County, South Carolina.
  - (iii) LOGG-T-SC-03 - South Island, Georgetown County, South Carolina.
  - (iv) LOGG-T-SC-04 - Cedar Island, Georgetown County, South Carolina.
  - (v) LOGG-T-SC-05 - Murphy Island, Charleston County, South Carolina.
- (A)
- (1) LOGG-T-SC-01 - North Island: This unit consists of 13.2 km (8.2 miles) of island shoreline along the Atlantic Ocean and extends from North Inlet to Winyah Bay.
  - (2) LOGG-T-SC-02 - Sand Island: This unit consists of 4.7 km (2.9 miles) of island shoreline along the Atlantic Ocean and Winyah Bay and extends from Winyah Bay to 33.17534 N, 79.19206 W (northern boundary of an unnamed inlet separating Sand Island and South Island).
  - (3) LOGG-T-SC-03 - South Island: This unit consists of 6.7 km (4.2 miles) of island shoreline along the Atlantic Ocean and extends from 33.17242 N, 79.19366 W (southern boundary of an unnamed inlet separating Sand Island and South Island) to North Santee Inlet.
  - (4) LOGG-T-SC-04 - Cedar Island: This unit consists of 4.1 km (2.5 miles) of island shoreline along the Atlantic Ocean and North Santee Inlet and extends from North Santee Inlet to South Santee Inlet.
  - (5) LOGG-T-SC-05 - Murphy Island: This unit consists of 8.0 km (5.0 miles) of island shoreline along the Atlantic Ocean and South Santee Inlet and extends from South Santee Inlet to 33.08335 N, 79.34285 W.
- (B) Note: Map of Units LOGG-T-SC-01, LOGG-T-SC-02, LOGG-T-SC-03, LOGG-T-SC-04, and LOGG-T-SC-05: South Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (10) Units:
- (i) LOGG-T-SC-06 - Cape Island, Charleston County, South Carolina.
  - (ii) LOGG-T-SC-07 - Lighthouse Island, Charleston County, South Carolina.
  - (iii) LOGG-T-SC-08 - Raccoon Key, Charleston County, South Carolina.
- (A) (1) LOGG-T-SC-06 - Cape Island: This unit consists of 8.3 km (5.1 miles) of island shoreline along the Atlantic Ocean and extends from Cape Romain Inlet to 33.00988 N, 79.36529 W (northern boundary of an unnamed inlet between Cape Island and Lighthouse Island).
- (2) LOGG-T-SC-07 - Lighthouse Island: This unit consists of 5.3 km (3.3 miles) of island shoreline along the Atlantic Ocean and extends from 33.01306 N, 79.36659 W (southern boundary of an unnamed inlet between Cape Island and Lighthouse Island) to Key Inlet.
- (3) LOGG-T-SC-08 - Raccoon Key: This unit consists of 4.8 km (3.0 miles) of island shoreline along the Atlantic Ocean and extends from Raccoon Creek Inlet to Five Fathom Creek Inlet.
- (B) Note: Map of Units LOGG-T-SC-06, LOGG-T-SC-07, and LOGG-T-SC-08: South Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:
- (11) Units:
- (i) LOGG-T-SC-09 - Folly Island, Charleston County, South Carolina.
  - (ii) LOGG-T-SC-10 - Kiawah Island, Charleston County, South Carolina.
  - (iii) LOGG-T-SC-11 - Seabrook Island, Charleston County, South Carolina.
- (A) (1) LOGG-T-SC-09 - Folly Island: This unit consists of 11.2 km (7.0 miles) of island shoreline along the Atlantic Ocean and extends from Lighthouse Inlet to Folly River Inlet.

- (2) LOGG-T-SC-10 - Kiawah Island: This unit consists of 17.0 km (10.6 miles) of island shoreline along the Atlantic Ocean and Stono Inlet and extends from Stono Inlet to Captain Sam's Inlet.
- (3) LOGG-T-SC-11 - Seabrook Island: This unit consists of 5.8 km (3.6 miles) of island shoreline along the Atlantic Ocean and North Edisto Inlet and extends from Captain Sam's Inlet to North Edisto Inlet.

(B) Note: Map of Units LOGG-T-SC-09, LOGG-T-SC-10, and LOGG-T-SC-11:  
South Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle  
follows:

- (12) Units:
- (i) LOGG-T-SC-12 - Botany Bay Island and Botany Bay Plantation, Charleston County, South Carolina.
  - (ii) LOGG-T-SC-13 - Interlude Beach, Charleston County, South Carolina.
  - (iii) LOGG-T-SC-14 - Edingsville Beach, Charleston County, South Carolina.
  - (iv) LOGG-T-SC-15 - Edisto Beach State Park, Colleton County, South Carolina.
  - (v) LOGG-T-SC-16 - Edisto Beach, Colleton County, South Carolina.
- (A) (1) LOGG-T-SC-12 - Botany Bay Island and Botany Bay Plantation: This unit consists of 6.6 km (4.1 miles) of island shoreline along the Atlantic Ocean and North Edisto Inlet and extends from North Edisto Inlet to 32.53710 N, 80.24614 W (northern boundary of an unnamed inlet separating Botany Bay Plantation and Interlude Beach).
- (2) LOGG-T-SC-13 - Interlude Beach: This unit consists of 0.9 km (0.6 mile) of island shoreline along the Atlantic Ocean and extends from 32.53636 N, 80.24647 W (southern boundary of an unnamed inlet separating Interlude Beach and Botany Bay Plantation) to Frampton Inlet.
- (3) LOGG-T-SC-14 - Edingsville Beach: This unit consists of 2.7 km (1.7 miles) of island shoreline along the Atlantic Ocean and extends from Frampton Inlet to Jeremy Inlet.
- (4) LOGG-T-SC-15 - Edisto Beach State Park: This unit consists of 2.2 km (1.4 miles) of island shoreline along the Atlantic Ocean and extends from Jeremy Inlet to 32.50307 N, 80.29625 W (State Park boundary separating Edisto Beach State Park and the Town of Edisto Beach).
- (5) LOGG-T-SC-16 - Edisto Beach: This unit consists of 6.8 km (4.2 miles) of island shoreline along the Atlantic Ocean and South Edisto River and extends from 32.50307 N, 80.29625 W (State Park boundary separating Edisto Beach State Park and the Town of Edisto Beach) to South Edisto Inlet.

- (B) Note: Map of Units LOGG-T-SC-12, LOGG-T-SC-13, LOGG-T-SC-14, LOGG-T-SC-15, and LOGG-T-SC-16: South Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:



- (13) Units:
- (i) LOGG-T-SC-17 - Pine Island, Colleton County, South Carolina.
  - (ii) LOGG-T-SC-18 - Otter Island, Colleton County, South Carolina.
  - (iii) LOGG-T-SC-19 - Harbor Island, Beaufort County, South Carolina.
- (A)
- (1) LOGG-T-SC-17 - Pine Island: This unit consists of 1.2 km (0.7 mile) of island shoreline along the South Edisto Inlet and extends from South Edisto River to 32.49266 N, 80.36846 W (northern boundary of an unnamed inlet to Fish Creek).
  - (2) LOGG-T-SC-18 - Otter Island: This unit consists of 4.1 km (2.5 miles) of island shoreline along the Atlantic Ocean and Saint Helena Sound and extends from Fish Creek Inlet to Saint Helena Sound.
  - (3) LOGG-T-SC-19 - Harbor Island: This unit consists of 2.9 km (1.8 miles) of island shoreline along the Atlantic Ocean and Saint Helena Sound and extends from Harbor Inlet to Johnson Inlet.
- (B) Note: Map of Units LOGG-T-SC-17, LOGG-T-SC-18, and LOGG-T-SC-19: South Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (14) Units:
- (i) LOGG-T-SC-20 - Little Capers Island, Beaufort County, South Carolina
  - (ii) LOGG-T-SC-21 - St. Phillips Island, Beaufort County, South Carolina
  - (iii) LOGG-T-SC-22 - Bay Point Island, Beaufort County, South Carolina
- (A)
- (1) LOGG-T-SC-20 - Little Capers Island: This unit consists of 4.6 km (2.9 miles) of island shoreline along the Atlantic Ocean and extends from “Pritchards Inlet” (there is some uncertainty about the true name of this water feature) located at 32.29009 N, 80.54459 W to Trenchards Inlet.
  - (2) LOGG-T-SC-21 - St. Phillips Island: This unit consists of 2.3 km (1.4 miles) of island shoreline along the Atlantic Ocean and Trenchards Inlet and extends from Trenchards Inlet to Morse Island Creek Inlet East.
  - (3) LOGG-T-SC-22 - Bay Point Island: This unit consists of 4.3 km (2.7 miles) of island shoreline along the Atlantic Ocean and Port Royal Sound and extends from Morse Island Creek Inlet East along the Atlantic Ocean shoreline to Morse Island Creek Inlet West along the Port Royal Sound shoreline.
- (B) Note: Map of Units LOGG-T-SC-20, LOGG-T-SC-21, and LOGG-T-SC-22: South Carolina Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:
- (15) Units:
- (i) LOGG-T-GA-01 - Little Tybee Island, Chatham County, Georgia.
  - (ii) LOGG-T-GA-02 - Wassaw Island, Chatham County, Georgia.
  - (iii) LOGG-T-GA-03 - Ossabaw Island, Chatham County, Georgia.
  - (iv) LOGG-T-GA-04 - St. Catherines Island, Liberty County, Georgia.

- (A) (1) LOGG-T-GA-01 - Little Tybee Island: This unit consists of 8.6 km (5.3 miles) of island shoreline along the Atlantic Ocean and extends from Tybee Creek Inlet to Wassaw Sound.
- (2) LOGG-T-GA-02 - Wassaw Island: This unit consists of 10.1 km (6.3 miles) of island shoreline along the Atlantic Ocean and extends from Wassaw Sound to Ossabaw Sound.
- (3) LOGG-T-GA-03 - Ossabaw Island: This unit consists of 17.1 km (10.6 miles) of island shoreline along the Atlantic Ocean and extends from Ogeechee River to St. Catherines Sound.
- (4) LOGG-T-GA-04 - St. Catherines Island: This unit consists of 18.4 km (11.5 miles) of island shoreline along the Atlantic Ocean and extends from St. Catherines Sound to Sapelo Sound.
- (B) Note: Map of Units LOGG-T-GA-01, LOGG-T-GA-02, LOGG-T-GA-03, and LOGG-T-GA-04: Georgia Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (16) Units:
- (i) LOGG-T-GA-05 - Blackbeard Island, McIntosh County, Georgia.
  - (ii) LOGG-T-GA-06 - Sapelo Island, McIntosh County, Georgia.
- (A) (1) LOGG-T-GA-05 - Blackbeard Island: This unit consists of 13.5 km (8.4 miles) of island shoreline along the Atlantic Ocean and extends from Sapelo Sound to Cabretta Inlet.
- (2) LOGG-T-GA-06 - Sapelo Island: This unit consists of 9.3 km (5.8 miles) of island shoreline along the Atlantic Ocean and extends from Cabretta Inlet to Doboy Sound.
- (B) Note: Map of Units LOGG-T-GA-05 and LOGG-T-GA-06: Georgia Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (17) Units:
- (i) LOGG-T-GA-07 - Little Cumberland Island, Camden County, Georgia.
  - (ii) LOGG-T-GA-08 - Cumberland Island, Camden County, Georgia.
- (A) (1) LOGG-T-GA-07 - Little Cumberland Island: This unit consists of 4.9 km (3.0 miles) of island shoreline along the Atlantic Ocean and extends from St. Andrew Sound to Christmas Creek.
- (2) LOGG-T-GA-08 - Cumberland Island: This unit consists of 29.7 km (18.4 miles) of island shoreline along the Atlantic Ocean and extends from Christmas Creek to St. Marys River.
- (B) Note: Map of Units LOGG-T-GA-07 and LOGG-T-GA-08: Georgia Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (18) Index Map of Critical Habitat Units in the Peninsular Florida Recovery Unit.
- (19) Units:
- (i) LOGG-T-FL-01 - South Duval County - Old Ponte Vedra, Duval and St. Johns Counties, Florida.
  - (ii) LOGG-T-FL-02 - Guana Tolomato Matanzas NERR - St. Augustine Inlet, St. Johns County, Florida.
  - (iii) LOGG-T-FL-03 - St. Augustine Inlet - Matanzas Inlet, St. Johns County, Florida.
  - (iv) LOGG-T-FL-04 - River to Sea Preserve at Marineland - North Peninsula State Park, Flagler and Volusia Counties, Florida.
  - (v) LOGG-T-FL-05 - Ormond-by-the-Sea - Granada Blvd, Volusia County, Florida.
- (A) (1) LOGG-T-FL-01 - South Duval County - Old Ponte Vedra: This unit consists of 25.2 km (15.6 miles) of island shoreline along the Atlantic Ocean and extends from the south boundary of Kathryn Abbey Hanna Park in Duval County to the north boundary of the Guana Tolomato Matanzas National Estuarine Research Reserve in St. Johns County.
- (2) LOGG-T-FL-02 - Guana Tolomato Matanzas National Estuarine Research Reserve - St. Augustine Inlet: This unit consists of 24.1 km (15.0 miles) of island shoreline along the Atlantic Ocean and extends from the north boundary of the Guana Tolomato Matanzas National Estuarine Research Reserve to St. Augustine Inlet.
- (3) LOGG-T-FL-03 - St. Augustine Inlet - Matanzas Inlet: This unit consists of 22.4 km (14.0 miles) of island shoreline along the Atlantic Ocean and extends from St. Augustine Inlet to Matanzas Inlet.
- (4) LOGG-T-FL-04 - River to Sea Preserve at Marineland - North Peninsula State Park: This unit consists of 31.8 km (19.8 miles) of island shoreline along the Atlantic Ocean and extends from the north boundary of the

River to Sea Preserve at Marineland to the south boundary of North Peninsula State Park.

- (5) LOGG-T-FL-05 - Ormond-by-the-Sea - Granada: This unit consists of 11.1 km (6.9 miles) of island shoreline along the Atlantic Ocean and extends from the south boundary of North Peninsula State Park to Granada Boulevard in Ormond Beach.

- (B) Note: Map of Units LOGG-T-FL-01, LOGG-T-FL-02, LOGG-T-FL-03, LOGG-T-FL-04, and LOGG-T-FL-05: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (20) Units:
- (i) LOGG-T-FL-06 - Canaveral National Seashore North, Volusia County, Florida.
  - (ii) LOGG-T-FL-07 - Canaveral National Seashore South - Merritt Island NWR–Kennedy Space Center, Brevard County, Florida.
- (A) (1) LOGG-T-FL-06 - Canaveral National Seashore North: This unit consists of 18.2 km (11.3 miles) of island shoreline along the Atlantic Ocean and extends from the north boundary of Canaveral National Seashore to the Volusia-Brevard County line.
- (2) LOGG-T-FL-07 - Canaveral National Seashore South - Merritt Island NWR–Kennedy Space Center: This unit consists of 28.4 km (17.6 miles) of island shoreline along the Atlantic Ocean and extends from the Volusia-Brevard County line to the south boundary of Merritt Island NWR-Kennedy Space Center (Merritt Island NWR was established in 1963 as an overlay of the National Aeronautics and Space Administration’s (NASA) John F. Kennedy Space Center).
- (B) Note: Map of Units LOGG-T-FL-06 and LOGG-T-FL-07: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:



- (21) Units:
- (i) LOGG-T-FL-08 - Central Brevard Beaches, Brevard County, Florida.
  - (ii) LOGG-T-FL-09 - South Brevard Beaches, Brevard County, Florida.
  - (iii) LOGG-T-FL-10 - Sebastian Inlet - Indian River Shores, Indian River County, Florida.
- (A)
- (1) LOGG-T-FL-08 - Central Brevard Beaches: This unit consists of 19.5 km (12.1 miles) of island shoreline along the Atlantic Ocean and extends from the south boundary of Patrick Air Force Base to the north boundary of Archie Carr National Wildlife Refuge (NWR).
  - (2) LOGG-T-FL-09 - South Brevard: This unit consists of 20.8 km (12.9 miles) of island shoreline along the Atlantic Ocean and extends from the north boundary of Archie Carr NWR to Sebastian Inlet.
  - (3) LOGG-T-FL-10 - Sebastian Inlet - Indian River Shores: This unit consists of 21.4 km (13.3 miles) of island shoreline along the Atlantic Ocean and extends from Sebastian Inlet to the Indian River Shores southern city limits.
- (B) Note: Map of Units LOGG-T-FL-08, LOGG-T-FL-09, and LOGG-T-FL-10: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (22) Units:
- (i) LOGG-T-FL-11 - Fort Pierce Inlet - St. Lucie Inlet, St. Lucie and Martin Counties, Florida.
  - (ii) LOGG-T-FL-12 - St. Lucie Inlet - Jupiter Inlet, Martin and Palm Beach Counties, Florida.
  - (iii) LOGG-T-FL-13 - Jupiter Inlet - Lake Worth Inlet, Palm Beach County, Florida.
  - (iv) LOGG-T-FL-14 - Lake Worth Inlet - Boynton Inlet, Palm Beach County, Florida.
  - (v) LOGG-T-FL-15 - Boynton Inlet - Boca Raton Inlet, Palm Beach County, Florida.
  - (vi) LOGG-T-FL-16 - Boca Raton Inlet - Hillsboro Inlet, Palm Beach and Broward Counties, Florida.
- (A)
- (1) LOGG-T-FL-11 - Fort Pierce Inlet - St. Lucie Inlet: This unit consists of 35.2 km (21.9 miles) of island shoreline along the Atlantic Ocean and extends from Fort Pierce Inlet to St. Lucie Inlet.
  - (2) LOGG-T-FL-12 - St. Lucie Inlet - Jupiter Inlet: This unit consists of 24.9 km (15.5 miles) of island shoreline along the Atlantic Ocean and extends from St. Lucie Inlet to Jupiter Inlet.
  - (3) LOGG-T-FL-13 - Jupiter Inlet - Lake Worth Inlet: This unit consists of 18.8 km (11.7 miles) of island shoreline along the Atlantic Ocean and extends from Jupiter Inlet to Lake Worth Inlet.
  - (4) LOGG-T-FL-14 - Lake Worth Inlet - Boynton Inlet: This unit consists of 24.3 km (15.1 miles) of island shoreline along the Atlantic Ocean and extends from Lake Worth Inlet to Boynton Inlet.
  - (5) LOGG-T-FL-15 - Boynton Inlet - Boca Raton Inlet: This unit consists of 22.6 km (14.1 miles) of island shoreline along the Atlantic Ocean and extends from Boynton Inlet to Boca Raton Inlet.
  - (6) LOGG-T-FL-16 - Boca Raton Inlet - Hillsboro Inlet: This unit consists of

8.3 km (5.2 miles) of island shoreline along the Atlantic Ocean and extends from Boca Raton Inlet to Hillsboro Inlet.

- (B) Note: Map of Units LOGG-T-FL-11, LOGG-T-FL-12, LOGG-T-FL-13, LOGG-T-FL-14, LOGG-T-FL-15, and LOGG-T-FL-16: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (23) Unit LOGG-T-FL-17 - Long Key, Monroe County, Florida.
- (i) LOGG-T-FL-17 - Long Key, Monroe: This unit consists of 4.2 km (2.6 miles) of island shoreline along the Atlantic Ocean and extends from the natural channel between Fiesta Key and Long Key to the natural channel between Long Key and Conch Key.
- (ii) Note: Map of Unit LOGG-T-FL-17: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (24) Unit LOGG-T-FL-18 – Bahia Honda Key, Monroe County, Florida.
- (i) LOGG-T-FL-18 - Bahia Honda Key, Monroe: This unit consists of 3.7 km (2.3 miles) of island shoreline along the Atlantic Ocean and extends from the natural channel between Ohio Key and Bahia Honda Key to the natural channel between Bahia Honda Key and Spanish Harbor Key.
- (ii) Note: Map of Unit LOGG-T-FL-18: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (25) Units:
- (i) LOGG-T-FL-19 - Longboat Key, Manatee and Sarasota Counties, Florida.
  - (ii) LOGG-T-FL-20 - Siesta and Casey Keys, Sarasota County, Florida.
  - (iii) LOGG-T-FL-21 - Venice Beaches and Manasota Key, Sarasota and Charlotte Counties, Florida.
  - (iv) LOGG-T-FL-22 - Knight, Don Pedro, and Little Gasparilla Islands, Charlotte County, Florida.
- (A)
- (1) LOGG-T-FL-19 - Longboat Key: This unit consists of 16.0 km (9.9 miles) of island shoreline along the Gulf of Mexico and extends from Longboat Pass to New Pass.
  - (2) LOGG-T-FL-20 - Siesta and Casey Keys: This unit consists of 20.8 km (13.0 miles) of island shoreline along the Gulf of Mexico and extends from Big Sarasota Pass to Venice Inlet.
  - (3) LOGG-T-FL-21 - Venice Beaches and Manasota Key: This unit consists of 26.0 km (16.1 miles) of island shoreline along the Gulf of Mexico and extends from Venice Inlet to Stump Pass.
  - (4) LOGG-T-FL-22 - Knight, Don Pedro, and Little Gasparilla Islands: This unit consists of 10.8 km (6.7 miles) of island shoreline along the Gulf of Mexico and extends from Stump Pass to Gasparilla Pass.
- (B) Note: Map of Units LOGG-T-FL-19, LOGG-T-FL-20, LOGG-T-FL-21, and LOGG-T-FL-22: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (26) Units:
- (i) LOGG-T-FL-23 - Gasparilla Island, Charlotte and Lee Counties, Florida.
  - (ii) LOGG-T-FL-24 - Cayo Costa, Lee County, Florida.
  - (iii) LOGG-T-FL-25 - Captiva Island, Lee County, Florida.
  - (iv) LOGG-T-FL-26 - Sanibel Island West, Lee County, Florida.
- (A) (1) LOGG-T-FL-23 - Gasparilla Island: This unit consists of 11.2 km (6.9 miles) of island shoreline along the Gulf of Mexico and extends from Gasparilla Pass to Boca Grande Pass.
- (2) LOGG-T-FL-24 - Cayo Costa: This unit consists of 13.5 km (8.4 miles) of island shoreline along the Gulf of Mexico and extends from Boca Grande Pass to Captiva Pass.
- (3) LOGG-T-FL-25 - Captiva Island: This unit consists of 7.6 km (4.7 miles) of island shoreline along the Gulf of Mexico and extends from Redfish Pass to Blind Pass.
- (4) LOGG-T-FL-26 - Sanibel Island West: This unit consists of 12.2 km (7.6 miles) of island shoreline along the Gulf of Mexico and extends from Blind Pass to Tarpon Bay Road.
- (B) Note: Map of Units LOGG-T-FL-23, LOGG-T-FL-24, LOGG-T-FL-25, and LOGG-T-FL-26: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:
- (27) Units:
- (i) LOGG-T-FL-27 - Little Hickory Island, Lee and Collier Counties, Florida.
  - (ii) LOGG-T-FL-28 - Wiggins Pass - Clam Pass, Collier County, Florida.
  - (iii) LOGG-T-FL-29 - Clam Pass - Doctors Pass, Collier County, Florida.
  - (iv) LOGG-T-FL-30 - Keewaydin Island and Sea Oat Island, Collier County, Florida.
- (A) (1) LOGG-T-FL-27 - Little Hickory Island: This unit consists of 8.7 km (5.4

miles) of island shoreline along the Gulf of Mexico and extends from Big Hickory Pass to Wiggins Pass.

- (2) LOGG-T-FL-28 - Wiggins Pass - Clam Pass: This unit consists of 7.7 km (4.8 miles) of mainland shoreline along the Gulf of Mexico and extends from Wiggins Pass to Clam Pass.
- (3) LOGG-T-FL-29 - Clam Pass - Doctors Pass: This unit consists of 4.9 km (3.0 miles) of island shoreline along the Gulf of Mexico and extends from Clam Pass to Doctors Pass.
- (4) LOGG-T-FL-30 - Keewaydin Island and Sea Oat Island: This unit consists of 13.1 km (8.1 miles) of island shoreline along the Gulf of Mexico and extends from Gordon Pass to Big Marco Pass.

(B) Note: Map of Units LOGG-T-FL-27, LOGG-T-FL-28, LOGG-T-FL-29, and LOGG-T-FL-30: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:



- (28) Units:
- (i) LOGG-T-FL-31 - Cape Romano, Collier County, Florida.
  - (ii) LOGG-T-FL-32 - Ten Thousand Islands North, Collier County, Florida.
- (A) (1) LOGG-T-FL-31 - Cape Romano: : This unit consists of 9.2 km (5.7 miles) of island shoreline along the Gulf of Mexico and Gullivan Bay and extends from Caxambas Pass to Gullivan Bay.
- (2) LOGG-T-FL-32 - Ten Thousand Islands North: This unit consists of 7.8 km (4.9 miles) of island shoreline along the Gulf of Mexico and within Gullivan Bay.
- (B) Note: Map of Units LOGG-T-FL-31 and LOGG-T-FL-32: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (29) Units:
- (i) LOGG-T-FL-33 - Highland Beach, Monroe County, Florida.
  - (ii) LOGG-T-FL-34 - Graveyard Creek - Shark Point, Monroe County, Florida.
  - (iii) LOGG-T-FL-35 - Cape Sable, Monroe County, Florida.
- (A)
- (1) LOGG-T-FL-33 - Highland Beach: This unit consists of 7.2 km (4.5 miles) of island (Key McLaughlin) shoreline along the Gulf of Mexico and extends from First Bay to Rogers River Inlet.
  - (2) LOGG-T-FL-34 - Graveyard Creek - Shark Point: This unit consists of 0.9 km (0.6 mile) of mainland shoreline along the Gulf of Mexico and extends from Shark Point (25.38796 N, 81.14933 W) to Graveyard Creek Inlet.
  - (3) LOGG-T-FL-35 - Cape Sable: This unit consists of 21.3 km (13.2 miles) of mainland shoreline along the Gulf of Mexico and extends from the north boundary of Cape Sable at 25.25924 N, 81.16687 W to the south boundary of Cape Sable at 25.12470 N, 81.06681 W.
- (B) Note: Map of Units LOGG-T-FL-33, LOGG-T-FL-34, and LOGG-T-FL-35: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (30) Index Map of Critical Habitat Units in the Dry Tortugas Recovery Unit
- (31) Units:
- (i) LOGG-T-FL-36 - Dry Tortugas, Monroe County, Florida.
  - (ii) LOGG-T-FL-37 - Marquesas Keys, Monroe County, Florida.
- (A) (1) LOGG-T-FL-36 - Dry Tortugas: This unit consists of 6.3 km (3.9 miles) of shoreline along the Gulf of Mexico and consists of Loggerhead Key, Garden Key, Bush Key, Long Key, Hospital Key, and East Key located in the Dry Tortugas about 108 km (67 miles) west of Key West.
- (2) LOGG-T-FL-37 - Marquesas Keys: This unit consists of 5.6 km (3.5 miles) of shoreline along the Gulf of Mexico and consists of Marquesas Key, Unnamed Key 1, Unnamed Key 2, and Unnamed Key 3 located about 29.3 km (18.2 miles) west of Key West.
- (B) Note: Map of Units LOGG-T-FL-36 and LOGG-T-FL-37: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (32) Units:
- (i) LOGG-T-FL-38 - Boca Grande Key, Monroe County, Florida.
  - (ii) LOGG-T-FL-39 - Woman Key, Monroe County, Florida.
- (A) (1) LOGG-T-FL-38 - Boca Grande Key: This unit consists of 1.3 km (0.8 mile) of island shoreline along the Gulf of Mexico and extends from 24.53767 N, 82.00763 W (at the northern end of the key) to 24.52757 N, 82.00581 W (at the southern end of the key).
- (2) LOGG-T-FL-39 - Woman Key: This unit consists of 1.3 km (0.8 mile) of island shoreline along the Gulf of Mexico and extends from 24.52452 N, 81.97893 N (at the western end of the key) to 24.52385 N, 81.96680 W (at the eastern end of the key).
- (B) Note: Map of Units LOGG-T-FL-38 and LOGG-T-FL-39: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (33) Index Map of Critical Habitat Units in the Northern Gulf of Mexico Recovery Unit.
- (34) Units:
- (i) LOGG-T-MS-01 - Horn Island, Jackson County, Mississippi.
  - (ii) LOGG-T-MS-02 - Petit Bois Island, Jackson County, Mississippi.
- (A) (1) LOGG-T-MS-01 - Horn Island: This unit consists of 18.6 km (11.5 miles) of island shoreline along the Gulf of Mexico and extends from Dog Keys Pass to the easternmost point of the ocean facing island shore.
- (2) LOGG-T-MS-02 - Petit Bois Island: This unit consists of 9.8 km (6.1 miles) of island shoreline along the Gulf of Mexico and extends from Horn Island Pass to Petit Bois Pass.
- (B) Note: Map of Units LOGG-T-MS-01 and LOGG-T-MS-02: Mississippi Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (35) Units:
- (i) LOGG-T-AL-01 - Mobile Bay - Little Lagoon Pass, Baldwin County, Alabama.
  - (ii) LOGG-T-AL-02 - Gulf State Park - Perdido Pass, Baldwin County, Alabama.
  - (iii) LOGG-T-AL-03 - Perdido Pass - Florida-Alabama line, Baldwin County, Alabama.
- (A) (1) LOGG-T-AL-01 - Mobile Bay–Little Lagoon Pass: This unit consists of 28.0 km (17.4 miles) of island shoreline along the Gulf of Mexico and extends from Mobile Bay Inlet to Little Lagoon Pass.
- (2) LOGG-T-AL-02 - Gulf State Park–Perdido Pass: This unit consists of 10.7 km (6.7 miles) of island shoreline along the Gulf of Mexico and extends from the west boundary of Gulf State Park to Perdido Pass.
- (3) LOGG-T-AL-03 - Perdido Pass–Florida-Alabama line: This unit consists of 3.3 km (2.0 miles) of island shoreline along the Gulf of Mexico and extends from Perdido Pass to the Alabama–Florida border.
- (B) Note: Map of Units LOGG-T-AL-01, LOGG-T-AL-02, and LOGG-T-AL-03: Alabama Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (36) Unit LOGG-T-FL-40 - Perdido Key, Escambia County, Florida.
- (i) LOGG-T-FL-40 - Perdido Key: This unit consists of 20.2 km (12.6 miles) of island shoreline along the Gulf of Mexico and extends from the Alabama–Florida border to Pensacola Pass.
- (ii) Note: Map of Unit LOGG-T-FL-40: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

- (37) Units:
- (i) LOGG-T-FL-41 - Mexico Beach and St. Joe Beach, Bay and Gulf Counties, Florida.
  - (ii) LOGG-T-FL-42 - St. Joseph Peninsula, Gulf County, Florida.
  - (iii) LOGG-T-FL-43 - Cape San Blas, Gulf County, Florida.
- (A)
- (1) LOGG-T-FL-41 - Mexico Beach and St. Joe Beach: This unit consists of 18.7 km (11.7 miles) of mainland shoreline along the Gulf of Mexico and extends from the eastern boundary of Tyndall Air Force Base to Gulf County Canal in St. Joseph Bay.
  - (2) LOGG-T-FL-42 - St. Joseph Peninsula: This unit consists of 23.5 km (14.6 miles) of a spit shoreline along the Gulf of Mexico and extends from St. Joseph Bay to the west boundary of Eglin Air Force Base.
  - (3) LOGG-T-FL-43 - Cape San Blas: This unit consists of 11.0 km (6.8 miles) of mainland and spit shoreline along the Gulf of Mexico and extends from the east boundary of Eglin Air Force Base to Indian Pass.
- (B) Note: Map of Units LOGG-T-FL-41, LOGG-T-FL-42, and LOGG-T-FL-43: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:



- (38) Units:
- (i) LOGG-T-FL-44 - St. Vincent Island, Franklin County, Florida.
  - (ii) LOGG-T-FL-45 - Little St. George Island, Franklin County, Florida.
  - (iii) LOGG-T-FL-46 - St. George Island, Franklin County, Florida.
  - (iv) LOGG-T-FL-47 - Dog Island, Franklin County, Florida.
- (A) (1) LOGG-T-FL-44 - St. Vincent Island: This unit consists of 15.1 km (9.4 miles) of island shoreline along the Gulf of Mexico and extends from Indian Pass to West Pass.
- (2) LOGG-T-FL-45 - Little St. George Island: This unit consists of 15.4 km (9.6 miles) of island shoreline along the Gulf of Mexico and extends from West Pass to Bob Sikes Cut.
- (3) LOGG-T-FL-46 - St. George Island: This unit consists of 30.7 km (19.1 miles) of island shoreline along the Gulf of Mexico and extends from Bob Sikes Cut to East Pass.
- (4) LOGG-T-FL-47 - Dog Island: This unit consists of 13.1 km (8.1 miles) of island shoreline along the Gulf of Mexico and extends from East Pass to St. George Sound.
- (B) Note: Map of Units LOGG-T-FL-44, LOGG-T-FL-45, LOGG-T-FL-46, and LOGG-T-FL-47: Florida Terrestrial Critical Habitat Units for the Loggerhead Sea Turtle follows:

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Dated: Dec. 17, 2012

/s/ Michael J. Bean

Acting Principal Deputy Assistant Secretary for Fish and Wildlife and Parks

Billing Code 3510-22