



ECONOMIC ANALYSIS OF TERRESTRIAL  
CRITICAL HABITAT DESIGNATION FOR THE  
NORTHWEST ATLANTIC OCEAN DISTINCT  
POPULATION SEGMENT OF THE  
LOGGERHEAD SEA TURTLE

Final Report | June 25, 2014

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**LIST OF ACRONYMS AND ABBREVIATIONS**

Act	Endangered Species Act
ADEM	Alabama Department of Environmental Management
ALDOT	Alabama Department of Transportation
ATON	aids to navigation
BLM	Bureau of Land Management
BO	Biological Opinion
BOEM	Bureau of Ocean Energy Management
CCCL	Florida's Coastal Construction Control Line
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DHEC	South Carolina Department of Health and Environmental Control
DPSs	Distinct Population Segments
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
GADOT	Georgia Department of Transportation
GDNR	Georgia Department of Natural Resources
HCPs	Habitat Conservation Plans
IEc	Industrial Economics, Incorporated
MDMR	Mississippi Department of Marine Resources
MHW	mean high water
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NTL	notices to lessees and operators
NWR	National Wildlife Refuge

OCRM	Office of Ocean and Coastal Resource Management
OCS	outer continental shelf
OCSLA	Outer Continental Shelf Lands Act
OMB	U.S. Office and Management and Budget
PBFs	physical and biological features
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
SBA	U.S. Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
SCDNR	South Carolina Department of Natural Resources
SCDOT	South Carolina Department of Transportation
SPBO	Statewide Programmatic Biological Opinion
STIP	State Transportation Improvement Program
TAILS	Tracking and Integrated Logging System
ULDC	Unified Development Code
UMRA	Unfunded Mandates Reform Act
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
WTP	willingness to pay

## EXECUTIVE SUMMARY

### INTRODUCTION

1. This report identifies and analyzes the potential economic impacts resulting from designation of terrestrial critical habitat for the loggerhead sea turtle (*Caretta caretta*). The loggerhead sea turtle was originally listed worldwide as a threatened species under the Endangered Species Act (“the Act”) in 1978.<sup>1</sup> No critical habitat was designated for the species at that time. Pursuant to a joint memorandum of understanding, the National Marine Fisheries Service (NMFS) has jurisdiction over sea turtles in the marine environment and U.S. Fish and Wildlife Service (USFWS) has jurisdiction over sea turtles in the terrestrial environment.<sup>2</sup> In 2011, NMFS and USFWS jointly published a final rule revising the loggerhead’s listing from a single worldwide threatened species to nine Distinct Population Segments (DPSs) listed as either threatened or endangered. Only two of these DPSs – the Northwest Atlantic Ocean and North Pacific Ocean – occur within U.S. jurisdiction.<sup>3</sup> The 2011 rule listed the Northwest Atlantic Ocean DPS as a threatened species, and in 2013 USFWS proposed a rule (“Proposed Rule”) to designate critical habitat in the terrestrial environment for the DPS.<sup>4</sup> Because critical habitat can only be designated in areas under U.S. jurisdiction and because loggerhead sea turtle nesting in the United States occurs only within the Northwest Atlantic Ocean DPS, USFWS is only proposing to designate specific areas in the terrestrial environment as critical habitat for this DPS.
2. Section 4(b)(2) of the Act requires USFWS to consider the economic, national security, and other impacts of designating a particular area as critical habitat. USFWS may exclude an area from critical habitat if it determines that the benefits of exclusion outweigh the benefits of specifying the area as part of the critical habitat, unless it also determines that the failure to designate the area as critical habitat will result in the extinction of the species concerned. To support its weighing of the benefits of excluding versus including an area as critical habitat, USFWS prepares an economic analysis for each proposed critical habitat designation, which describes and, where possible, monetizes the economic impacts of the proposed designation.

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<sup>1</sup> Final Listing Rule, 43 FR 32800, July 28, 1978.

<sup>2</sup> National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). 1977. Memorandum of Understanding Defining the Roles of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service in Joint Administration of the Endangered Species Act of 1973 as to Marine Turtles. July 18.

<sup>3</sup> Final Listing Rule, 76 FR 58868, September 22, 2011.

<sup>4</sup> Proposed Critical Habitat Rule, 78 FR 18000, March 25, 2013.

## SUMMARY OF FINDINGS

- ▲ All of the proposed critical habitat units are occupied by the species. According to the USFWS, it is unlikely that future section 7 consultations would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the continued existence of the species. That is, USFWS anticipates that it is unlikely that critical habitat designation will generate a change in the outcome of future section 7 consultations due to the presence of critical habitat. This analysis accordingly does not forecast any changes to the scope, scale, or implementation of activities due to the critical habitat rule. Quantified direct incremental impacts of the designation are therefore limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of future section 7 consultations.
- ▲ Quantified Impacts: In areas proposed for terrestrial critical habitat designation, the estimated present value impact is approximately \$1,200,000 over the next ten years (\$160,000 annualized). In areas being considered for exclusion, the estimated present value impact is approximately \$130,000 over the next ten years (\$17,000 annualized). Present value impacts are estimated using a seven percent discount rate.
- ▲ Distribution of impacts across units: In areas proposed for critical habitat designation, quantified impacts are expected to be greatest in LOGG-T-AL-01 (Mobile Bay-Little Lagoon Pass, Baldwin County) due to the relatively high number of future section 7 consultations anticipated to occur for species and habitat management, in-water and coastal construction, sand placement, and recreation activities. In areas being considered for exclusion, quantified impacts are expected to be greatest in LOGG-T-FL-10 (Sebastian Inlet-Indian River Shores, Indian River County) due to the relatively high number of future section 7 consultations anticipated to occur for species and habitat management and in-water and coastal construction.
- ▲ Distribution of impacts across activities: In areas proposed for critical habitat designation, quantified impacts to in-water and coastal construction are greatest (44 percent), followed by sand placement (22 percent), species and habitat management (16 percent), recreation (10 percent), disaster response (four percent), lighting management (three percent), and oil and gas activities (one percent). In areas being considered for exclusion, quantified impacts to in-water and coastal construction are greatest (54 percent), followed by species and habitat management (24 percent), recreation (16 percent), disaster response (four percent), and sand placement (two percent), with minor quantified impacts expected for lighting management (\$370) and oil and gas activities (\$140).
- ▲ Unquantified Impacts: Project proponents may experience indirect effects of the designation including costs associated with project delay due to litigation and the increased length of time it will take for USFWS to review projects. Forecasting the likelihood of third party litigation and potential length of associated project delays is considered too speculative to be quantified in this analysis. However, delays attributable to the additional time to consider critical habitat as part of future section 7 consultation, if any, would most likely be minor.
- ▲ Key uncertainties: While this analysis relies on the best available information regarding the potential rate and location of future species and habitat management; in-water and coastal construction; sand placement; recreation; and lighting management activities, the rate and locations of future projects are uncertain. Absent a specific activity forecast, we rely on the historical rate and distribution of activity to forecast the location and frequency of consultation on these projects over the next ten years. In addition, while USFWS anticipates it is unlikely that critical habitat designation will change the outcome of future section 7 consultations, the final determination regarding recommended conservation efforts will be made at the time of individual consultations on projects or activities.
- ▲ Benefits: The primary benefit of critical habitat designation is the contribution of the rule to the conservation and recovery of the loggerhead. Absent quantitative information on the extent to which critical habitat is expected to contribute to conservation and recovery, we cannot quantify this benefit and instead provide a qualitative discussion. Existing economics literature demonstrates that the public holds a positive willingness to pay for the recovery of the loggerhead sea turtles.

**ANALYTIC METHODS**

3. Once critical habitat is designated, section 7 of the Act requires Federal agencies to consult with USFWS to ensure that any action they authorize, fund, or carry out will not likely result in the destruction or adverse modification of critical habitat. USFWS may, through the consultation process, recommend changes to these activities (termed “activities with a Federal nexus”) that would avoid destruction or adverse modification of critical habitat. The economic impacts of critical habitat designation stem from this process and any modifications to activities implemented as a result of consultation.
4. To derive a measure of the economic impacts associated with designating a particular area as critical habitat, this analysis: (1) characterizes existing or potential threats to the proposed loggerhead terrestrial critical habitat; and (2) to the extent feasible, quantifies and monetizes the economic impact of the modifications and administrative effort associated with the section 7 consultation process for these activities.
5. Based on the Proposed Rule, discussions with biologists at USFWS, and a review of the section 7 consultation history for the loggerhead, we have identified the following key activities that may have an adverse impact on the physical and biological features of loggerhead terrestrial critical habitat:
  - **Species and Habitat Management:** The loggerhead and its habitat are currently afforded some level of protection under various management plans and programs, including Habitat Conservation Plans (HCPs) and Federal Land Management Plans. While species and habitat management activities are carried out for the benefit of the loggerhead and its habitat, they address various activities that may have an adverse impact on critical habitat, including beach driving, lighting management, and predation. Consequently, plans and programs may be subject to review by USFWS to consider the potential impacts on critical habitat.
  - **In-water and Coastal Construction:** In-water structures such as jetties and groins may cause accretion of sand on updrift beaches and acceleration of erosion downdrift of the structures, resulting in beach instability that discourages loggerhead nesting. In addition, the structures themselves, including armoring structures along the shoreline, may interfere with nesting turtles or hatchlings. Similarly, coastal development, such as pier, bridge, and road construction, may cause loss and degradation of suitable nesting habitat, and lead to armoring which causes changes in, additional loss of, or impact to the remaining sea turtle nesting habitat.
  - **Sand Placement:** While sand placement activities can result in increased nesting on severely eroded sections of beach where little or no suitable nesting habitat previously existed, they can also have negative effects on the suitability of nesting habitat, most likely as a result of changes in physical beach

characteristics (beach profile, sediment grain size, beach compaction, frequency and extent of escarpments).<sup>5</sup>

- **Recreation:** Beach cleaning, human presence, and recreational beach equipment can all reduce the quality of nesting habitat. These activities may also deter nesting by adult females and/or impede hatchlings during their nest-to-sea migration. In addition, the USFWS has consulted in the past with the U.S. Coast Guard on boat races that include beach viewing areas, as these events have resulted in trampling of nests.
- **Lighting Management:** Artificial lighting deters adult female turtles from emerging from the ocean to nest and can disorient nesting turtles and hatchlings. While lighting management may be considered as part of a consultation on another economic activity (for example, sand placement or military activities), certain agencies may consult on lighting as a stand-alone activity.
- **Disaster Response:** Oil spills in the vicinity of nesting beaches place turtles at risk from direct exposure to contaminants, and also negatively impact nesting habitat. Clean-up activities may also be harmful, as they may deter nesting turtles, destroy nests, and/or entrap hatchlings.
- **Oil and Gas Activities:** Oil and gas exploration and development activities pose a potential threat to loggerhead terrestrial critical habitat. These activities include decommissioning of old oil and gas platforms, construction of new oil and gas platforms, and oil and gas transportation. These activities may affect critical habitat through pollution from spills or other discharges.
- **Offshore Renewable Energy:** This activity includes development related to ocean thermal energy, wave energy, and offshore wind energy. These projects are considered potential threats to terrestrial loggerhead habitat as they have the potential to disrupt habitat through construction of power cables from offshore facilities to onshore electrical substations.

6. This report focuses on the economic impacts of critical habitat designation on the activities listed above, comparing the state of the world with and without the designation of critical habitat for the loggerhead. The “without critical habitat” scenario represents the baseline for the analysis, considering habitat protections already afforded the loggerhead either as a result of its listing as a threatened DPS or as a result of other Federal, state, and local regulations. The “with critical habitat” scenario describes the incremental impacts associated specifically with the designation of terrestrial critical habitat for the

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<sup>5</sup> However, as stated in the Proposed Rule, 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 and, if incorporated, the sand placement projects are not expected to result in adverse modification of critical habitat.

loggerhead. The incremental impacts quantified in this analysis are those not expected to occur absent the designation of critical habitat for the loggerhead.

7. To quantify the economic impacts of modifications to the activities listed above, we undertake the following general steps:
  1. Identify the baseline extent and frequency of economic activity in areas proposed for designation as critical habitat, as well as the statutes and regulations that constrain activities in the absence of the proposed critical habitat designation;
  2. Identify the types of activities that are likely to be affected by critical habitat designation;
  3. Estimate the costs of modifications needed to comply with the Act's critical habitat provisions (incremental impacts); and
  4. Project the occurrence of the activities and the likelihood they will in fact need to be modified over ten years for each of the proposed critical habitat units.
8. Incremental impacts include the direct costs associated with additional administrative effort required to consider potential impacts to critical habitat as part of section 7 consultations as well as the direct costs associated with conservation efforts that would not have been required under the baseline scenario to avoid jeopardizing the continued existence of the DPS.
9. The analysis estimates impacts based on activities that may be subject to section 7 consultation that are "reasonably foreseeable," including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available. The "foreseeable future" for this analysis includes, but is not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Forecasted impacts will be based on the planning periods for potentially affected projects and will look out over a ten-year time horizon. The ten-year time horizon was determined to be an appropriate period for the analysis because limited planning information is available for most economic activities in the area beyond a 10-year timeframe. The U.S. Office of Management and Budget (OMB) supports this timeframe stating that "for most agencies, a standard time period of analysis is ten to 20 years, and rarely exceeds 50 years."<sup>6</sup> Therefore, this analysis considers economic impacts to activities over a ten-year period from 2014 (expected year of final critical habitat designation) through 2023.
10. To calculate present value and annualized impacts, guidance provided by the OMB specifies the use of a real annual discount rate of seven percent. In addition, OMB recommends sensitivity analysis using other discount rates, such as three percent, which some economists believe better-reflects the social rate of time preference (i.e., the willingness of society to exchange the consumption of goods and services now for the

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<sup>6</sup> The U.S. Office of Management and Budget, February 7, 2011. "Regulatory Impact Analysis: Frequently Asked Questions (FAQs)." Accessed on May 3, 2011 at [http://www.whitehouse.gov/sites/default/files/omb/circulars/a004/a-4\\_FAQ.pdf](http://www.whitehouse.gov/sites/default/files/omb/circulars/a004/a-4_FAQ.pdf).

consumption of goods and services in the future).<sup>7</sup> Accordingly, the analysis presents impacts at seven percent and provides a sensitivity analysis in Appendix B that presents impacts assuming a discount rate of three percent. We also present undiscounted impacts in Appendix C.

#### STUDY AREA

11. USFWS proposes to designate a total of 90 critical habitat units: eight units in North Carolina; 22 units in South Carolina; eight units in Georgia; 47 units in Florida; three units in Alabama; and two units in Mississippi.<sup>8</sup> The units total approximately 1,189.9 kilometers (739.3 miles). In the Proposed Rule, USFWS also identifies several areas as “under consideration for exclusion” from the final critical habitat designation under section 4(b)(2) of the Act. All of the units are currently occupied by the species. The proposed critical habitat and the areas being considered for exclusion are displayed in Exhibit ES-1. Our analysis separately presents impacts in the areas being considered for exclusion from final critical habitat designation from the remainder of the area proposed for designation.
12. This final economic analysis analyzes the proposed designation as described in the Proposed Rule. This analysis does not reflect changes to the proposed critical habitat designation made in the Final Rule. Consequently, description of the habitat designation in the Final Rule may differ from maps and figures presented in this analysis.<sup>9</sup>
13. As described in the Proposed Rule, the proposed terrestrial critical habitat units include lands from the mean high water (MHW) line to the toe of the secondary dune or developed structures. For the purposes of defining the study area for the economic analysis, we rely on the spatial extent of past consultations considering potential impacts to the loggerhead, as this area is representative of where USFWS intends to review projects and activities to determine potential effects on critical habitat.

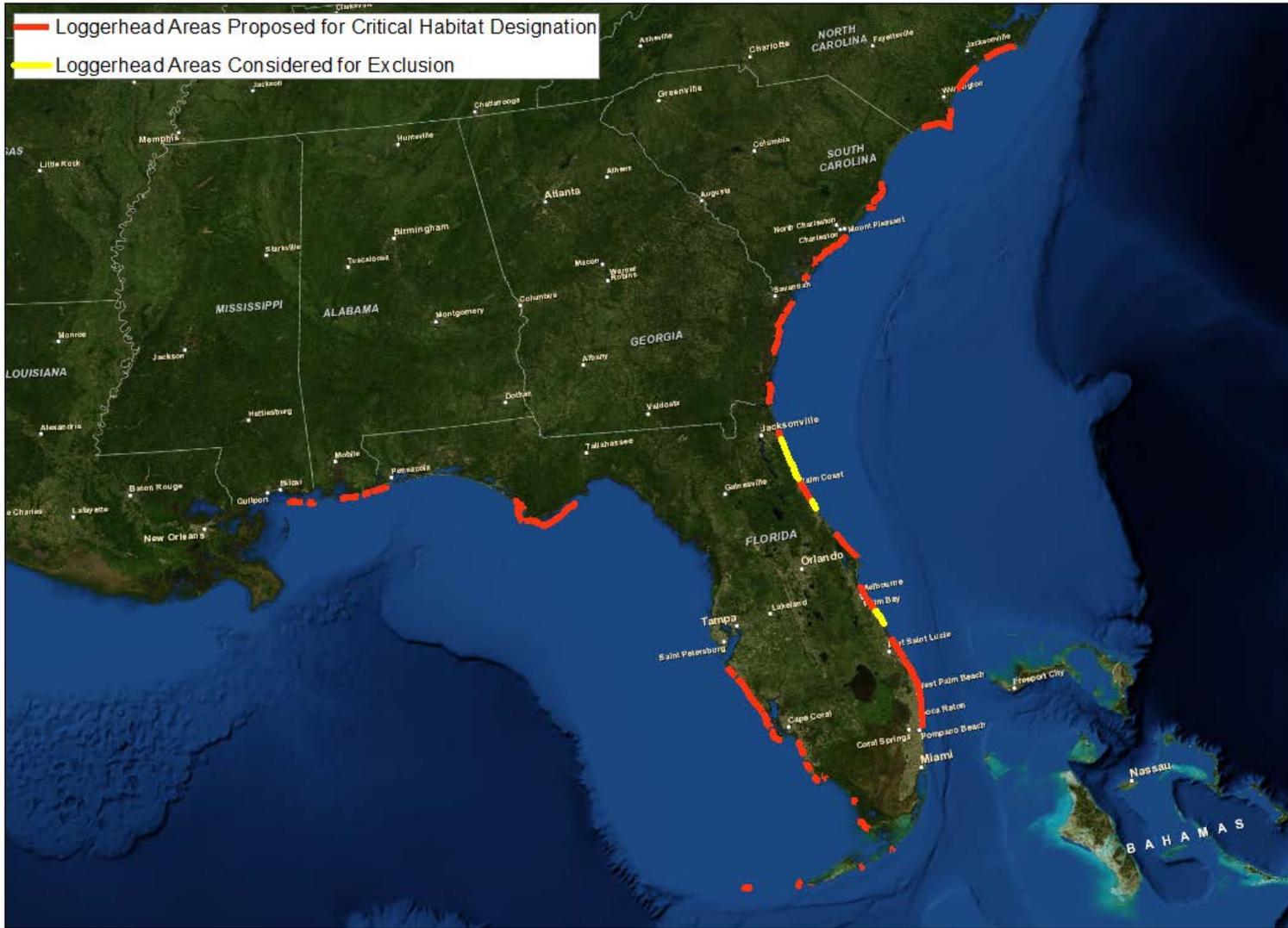
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<sup>7</sup> U.S. Office of Management and Budget, Circular A-4, September 17, 2003 and U.S. Office of Management and Budget, “Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice,” 68 Federal Register 5492, February 3, 2003.

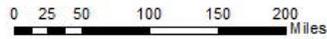
<sup>8</sup> Proposed Critical Habitat Rule, 78 FR 18000, March 25, 2013.

<sup>9</sup> For a detailed description of the public comments received on the Draft Economic Analysis and the associated responses, refer to the responses to public comment section of the Final Rule.

EXHIBIT ES-1. MAP OF LOGGERHEAD PROPOSED TERRESTRIAL CRITICAL HABITAT



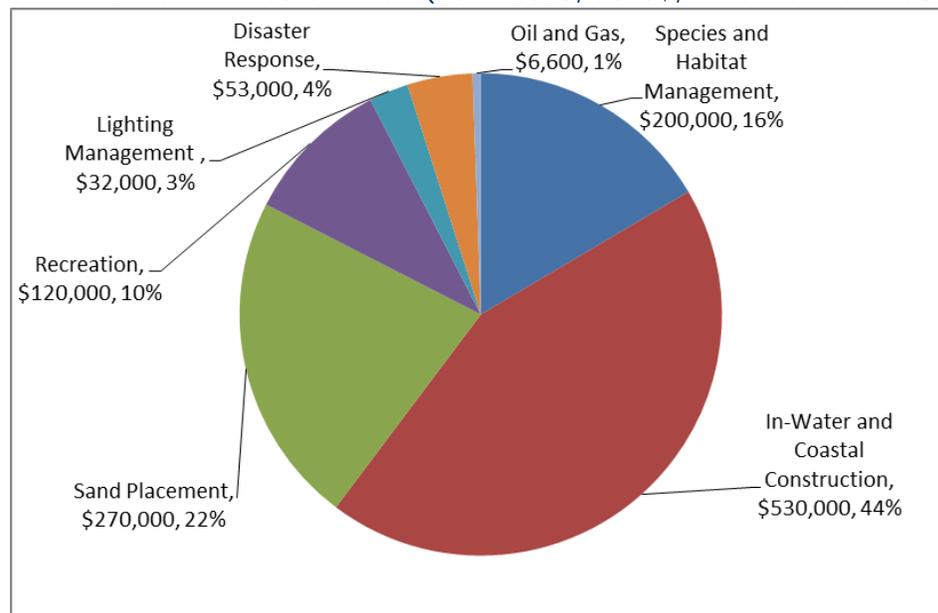
Source:  
 1. U.S. Fish and Wildlife Service, Panama City Field Office  
 2. Environmental Systems Research Institute, Inc. (ESRI), Redlands, California, USA



**RESULTS AND KEY FINDINGS**

14. All of the proposed critical habitat units are occupied by the species. According to USFWS, it is unlikely that future section 7 consultations would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the continued existence of the species.<sup>10</sup> Consequently, direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of future section 7 consultation. In areas proposed for terrestrial critical habitat designation, the estimated present value impact is \$1,200,000 over the next ten years (\$160,000 annualized). In areas being considered for exclusion, the estimated present value impact is \$130,000 over the next ten years (\$17,000 annualized). Present value impacts are estimated using a seven percent discount rate.
15. Exhibit ES-2 presents the distribution of quantified impacts across the activity categories for areas proposed for critical habitat designation. As highlighted in the exhibit, activities related to in-water and coastal construction are likely to be subject to the greatest incremental impacts over the next ten years.

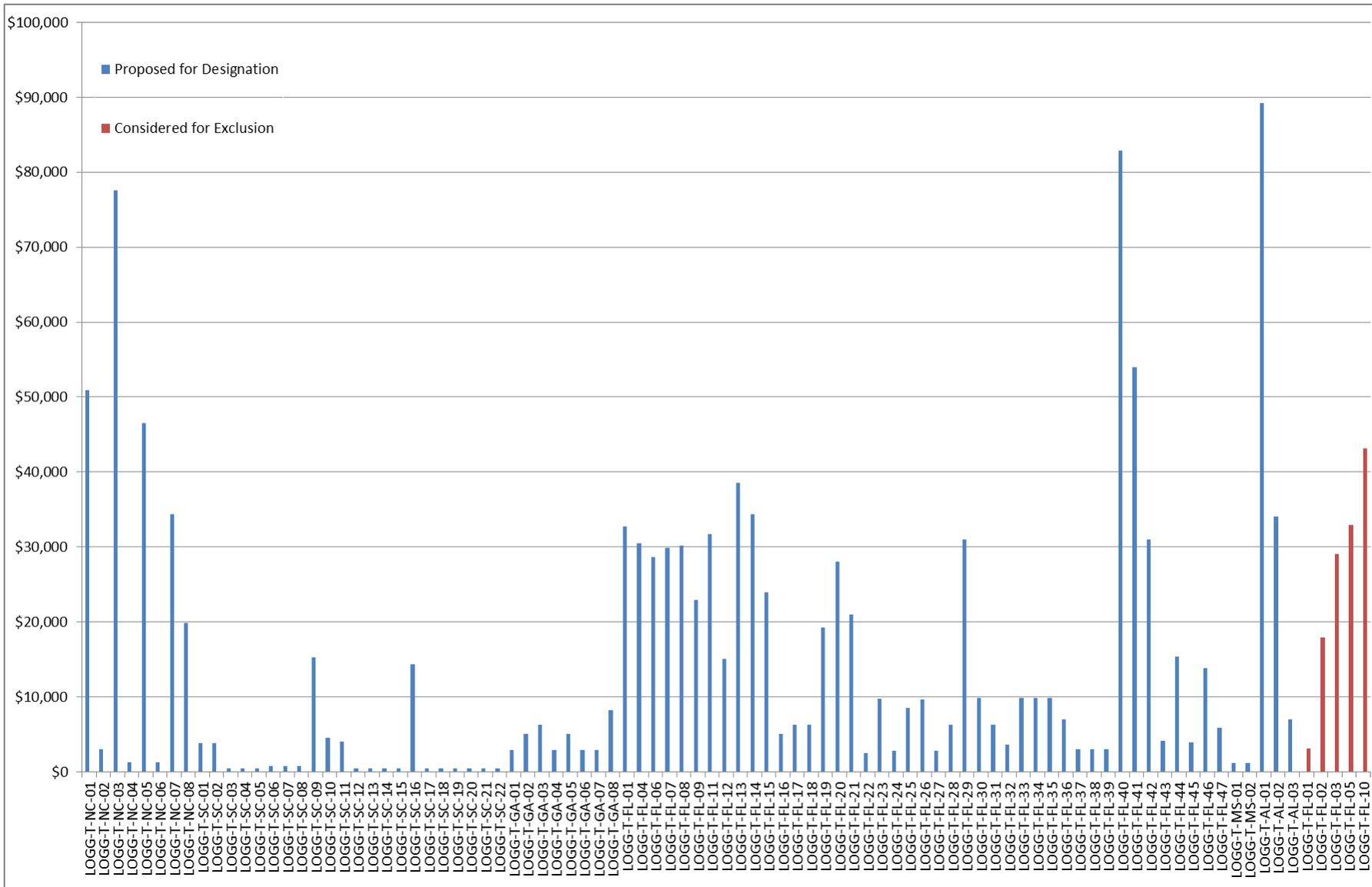
**EXHIBIT ES-2. ESTIMATED INCREMENTAL IMPACTS BY ACTIVITY FOR AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION (2014-2023, 2013\$, 7 PERCENT DISCOUNT RATE)**



16. In areas being considered for exclusion, quantified impacts to in-water and coastal construction are greatest (\$68,000), followed by species and habitat management (\$30,000), recreation (\$21,000), disaster response (\$4,900), and sand placement (\$2,500), with minor quantified impacts expected for lighting management (\$370) and oil and gas activities (\$140). No impacts are forecast to occur for offshore renewable energy.

<sup>10</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. "Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle." See Appendix D.

EXHIBIT ES-3. FORECAST ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION BY SPECIFIC UNIT, 2014-2023 (2013\$)



17. As shown in Exhibit ES-3, in areas proposed for critical habitat designation, quantified impacts are expected to be greatest in LOGG-T-AL-01 (Mobile Bay-Little Lagoon Pass, Baldwin County) due to the relatively high number of future section 7 consultations anticipated to occur for species and habitat management, in-water and coastal construction, sand placement, and recreation activities. In areas being considered for exclusion, quantified impacts are expected to be greatest in LOGG-T-FL-10 (Sebastian Inlet-Indian River Shores, Indian River County) due to the relatively high number of future section 7 consultations anticipated to occur for species and habitat management and in-water and coastal construction. Overall, quantified impacts in 57 of the proposed critical habitat units are expected to be under \$10,000.
18. The total potential costs of critical habitat designation may include some categories of impacts that we are not able to quantify in our analysis. In particular, potential exists for critical habitat to generate project delays. Forecasting the likelihood and potential length of any associated project delays is speculative, however, and we therefore do not quantify such impacts in this analysis.
19. This analysis also contemplates the potential economic benefits of loggerhead critical habitat. The objective of the critical habitat rule is to support conservation and recovery of the loggerhead. The economics literature demonstrates that humans place value on the conservation of listed species, including the loggerhead. From an economics perspective the appropriate measure of the value of the conservation and recovery of a species is reflected in the willingness-to-pay of human populations to achieve this objective.
20. In order to quantify the direct benefit to human populations of loggerhead conservation and recovery, we would need to quantify the extent to which the critical habitat designation contributes to conservation and recovery of the DPS (i.e., above and beyond the protections afforded the loggerhead through the listing status under the Act). Attributing the full economic benefits of conservation and recovery to the critical habitat rule would overstate the direct economic benefits of the rule. In addition, we are unable to quantify potential ancillary benefits of the rule as our analysis did not identify any specific changes in how economic activities are carried out. We identified only limited potential for additional loggerhead conservation efforts associated with implementation of the critical habitat rule.
21. Exhibit ES-4 presents the key assumptions and limitations underlying the analysis, and identifies the likely direction and magnitude of bias these assumptions introduce into our analysis.

#### EXHIBIT ES-4. KEY ASSUMPTIONS AND LIMITATIONS

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ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>rates</i> of consultation activity for species and habitat management; in-water and coastal construction; sand placement; recreation; and lighting management activities. This analysis assumes that past consultations provide a good indication of future activity.</p>	<p><b>Unknown.</b> May overestimate or underestimate incremental impacts.</p>	<p><b>Likely minor.</b> Data are not available to determine whether the level of consultation on these activities is likely to change over time. To the extent that these activities increase over the next ten years, our analysis underestimates the potential incremental administrative burden of critical habitat for the loggerhead. The estimated incremental impacts per consultation are, however, relatively minor and we accordingly do not anticipate variations in consultation rates to significantly change the findings of our analysis.</p>
<p>This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>locations</i> of consultation activity for species and habitat management; in-water and coastal construction; sand placement; recreation; and lighting management activities.</p>	<p><b>Unknown.</b> May overestimate or underestimate incremental impacts in a given area.</p>	<p><b>Potentially major.</b> Although the expected rate of consultation on these activities is not likely to vary significantly from year to year, the location of these consultations may change. As a result, relying on the approximate location of past consultation activity may underestimate impacts in certain locations while overestimating impacts in others.</p>
<p>This analysis does not quantify potential indirect impacts associated with time delay.</p>	<p>May result in an <b>underestimate</b> of costs.</p>	<p><b>Likely minor.</b> For new projects, Federal agencies will be required to consult with USFWS due to the presence of the loggerhead. Therefore, the indirect incremental impact associated with time delay on new projects would be limited to any costs (e.g., additional cost of renting equipment) incurred specifically during the additional time necessary to complete the analysis of adverse modification of critical habitat. The incremental time that consideration contributes to the length of the consultation process is most likely minor in most cases. Potential exists, however, for more measurable time delays associated with third party lawsuits regarding the potential effects of activities on loggerhead critical habitat.</p>

## CHAPTER 1 | INTRODUCTION AND BACKGROUND

### 1.1 INTRODUCTION

22. This chapter provides an overview of the proposed terrestrial critical habitat for the Northwest Atlantic Ocean Distinct Population Segment (DPS) of the loggerhead sea turtle (*Caretta caretta*). It includes a summary of past legal actions that relate to the current proposal, a description of the area proposed for designation, and a discussion of threats to proposed critical habitat. The information in this chapter provides context for the analysis. All official definitions and proposed critical habitat boundaries are provided in the Proposed Rule.<sup>11</sup>
23. Section 3(5)(A) of the Endangered Species Act (“the Act”) defines critical habitat as:
- (i) the specific areas within the geographical area occupied by the species, at the time it is listed..., on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and
  - (ii) specific areas outside the geographical area occupied by the species at the time it is listed... upon a determination by the Secretary that such areas are essential for the conservation of the species.
24. Once critical habitat is designated, section 7 of the Act requires Federal agencies to consult with USFWS to ensure that any action they authorize, fund, or carry out (termed “activities with a Federal nexus”) *will not likely result in the destruction or adverse modification of critical habitat*. During the consultation process, USFWS may recommend changes to these activities that would avoid destruction or adverse modification of critical habitat. The economic impacts of critical habitat designation stem from this process and any modifications to activities implemented as a result of consultation.
25. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) are proposing separate rules to designate terrestrial nesting habitat (USFWS) and marine habitat (NMFS), respectively, for the loggerhead sea turtle. This economic analysis is focused on the potential economic impacts of USFWS’s proposed terrestrial critical habitat designation, as proposed by USFWS. A separate economic analysis is being developed by NMFS to evaluate potential economic impacts associated with the marine critical habitat designation.

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<sup>11</sup> Proposed Critical Habitat Rule, 78 FR 18000, March 25, 2013.

26. Section 4(b)(2) of the Act requires USFWS to consider the economic, national security, and other impacts of designating a particular area as critical habitat. USFWS may exclude an area from critical habitat if it determines that the benefits of exclusion outweigh the benefits of specifying the area as part of the critical habitat, unless it also determines that the failure to designate the area as critical habitat will result in the extinction of the species concerned.<sup>12</sup> This report employs the best data available to analyze the economic impacts of designating particular areas as critical habitat and support USFWS in determining whether the benefits of excluding any particular area outweigh the benefits of designating that area.
27. This chapter begins with a summary of relevant statutory and regulatory information concerning the critical habitat designation. It then provides an overview of the proposed critical habitat designation and a description of species and habitat threats.

## 1.2 BACKGROUND

28. The loggerhead sea turtle was originally listed worldwide as a threatened species under the Act in 1978.<sup>13</sup> No critical habitat was designated for the species at that time. Pursuant to a joint memorandum of understanding, NMFS has jurisdiction over sea turtles in the marine environment and USFWS has jurisdiction over sea turtles in the terrestrial environment.<sup>14</sup> In 2011, NMFS and USFWS jointly published a final rule revising the loggerhead's listing from a single worldwide threatened species to nine DPSs listed as either threatened or endangered. Only two of these DPSs – the Northwest Atlantic Ocean and North Pacific Ocean – occur within U.S. jurisdiction.<sup>15</sup> The 2011 rule listed the Northwest Atlantic Ocean DPS as a threatened species, and in 2013 USFWS proposed a rule (“Proposed Rule”) to designate critical habitat in the terrestrial environment for the DPS.<sup>16</sup> This analysis is focused on the proposed terrestrial critical habitat for the Northwest Atlantic Ocean DPS. Because critical habitat can only be designated in areas under U.S. jurisdiction and because loggerhead sea turtle nesting in the United States occurs only within the Northwest Atlantic Ocean DPS, USFWS is only proposing to designate specific areas in the terrestrial environment as critical habitat for this DPS.
29. This analysis refers to “conservation efforts” as a generic term for recommendations USFWS may make to modify projects or activities for the benefit of the loggerhead and/or its habitat, or that action agencies or other entities may otherwise undertake to avoid adverse effects of projects or activities on the loggerhead and/or its habitat. The

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<sup>12</sup> 16 U.S.C. § 1533(b)(1)(A).

<sup>13</sup> Final Listing Rule, 43 FR 32800, July 28, 1978.

<sup>14</sup> National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). 1977. Memorandum of Understanding Defining the Roles of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service in Joint Administration of the Endangered Species Act of 1973 as to Marine Turtles. July 18.

<sup>15</sup> Final Listing Rule, 76 FR 58868, September 22, 2011.

<sup>16</sup> Proposed Critical Habitat Rule, 78 FR 18000, March 25, 2013.

current Endangered Species Consultation Handbook includes more targeted descriptions for other terminology as follows.

- **Conservation measures** are actions to benefit or promote the recovery of listed species that are included by the Federal agency as an integral part of the proposed action. These actions will be taken by the Federal agency or applicant, and serve to minimize or compensate for, project effects on the species under review. These may include actions taken prior to the initiation of the consultation, or actions which the Federal agency or applicant have committed to complete in a biological assessment or similar document.
- **Conservation recommendations** are USFWS' non-binding suggestions resulting from formal or informal consultation that: (1) identify discretionary measures that a Federal agency can take to minimize or avoid the adverse effects of a proposed action on listed or proposed species, or designated or proposed critical habitat; (2) identify studies, monitoring, or research to develop new information on listed or proposed species, or designated or proposed critical habitat; and (3) include suggestions on how an action agency can assist species conservation as part of their action and in furtherance of their authorities under section 7(a)(1) of the Act.
- **Reasonable and prudent alternatives** are recommended alternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action, that can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid the likelihood of jeopardizing the continued existence of listed species or the destruction or adverse modification of designated critical habitat.
- **Reasonable and prudent measures** are actions the Director believes necessary or appropriate to minimize the impacts, i.e., amount or extent, of incidental take.<sup>17</sup>

30. Section 7 of the Act also requires Federal agencies to consult with USFWS to ensure that any action it authorizes, funds, or carries out *will not likely jeopardize the continued existence of any endangered or threatened species*. Through the consultation process, USFWS may, within its statutory authority, recommend modifications to these activities to avoid jeopardizing the continued existence of the species. Thus, a species listing determination and related jeopardy considerations alone may impose economic impacts, even absent critical habitat designation.
31. In some instances, it is difficult to distinguish between impacts stemming exclusively from critical habitat designation and impacts resulting from other species conservation efforts. For example, a specific modification to a particular Federal action may address both jeopardy and critical habitat concerns. Thus, some impacts related to critical habitat

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<sup>17</sup> U.S. Fish and Wildlife Service and National Marine Fisheries Service. March 1998. Consultation Handbook: Procedures for Conducting Consultation and Conference Activities under Section 7 of the Endangered Species Act.

could be considered to occur coextensively with other causes. This difficulty can complicate assessment of the incremental impacts of critical habitat designation.

32. In 2001, the U.S. Tenth Circuit Court of Appeals instructed USFWS to conduct a full analysis of all of the economic impacts of proposed critical habitat, regardless of whether those impacts are attributable coextensively to other causes.<sup>18</sup> The court's decision was based on USFWS' reliance on a regulatory definition of adverse modification that has since been invalidated. However, other courts have subsequently held that an incremental analysis of impacts stemming solely from the critical habitat rulemaking is proper.<sup>19, 20</sup>
33. As described more fully in Chapter 2, this analysis relies on the best available data to estimate the incremental impacts of critical habitat designation. This approach is consistent with recent judicial rulings and with the U.S. Office of Management and Budget's (OMB) guidelines for conducting economic analysis of regulations. OMB's guidelines direct Federal agencies to measure the costs of a regulatory action against a baseline, which it defines as the "best assessment of the way the world would look absent the proposed action."<sup>21</sup> In other words, the baseline includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat. Impacts that are incremental to that baseline (i.e., occurring over and above existing constraints) are attributable to the proposed critical habitat regulation.

### 1.3 OVERVIEW OF STUDY AREA AND THREATS

34. USFWS proposes to designate a total of 90 critical habitat units: eight units in North Carolina; 22 units in South Carolina; eight units in Georgia; 47 units in Florida; three units in Alabama; and two units in Mississippi. Together, the units total approximately 1,189 kilometers (739 miles). In the Proposed Rule, USFWS also identifies several areas as "under consideration for exclusion" from the final critical habitat designation under section 4(b)(2) of the Act. All of the units are currently occupied by the species. The proposed critical habitat and the areas being considered for exclusion are displayed in Exhibit 1-1. Our analysis separately presents impacts in the areas being considered for exclusion from final critical habitat designation from the remainder of the area proposed for designation. Exhibit 1-2 provides a list of the proposed critical habitat units along with information about the length and ownership of each unit.
35. This final economic analysis analyzes the proposed designation as described in the Proposed Rule. This analysis does not reflect changes to the proposed critical habitat designation made in the Final Rule. Consequently, description of the habitat designation in the Final Rule may differ from maps and figures presented in this analysis.<sup>22</sup>

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<sup>18</sup> *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001).

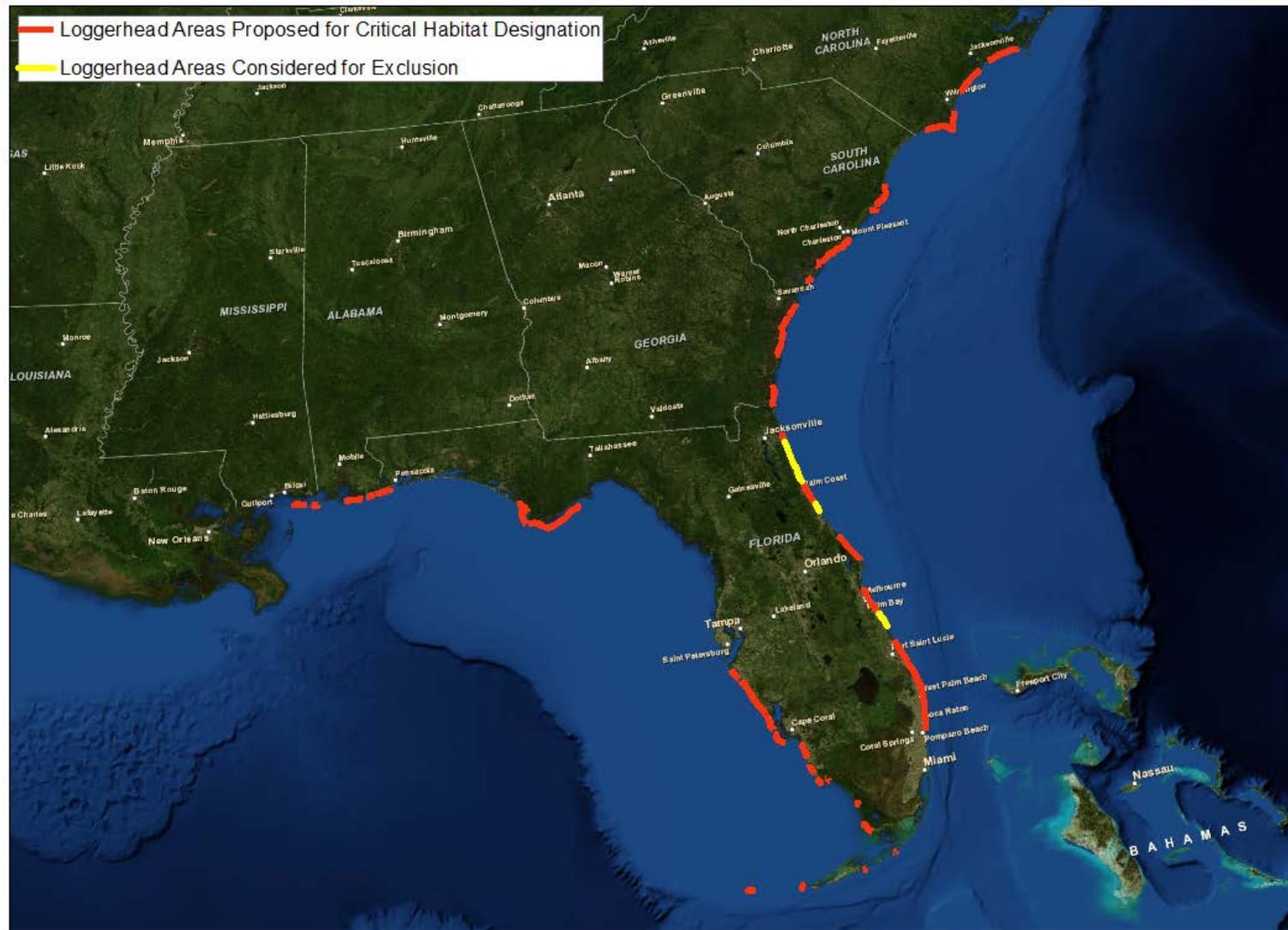
<sup>19</sup> See, for example: *Cape Hatteras Access Preservation Alliance v. Department of Interior*, 344 F. Supp. 2d 108 (D.D.C.); and *CBD v. BLM*, 422 F. Supp. 2d 1115 (N.D. Cal. 2006).

<sup>20</sup> After the writing of the Draft Economic Analysis, on August 28, 2013, the Service promulgated final regulations specifying that the impact analysis of critical habitat designations should focus on incremental effects (78 FR 53058).

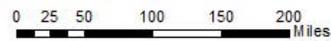
<sup>21</sup> OMB, "Circular A-4," September 17, 2003.

<sup>22</sup> For a detailed description of the public comments received on the Draft Economic Analysis and the associated responses, refer to the responses to public comment section of the Final Rule.

EXHIBIT 1-1. MAP OF LOGGERHEAD PROPOSED TERRESTRIAL CRITICAL HABITAT



Source:  
 1. U.S. Fish and Wildlife Service, Panama City Field Office  
 2. Environmental Systems Research Institute, Inc. (ESRI), Redlands, California, USA



## EXHIBIT 1-2. PROPOSED TERRESTRIAL CRITICAL HABITAT SUMMARY

UNIT	NAME	LENGTH IN KILOMETERS (MILES) <sup>1</sup>	OWNERSHIP		
			FEDERAL	STATE	PRIVATE AND OTHER
<b>North Carolina</b>					
LOGG-T-NC-01	Bogue Banks, Carteret Co.	38.9 (24.2)	0 (0)	4.6 (2.9)	34.3 (21.3)
LOGG-T-NC-02	Bear Island, Onslow Co.	6.6 (4.1)	0 (0)	6.6 (4.1)	0 (0)
LOGG-T-NC-03	Topsail Island, Onslow and Pender Cos.	35.0 (21.8)	0 (0)	0 (0)	35.0 (21.8)
LOGG-T-NC-04	Lea-Hutaff Island, Pender Co.	6.1 (3.8)	0 (0)	0.5 (0.3)	5.6 (3.5)
LOGG-T-NC-05	Pleasure Island, New Hanover Co.	18.6 (11.5)	0 (0)	6.8 (4.2)	11.8 (7.3)
LOGG-T-NC-06	Bald Head Island, Brunswick Co.	15.1 (9.4)	0 (0)	5.8 (3.6)	9.3 (5.8)
LOGG-T-NC-07	Oak Island, Brunswick Co.	20.9 (13.0)	0 (0)	0 (0)	20.9 (13.0)
LOGG-T-NC-08	Holden Beach, Brunswick Co.	13.4 (8.3)	0 (0)	0 (0)	13.4 (8.3)
<b>North Carolina State Totals<sup>3</sup></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 Co.	13.2 (8.2)	0 (0)	13.2 (8.2)	0 (0)
LOGG-T-SC-02	Sand Island, Georgetown Co.	4.7 (2.9)	0 (0)	4.7 (2.9)	0 (0)
LOGG-T-SC-03	South Island, Georgetown Co.	6.7 (4.2)	0 (0)	6.7 (4.2)	0 (0)
LOGG-T-SC-04	Cedar Island, Georgetown Co.	4.1 (2.5)	0 (0)	4.1 (2.5)	0 (0)
LOGG-T-SC-05	Murphy Island, Charleston Co.	8.0 (5.0)	0 (0)	8.0 (5.0)	0 (0)
LOGG-T-SC-06	Cape Island, Charleston Co.	8.3 (5.1)	8.3 (5.1)	0 (0)	0 (0)
LOGG-T-SC-07	Lighthouse Island, Charleston Co.	5.3 (3.3)	5.3 (3.3)	0 (0)	0 (0)
LOGG-T-SC-08	Raccoon Key, Charleston Co.	4.8 (3.0)	4.8 (3.0)	0 (0)	0 (0)
LOGG-T-SC-09	Folly Island, Charleston Co.	11.2 (7.0)	0 (0)	0 (0)	11.2 (7.0)
LOGG-T-SC-10	Kiawah Island, Charleston Co.	17.0 (10.6)	0 (0)	0 (0)	17.0 (10.6)
LOGG-T-SC-11	Seabrook Island, Charleston Co.	5.8 (3.6)	0 (0)	0 (0)	5.8 (3.6)
LOGG-T-SC-12	Botany Bay Island and Botany Bay Plantation, Charleston Co.	6.6 (4.1)	0 (0)	4.0 (2.5)	2.6 (1.6)
LOGG-T-SC-13	Interlude Beach, Charleston Co.	0.9 (0.6)	0 (0)	0.9 (0.6)	0 (0)
LOGG-T-SC-14	Edingsville Beach, Charleston Co.	2.7 (1.7)	0 (0)	0 (0)	2.7 (1.7)
LOGG-T-SC-15	Edisto Beach State Park, Colleton Co.	2.2 (1.4)	0 (0)	2.2 (1.4)	0 (0)
LOGG-T-SC-16	Edisto Beach, Colleton Co.	6.8 (4.2)	0 (0)	0 (0)	6.8 (4.2)
LOGG-T-SC-17	Pine Island, Colleton Co.	1.2 (0.7)	0 (0)	1.2 (0.7)	0 (0)
LOGG-T-SC-18	Otter Island, Colleton Co.	4.1 (2.5)	0 (0)	4.1 (2.5)	0 (0)
LOGG-T-SC-19	Harbor Island, Beaufort Co.	2.9 (1.8)	0 (0)	0 (0)	2.9 (1.8)
LOGG-T-SC-20	Little Capers Island, Beaufort Co.	4.6 (2.9)	0 (0)	0 (0)	4.6 (2.9)
LOGG-T-SC-21	St. Phillips Island, Beaufort Co.	2.3 (1.4)	0 (0)	0 (0)	2.3 (1.4)
LOGG-T-SC-22	Bay Point Island, Beaufort Co.	4.3 (2.7)	0 (0)	0 (0)	4.3 (2.7)
<b>South Carolina State Totals<sup>3</sup></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 Co.	8.6 (5.3)	0 (0)	8.6 (5.3)	0 (0)
LOGG-T-GA-02	Wassaw Island, Chatham Co.	10.1 (6.3)	9.8 (6.1)	0 (0)	0.3 (0.2)

UNIT	NAME	LENGTH IN KILOMETERS (MILES) <sup>1</sup>	OWNERSHIP		
			FEDERAL	STATE	PRIVATE AND OTHER
LOGG-T-GA-03	Ossabaw Island, Chatham Co.	17.1 (10.6)	0 (0)	17.1 (10.6)	0 (0)
LOGG-T-GA-04	St. Catherines Island, Liberty Co.	18.4 (11.5)	0 (0)	0 (0)	18.4 (11.5)
LOGG-T-GA-05	Blackbeard Island, McIntosh Co.	13.5 (8.4)	13.5 (8.4)	0 (0)	0 (0)
LOGG-T-GA-06	Sapelo Island, McIntosh Co.	9.3 (5.8)	0 (0)	9.3 (5.8)	0 (0)
LOGG-T-GA-07	Little Cumberland Island, Camden Co.	4.9 (3.0)	0 (0)	0 (0)	4.9 (3.0)
LOGG-T-GA-08	Cumberland Island, Camden Co.	29.7 (18.4)	25.2 (15.7)	0 (0)	4.5 (2.8)
<b>Georgia State Totals<sup>3</sup></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>Florida</b>					
LOGG-T-FL-01 <sup>2</sup>	South Duval Co. Beaches-Old Ponte Vedra, Duval and St. Johns Cos.	25.2 (15.6)	0 (0)	0 (0)	25.2 (15.6)
LOGG-T-FL-02 <sup>2</sup>	Guana Tolomato Matanzas NERR-St. Augustine Inlet, St. Johns Co.	24.1 (15.0)	0 (0)	7.2 (4.4)	17.0 (10.6)
LOGG-T-FL-03 <sup>2</sup>	St. Augustine Inlet-Matanzas Inlet, St. Johns Co.	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 Cos.	31.8 (19.8)	0 (0)	6.1 (3.8)	25.7 (16.0)
LOGG-T-FL-05 <sup>2</sup>	Ormond-by-the-Sea-Granada Blvd, Volusia Co.	11.1 (6.9)	0 (0)	0 (0)	11.1 (6.9)
LOGG-T-FL-06	Canaveral National Seashore North, Volusia Co.	18.2 (11.3)	18.2 (11.3)	0 (0)	0 (0)
LOGG-T-FL-07	Canaveral National Seashore South-Merritt Island National Wildlife Refuge (NWR)-Kennedy Space, Brevard Co.	28.4 (17.6)	28.4 (17.6)	0 (0)	0 (0)
LOGG-T-FL-08	Central Brevard Beaches, Brevard Co.	19.5 (12.1)	0 (0)	0 (0)	19.5 (12.1)
LOGG-T-FL-09	South Brevard Beaches, Brevard Co.	20.8 (12.9)	4.2 (2.6)	1.5 (1.0)	15.0 (9.3)
LOGG-T-FL-10 <sup>2</sup>	Sebastian Inlet-Indian River Shores, Indian River Co.	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 Cos.	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 Cos.	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 Co.	18.8 (11.7)	0 (0)	2.5 (1.5)	16.3 (10.1)
LOGG-T-FL-14	Lake Worth Inlet-Boynton Inlet, Palm Beach Co.	24.3 (15.1)	0 (0)	0 (0)	24.3 (15.1)
LOGG-T-FL-15	Boynton Inlet-Boca Raton Inlet, Palm Beach Co.	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 Cos.	8.3 (5.2)	0 (0)	0 (0)	8.3 (5.2)
LOGG-T-FL-17	Long Key, Monroe Co.	4.2 (2.6)	0 (0)	4.2 (2.6)	0 (0)
LOGG-T-FL-18	Bahia Honda Key, Monroe Co.	3.7 (2.3)	0 (0)	3.7 (2.3)	0 (0)
LOGG-T-FL-19	Longboat Key, Manatee and Sarasota Cos.	16.0 (9.9)	0 (0)	0 (0)	16.0 (9.9)
LOGG-T-FL-20	Siesta and Casey Keys, Sarasota Co.	20.8 (13.0)	0 (0)	0 (0)	20.8 (13.0)
LOGG-T-FL-21	Venice Beaches and Manasota Key, Sarasota and Charlotte Cos.	26.0 (16.1)	0 (0)	1.9 (1.2)	24.1 (15.0)

UNIT	NAME	LENGTH IN KILOMETERS (MILES) <sup>1</sup>	OWNERSHIP		
			FEDERAL	STATE	PRIVATE AND OTHER
LOGG-T-FL-22	Knight, Don Pedro, and Little Gasparilla Islands, Charlotte Co.	10.8 (6.7)	0 (0)	1.9 (1.2)	8.9 (5.5)
LOGG-T-FL-23	Gasparilla Island, Charlotte and Lee Cos.	11.2 (6.9)	0 (0)	1.5 (1.0)	9.6 (6.0)
LOGG-T-FL-24	Cayo Costa, Lee Co.	13.5 (8.4)	0 (0)	13.2 (8.2)	0.3 (0.2)
LOGG-T-FL-25	Captiva Island, Lee Co.	7.6 (4.7)	0 (0)	0 (0)	7.6 (4.7)
LOGG-T-FL-26	Sanibel Island West, Lee Co.	12.2 (7.6)	0 (0)	0 (0)	12.2 (7.6)
LOGG-T-FL-27	Little Hickory Island, Lee and Collier Cos.	8.7 (5.4)	0 (0)	0 (0)	8.7 (5.4)
LOGG-T-FL-28	Wiggins Pass-Clam Pass, Collier Co.	7.7 (4.8)	0 (0)	2.0 (1.2)	5.7 (3.6)
LOGG-T-FL-29	Clam Pass - Doctors Pass, Collier Co.	4.9 (3.0)	0 (0)	0 (0)	4.9 (3.0)
LOGG-T-FL-30	Keewaydin Island and Sea Oat Island, Collier Co.	13.1 (8.1)	0 (0)	12.4 (7.7)	0.7 (0.5)
LOGG-T-FL-31	Cape Romano, Collier Co.	9.2 (5.7)	0 (0)	7.2 (4.5)	2.0 (1.2)
LOGG-T-FL-32	Ten Thousand Islands North, Collier Co.	7.8 (4.9)	2.9 (1.8)	4.9 (3.1)	0 (0)
LOGG-T-FL-33	Highland Beach, Monroe Co.	7.2 (4.5)	7.2 (4.5)	0 (0)	0 (0)
LOGG-T-FL-34	Graveyard Creek- Shark Point, Monroe Co.	0.9 (0.6)	0.9 (0.6)	0 (0)	0 (0)
LOGG-T-FL-35	Cape Sable, Monroe Co.	21.3 (13.2)	21.3 (13.2)	0 (0)	0 (0)
LOGG-T-FL-36	Dry Tortugas, Monroe Co.	6.3 (3.9)	6.3 (3.9)	0 (0)	0 (0)
LOGG-T-FL-37	Marquesas Keys, Monroe Co.	5.6 (3.5)	5.6 (3.5)	0 (0)	0 (0)
LOGG-T-FL-38	Boca Grande Key, Monroe Co.	1.3 (0.8)	1.3 (0.8)	0 (0)	0 (0)
LOGG-T-FL-39	Woman Key, Monroe Co.	1.3 (0.8)	1.3 (0.8)	0 (0)	0 (0)
LOGG-T-FL-40	Perdido Key, Escambia Co.	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 Cos.	18.7 (11.7)	0 (0)	0 (0)	18.7 (11.7)
LOGG-T-FL-42	St. Joseph Peninsula, Gulf Co.	23.5 (14.6)	0 (0)	15.5 (9.7)	8.0 (4.9)
LOGG-T-FL-43	Cape San Blas, Gulf Co.	11.0 (6.8)	0 (0)	0.1 (0.1)	10.8 (6.7)
LOGG-T-FL-44	St. Vincent Island, Franklin Co.	15.1 (9.4)	15.1 (9.4)	0 (0)	0 (0)
LOGG-T-FL-45	Little St. George Island, Franklin Co.	15.4 (9.6)	0 (0)	15.4 (9.6)	0 (0)
LOGG-T-FL-46	St. George Island, Franklin Co.	30.7 (19.1)	0 (0)	14.0 (8.7)	16.7 (10.4)
LOGG-T-FL-47	Dog Island, Franklin Co.	13.1 (8.1)	0 (0)	0 (0)	13.1 (8.1)
<b>Florida State Totals<sup>3</sup></b>		<b>726 (451.3)</b>	<b>130.8 (81.3)</b>	<b>130.2 (81.2)</b>	<b>464.9 (289.1)</b>
<b>Mississippi</b>					
LOGG-T-MS-01	Horn Island, Jackson Co.	18.6 (11.5)	17.7 (11.0)	0 (0)	0.8 (0.5)
LOGG-T-MS-02	Petit Bois Island, Jackson Co.	9.8 (6.1)	9.8 (6.1)	0 (0)	0 (0)
<b>Mississippi State Totals<sup>3</sup></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 Co.	28.0 (17.4)	5.4 (3.4)	3.1 (1.9)	19.5 (12.1)
LOGG-T-AL-02	Gulf State Park-Perdido Pass, Baldwin Co.	10.7 (6.7)	0 (0)	3.5 (2.2)	7.3 (4.5)
LOGG-T-AL-03	Perdido Pass-Florida-Alabama line, Baldwin Co.	3.3 (2.0)	0 (0)	1.7 (1.0)	1.6 (1.0)
<b>Alabama State Totals<sup>3</sup></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>

UNIT	NAME	LENGTH IN KILOMETERS (MILES) <sup>1</sup>	OWNERSHIP		
			FEDERAL	STATE	PRIVATE AND OTHER
ALL UNITS TOTAL <sup>3</sup>		1189.9 (739.4)	230.6 (143.3)	247.6 (153.9)	711.8 (442.4)

Source: Proposed Critical Habitat Rule, 78 FR 18018, March 25, 2013.

**Notes:**

1. Beach length estimates reflect the linear distance along the nesting beach shoreline within critical habitat unit boundaries.
2. The Proposed Rule identifies areas in these units as being under consideration for exclusion (2013 Proposed Critical Habitat Rule, 78 FR 18044.)
3. Linear distances may not sum due to rounding.

36. As described in the Proposed Rule, the proposed terrestrial critical habitat units include lands from the mean high water (MHW) line to the toe of the secondary dune or developed structures.<sup>23</sup> For the purposes of defining the study area for the economic analysis, we rely on the spatial extent of past consultations considering potential impacts to the loggerhead, as this area is representative of where USFWS intends to review projects and activities to determine potential effects on critical habitat.
37. Threats to the physical and biological features of the loggerhead's habitat may affect the potential for conservation and recovery of the DPS. Based on the Proposed Rule, discussions with biologists at USFWS, and a review of the section 7 consultation history for the loggerhead, we have identified the following key activities that may have an adverse impact on the physical and biological features of loggerhead terrestrial critical habitat:<sup>24,25</sup>
  - **Species and Habitat Management:** The loggerhead and its habitat are currently afforded some level of protection under various management plans and programs, including Habitat Conservation Plans (HCPs) and Federal Land Management Plans. While species and habitat management activities are carried out for the benefit of the loggerhead and its habitat, they address various activities that may have an adverse impact on critical habitat, including beach driving, lighting management, and predation. Consequently, plans and programs may be subject to review by USFWS to consider the potential impacts on critical habitat.
  - **In-water and Coastal Construction:** In-water structures such as jetties and groins may cause accretion of sand on updrift beaches and acceleration of erosion downdrift of the structures, resulting in beach instability that discourages loggerhead nesting. In addition, the structures themselves, including armoring

<sup>23</sup> Proposed Critical Habitat Rule, 78 FR 18000, March 25, 2013.

<sup>24</sup> Ibid.

<sup>25</sup> Personal communication with the U.S. Fish and Wildlife Service on March 28, 2013.

structures along the shoreline, may interfere with nesting turtles or hatchlings. Similarly, coastal development, such as pier, bridge, and road construction, may cause loss and degradation of suitable nesting habitat, and lead to armoring which causes changes in, additional loss of, or impact to the remaining sea turtle nesting habitat.

- **Sand Placement:** While sand placement activities can result in increased nesting on severely eroded sections of beach where little or no suitable nesting habitat previously existed, they can also have negative effects on the suitability of nesting habitat, most likely as a result of changes in physical beach characteristics (beach profile, sediment grain size, beach compaction, frequency and extent of escarpments).<sup>26</sup>
- **Recreation:** Beach cleaning, human presence, and recreational beach equipment can all reduce the quality of nesting habitat. These activities may also deter nesting by adult females and/or impede hatchlings during their nest-to-sea migration. In addition, the USFWS has consulted in the past with the U.S. Coast Guard on boat races that include beach viewing areas, as these events have resulted in trampling of nests.
- **Lighting Management:** Artificial lighting deters adult female turtles from emerging from the ocean to nest and can disorient nesting turtles and hatchlings. While lighting management may be considered as part of a consultation on another economic activity (for example, coastal construction), certain agencies may consult on lighting as a stand-alone activity.
- **Disaster Response:** Oil spills in the vicinity of nesting beaches place turtles at risk from direct exposure of contaminants, and also negatively impact nesting habitat. Clean-up activities may also be harmful, as they may deter nesting turtles, destroy nests, and/or entrap hatchlings.
- **Oil and Gas Activities:** Oil and gas exploration and development activities pose a potential threat to loggerhead terrestrial critical habitat. These activities include decommissioning of old oil and gas platforms, construction of new oil and gas platforms, and oil and gas transportation. These activities may affect terrestrial critical habitat through pollution from spills or other discharges.
- **Offshore Renewable Energy:** This activity includes development related to ocean thermal energy, wave energy, and offshore wind energy. These projects are considered potential threats to terrestrial loggerhead habitat as they have the potential to disrupt habitat through construction of power cables from offshore facilities to onshore electrical substations.

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<sup>26</sup> However, as stated in the Proposed Rule, 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 and, if incorporated, the sand placement projects are not expected to result in adverse modification of critical habitat.

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38. This report focuses on the economic impacts of terrestrial critical habitat designation on the activities listed above, comparing the state of the world with and without the designation of critical habitat for the loggerhead. The “without critical habitat” scenario represents the baseline for the analysis, considering habitat protections already afforded the loggerhead either as a result of its listing as a threatened DPS or as a result of other Federal, state, and local regulations. The “with critical habitat” scenario describes the incremental impacts associated specifically with the designation of terrestrial critical habitat for the loggerhead. The incremental impacts quantified in this analysis are those not expected to occur absent the designation of critical habitat for the loggerhead. To support the Section 4(b)(2) decision-making process, the analysis identifies the spatial distribution of these incremental impacts, where possible.

#### 1.4 ORGANIZATION OF REPORT

39. The remainder of this report proceeds through six additional chapters. Chapter 2 discusses the framework employed in the analysis. Chapters 3 through 6 then cover the assessment of potential economic impacts, organized by economic activity. Chapter 7 considers the potential economic benefits of critical habitat designation for the loggerhead sea turtle. In addition, the report includes four appendices: Appendix A addresses additional statutory requirements associated with this rulemaking, including: (1) an analysis of impacts to small entities according to the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement and Fairness Act (SBREFA); (2) an evaluation of effects of the rule on State, local, and Tribal governments and the private sector as required by Title II of the Unfunded Mandates Reform Act (UMRA); (3) a discussion of the potential for federalism concerns as required by Executive Order 13132; and (4) an evaluation of energy impacts according to Executive Order 13211. Appendix B highlights the sensitivity of the economic impact estimates to alternative discount rates, and Appendix C presents the undiscounted stream of future impacts. Finally, Appendix D provides the memorandum to Industrial Economics, Incorporated (IEc) developed by USFWS describing potential effects of critical habitat designation on the outcome of future section 7 consultations.

## CHAPTER 2 | FRAMEWORK FOR THE ANALYSIS

40. According to section 4(b)(2) of the Act, USFWS must consider economic impacts, impacts to national security, and other relevant impacts of designating any particular area as critical habitat. An area may be excluded from designation as critical habitat if the benefits of exclusion (i.e., the impacts that would be avoided if an area were excluded from the designation) outweigh the benefits of designation so long as exclusion of the area will not result in extinction of the species. **The purpose of the economic analysis is to provide information to assist the Secretary in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.**<sup>27</sup> In addition, this information allows USFWS to address the requirements of Executive Orders 12866 (as affirmed and supplemented by Executive Order 13563), 12630, and 13211; the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA); Executive Order 13132; and Title II of the Unfunded Mandates Reform Act (UMRA).<sup>28</sup>
41. This chapter describes the framework for this analysis. It first describes the case law that led to the selection of the framework applied in this report. Next, the chapter describes in economic terms the general categories of economic effects that are the focus of the impact analysis, including a discussion of efficiency and distributional effects. This chapter then defines the analytic framework used to measure these impacts in the context of critical habitat regulation and the consideration of benefits. It concludes with a description of the information sources relied upon in the analysis and notes on the presentation of the results.

## 2.1 BACKGROUND

42. OMB's guidelines for conducting economic analyses of regulations direct Federal agencies to measure the costs of a regulatory action against a baseline, which it defines as the "best assessment of the way the world would look absent the proposed action."<sup>29</sup> In other words, the baseline includes the existing regulatory and socio-economic burden

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<sup>27</sup> 16 U.S.C. § 1533(b)(2).

<sup>28</sup> Executive Order 12866, Regulatory Planning and Review, September 30, 1993; Executive Order 13563, Improving Regulation and Regulatory Review, January 18, 2011; Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights, March 15, 1988; Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001; 5. U.S.C. §§ 601 *et seq*; Pub Law No. 104-121; and 2 U.S.C. § 1501, *et seq*.

<sup>29</sup> OMB, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat. Impacts that are incremental to that baseline (i.e., occurring over and above existing constraints) are attributable to the proposed regulation. Significant debate has occurred regarding whether assessing the impacts of USFWS's proposed regulations using this baseline approach is appropriate in the context of critical habitat designations.

43. In 2001, the U.S. Tenth Circuit Court of Appeals instructed USFWS to conduct a full analysis of all economic impacts of proposed critical habitat, regardless of whether those impacts are attributable co-extensively to other causes.<sup>30</sup> Specifically, the court stated,

The statutory language is plain in requiring some kind of consideration of economic impact in the CHD [critical habitat designation] phase. Although 50 C.F.R. 402.02 is not at issue here, the regulation's definition of the jeopardy standard as fully encompassing the adverse modification standard renders any purported economic analysis done utilizing the baseline approach virtually meaningless. We are compelled by the canons of statutory interpretation to give some effect to the congressional directive that economic impacts be considered at the time of critical habitat designation.... Because economic analysis done using the FWS's [Fish and Wildlife Service's] baseline model is rendered essentially without meaning by 50 C.F.R. § 402.02, we conclude Congress intended that the FWS conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes. Thus, we hold the baseline approach to economic analysis is not in accord with the language or intent of the ESA [Endangered Species Act].<sup>31</sup>

44. Since that decision, however, courts in other cases have held that an incremental analysis of impacts stemming solely from the critical habitat rulemaking is proper.<sup>32</sup> For example, in the March 2006 ruling that the August 2004 critical habitat rule for the Peirson's milk-vetch was arbitrary and capricious, the United States District Court for the Northern District of California stated,

The Court is not persuaded by the reasoning of *New Mexico Cattle Growers*, and instead agrees with the reasoning and holding of *Cape Hatteras Access Preservation Alliance v. U.S. Dep't of the Interior*, 344 F. Supp 2d 108 (D.D.C. 2004). That case also involved a challenge to the Service's baseline approach and the court held that the baseline approach was both consistent with the language and purpose of the ESA and that it was a reasonable method for assessing the actual costs of a particular

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<sup>30</sup> *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001).

<sup>31</sup> *Ibid.*

<sup>32</sup> *Cape Hatteras Access Preservation Alliance v. Department of Interior*, 344 F. Supp. 2d 108 (D.D.C. 2004); *Center for Biological Diversity v. United States Bureau of Land Management*, 422 F.Supp.2d 1115 (N.D. Cal. 2006).

critical habitat designation *Id* at 130. ‘To find the true cost of a designation, the world with the designation must be compared to the world without it.’<sup>33</sup>

45. More recently, in 2010, the U.S. Ninth Circuit Court of Appeals twice came to similar conclusions during its reviews of critical habitat designations for the Mexican spotted owl and 15 vernal pool species.<sup>34,35</sup>

46. In order to address the divergent opinions of the courts and provide the most complete information to decision-makers, this economic analysis will employ “without critical habitat” and “with critical habitat” scenarios:

- The "**without critical habitat**" scenario represents the **baseline** for the analysis, considering protections already afforded the loggerhead DPS. The baseline for this analysis is the state of regulation absent designation of critical habitat. In the baseline, the loggerhead receives protection under the Act, as well as under other Federal, state and local laws and conservation plans. The baseline includes sections 7, 9, and 10 of the Act to the extent they are expected to apply absent the designation of critical habitat for the species. The analysis qualitatively describes how baseline conservation efforts for the loggerhead may be implemented across the proposed designation.
- The "**with critical habitat**" scenario describes and monetizes the **incremental** impacts due specifically to designation of critical habitat for the DPS. Incremental conservation efforts and associated impacts are those that are expected to occur as a result of critical habitat designation. This report focuses on the incremental analysis.

## 2.2 CATEGORIES OF POTENTIAL ECONOMIC EFFECTS OF SPECIES CONSERVATION

47. This economic analysis considers the economic efficiency and distributional effects that may result from efforts to protect the loggerhead and its habitat (hereinafter referred to collectively as “conservation efforts”). Economic efficiency effects generally reflect “opportunity costs” associated with the commitment of resources required to accomplish species and habitat conservation. For example, if the set of activities that may take place on a parcel of land is limited as a result of the designation or the presence of the species, and thus the market value of the land is reduced, this reduction in value represents one measure of opportunity cost or change in economic efficiency. Similarly, the costs incurred by a Federal action agency to consult with USFWS under section 7 represent opportunity costs of loggerhead conservation efforts.

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<sup>33</sup> *Center for Biological Diversity v. United States Bureau of Land Management*, 422 F.Supp.2d 1115 (N.D. Cal. 2006).

<sup>34</sup> *Home Builders Association of Northern California v. United States Fish and Wildlife Service*, 616 F.3d 983 (9<sup>th</sup> Cir. 2010), cert. denied, 179 L. Ed 2d 301 (2011); *Arizona Cattle Growers v. Salazar*, 606 F. 3d 1160 (9<sup>th</sup> Cir. 2010), cert. denied, 179 L. Ed. 2d 300 (2011).

<sup>35</sup> After the writing of the Draft Economic Analysis, on August 28, 2013, the Service promulgated final regulations specifying that the impact analysis of critical habitat designations should focus on incremental effects (78 FR 53058).

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48. This analysis also addresses the distribution of impacts associated with the designation, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation efforts on small entities and the energy industry. This information may be used by decision-makers to assess whether the effects of species conservation efforts unduly burden a particular group or economic sector. For example, while conservation efforts may have a small impact relative to the national economy, individuals employed in a particular sector of the regional economy may experience relatively greater impacts. The differences between economic efficiency effects and distributional effects, as well as their application in this analysis, are discussed in greater detail below.

#### 2.2.1 EFFICIENCY EFFECTS

49. At the guidance of OMB and in compliance with Executive Order 12866 “Regulatory Planning and Review,” Federal agencies measure changes in economic efficiency in order to understand how society, as a whole, will be affected by a regulatory action. In the context of regulations that protect the loggerhead habitat, these efficiency effects represent the opportunity cost of resources used or benefits foregone by society as a result of the regulations. Economists generally characterize opportunity costs in terms of changes in producer and consumer surpluses in affected markets.<sup>36</sup>
50. In some instances, compliance costs may provide a reasonable approximation for the efficiency effects associated with a regulatory action. For example, a Federal land manager may enter into a consultation with USFWS to ensure that a particular activity will not adversely modify critical habitat. The effort required for consultation is an economic opportunity cost because the landowner or manager's time and effort would have been spent in an alternative activity had the parcel not been included in the designation. When compliance activity is not expected to significantly affect markets—that is, not result in a shift in the quantity of a good or service provided at a given price, or in the quantity of a good or service demanded given a change in price—the measurement of compliance costs can provide a reasonable estimate of the change in economic efficiency.
51. Where habitat protection measures are expected to significantly impact a market, it may be necessary to estimate changes in producer and consumer surpluses. For example, protection measures that reduce or preclude development of large areas of land may shift the price and quantity of housing supplied in a region. In this case, changes in economic efficiency (i.e., social welfare) can be measured by considering changes in producer and consumer surplus in the market.
52. This analysis begins by measuring impacts associated with conservation efforts undertaken to protect the loggerhead and its habitat. As noted above, in some cases,

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<sup>36</sup> For additional information on the definition of “surplus” and an explanation of consumer and producer surplus in the context of regulatory analysis, see: Gramlich, Edward M., *A Guide to Benefit-Cost Analysis* (2nd Ed.), Prospect Heights, Illinois: Waveland Press, Inc., 1990; and U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, EPA 240-R-00-003, September 2000, available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>.

compliance costs can provide a reasonable estimate of changes in economic efficiency. However, if the cost of conservation efforts is expected to significantly impact markets, the analysis will consider potential changes in consumer and/or producer surplus in affected markets. In the case of the loggerhead, conservation efforts are not anticipated to significantly affect markets; therefore, this report focuses solely on compliance costs.

### 2.2.2 DISTRIBUTIONAL AND REGIONAL ECONOMIC EFFECTS

53. Measurements of changes in economic efficiency focus on the net impact of conservation efforts, without consideration of how certain economic sectors or groups of people are affected. Thus, a discussion of efficiency effects alone may miss important distributional considerations. OMB encourages Federal agencies to consider distributional effects separately from efficiency effects.<sup>37</sup> This analysis considers several types of distributional effects, including impacts on small entities; impacts on energy supply, distribution, and use; and regional economic impacts. It is important to note that these are fundamentally different measures of economic impact than efficiency effects, and thus cannot be added to or compared with estimates of changes in economic efficiency.

54. *Impacts on Small Entities, Governments, and Energy Supply, Distribution, and Use*  
This analysis considers how small entities, including small businesses, organizations, and governments, as defined by the RFA, might be affected by future species conservation efforts.<sup>38</sup> It also assesses the potential for impacts to state, local and Tribal governments and the private sector as required by Title II of UMRA.<sup>39</sup> In addition, in response to Executive Order 13211 "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," this analysis considers the future impacts of conservation efforts on the energy industry and its customers.<sup>40</sup>

#### *Regional Economic Effects*

55. Regional economic impact analysis can provide an assessment of the potential localized effects of conservation efforts. Specifically, regional economic impact analysis produces a quantitative estimate of the potential magnitude of the initial change in the regional economy resulting from a regulatory action. Regional economic impacts are commonly measured using regional input/output models. These models rely on multipliers that represent the relationship between a change in one sector of the economy (e.g., expenditures by recreators) and the effect of that change on economic output, income, or employment in other local industries (e.g., suppliers of goods and services to recreators). These economic data provide a quantitative estimate of the magnitude of employment and revenue shifts in the local economy.

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<sup>37</sup> U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

<sup>38</sup> 5 U.S.C. §§ 601 *et seq.*

<sup>39</sup> 2 U.S.C. § 1531 *et seq.*

<sup>40</sup> Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001.

56. The use of regional input/output models in an analysis of the impacts of species and habitat conservation efforts can overstate the long-term impacts of a regulatory change. Most importantly, these models provide a static view of a region's economy. That is, they measure the initial impact of a regulatory change on an economy but do not consider long-term adjustments that the economy will make in response to this change. For example, these models estimate the number of jobs lost as a result of a regulatory change, but do not consider re-employment of these individuals over time or other adaptive responses by impacted businesses. In addition, flow of goods and services across regional boundaries defined in the model may change as a result of the regulation, compensating for a potential decrease in economic activity within the region.
57. Despite these and other limitations, in certain circumstances regional economic impact analyses may provide useful information about the scale and scope of localized impacts. It is important to remember that measures of regional economic effects generally reflect shifts in resource use rather than efficiency losses. Thus, these types of distributional effects are reported separately from efficiency effects (i.e., not summed). In addition, measures of regional economic impact cannot be compared with estimates of efficiency effects, but should be considered as distinct measures of impact. Given the limited nature of incremental impacts likely to result from this designation, measurable regional impacts are not anticipated.

### 2.3 ANALYTIC FRAMEWORK AND SCOPE OF THE ANALYSIS

58. This analysis: 1) identifies those economic activities most likely to threaten the loggerhead and its habitat; 2) describes the baseline regulation protection for the species; and 3) monetizes the incremental economic impacts to avoid adverse modification of the proposed critical habitat area. This section provides a description of the methodology used to separately identify baseline protections from the incremental impacts stemming from the proposed designation of critical habitat for the loggerhead. This evaluation of impacts in a "with critical habitat designation" versus a "without critical habitat designation" framework effectively measures the net change in economic activity associated with the proposed rulemaking.

#### 2.3.1 IDENTIFYING BASELINE IMPACTS

59. The baseline for this analysis is the existing state of regulation prior to the designation of critical habitat, including the listing of the species under the Act, and other Federal, state and local laws and guidelines. This "without critical habitat designation" scenario also considers a wide range of additional factors beyond compliance costs of regulations that provide protection to the species. As recommended by OMB, the baseline incorporates, as appropriate, trends in market conditions, implementation of other regulations and policies by USFWS and other government entities, and trends in other factors that have the potential to affect economic costs and benefits, such as the rate of regional economic growth in potentially affected industries.
60. Baseline protections include sections 7, 9, and 10 of the Act, and economic impacts resulting from these protections to the extent that they are expected to occur absent

designation of critical habitat for the species. This analysis describes these baseline regulations and, where possible, provides examples of the potential magnitude of the costs of these baseline protections. The primary focus, however, is not on baseline costs, since these will not be affected by the proposed regulation. Instead, the focus of this analysis is on monetizing the incremental impacts forecast to result from the proposed critical habitat designation.

- Section 7 of the Act, absent critical habitat designation, requires Federal agencies to consult with USFWS to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. Consultations under the jeopardy standard result in administrative costs, as well as impacts of conservation efforts resulting from consideration of this standard.
- Section 9 defines the actions that are prohibited by the Act. In particular, it prohibits "take" of endangered wildlife, where "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."<sup>41</sup> Economic impacts associated with section 9 manifest themselves in sections 7 and 10.
- Under section 10(a)(1)(B) of the Act, a non-Federal entity (e.g., a landowner or local government) may develop a HCP for a listed animal species in order to meet the conditions for issuance of an incidental take permit in connection with a land or water use activity or project.<sup>42</sup> The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that effects of incidental take are adequately avoided, minimized, or mitigated. Development and implementation of HCPs is considered a baseline protection for the species and habitat unless the HCP is determined to be precipitated by the designation of critical habitat, or the designation influences stipulated conservation efforts under HCPs.
- Enforcement actions taken in response to violations of the Act are not included in this analysis.

61. The protection of listed species and habitat is not limited to the Act. Other Federal agencies, as well as state and local governments, may also seek to protect the natural resources under their jurisdiction. If compliance with the Clean Water Act (CWA) or state environmental quality laws, for example, protects habitat for the species, such protective efforts are considered to be baseline protections and costs associated with these efforts are categorized accordingly. Of note, however, such efforts may not be considered baseline in the case that they would not have been triggered absent the designation of

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<sup>41</sup> 16 U.S.C. § 1532.

<sup>42</sup> U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning," August 6, 2002, accessed at <http://endangered.fws.gov/hcp/>.

critical habitat. In these cases, they are considered incremental impacts and are discussed below.

### 2.3.2 IDENTIFYING INCREMENTAL IMPACTS

62. This analysis quantifies the potential incremental impacts of this rulemaking. The focus of the incremental analysis is to determine the impacts on land uses and activities resulting from designation of critical habitat that are above and beyond those impacts resulting from existing required or voluntary conservation efforts undertaken due to other Federal, state, and local regulations or guidelines.
63. When critical habitat is designated, section 7 requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat (in addition to considering whether the actions are likely to jeopardize the continued existence of the species). The added administrative costs of considering critical habitat in section 7 consultation and the additional impacts of implementing conservation efforts (i.e., reasonable and prudent alternatives in the case of an adverse modification finding) resulting from the protection of critical habitat are the direct compliance costs of designating critical habitat. These costs are not in the baseline and are considered incremental impacts of the rulemaking.

#### Direct Impacts

64. The direct, incremental impacts of critical habitat designation stem from the consideration of the potential for destruction or adverse modification of critical habitat during section 7 consultations. The two categories of direct, incremental impacts of critical habitat designation are: 1) the administrative costs of conducting section 7 consultation; and 2) implementation of any conservation efforts requested by USFWS through section 7 consultation to avoid potential destruction or adverse modification of critical habitat.
65. Section 7(a)(2) of the Act requires Federal agencies to consult with USFWS whenever activities that they undertake, authorize, permit, or fund may affect a listed species or designated critical habitat. In some cases, consultations will involve USFWS and another Federal agency only, such as the U.S. Army Corps of Engineers (the Corps). Often, they will also include a third party involved in projects that involve a permitted entity, such as the recipient of CWA section 404 and Rivers and Harbors Act section 10 permits for sand placement projects.
66. During a consultation, USFWS, the action agency, and the entity applying for Federal funding or permitting (if applicable) communicate in an effort to minimize potential adverse effects to the species and/or critical habitat. Communication between these parties may occur via written letters, phone calls, in-person meetings, or any combination of these. The duration and complexity of these interactions depends on a number of variables, including the type of consultation, the species, the activity of concern, and the potential effects to the species and designated critical habitat associated with the proposed activity, the Federal agency, and whether there is a private applicant involved.

67. Section 7 consultations with USFWS may be either informal or formal. *Informal consultations* consist of discussions between USFWS, the action agency, and applicant concerning an action that may affect a listed species or its designated critical habitat, and are designed to identify and resolve potential concerns at an early stage in the planning process. By contrast, a *formal consultation* is required if the action agency determines that its proposed action may or will adversely affect the listed species or designated critical habitat in ways that cannot be resolved through informal consultation. The formal consultation process results in USFWS's determination in its Biological Opinion (BO) whether the action is likely to jeopardize a species or adversely modify critical habitat and includes terms and conditions to minimize incidental take, as well as conservation recommendations. Regardless of the type of consultation or proposed project, section 7 consultations can require substantial administrative effort on the part of all participants.

#### Administrative Section 7 Consultation Costs

68. As described above, parties involved in section 7 consultations include USFWS, a Federal action agency, and in some cases, a third-party applicant. While consultations are required for activities that involve a Federal nexus and may affect a species regardless of whether critical habitat is designated, the designation may increase the effort for consultations if the project or activity in question may affect critical habitat. Administrative efforts for consultation may therefore result in baseline and incremental impacts.
69. In general, three different scenarios associated with the designation of critical habitat may trigger incremental administrative consultation costs:
1. **Additional effort to address adverse modification in a consultation:** New consultations taking place after critical habitat designation may require additional effort to address critical habitat issues above and beyond the listing issues. In this case, only the additional administrative effort required to consider critical habitat is considered an incremental impact of the designation.
  2. **Re-initiation of consultation to address adverse modification:** Consultations that have already been completed on a project or activity may require re-initiation to address critical habitat. In this case, costs of re-initiating the consultation, including all associated administrative and conservation effort costs, are considered incremental impacts of the designation.
  3. **Incremental consultation resulting entirely from critical habitat designation:** Critical habitat designation may trigger additional consultations that may not occur absent the designation (e.g., for an activity for which adverse modification may be an issue, while jeopardy is not, or consultations resulting from the new information about the potential presence of the species provided by the designation). Such consultations, for example, may be triggered in critical habitat areas that are not occupied by the species. All associated administrative and conservation effort costs of incremental consultations are considered incremental

impacts of the designation. We did not identify any incremental consultation that would result solely from the designation of critical habitat for the loggerhead.

70. The administrative costs of these consultations vary depending on the specifics of each project. One way to address this variability is to show a range of possible costs of consultation, as it may not be possible to predict the precise outcome of each future consultation in terms of level of effort. Review of consultation records and discussions with USFWS field offices resulted in a range of estimated administrative costs of consultation. For simplicity, the average of the range of costs in each category is applied in this analysis.
71. Exhibit 2-1 provides the incremental administrative consultation costs applied in this analysis. These costs are applied to quantify incremental administrative costs of all consultations in this analysis.

#### Section 7 Conservation Efforts Impacts

72. Section 7 consultation considering critical habitat may also result in additional conservation efforts recommended specifically to address potential destruction or adverse modification of critical habitat. For future consultations considering jeopardy and adverse modification, and for re-initiations of past consultations to consider critical habitat, the economic impacts of conservation efforts undertaken to avoid adverse modification are considered incremental impacts of critical habitat designation. For consultations forecast to occur specifically due to the designation, impacts of all associated conservation efforts are assumed to be incremental impacts of the designation.

EXHIBIT 2-1. AVERAGE ADMINISTRATIVE CONSULTATIONS COSTS (2013 DOLLARS)

INCREMENTAL ADMINISTRATIVE COSTS OF CONSULTATION					
CONSULTATION TYPE	USFWS	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
<b>NEW CONSULTATION RESULTING ENTIRELY FROM CRITICAL HABITAT DESIGNATION (TOTAL COST OF A CONSULTATION CONSIDERING BOTH JEOPARDY AND ADVERSE MODIFICATION)</b>					
Technical Assistance	\$570	n/a	\$1,100	n/a	\$1,600
Informal	\$2,500	\$3,100	\$2,100	\$2,000	\$9,600
Formal	\$5,500	\$6,200	\$3,500	\$4,800	\$20,000
Programmatic	\$17,000	\$14,000	n/a	\$5,600	\$36,000
<b>NEW CONSULTATION CONSIDERING ONLY ADVERSE MODIFICATION (UNOCCUPIED HABITAT)</b>					
Technical Assistance	\$430	n/a	\$790	n/a	\$1,200
Informal	\$1,900	\$2,300	\$1,500	\$1,500	\$7,200
Formal	\$4,100	\$4,700	\$2,600	\$3,600	\$15,000
Programmatic	\$12,000	\$10,000	n/a	\$4,200	\$27,000
<b>RE-INITIATION OF CONSULTATION TO ADDRESS ADVERSE MODIFICATION</b>					
Technical Assistance	\$280	n/a	\$530	n/a	\$810
Informal	\$1,200	\$1,600	\$1,000	\$1,000	\$4,800
Formal	\$2,800	\$3,100	\$1,800	\$2,400	\$10,000
Programmatic	\$8,300	\$6,900	n/a	\$2,800	\$18,000
<b>ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A NEW CONSULTATION (ADDITIVE WITH BASELINE COSTS, SHOWN ABOVE, OF CONSIDERING JEOPARDY)</b>					
Technical Assistance	\$140	n/a	\$260	n/a	\$400
Informal	\$620	\$780	\$510	\$500	\$2,400
Formal	\$1,400	\$1,600	\$880	\$1,200	\$5,000
Programmatic	\$4,200	\$3,500	n/a	\$1,400	\$9,000
<p>Source: IEc analysis of full administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2013, and a review of consultation records from several USFWS field offices across the country conducted in 2002.</p> <p>Notes:</p> <ol style="list-style-type: none"> <li>1. The levels of effort per consultation represent approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The cost estimates presented in this table may therefore not sum to the total costs reported due to rounding.</li> <li>2. Estimates reflect average hourly time required by staff.</li> </ol>					

#### Indirect Impacts

73. The designation of critical habitat may, under certain circumstances, affect actions that do not have a Federal nexus and thus are not subject to the provisions of section 7 under the Act. Indirect impacts are those unintended changes in economic behavior that may occur outside of the Act, through other Federal, state, or local actions, that are caused by the designation of critical habitat. This section identifies common types of indirect impacts that may be associated with the designation of critical habitat. Importantly, these types of impacts are not always considered incremental. In the case that these types of conservation efforts and economic effects are expected to occur regardless of critical habitat designation, they are appropriately considered baseline impacts in this analysis.

#### Other State and Local Laws

74. Under certain circumstances, critical habitat designation may provide new information to a community about the sensitive ecological nature of a geographic region, potentially triggering additional economic impacts under other state or local laws. In cases where these impacts would not have been triggered absent critical habitat designation, they are considered indirect, incremental impacts of the designation.

#### Additional Indirect Impacts

75. In addition to the indirect effects of compliance with other laws triggered by the designation, project proponents, land managers and landowners may face additional indirect impacts, including the following:
- **Time Delays** - Both public and private entities may experience incremental time delays for projects and other activities due to requirements associated with the need to reinitiate the section 7 consultation process and/or compliance with other laws triggered by the designation. To the extent that delays result from the designation, they are considered indirect, incremental impacts of the designation.
  - **Regulatory Uncertainty** - Except when projects fall under an existing programmatic consultation, USFWS conducts section 7 consultations on a case-by-case basis and issues a biological opinion on formal consultations based on species-specific and site-specific information. As a result, government agencies and affiliated private parties who consult with USFWS under section 7 may face uncertainty concerning whether conservation efforts will be recommended by USFWS and the nature of these modifications. This uncertainty may diminish as consultations are completed and additional information becomes available on the effects of critical habitat on specific activities. Where information suggests that this type of regulatory uncertainty stemming from the designation may affect a project or economic behavior, associated impacts are considered indirect, incremental impacts of the designation.
  - **Stigma** - In some cases, the public may perceive that critical habitat designation may result in limitations on private property uses above and beyond those associated with anticipated conservation efforts and regulatory uncertainty

described above. Public attitudes about the limits or restrictions that critical habitat may impose can cause real economic effects to property owners, regardless of whether such limits are actually imposed. All else equal, a property that is designated as critical habitat may have a lower market value than an identical property that is not within the boundaries of critical habitat due to perceived limitations or restrictions. As the public becomes aware of the true regulatory burden imposed by critical habitat, the impact of the designation on property markets may decrease. To the extent that potential stigma effects on markets are probable and identifiable, these impacts are considered indirect, incremental impacts of the designation.

76. Indirect impacts may also result from critical habitat providing new information regarding where project proponents should consult on potential impacts to the species or habitat.

*Approach to Identifying Incremental Impacts*

77. To inform this economic analysis, USFWS provided a memorandum describing its expected approach to conservation for the loggerhead following critical habitat designation. Based on this communication (see Appendix D), we expect that incremental project modifications associated with the proposed critical habitat designation are unlikely to be recommended. Specifically, USFWS states in its incremental effects memorandum:

The Service is not proposing to designate unoccupied terrestrial habitat for the loggerhead sea turtle. For occupied habitat, proposed actions that would adversely affect the [physical and biological features (PBFs)] in the designated critical habitat would usually also result in sufficient harm or harassment to constitute jeopardy to the species... As such, project modifications that minimize effects to the loggerhead sea turtle also would minimize effects to the PBFs associated with critical habitat. Accordingly, in occupied critical habitat it would be rare that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat and measures needed to avoid jeopardizing the species.<sup>43</sup>

78. Consequently, direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation.

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<sup>43</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. "Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle." See Appendix D.

### 2.3.3 BENEFITS

79. Under Executive Order 12866, OMB directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions.<sup>44</sup> OMB's Circular A-4 distinguishes two types of economic benefits: *direct benefits and ancillary benefits*. Ancillary benefits are defined as favorable impacts of a rulemaking that are typically unrelated, or secondary, to the statutory purpose of the rulemaking.<sup>45</sup>
80. In the context of critical habitat, the primary purpose of the rulemaking (i.e., the direct benefit) is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation and recovery of endangered and threatened species. In its guidance for implementing Executive Order 12866, OMB acknowledges that it may not be feasible to monetize, or even quantify, the benefits of environmental regulations due to either an absence of defensible, relevant studies or a lack of resources on the implementing agency's part to conduct new research.<sup>46</sup>
81. Critical habitat designation may also generate ancillary benefits. Critical habitat aids in the conservation of species specifically by protecting the primary constituent elements of critical habitat on which the species depends. To this end, critical habitat designation can result in maintenance of particular environmental conditions that may generate other social benefits aside from the preservation of the species. That is, management actions undertaken to conserve a species or habitat may have coincident, positive social welfare implications, such as increased recreational opportunities in a region. While they are not the primary purpose of critical habitat, these ancillary benefits may result in gains in employment, output, or income that may offset the direct, negative impacts to a region's economy resulting from actions to conserve a species or its habitat. Chapter 7 of this analysis addresses the potential benefits of this rulemaking.

### 2.3.4 GEOGRAPHIC SCOPE OF THE ANALYSIS

82. Economic impacts of the designation are considered across the entire proposed critical habitat area, as defined in Chapter 1. Results are presented for each proposed critical habitat unit.

### 2.3.5 ANALYTIC TIMEFRAME

83. Ideally, the time frame of this analysis would be based on the expected time period over which the critical habitat regulation is expected to be in place. Specifically, the analysis would forecast impacts of implementing this rule through species recovery (i.e., when the rule is no longer required). Recent guidance from OMB indicates that "if a regulation has no predetermined sunset provision, the agency will need to choose the endpoint of its

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<sup>44</sup> Executive Order 12866, Regulatory Planning and Review, September 30, 1993.

<sup>45</sup> U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>

<sup>46</sup> Ibid.

analysis on the basis of a judgment about the foreseeable future.”<sup>47</sup> The “foreseeable future” for this analysis includes, but is not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Forecasted impacts will be based on the planning periods for potentially affected projects and will look out over a ten-year time horizon. The ten-year time horizon was determined to be an appropriate period for the analysis because limited planning information is available for most economic activities in the area beyond a 10-year timeframe. OMB supports this timeframe stating that “for most agencies, a standard time period of analysis is ten to 20 years, and rarely exceeds 50 years.”<sup>48</sup> Therefore, this analysis considers economic impacts to activities over a ten-year period from 2014 (expected year of final critical habitat designation) through 2023.

#### 2.4 PRESENTATION OF RESULTS

84. Impacts are described in present value and annualized terms applying discount rates of seven percent throughout the body of the report. Additionally, Appendix B provides the present and annualized value of impacts in each unit applying a three percent discount rate for comparison with values calculated at seven percent.<sup>49</sup> Appendix C presents undiscounted annual impact values by activity and subunit. Present value and annualized impacts are calculated according to the methods described in Exhibit 2-2 below.

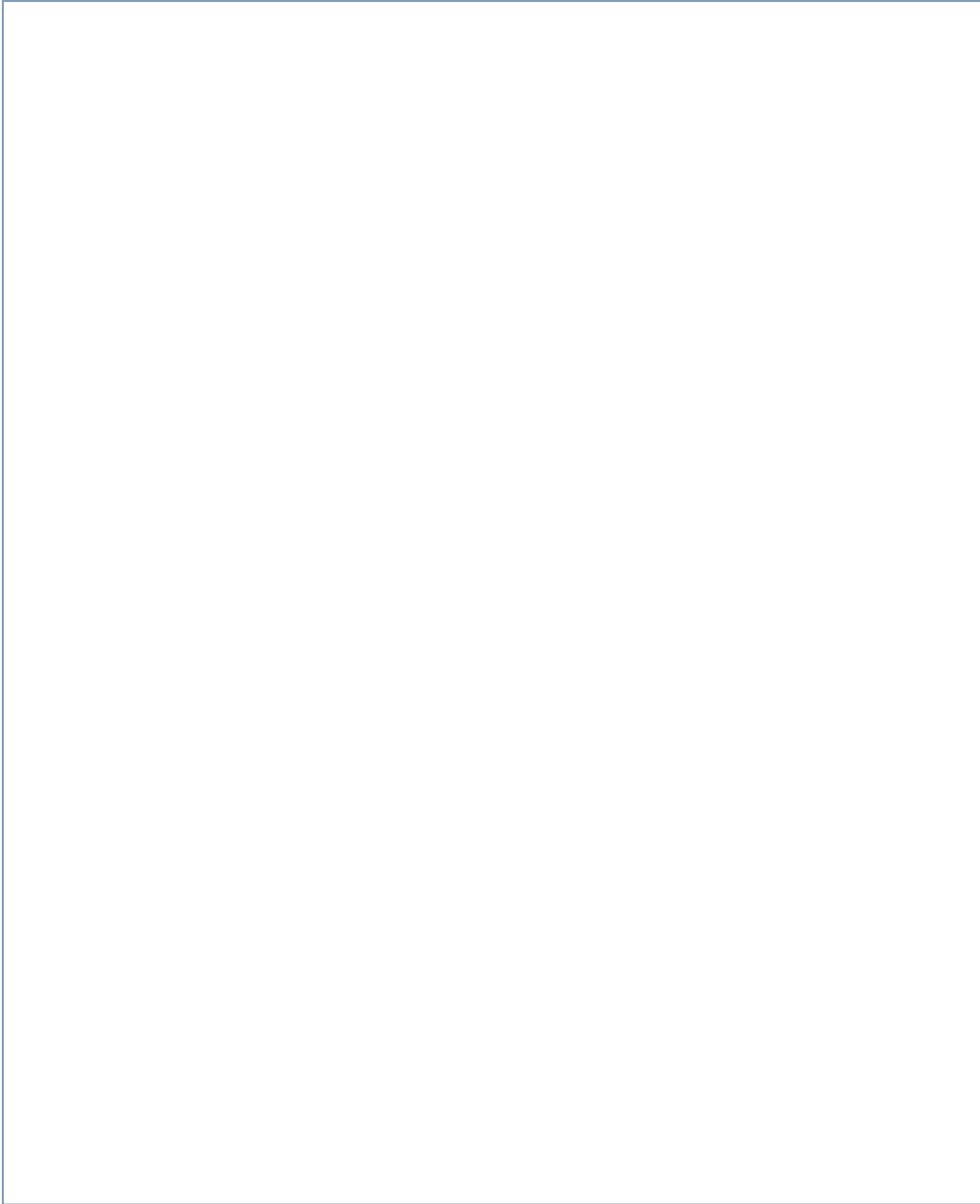
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<sup>47</sup> The U.S. Office of Management and Budget, February 7, 2011. “Regulatory Impact Analysis: Frequently Asked Questions (FAQs).” Accessed on May 3, 2011 at [http://www.whitehouse.gov/sites/default/files/omb/circulars/a004/a-4\\_FAQ.pdf](http://www.whitehouse.gov/sites/default/files/omb/circulars/a004/a-4_FAQ.pdf).

<sup>48</sup> Ibid.

<sup>49</sup> The U.S. Office of Management and Budget (OMB) directs Federal agencies to report results using discount rates of three and seven percent (see OMB, Circular A-4, 2003).

EXHIBIT 2-2. CALCULATING PRESENT VALUE



**CHAPTER 3 | SPECIES AND HABITAT MANAGEMENT****3.1 INTRODUCTION**

85. The loggerhead and its habitat are currently afforded some level of protection under various management plans and programs, including HCPs and Federal, State, and local land management plans. These plans and programs cover a range of activities that may affect the loggerhead and its habitat and may be affected by the proposed designation of critical habitat for the loggerhead. This chapter presents information about the potential economic impact of the proposed terrestrial critical habitat designation on species and habitat management activities. The analysis forecasts costs associated with anticipated future consultations on HCPs, Federal land management plans, and other Federal species and management activities over the next ten years.

### KEY FINDINGS OF THE SPECIES AND HABITAT MANAGEMENT ANALYSIS

#### QUANTIFIED IMPACTS AND CONCLUSIONS:

- ▲ For areas proposed for critical habitat designation, present value economic impacts of terrestrial critical habitat designation for the loggerhead on species and habitat management activities are approximately \$200,000 over the next ten years (seven percent discount rate). For areas being considered for exclusion, present value impacts are approximately \$30,000 over the next ten years (seven percent discount rate). These impacts reflect additional administrative effort as part of future section 7 consultations to consider the potential for these activities to adversely affect the critical habitat.
- ▲ Unlike the other activities analyzed in this report, species and habitat management is carried out to benefit the loggerhead and its habitat. The activities undertaken in the baseline to benefit the loggerhead often benefit its habitat as well. In particular, 47 existing management plans, four conservation easements, and three HCPs provide some level of protection to the loggerhead and its habitat.
- ▲ According to the USFWS, it is unlikely that future section 7 consultations would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the continued existence of the species. That is, USFWS anticipates that it is unlikely that critical habitat designation will generate a change in the outcome of future section 7 consultations due to the presence of critical habitat. This analysis accordingly does not forecast any changes to the scope, scale, or implementation of species and habitat management activities due to the critical habitat rule. Quantified direct incremental impacts of the designation are therefore limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of future section 7 consultations.

#### GEOGRAPHIC DISTRIBUTION OF IMPACTS:

- ▲ We forecast the greatest level of administrative costs for consultations on species and habitat management to be incurred in Alabama in proposed critical habitat unit LOGG-T-AL-01 (Mobile Bay-Little Lagoon Pass, Baldwin County). This result is due to the relatively high number of forecast section 7 consultations in this unit, which include reinitiation of the Bon Secour NWR Comprehensive Conservation Plan as well as BLM and USFWS species and habitat management activities.

#### KEY UNCERTAINTIES:

- ▲ While this analysis relies on the best available information regarding the potential location of future projects, the rate and locations of future projects are uncertain. In part, this analysis relies on the historical rate and distribution of activity to forecast the location and frequency of consultation on these projects over the next ten years.
- ▲ While USFWS anticipates it is unlikely that critical habitat designation will change the outcome of future section 7 consultations on species and habitat management activities, the final determination regarding recommended conservation efforts will be made at the time of individual consultations on projects or activities.

### 3.2 SCOPE AND SCALE OF POTENTIAL FUTURE SPECIES AND HABITAT MANAGEMENT

86. Federal, State, local, and private entities are expected to carry out future species and habitat management activities for the loggerhead turtle and its habitat. Most Federal land managers within the study area currently have land management plans that provide protection for the loggerhead and its habitat. In addition, many State, county, and city beaches have plans in place to protect the loggerhead and its habitat. These plans are described below in Section 3.3 and are not anticipated to change due to the designation of

critical habitat for the loggerhead. Federal land managers will be required to consult with USFWS at the time of critical habitat designation to evaluate the impact of the activities outlined in their management plans to loggerhead critical habitat. This consultation is expected to require minimal administrative effort.

87. Three HCPs are currently in place that cover the loggerhead. In addition, two HCPs are in draft form and two future HCPs are expected to cover the loggerhead. These plans are described in more detail in Section 3.3. This analysis conservatively assumes that intra-Service consultation on the three existing HCPs and two draft HCPs that are likely to be approved prior to final critical habitat designation will be reinitiated due to the designation of critical habitat for the loggerhead, but that no substantive revision of the HCPs will be necessary. Future intra-Service consultation on the HCPs will be required to consider the impacts to critical habitat for the loggerhead.

### 3.3 BASELINE SPECIES AND HABITAT MANAGEMENT

88. Federal, State, county and city management plans as well as private conservation easements and HCPs provide baseline protection to the loggerhead and its habitat. Exhibit 3-1 provides information on these plans including the coverage area and details on the protective measures.

EXHIBIT 3-1. BASELINE HABITAT AND SPECIES MANAGEMENT

BASELINE PROTECTION	UNIT	PROTECTIVE MEASURES	APPLICABLE LANDS
Tom Yawkey Wildlife Center management plan	LOGG-T-SC-01	Sea turtle nesting surveys, nest marking, feral hog removal, and beach management	State
	LOGG-T-SC-02		
	LOGG-T-SC-03		
Santee Coastal Reserve Wildlife Management Area draft management plan	LOGG-T-SC-04	Recommendations to reduce sea turtle nest depredation by raccoons	State
	LOGG-T-SC-05		
Cape Romain NWR Comprehensive Conservation Plan	LOGG-T-SC-06	Sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal	Federal
	LOGG-T-SC-07		
	LOGG-T-SC-08		
City of Folly Beach beach management plan	LOGG-T-SC-09	Measures to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances	Private and other
Town of Kiawah Island Local Comprehensive Beach Management Plan	LOGG-T-SC-10	Sea turtle nest monitoring, education, pet and vehicular restrictions, and a lighting ordinance	Private and other
Town of Seabrook Island beach management plan	LOGG-T-SC-11	Sea turtle nesting surveys, nest marking, and actions to minimize human disturbance	Private
Conservation easement with The Nature Conservancy	LOGG-T-SC-12	Restricted development	Private
Botany Bay Plantation Wildlife Management Area Heritage Preserve management plan	LOGG-T-SC-12	Sea turtle nesting surveys, nest marking, actions to minimize human disturbance, and predator removal	State
	LOGG-T-SC-13		
Edisto Beach State Park General Management Plan	LOGG-T-SC-15	Sea turtle nesting surveys, nest marking, and education	State

BASILINE PROTECTION	UNIT	PROTECTIVE MEASURES	APPLICABLE LANDS
Town of Edisto Beach Local Comprehensive Beach Management Plan	LOGG-T-SC-16	Sea turtle nesting surveys, nest marking, and beach management	Private
Beaufort County Comprehensive Beach Management Plan	LOGG-T-SC-19	Sea turtle nesting surveys, nest marking, and beach management	Private
	LOGG-T-SC-20		
Conservation easement with The Nature Conservancy	LOGG-T-SC-21	Restricted development	Private
Memorandum of Agreement between the USFWS, Georgia Department of Natural Resources and other parties mandating adherence to the Management Plan for the Protection of Nesting Loggerhead Sea Turtles and their Habitat in Georgia	LOGG-T-GA-01	Sea turtle nesting surveys, nest marking and protection, education, and predator removal	Federal, state, and private
	LOGG-T-GA-02		
	LOGG-T-GA-03		
	LOGG-T-GA-04		
	LOGG-T-GA-05		
	LOGG-T-GA-06		
	LOGG-T-GA-07		
	LOGG-T-GA-08		
Savannah Coastal Refuges Complex draft Comprehensive Conservation Plan	LOGG-T-GA-02	Sea turtle nesting surveys, nest marking, education, and predator removal	Federal
	LOGG-T-GA-05		
Sapelo Island Comprehensive Management Plan	LOGG-T-GA-06	Actions to minimize human disturbance and predator removal	State
Cumberland Island National Seashore General Management Plan	LOGG-T-GA-08	Predator removal and dune preservation	Federal
St. Johns County HCP	LOGG-T-FL-01	For county-regulated beach driving: limiting public access to daylight hours, set up marked Conservation Zone, nest marking, smooth out vehicle ruts, beach lighting management plan, reestablishment of dune in certain locations, and beach horseback riding registration and education	Private
	LOGG-T-FL-02		
	LOGG-T-FL-03		
Guana Tolomato Matanzas National Estuarine Research Reserve management plan	LOGG-T-FL-02	Sea turtle nesting surveys, nest marking, education, and predator removal	State
Anastasia State Park Unit Management Plan	LOGG-T-FL-03	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	State
Fort Matanzas National Monument General Management Plan (currently being revised)	LOGG-T-FL-03	Exotic organism removal if necessary and possible	Federal
Volusia County HCP	LOGG-T-FL-05	For county-regulated beach driving: limiting public access to daylight hours, guidelines for safety vehicle driving at night, set up marked Conservation Zone, nest marking, smooth out vehicle ruts, beach lighting management plan, and rehabilitation of stranded sea turtles	Private
North Peninsula State Park Unit Management Plan	LOGG-T-FL-04	Sea turtle nesting surveys, nest marking, removal of nonnative species (feral cats,	State

BASILINE PROTECTION	UNIT	PROTECTIVE MEASURES	APPLICABLE LANDS
		feral hogs, and nine-banded armadillos) when encountered, and beach management	
Canaveral National Seashore General Management Plan	LOGG-T-FL-06	Beach management to protect nesting and hatchling loggerhead sea turtles from anthropogenic disturbances	Federal
	LOGG-T-FL-07		
Merritt Island NWR Comprehensive Conservation Plan	LOGG-T-FL-07	Sea turtle nesting surveys, nest marking, and predator removal	Federal
Archie Carr NWR Comprehensive Conservation Plan	LOGG-T-FL-09	Sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal	Federal
	LOGG-T-FL-10		
Sebastian Inlet State Park Unit Management Plan	LOGG-T-FL-09	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	State
	LOGG-T-FL-10		
Indian River County HCP	LOGG-T-FL-10	For construction of emergency (temporary) coastal armoring structures: construction precautions during nesting season, relocation of known sea turtle nests, post-construction monitoring during nesting season, land acquisition, predator control, and sea turtle nesting surveys	Private and other
John Brooks Park management plan	LOGG-T-FL-11	Protection of nests and nonnative species removal	County
Blind Creek Natural Area draft management plan	LOGG-T-FL-11	Nonnative plant removal	County
Hobe Sound NWR Comprehensive Conservation Plan	LOGG-T-FL-12	Sea turtle nesting surveys, nest marking, education, nonnative species removal, and minimizing human disturbance	Federal
St. Lucie Inlet Preserve State Park Unit Management Plan	LOGG-T-FL-12	Maintenance of 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	State
Conservation easement with The Nature Conservancy	LOGG-T-FL-12	Restricted development	Private
John D. MacArthur Beach State Park Unit Management Plan	LOGG-T-FL-13	Sea turtle nesting surveys, nest marking, artificial lighting management, problem species removal, education, and beach management	State
Long Key State park Unit Management Plan	LOGG-T-FL-17	Sea turtle nesting surveys, nest marking, problem species removal, and beach management	State
Bahia Honda State Park Unit Management Plan	LOGG-T-FL-18	Sea turtle nesting surveys and nest marking	State
Casey Key Geotextile Core System draft HCP	LOGG-T-FL-20	Conduct construction and maintenance activities outside of sea turtle nesting season, construct geotube structure as far landward as possible, dune slope requirements, maintenance of sand over structure during nesting season,	Some private

BASILINE PROTECTION	UNIT	PROTECTIVE MEASURES	APPLICABLE LANDS
		escarpment remediation plan, artificial light management, equipment storage requirements, monitoring	
Stump Pass Beach State Park Unit Management Plan	LOGG-T-FL-21	Sea turtle nesting surveys, nest marking, education, problem species (raccoons) removal, and beach management	State
Don Pedro Island State Park Unit Management Plan	LOGG-T-FL-22	Sea turtle nesting surveys, nest marking, education, problem species removal, and beach management	State
Gasparilla Island State Park Unit Management Plan	LOGG-T-FL-23	Sea turtle nesting surveys, nest marking, terrestrial predator control, education, and beach management	State
Cayo Costa State Park Unit Management Plan	LOGG-T-FL-24	Sea turtle nesting surveys, nest marking, terrestrial predator control, and beach management	State
Delnor-Wiggins Pass State Park Unit Management Plan	LOGG-T-FL-28	Sea turtle nesting surveys, nest marking, terrestrial predator control, education, and beach management	State
Rookery Bay NERR management plan	LOGG-T-FL-30	Sea turtle nesting surveys, nest marking, terrestrial predator control, education, and beach management	State and some private
	LOGG-T-FL-31		
	LOGG-T-FL-32		
Thousand Island NWR Comprehensive Conservation Plan	LOGG-T-FL-32	Sea turtle nesting surveys, nest marking, and predator removal	Federal
Dry Tortugas National Park General Management Plan	LOGG-T-FL-36	Special protection zones	Federal
Lower Florida Keys National Wildlife Refuges Comprehensive Conservation Plan	LOGG-T-FL-37	Sea turtle nesting surveys, nest marking, debris removal, and predator removal	Federal
	LOGG-T-FL-38		
	LOGG-T-FL-39		
Gulf Islands National Seashore General Management Plan (currently being revised and a draft is under review by USFWS)	LOGG-T-FL-40	Existing plan includes controlling nonnative species; Draft revision includes sea turtle nest monitoring and closure areas around nests	Federal
	LOGG-T-MS-01		
	LOGG-T-MS-02		
Perdido Key State Park Unit Management Plan	LOGG-T-FL-40	Sea turtle nesting surveys, nest marking, terrestrial predator control, debris removal, artificial light reduction in adjacent developed areas, education, and beach management	State
T.H. Stone Memorial St. Joseph Peninsula State Park Unit Management Plan	LOGG-T-FL-42	Sea turtle nesting surveys, nest marking, terrestrial predator control, and beach management	State
St. Joseph Bay Aquatic Preserve Management Plan	LOGG-T-FL-42	Sea turtle nesting surveys, nest marking, education, and beach management	State
Gulf County draft HCP	LOGG-T-FL-42	For artificial lighting, beach driving, and other recreational activities: 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	Private
St. Joseph Bay State Buffer Preserve draft Management Plan	LOGG-T-FL-43	Predator control	State

BASILINE PROTECTION	UNIT	PROTECTIVE MEASURES	APPLICABLE LANDS
St. Vincent NWR draft Comprehensive Conservation Plan	LOGG-T-FL-44	Sea turtle nesting surveys, nest marking, education, minimizing human disturbance, predator removal, and other conservation efforts	Federal
Apalachicola National Estuarine Research Reserve Management Plan (currently being revised and a draft is under review by USFWS)	LOGG-T-FL-45	Existing plan includes sea turtle nesting surveys and controlling nonnative species; Draft revision includes sea turtle nesting surveys, nest marking, predator removal, education, and beach management	State
Dr. Julian G. Bruce St. George Island State Park Unit Management Plan	LOGG-T-FL-46	Sea turtle nesting surveys, nest marking, terrestrial predator control, debris removal, artificial light reduction in adjacent developed areas, education, and beach management	State
Conservation easement with The Nature Conservancy	LOGG-T-FL-47	Restricted development	Some private
Bon Secour NWR Comprehensive Conservation Plan	LOGG-T-AL-01	Sea turtle nesting surveys, nest marking, education, minimizing human disturbance, predator removal, and other conservation efforts	Federal
<p><b>Sources:</b> Proposed Critical Habitat Rule, 78 FR 18020-18040, March 25, 2013; U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. "Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle."</p> <p><b>Note:</b> For unit names, please refer to Exhibit 1-2 in Chapter 1 of this report.</p>			

89. In addition to the currently known final and draft plans and programs identified in Exhibit 3-1, two additional HCPs are expected to be implemented in the future. The first of these is a second HCP for the placement of a geotextile core system on Casey Key, Florida. The second geotextile core system HCP will cover the construction and maintenance of a 920-foot long geotextile container system meant to protect property from the effects of erosion. This structure is expected to be designed to minimize potential exposure and ensure that a minimum of three feet of sand will be maintained annually over the structure throughout sea turtle nesting season to provide suitable habitat for nesting turtles.<sup>50</sup>
90. The second expected HCP is the Florida Department of Environmental Protection's (FDEP's) statewide Florida Beaches HCP. This HCP has been under development since 2008 and will cover all activities permitted under Florida's Coastal Construction Control Line (CCCL) program on Florida's sandy beaches. These activities include:
- a. Coastal development;
  - b. Beach-dune restoration;
  - c. Coastal armoring;

<sup>50</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. "Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle."

- d. Dune walkovers;
- e. Mechanical beach cleaning;
- f. Sand fencing;
- g. Emergency response activities; and
- h. Special events.<sup>51</sup>

The HCP is expected to be finalized in 2016 and will provide comprehensive conservation statewide for 25 state and federally listed species, including the loggerhead.<sup>52</sup>

### 3.4 METHODOLOGY FOR EVALUATING IMPACTS TO SPECIES AND HABITAT MANAGEMENT

91. The USFWS and National Park Service (NPS) do not expect the proposed designation of critical habitat for the loggerhead to result in changes to the management plans for the National Wildlife Refuges, National Seashores, National Parks, and National Monuments within the study area.<sup>53,54</sup> However, Federal land managers will need to reinitiate consultation on their management plans at the time of critical habitat designation to evaluate the impact to loggerhead critical habitat. These consultations will require minimal administrative effort, likely in the form of an exchange of emails or a letter stating that the management plan is not likely to adversely modify critical habitat.<sup>55</sup> This analysis assumes that reinitiations on all management plans described in Exhibit 3-1 will occur in 2014 and will require a technical assistance level of effort.
92. Reinitiation of intra-Service section 7 consultation for existing HCPs is not automatic and would likely only occur when an incidental take permit holder seeks amendment of the incidental take permit. To avoid understating costs, we conservatively assume that the three final HCPs and two draft HCPs (which are likely to be approved prior to the final critical habitat designation) described in Exhibit 3-1 will undergo reinitiation of formal section 7 consultation in 2014. This analysis assumes that the HCPs will not be revised due to the designation of critical habitat for the loggerhead due to the substantive measures currently included in the HCPs to avoid impacts to the loggerhead. Therefore the incremental impact associated with reinitiation of consultation on the HCPs is limited

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<sup>51</sup> Florida Department of Environmental Protection, Chapter 4 - The CCL Program and Covered Activities, accessed at <http://www.flbeachshcp.com/drafts/Chapter%204-%20The%20CCL%20Program%20and%20Covered%20Activities.pdf> on May 13, 2013.

<sup>52</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. "Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle."

<sup>53</sup> Personal communication with Endangered Species Coordinator, National Park Service, on May 6, 2013.

<sup>54</sup> Personal communication with Chief of Southeast Region National Wildlife Refuges, U.S. Fish and Wildlife Service, on May 1, 2013.

<sup>55</sup> Personal communication with U.S. Fish and Wildlife Service biologist, on May 6, 2013.

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to administrative costs. The costs of reinitiation are assumed to be distributed equally across the proposed critical habitat units in the HCP coverage areas.

93. In addition to the reinitiation of consultation on existing final HCPs, USFWS will need to consult on the two anticipated future HCPs. USFWS expects the intra-Service consultation on the second Casey Key geotextile core system to occur in 2014 and the consultation on the statewide Florida Beaches HCP to occur in 2016. The designation of critical habitat for the loggerhead is not expected to change the conservation efforts described in the HCPs. In the case of the Florida Beaches HCP, the designation of critical habitat for the loggerhead may help focus where FDEP carries out restoration efforts for loggerhead habitat, but is not expected to result in any additional costs associated with restoration efforts.<sup>56</sup> Therefore, the incremental impact associated with consultation on two future HCPs is limited to the administrative costs associated with considering the adverse modification standard. These administrative costs are assumed to be distributed equally across the proposed critical habitat units in the HCP coverage area.
94. Land managers also engage in species and habitat management activities for the loggerhead outside of management plans and HCPs. We rely on historical section 7 consultation data to forecast future section 7 consultations on species and habitat management activities undertaken or permitted by Federal agencies including the NPS, USFWS, Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), and the Corps. Specifically, we obtained past section 7 consultation rates for the years 2008 through 2012 from USFWS' Tracking and Integrated Logging System (TAILS) database. USFWS provided IEc with information on all historical loggerhead consultations from 2008 through 2012, including the type of consultation (technical assistance, informal, or formal), location (proposed critical habitat unit), activity type, date, and Federal agency.<sup>57</sup>
95. Based on historical data, species and habitat management activities have occurred in the following proposed critical habitat units: LOGG-T-NC-01-08 in North Carolina; LOGG-T-SC-01-22 in South Carolina; LOGG-T-GA-01-08 in Georgia; LOGG-T-FL-01-47 in Florida; and LOGG-T-AL-01-03 in Alabama.<sup>58</sup> Using this data, we forecast future species and habitat management section 7 consultations over a ten-year period for each proposed critical habitat unit. For purposes of this analysis, we assume that the past rate and location of consultation on species and habitat management is reflective of the future rate and location of consultations.
96. The Bureau of Land Management (BLM) owns four tracts of beachfront in Alabama in proposed critical habitat unit LOGG-T-AL-01. BLM has indicated that activities

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<sup>56</sup> Personal communication with Habitat Conservation Planner, Florida Fish and Wildlife Conservation Commission, Division of Habitat and Species Conservation, on May 1, 2013.

<sup>57</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. TAILS report. April 22, 2013.

<sup>58</sup> Ibid.

requiring consultation with USFWS in the future may occur with greater frequency than the historical consultation rate. Over the next ten years, approximately one informal consultation is expected per year for either species and habitat management, or recreation.<sup>59</sup> At this time, specific activities are unknown, so the analysis assumes an equal likelihood that the consultation will be for species and habitat management or recreation.

97. One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit all occur in the area being proposed for designation. The cost associated with the consultation on the Florida Beaches HCP is assigned to the area proposed for designation in this unit because these costs will be borne by this unit whether or not the area in St. Johns County is excluded. On the other hand, the cost of reinitiating consultation on the St. Johns County HCP is assigned to the area considered for exclusion since this HCP applies specifically to the county being considered for exclusion.

#### 3.4.1 QUANTIFYING THE IMPACTS OF ADDITIONAL CONSERVATION EFFORTS

98. As described in Section 2.3.2, we anticipate that critical habitat designation will not generate additional recommendations for project modification. In addition, land managers such as the USFWS and NPS have indicated that they do not expect their species and habitat management activities to change due to the proposed designation of critical habitat for the loggerhead.<sup>60,61</sup> Accordingly, direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation.

#### 3.4.2 QUANTIFYING THE ADMINISTRATIVE COSTS

99. Once we establish a reasonably foreseeable forecast of consultations, we assign each consultation a likely level of administrative effort for USFWS, Federal action agency, and third party participants, where applicable. In previous economic analyses, IEc has applied a general section 7 consultation cost model based on surveys with Field Offices and Federal agencies conducted in 2002, and assumptions regarding the fraction of time spent considering jeopardy versus adverse modification (see Exhibit 2-1 in Chapter 2 of this report). We use this cost model for assigning level of effort (administrative cost) per consultation.

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<sup>59</sup> Personal communication with Biologist, Southeastern States Field Office, Bureau of Land Management, on April 17, 2013.

<sup>60</sup> Personal communication with Chief, Division of Planning and Resource Management, U.S. Fish and Wildlife Service, on May 1, 2013.

<sup>61</sup> Personal communication with Wildlife Biologist/Endangered Species Coordinator, National Park Service, on April 22, 2013.

### 3.5 RESULTS OF ANALYSIS

100. Exhibit 3-2 summarizes the total estimated administrative costs of species and habitat management consultations forecasted based on the above information for the ten-year timeframe of the analysis, from 2014 to 2023. Present value costs are discounted at a seven percent discount rate. These results represent the administrative costs associated with reinitiation of consultation on the Federal management plans and HCPs detailed in Exhibit 3-1, consultation on two future HCPs, consultation with BLM on their species and habitat management activities, and consultation on future species and management activities forecast using the historical rate of consultation.

**EXHIBIT 3-2. FORECAST SECTION 7 CONSULTATIONS FOR SPECIES AND HABITAT MANAGEMENT ACTIVITIES AND IMPACTS BY UNIT (2013\$, SEVEN PERCENT DISCOUNT RATE)**

PROPOSED CRITICAL HABITAT UNIT <sup>1,2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS			10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	FORMAL	INFORMAL	TECHNICAL ASSISTANCE	PRESENT VALUE	ANNUALIZED
<b>AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION</b>					
LOGG-T-NC-01-04, 06, 08	0.05	0.50	0.25	\$1,100	\$150
LOGG-T-NC-05	0.05	2.50	0.25	\$4,500	\$600
LOGG-T-NC-07	0.05	0.50	2.25	\$1,700	\$220
LOGG-T-SC-01, 02	0.05	2.09	0.00	\$3,700	\$500
LOGG-T-SC-03-05, 10-22	0.05	0.09	0.00	\$340	\$45
LOGG-T-SC-06-08	0.05	0.09	0.33	\$590	\$79
LOGG-T-SC-09	0.05	0.09	2.00	\$910	\$120
LOGG-T-GA-01, 04, 06, 07	0.05	1.50	0.25	\$2,800	\$370
LOGG-T-GA-02, 05	0.05	2.50	0.75	\$4,900	\$650
LOGG-T-GA-03	0.05	3.50	0.25	\$6,200	\$820
LOGG-T-GA-08	0.05	1.50	3.25	\$4,100	\$550
LOGG-T-FL-01, 08	0.02	0.71	0.00	\$1,300	\$170
LOGG-T-FL-04	0.52	0.71	0.00	\$6,000	\$790
LOGG-T-FL-06, 09	0.02	0.71	0.50	\$1,700	\$220
LOGG-T-FL-07	0.02	0.71	1.50	\$2,400	\$320
LOGG-T-FL-11	0.02	2.27	0.00	\$3,900	\$520
LOGG-T-FL-12, 32	0.02	0.27	1.00	\$1,300	\$170
LOGG-T-FL-13-18, 23-25, 27-31	0.02	0.27	0.00	\$550	\$73
LOGG-T-FL-19, 21, 22	0.02	0.04	0.00	\$160	\$21
LOGG-T-FL-20	2.02	0.04	0.00	\$14,000	\$1,900
LOGG-T-FL-26	0.02	2.27	4.00	\$5,100	\$670
LOGG-T-FL-33-35	1.35	1.61	0.00	\$7,500	\$1,000

PROPOSED CRITICAL HABITAT UNIT <sup>1,2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS			10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	FORMAL	INFORMAL	TECHNICAL ASSISTANCE	PRESENT VALUE	ANNUALIZED
LOGG-T-FL-36	0.02	2.27	1.00	\$4,700	\$620
LOGG-T-FL-37-39	0.02	0.27	0.33	\$800	\$110
LOGG-T-FL-40	0.02	4.79	1.08	\$8,700	\$1,200
LOGG-T-FL-41, 43, 45-47	0.02	0.79	0.75	\$1,600	\$220
LOGG-T-FL-42	1.02	0.79	0.75	\$11,000	\$1,500
LOGG-T-FL-44	0.02	6.79	1.75	\$13,000	\$1,700
LOGG-T-MS-01, 02	0.00	0.00	0.33	\$250	\$34
LOGG-T-AL-01	0.00	7.67	6.33	\$15,000	\$2,000
LOGG-T-AL-02	0.00	2.67	1.33	\$4,900	\$650
LOGG-T-AL-03	0.00	0.67	1.33	\$1,500	\$200
<b>TOTAL</b>	<b>10.41</b>	<b>76.6</b>	<b>40.5</b>	<b>\$200,000</b>	<b>\$26,000</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>					
LOGG-T-FL-01	0.33	0.00	0.00	\$3,100	\$420
LOGG-T-FL-02	0.35	0.71	0.00	\$4,400	\$590
LOGG-T-FL-03	0.35	0.71	1.00	\$5,200	\$690
LOGG-T-FL-05	0.52	0.71	0.00	\$6,000	\$790
LOGG-T-FL-10	1.02	0.27	2.50	\$11,000	\$1,400
<b>TOTAL</b>	<b>2.59</b>	<b>2.4</b>	<b>3.5</b>	<b>\$34,000</b>	<b>\$4,600</b>
<b>Notes:</b> 1. For unit names, please refer to Exhibit 1-2 in Chapter 1 of this report. 2. Information presented in this table is for each unit specified. In many cases multiple units have the same number of consultations and the same impacts, these units have been combined into one table entry. 2. The level of effort per consultation represents approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The unit cost estimates therefore may not sum to the total costs reported due to rounding.					

101. As shown in Exhibit 3-2, in the areas proposed for critical habitat designation, we anticipate that the greatest impacts on species and habitat management activities will occur in proposed critical habitat unit LOGG-T-AL-01 (Mobile Bay-Little Lagoon Pass, Baldwin County). This result is due to the relatively high number of forecast section 7 consultations in this unit, which include reinitiation of consultation on the Bon Secour NWR Comprehensive Conservation Plan as well as BLM and USFWS species and habitat management activities. In the areas being considered for exclusion, we anticipate that the greatest impacts on species and habitat management activities will occur in proposed critical habitat unit LOGG-T-FL-10. Costs in this unit are associated with the

reinitiation of consultations on the Indian River County HCP and Archie Carr NWR Comprehensive Conservation Plan.

### 3.6 ASSUMPTIONS AND LIMITATIONS

102. The economic impacts presented in this chapter are based on a number of assumptions that may affect the estimates. This section presents the key assumptions and the extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation. Exhibit 3-3 presents the key assumptions made and the potential bias they introduce in the analysis.

EXHIBIT 3-3. ASSUMPTIONS AND LIMITATIONS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
A portion of this analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>rates</i> of consultation activity concerning species and habitat management activities. This analysis assumes that past consultations provide a good indication of future activity.	<b>Unknown.</b> May overestimate or underestimate incremental impacts.	<b>Likely minor.</b> Data are not available to determine whether species and habitat management activities carried out or permitted by Federal agencies are likely to change over time. To the extent that these activities increase over the next ten years, our analysis underestimates the potential incremental administrative burden of critical habitat for the loggerhead. The estimated incremental impacts per consultation are, however, relatively minor and we accordingly do not anticipate variations in consultation rates to significantly change the findings of our analysis.
A portion of this analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>locations</i> of consultation activity for species and habitat management activities.	<b>Unknown.</b> May overestimate or underestimate incremental impacts in a given area.	<b>Likely minor.</b> In general, species and habitat management activities carried out or permitted by Federal agencies occur over large areas (e.g., a particular State) or within relatively small areas (e.g., a National Wildlife Refuge or National Seashore). Relying on the approximate location of past consultation activity may underestimate impacts in certain locations while overestimating impacts in others. However, in the case of species and habitat management this assumption is unlikely to have a significant impact on the findings of our analysis due to the fact the most likely locations of future activities are known and seem to be represented by the historical data.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit occur in the area being proposed for designation.</p>	<p>May result in an <b>overestimate</b> of costs in areas proposed for designation and an <b>underestimate</b> of costs in areas considered for exclusion.</p>	<p><b>Likely minor.</b> The effect of this assumption is limited to the distribution of impacts across areas proposed for designation and areas considered for exclusion in one proposed critical habitat unit in Florida. The forecast level of species and habitat management activity in this unit is minor (less than one consultation annually) and therefore the overall affect is likely minor.</p>

**CHAPTER 4 | IN-WATER AND COASTAL CONSTRUCTION****4.1 INTRODUCTION**

103. In-water structures such as jetties and groins, as well as armoring or erosion control structures along the shoreline, may cause accretion of sand on up-drift beaches and acceleration of erosion down-drift of the structures, resulting in beach instability that discourages loggerhead nesting. In addition, the structures themselves may interfere with nesting turtles or hatchlings. Similarly, coastal development, including pier, bridge, and road construction, may cause loss and degradation of suitable nesting habitat, and lead to armoring which causes changes in, additional loss of, or impacts to the remaining sea turtle nesting habitat. Lastly, construction, repair, and maintenance of upland structures and crossovers; installation of utility cables; and construction equipment associated with these activities may alter nesting habitat and/or directly harm adults, nests, and hatchlings.
104. This chapter presents information about the potential economic impacts of the proposed terrestrial critical habitat designation on construction activities. The analysis forecasts costs associated with anticipated future consultations on construction activities over the next ten years.

**KEY FINDINGS OF THE IN-WATER AND COASTAL CONSTRUCTION ANALYSIS****QUANTIFIED IMPACTS AND CONCLUSIONS:**

- ▲ For areas proposed for critical habitat designation, present value economic impacts of terrestrial critical habitat designation for the loggerhead on construction activities are approximately \$530,000 over the next ten years (seven percent discount rate). For areas being considered for exclusion, present value impacts are approximately \$68,000 over the next ten years (seven percent discount rate). These impacts reflect additional administrative effort as part of future section 7 consultations to consider the potential for these activities to adversely affect the critical habitat.
- ▲ USFWS' primary concerns relative to construction activities include interference of construction activities with nesting turtles or hatchlings, and loss or degradation of nesting habitat. Existing regulations and recommendations provide significant baseline protections to loggerhead terrestrial habitat. In particular, as part of section 7 consultation due to the listing of the species, USFWS makes recommendations to reduce disturbance of loggerheads during construction activities, including timing and site restrictions, lighting limits, and turtle monitoring.
- ▲ According to the USFWS, it is unlikely that future section 7 consultations would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the continued existence of the species. That is, USFWS anticipates that it is unlikely that critical habitat designation will generate a change in the outcome of future section 7 consultations due to the presence of critical habitat. This analysis accordingly does not forecast any changes to the scope, scale, or management of construction activities due to the critical habitat rule. Quantified direct incremental impacts of the designation are therefore limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of future section 7 consultations.

**GEOGRAPHIC DISTRIBUTION OF IMPACTS:**

- ▲ We forecast the greatest level of administrative costs for consultations on construction projects to be incurred in Florida in proposed critical habitat unit LOGG-T-FL-40 (Perdido Key, Escambia County), due to the relatively high number of forecast section 7 consultations in this unit, which include both Corps- and transportation-related activities.

**KEY UNCERTAINTIES:**

- ▲ While this analysis relies on the best available information regarding the potential location of future projects, the rate and locations of future projects are uncertain. Absent a specific activity forecast, we rely on the historical rate and distribution of activity to forecast the location and frequency of consultation on these projects over the next ten years.
- ▲ While USFWS anticipates it is unlikely that critical habitat designation will change the outcome of future section 7 consultations on construction activities, the final determination regarding recommended conservation efforts will be made at the time of individual consultations on projects or activities.
- ▲ Project proponents may experience indirect effects of the designation including costs associated with project delay due to litigation and the increased length of time it will take for USFWS to review projects. Forecasting the likelihood of third party litigation and potential length of associated project delays is considered too speculative to be quantified in this analysis. However, delays attributable to the additional time to consider critical habitat as part of future section 7 consultation, if any, would most likely be minor.

#### 4.2 SCOPE AND SCALE OF POTENTIAL FUTURE CONSTRUCTION ACTIVITIES

105. In general, in-water and coastal construction activities occurring in areas proposed for terrestrial critical habitat designation are either carried out or permitted by the Corps, and therefore have a Federal nexus that leads to section 7 consultation with USFWS. The U.S. Coast Guard (USCG) may also carry out construction activities associated with USCG facilities located near proposed critical habitat areas. Lastly, transportation projects involving Federal funding or those involving the Interstate Highway System are subject to section 7 consultation with USFWS through a Federal nexus with the Federal Highway Administration (FHWA).
106. In-water and coastal construction activities are likely to occur in proposed terrestrial critical habitat units in Alabama, Florida, Georgia, South Carolina, and North Carolina. We do not anticipate future construction activities in proposed critical habitat units in Mississippi as these units are part of the Gulf Islands National Seashore and are designated Wilderness Areas and Mississippi Coastal Preserves; furthermore, there are no plans for construction at this time in these units.<sup>62</sup> Section 4.5 of this chapter provides a specific forecast of future section 7 consultations associated with this activity over the ten year timeframe of the analysis.

#### 4.3 BASELINE REGULATION OF CONSTRUCTION ACTIVITIES

107. Many regulations provide baseline protection for the loggerhead within the areas being considered for proposed critical habitat designation. The primary protection for the loggerhead is the listing of the species under the Act; however, other regulations provide protections with respect to particular activities or within certain areas, as described below.

##### 4.3.1 FEDERAL MANAGEMENT

###### *Endangered Species Act*

108. The Endangered Species Act is the primary source of protection for the loggerhead and its habitat. The Act provides baseline protection for the loggerhead under sections 7, 9, and 10. In particular, section 7 of the Act requires Federal agencies to consult with USFWS to ensure that any action authorized, funded, or carried out will not jeopardize the continued existence of the loggerhead. The portion of the administrative costs of consultations under the jeopardy standard, along with the impacts of conservation efforts resulting from consideration of this standard, are considered baseline impacts.
109. USFWS currently consults on in-water and coastal construction projects that have an on-beach component within the areas being considered for terrestrial critical habitat. In general, USFWS will consult with Federal agencies on a per-project basis.
110. In the past, USFWS has recommended various measures to minimize the impact of construction on the loggerhead. Measures regularly recommended by USFWS in consultation to minimize the impact of construction activities include:

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<sup>62</sup> Personal communication with Endangered Species Coordinator, National Park Service, on May 13, 2013.

- Conduct work outside of the main part of the sea turtle nesting season;
- Use beach compatible sand;
- Monitoring and remediation for sand compaction and escarpment formation;
- Implement lighting management to minimize the potential for disorientations of nesting turtles and hatchlings;
- Site coastal construction projects, including coastal armoring structures, as far landward as practicable to minimize impacts to nesting habitat, nesting sea turtles, nests, and emerging hatchlings;
- For sloped geotextile revetment armoring structures, ensure a minimum of 3 feet of beach compatible sand over the entire structure to be present prior to and maintained throughout each sea turtle nesting season; and
- Conduct educational programs for and distribute educational materials to residents and/or visitors to minimize disturbance to nesting sea turtles, nests, and emerging hatchlings.<sup>63</sup>

111. USFWS would recommend measures similar to those described above for construction projects carried out within the areas proposed for critical habitat designation.<sup>64</sup> These measures are considered baseline impacts and would be recommended regardless of critical habitat designation.

#### National Environmental Policy Act

112. Federal agencies and others using Federal funds or assets must comply with the requirements of the National Environmental Policy Act (NEPA) to assess the environmental impacts of major Federal projects or decisions such as issuing permits, spending Federal money, or affecting Federal lands.<sup>65</sup> An Environmental Impact Statement (EIS) is prepared and made available for public comment for projects that the Federal agency views as having potentially significant environmental impacts. In-water construction activities have typically been subject to NEPA, and associated EISs have considered potential environmental impacts, including impacts on the loggerhead.

#### Clean Water Act

113. Section 404 of the Clean Water Act requires parties to obtain a permit from the Corps prior to discharging dredge or fill material into “water of the United States.”<sup>66</sup> In-water and coastal construction activities occurring within the study area for this analysis may

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<sup>63</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. “Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle.” See Appendix D.

<sup>64</sup> Ibid.

<sup>65</sup> 40 CFR Part 6

<sup>66</sup> 16 U.S.C. § 1344.

require section 404 permitting. The Corps' review of projects for the issuance of section 404 permits requires section 7 consultation with USFWS under the Act to the extent that a project may affect listed species or critical habitat. As part of the section 404 permit process, the Corps reviews the potential effects of the proposed action on plant and animal populations and recommends efforts to avoid adverse effects to these populations in addition to the wetlands themselves. In general, conservation efforts for plants and animals include:

- Select sites or manage discharges to ensure that habitat remains suitable for indigenous species;
- Avoid sites having unique habitat or other value, including habitat of threatened or endangered species;
- Utilize habitat development and restoration techniques to minimize adverse impacts and compensate for destroyed habitat;
- Time discharge to avoid biologically critical time periods; and
- Avoid the destruction of remnant natural sites within areas already affected by development.<sup>67</sup>

114. These conservation efforts would be required by the Corps for section 404 permits regardless of critical habitat designation.<sup>68</sup> Accordingly, impacts of implementing these conservation efforts provide baseline protection to the loggerhead.

#### Rivers and Harbors Act

115. Section 10 of the Rivers and Harbors Act regulates the construction of any structure in or over any navigable water of the United States, as well as the excavating from or depositing of material in such waters and the accomplishment of any other work affecting the course, location, condition, or capacity of such waters.<sup>69</sup> Under Section 10, these projects require approval from the Corps and are subject permit requirements. The permit review process includes adherence to 404(b)(1) guidelines. These guidelines, established by the EPA, constitute the substantive environmental criteria used in evaluating activities regulated under Section 404 of the Clean Water Act.<sup>70</sup> For example, projects must be evaluated to identify appropriate and practicable changes to the project plan to minimize environmental impact of the discharges. Accordingly, permit conditions associated with section 10 permits provide baseline protection for the loggerhead and its habitat.

#### Coastal Zone Management Act

116. The Coastal Zone Management Act (CZMA) of 1972 provides for management of the nation's coastal resources and balances economic development with environmental

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<sup>67</sup> 40 C.F.R § 230.75.

<sup>68</sup> Ibid.

<sup>69</sup> 33 U.S.C. §403

<sup>70</sup> 40 CFR § 230.1

conservation. The CZMA emphasizes the primacy of state decision-making regarding the coastal zone. The National Coastal Zone Management Program authorized by the CZMA is a voluntary partnership between the Federal government and coastal states. The program is administered at the Federal level by NOAA's Office of Ocean and Coastal Resource Management, but allows states to design programs that best address their unique coastal challenges and laws and regulations. Currently 34 states have approved coastal management programs, including all of the states with areas being considered for terrestrial critical habitat designation.<sup>71</sup> Provisions of these programs that provide specific protection to the areas considered for terrestrial critical habitat designation are discussed in greater detail in the State Regulations Section below.

117. The National Coastal Zone Management Program includes a number of components that may provide protection to the loggerhead. The Federal consistency provision ensures that Federal actions, including federally authorized and funded actions, with reasonably foreseeable effects on coastal uses and resources must be consistent with the policies of a state's approved coastal management program. The Coastal Zone Enhancement Program provides incentives to states to enhance their coastal zone management programs within nine key areas including special area management planning, energy and government facility siting, and aquaculture. The Coastal and Estuarine Land Conservation Program provides funding to states and local governments to purchase valuable coastal lands.<sup>72</sup>

#### 4.3.2 STATE MANAGEMENT

118. In addition to the Federal protections described above, various state agencies have management programs that provide protections to the loggerhead and its habitat with respect to construction activities. This section describes these protections insofar as they apply to the areas being proposed for terrestrial critical habitat.

##### State Environmental Agencies

119. States environmental agencies in North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi have various protections in place for endangered species, including approved coastal management programs under the CZMA that provide protection to the loggerhead turtle and its habitat. In general, state coastal management programs provide some protection to the loggerhead and its habitat through the components described above (e.g., Federal consistency and establishment of reserves). This section describes in more detail the protections provided by these plans that are relevant to the areas being considered for terrestrial critical habitat designation for the loggerhead.

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<sup>71</sup> NOAA, Coastal Zone Management Program. Coastal Programs: Partnering with States to Manage Our Coastline. Retrieved from <http://coastalmanagement.noaa.gov/programs/czm.html>.

<sup>72</sup> Ibid.

North Carolina

120. The North Carolina Department of Environment and Natural Resources implements the North Carolina Coastal Area Management Act, which requires that project proponents receive a permit for any sort of development within an Area of Environmental Concern, which includes ocean and estuarine beaches. Particular attention is given to coastal areas that provide habitat for plant or animal species that the Federal government has determined to be rare, threatened or endangered. The permitting process considers whether a proposed project meets the Coastal Resources Commission rules and the local government's land-use plan and includes an agency and public comment period.<sup>73</sup> North Carolina's policies may provide protection for loggerhead critical habitat on state beaches.

South Carolina

121. South Carolina Department of Health and Environmental Control's (DHEC) Office of Ocean and Coastal Resource Management (OCRM) is responsible for managing coastal development activities through the South Carolina Coastal Management Program. Implementation of the program includes the direct regulation of impacts to coastal resources, including beaches and beach dune systems. One of the goals of the state's Beachfront Management Plan is to protect endangered species habitat, which involves coordinating with the South Carolina Wildlife and Marine Resources Department to identify endangered species and habitat areas, and evaluating permits or certification requests for beachfront activities with respect to their impact on endangered species.<sup>74</sup>
122. In addition, South Carolina Department of Natural Resources (SCDNR) oversees the SC Marine Turtle Conservation Program, through which it carries out research, management, monitoring, and education activities for the conservation of sea turtles.<sup>75</sup> In addition, SCDNR's Nongame and Endangered Species Conservation Act of 1976 affords protection of state and Federally listed endangered and threatened species. Under the Act, SCDNR reviews beach construction projects and makes recommendations to Federal or state permitting agencies as to the timing and extent of the project, in order to avoid negative impacts to sea turtles.

Georgia

123. Georgia Department of Natural Resources' (GDNR) Coastal Resources Division implements the state's Coastal Management Program. The program includes policies for managing activities that have a reasonably foreseeable effect on coastal resources, including development. Development activities are subject to the numerous provisions including those of the Shore Protection Act, Coastal Marshlands Protection Act, Georgia

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<sup>73</sup> North Carolina Department of Environment and Natural Resources, Division of Coastal Management. CAMA Handbook for Development in Coastal North Carolina. Viewed on <http://dcm2.enr.state.nc.us/Handbook/contents.htm> February 16, 2013.

<sup>74</sup> S.C. Code Section 48-39-10 et seq.

<sup>75</sup> South Carolina Department of Natural Resources. SC Marine Turtle Conservation Program. Retrieved from <http://www.dnr.sc.gov/seaturtle/leg.htm> on May 6, 2013.

Water Quality Control Act, and Georgia Endangered Wildlife Act. The program designates "Special Management Areas," which may include regulatory or permit requirements applicable only to the area of particular concern. Barrier islands have been designated as a Special Management Area, as have beaches, dunes, and the sand-sharing system. Policies in place to protect this Special Management Area, which may also provide protection loggerhead habitat include the Endangered Wildlife Act, Georgia Oil and Gas and Deep Drilling Act, and Shore Protection Act.<sup>76</sup>

124. In addition, GDNR signed a Memorandum of Agreement with the U.S. Fish and Wildlife Service, National Park Service, St. Catherine's 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.<sup>77</sup>

#### Florida

125. Florida Department of Environmental Protection's (FDEP) Coastal Management Program is comprised of 24 statutes that protect and enhance the state's natural, cultural, and economic coastal resources. These include protections for fish and wildlife, giving particular attention to those species defined as endangered or threatened. Florida's Joint Coastal Permit Program regulates coastal construction activities on Florida's natural sandy beaches, ensuring that construction activities do not degrade water quality or damage marine resources.<sup>78</sup>
126. FDEP's Rule 62B-33.0051 specifies that coastal armoring construction must include certain protective measures to avoid impacts to "viable marine turtle habitat."<sup>79</sup> Specifically, the rule states:

To minimize adverse impacts to the beach and dune system, adjacent properties, and marine turtles, the shore-normal extent of armoring which protrudes seaward of the dune escarpment, vegetation line, or onto the active beach shall be limited to minimize encroachment on the beach. In areas with viable marine turtle habitat, the highest part of any toe scour

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<sup>76</sup> Georgia Department of Natural Resources, Coastal Resources Division. 1997. Georgia Coastal Management Program Final Environmental Impact Statement.

<sup>77</sup> Proposed Critical Habitat Rule, 78 FR 18000, March 25, 2013.

<sup>78</sup> Florida Department of Environmental Protection, Coastal Management Program. 2012. Florida Coastal Management Program Guide. Retrieved from [http://www.dep.state.fl.us/cmp/publications/fcmp\\_guide\\_Feb\\_2012.pdf](http://www.dep.state.fl.us/cmp/publications/fcmp_guide_Feb_2012.pdf).

<sup>79</sup> Florida Administrative Code, Rule 62B-33.0051.

protection shall be located to minimize encroachment into marine turtle nesting habitat.<sup>80</sup>

According to FDEP, the designation of critical habitat will not change how this rule or other construction management activities are implemented.<sup>81</sup>

127. In addition, FDEP is currently in the process of developing the Florida Beaches Habitat Conservation Plan. This HCP aims to protect state and federally listed species potentially affected by activities permitted by FDEP under its CCCL Program. The CCCL program is the principal program used by the State of Florida to regulate construction activities on Florida's sandy beach-dune system, including condominiums, beachfront resorts, shopping centers, restaurants, single-family projects, non-habitable structures, and recreational structures. FDEP anticipates that the HCP will provide various baseline protections for the loggerhead and its habitat.<sup>82</sup>

#### Alabama

128. Alabama Department of Environmental Management's (ADEM) Coastal Area Management Program includes regulation of projects having the potential to impact Alabama's coastal resources. This includes the review and permitting of beach and dune construction projects, developments and subdivision of properties greater than five acres in size, the siting of energy facilities, and other various activities which may have an impact on coastal resources. Alabama's policies focus on protecting coastal areas and emphasis is given to avoiding activities that alter the natural environment if alternatives exist.<sup>83</sup>

#### Mississippi

129. Mississippi's Coastal Program is comprised of a network of agencies with authority in the coastal zone. The lead agency implementing the program is the Mississippi Department of Marine Resources (MDMR), through the Office of Coastal Ecology. The program is responsible for reviewing proposed projects for Federal consistency, and strives to effectively preserve, conserve, restore, and manage the coastal ecosystems, including the state's barrier islands.

#### State Transportation Agencies

130. Transportation projects involving Federal funding or those involving the Interstate Highway System are subject to section 7 consultation with USFWS. In general,

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<sup>80</sup> Ibid.

<sup>81</sup> Personal communication with Program Administrator, Coastal Construction Control Line Permitting, Florida Department of Environmental Protection, on May 1, 2013.

<sup>82</sup> Personal communication with Habitat Conservation Planner, Florida Fish and Wildlife Conservation Commission and Coastal Construction Control Line Administrator, Florida Department of Environmental Protection on May 1, 2013.

<sup>83</sup> Alabama Department of Environmental Management. 2012. Coastal Area Management Program Division 335-8. ADEM Admin. Code R. 335-8. April.

regardless of the presence of listed species or critical habitat, state departments of transportation incorporate measures that are protective of listed species and their habitat into their management plans and operating procedures. For example, according to Alabama Department of Transportation (ALDOT), various environmental protections are required on all transportation projects, including the requirement that contractors keep fully informed of all Federal and State laws, all local laws, ordinances, and regulations, and observe and comply with such laws.<sup>84</sup> In addition, ALDOT has specific procedures for construction discharge management, including BMP and control measure implementation.<sup>85</sup> Similarly, South Carolina Department of Transportation (SCDOT) ensures compliance with Federal policies such as NEPA, CWA, and the Act.<sup>86</sup> As part of this process, SCDOT's Environmental Management Office conducts site visits to investigate and determine if any endangered species are within the project area; identifies any wetland areas to minimize and avoid impacts; and determines what impacts proposed projects may have on water resources and what permits are needed.<sup>87</sup>

131. In addition, all road crossings of Federal waters are subject to section 7 consultation, as they are permitted by the Corps pursuant to section 404 of the CWA.

#### 4.3.3 LOCAL MANAGEMENT

132. Various county HCPs address in-water and coastal construction, including the Florida Beaches Draft HCP, Indian River County HCP, Gulf County Draft HCP, St. Johns County HCP, and Volusia County HCP. These plans are described in greater detail in Chapter 3 of this report.

#### 4.4 METHODOLOGY FOR EVALUATING IMPACTS TO CONSTRUCTION ACTIVITIES

133. To identify the direct incremental impacts of the designation to construction activities, we forecast the number of future section 7 consultations. To do this, we contacted the agencies likely to be involved in section 7 consultations on construction activities, and requested information regarding planned future construction activities in the proposed critical habitat areas. These agencies include the Corps, USCG, and state departments of transportation.
134. The following state transportation agencies provided information regarding future transportation projects likely to involve Federal funding or permitting in the proposed critical habitat areas in their respective states: FDOT, ALDOT, and SCDOT. ALDOT provided information for the ten-year timeframe of the analysis, while FDOT and SCDOT provided information on projects planned for the next five years. According to

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<sup>84</sup> Personal communication with Environmental Program Engineer, ALDOT, on May 6, 2013.

<sup>85</sup> Ibid.

<sup>86</sup> South Carolina Department of Transportation. *Environmental Management*. Retrieved from [http://www.scdot.org/inside/enviro\\_manage.aspx](http://www.scdot.org/inside/enviro_manage.aspx) on May 6, 2013.

<sup>87</sup> Ibid.

ALDOT, approximately two informal section 7 consultations are anticipated to occur on transportation projects in proposed critical habitat unit LOGG-T-AL-01 over the next ten years.<sup>88</sup> According to FDOT, transportation projects involving section 7 consultation are planned for the next five years in the following proposed critical habitat units: LOGG-T-FL-01-06, 10-21, 23, 25, and 26.<sup>89</sup> According to SCDOT, two informal section 7 consultations on transportation projects are likely to occur over the next five years for units LOGG-T-SC-09 and 16.<sup>90</sup> Using the forecasts provided by ALDOT, FDOT, and SCDOT, and information provided on the likely level of consultation (formal, informal, or technical assistance), we forecast future section 7 consultations on transportation activities for the appropriate proposed critical habitat units. The results of this forecast are presented in Section 4.5 of this chapter.

135. We were unable to obtain information regarding future transportation projects from NCDOT; however, we reviewed the state's Draft State Transportation Improvement Program (STIP), which contains information on projects planned for the years 2013 through 2023.<sup>91</sup> Based on NCDOT's Draft STIP, we identified planned future Federal bridge projects occurring near proposed critical habitat units LOGG-T-NC-01, 03, 05, and 07. We conservatively assume that each of these projects will involve formal section 7 consultation. The results of this forecast are presented in Section 4.5 of this chapter.
136. According to Georgia Department of Transportation (GADOT), the designation is not likely to affect transportation activities in Georgia because there are no roads planned in the areas proposed for critical habitat designation.<sup>92</sup> While MSDOT did not provide information on future transportation projects, the proposed critical habitat units in this state are located on barrier islands and are not near any major roadways or bridges. Therefore, it is unlikely that there will be future transportation projects in the proposed critical habitat units in these states, and consequently we do not forecast future transportation-related section 7 consultation in these units.
137. In addition to the section 7 consultations on transportation projects identified in this section, we also forecast future consultations on construction activities undertaken by or permitted by the Corps. At the time of the writing of this analysis, we were unable to obtain information from the Corps regarding anticipated levels of activity within areas proposed for terrestrial critical habitat designation. For the purposes of this analysis, we therefore rely on historical section 7 consultation data to forecast future section 7

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<sup>88</sup> Personal communication with Alabama Department of Transportation on April 29, 2013.

<sup>89</sup> Personal communication with Florida Department of Transportation on April 25, 2013.

<sup>90</sup> Personal communication with South Carolina Department of Transportation on April 26, 2013.

<sup>91</sup> North Carolina Department of Transportation. September 2012. Draft STIP. Retrieved from [https://connect.ncdot.gov/projects/planning/Planning%20Document%20Library/Draft%202012%20State%20Transportation%20Improvement%20Program%20\(STIP\).PDF](https://connect.ncdot.gov/projects/planning/Planning%20Document%20Library/Draft%202012%20State%20Transportation%20Improvement%20Program%20(STIP).PDF).

<sup>92</sup> Personal communication with Georgia Department of Transportation on May 13, 2013.

consultations on activities undertaken or permitted by the Corps. Specifically, we obtained past section 7 consultation rates for the years 2008 through 2012 from USFWS' TAILS database. USFWS provided IEc with information on all historical loggerhead consultations from 2008 through 2012, including the type of consultation (technical assistance, informal, or formal), location (proposed critical habitat unit), activity type, date, and Federal agency.<sup>93</sup>

138. Based on historical data from 2008-2012, Corps-related construction activities have occurred in the following proposed critical habitat units: in Alabama in LOGG-T-AL-01 and 02; in Florida in LOGG-T-FL-01, 03, 08, 10, 11, 13-15, 19, 21, 25, 28-31, and 40-47; in Georgia in LOGG-T-GA-08; and in South Carolina in LOGG-T-SC-09 and 10.<sup>94</sup> Using this data, we forecast future construction-related section 7 consultations over a ten-year period for each proposed critical habitat unit. For purposes of this analysis, we assume that the past rate and location of consultation on construction activities is reflective of the future rate and location of consultations on average. According to a Regional Environmental Specialist in the Corps' South Atlantic Division, historical data on consultations undertaken by the Corps during the past five years is likely to be a good indication of future levels of activity.<sup>95</sup> The assumption that the geographical distribution of the past consultation efforts is also indicative of future efforts remains an uncertainty of the analysis, as described in section 4.6.
139. Lastly, we contacted USCG to determine whether or not it anticipates future section 7 consultations associated with maintenance or development of USCG facilities in areas proposed for terrestrial critical habitat designation. USCG identified three USCG facilities where construction-related activities may require section 7 consultation with USFWS: USCG Station Pascagoula, USCG Station Ponce de Leon Inlet, and USCG Station Pensacola.<sup>96</sup> USCG was unable to identify how often and how many activities may be undertaken in the future that would involve section 7 consultation with USFWS. We therefore rely on historical TAILS data to forecast future section 7 activities with USCG. For purposes of this analysis, we assume that the past rate and location of consultation on construction activities is reflective of the future rate and location of consultations on average. The assumption that the geographical distribution of the past consultation efforts is also indicative of future efforts remains an uncertainty of the analysis, as described in section 4.6.
140. One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for

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<sup>93</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. TAILS report. April 22, 2013.

<sup>94</sup> Ibid.

<sup>95</sup> Personal communication with Regional Environmental Specialist, South Atlantic Division, U.S. Army Corps of Engineers, on May 9, 2013.

<sup>96</sup> Personal communication with Environmental Protection Specialist, U.S. Coast Guard Headquarters, on May 30, 2013.

exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit all occur in the area being proposed for designation. This may result in an overestimate of impacts to construction activities in areas proposed for critical habitat designation.

#### 4.4.1 QUANTIFYING THE IMPACTS OF ADDITIONAL CONSERVATION EFFORTS

141. As described in Section 2.3.2, we anticipate that critical habitat designation will not generate additional recommendations for project modification. Accordingly, direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation.
142. In addition to the direct incremental impacts of critical habitat designation, potential exists for indirect impacts: that is, impacts of the designation that may occur outside of the section 7 consultation process. We are not aware of any state or local requirements of loggerhead critical habitat conservation (although there are many regulations pertaining to protection of the loggerhead itself, as described in section 4.3). There is, however, another type of indirect effect that may stem from the designation, which occurs when project proponents, land managers and landowners may face time delays, regulatory uncertainty, and stigma as a result of critical habitat.
143. USCG and the Corps have expressed concern that the critical habitat designation may result in project delays.<sup>97,98</sup> However, the indirect incremental costs that may result from such effects are highly uncertain. Project delays may increase costs in two ways. First, the value of a project is maximized if its benefits are realized as soon as possible and its costs are postponed as long as possible. Any change in schedule that results in benefits being postponed or costs incurred sooner than necessary will reduce the present value of the project. Second, time delays can result in additional logistical costs that would not have been necessary if the project had progressed according to its anticipated schedule. Examples of logistical costs include the extra expense of renting equipment during delays and costs to secure and hold financing.
144. This analysis does not quantify potential indirect incremental impacts of loggerhead terrestrial critical habitat. Forecasting the likelihood of third party litigation and potential length of project delays is considered too speculative for this analysis. We assume that delays attributable to the designation of critical habitat for the loggerhead would be minor since critical habitat is unlikely to generate recommendations for additional conservation efforts. Therefore, the incremental impact associated with time delays on new projects

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<sup>97</sup> Personal communication with Environmental Planning Team Lead United States Coast Guard Headquarters on May 8, 2013.

<sup>98</sup> Personal communication with Regional Environmental Specialist, U.S Army Corps of Engineers, South Atlantic Division on May 9, 2013.

would be limited to the additional time necessary to complete the analysis of adverse modification of critical habitat. We do quantify the actual time spent on the analysis of adverse modification as a direct administrative cost of the regulation, as described in the following section.

#### 4.4.2 QUANTIFYING THE ADMINISTRATIVE COSTS

145. Once we establish a reasonably foreseeable forecast of consultations, we assign each consultation a likely level of administrative effort for USFWS, Federal action agency, and third party participants, where applicable. In previous economic analyses, IEc has applied a general section 7 consultation cost model based on surveys with Field Offices and Federal agencies conducted in 2002, and assumptions regarding the fraction of time spent considering jeopardy versus adverse modification (see Exhibit 2-1 in Chapter 2 of this report). We use this cost model for assigning level of effort (administrative cost) per consultation.

#### 4.5 RESULTS OF ANALYSIS

146. Exhibit 4-1 summarizes the total estimated administrative costs of construction-related consultations forecasted based on the above information for the ten-year timeframe of the analysis, from 2014 to 2023. Present value costs are discounted at a seven percent discount rate.

EXHIBIT 4-1. FORECAST SECTION 7 CONSULTATIONS FOR CONSTRUCTION ACTIVITIES AND IMPACTS BY UNIT (2013\$, SEVEN PERCENT DISCOUNT RATE)

PROPOSED CRITICAL HABITAT UNIT <sup>1,2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS			10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	FORMAL	INFORMAL	TECHNICAL ASSISTANCE	PRESENT VALUE	ANNUALIZED
<b>AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION</b>					
LOGG-T-NC-01, 05, 07	1.00	0.00	0.00	\$4,700	\$620
LOGG-T-NC-03	2.00	0.00	0.00	\$9,400	\$1,200
LOGG-T-SC-09	0.00	4.40	0.00	\$8,000	\$1,100
LOGG-T-SC-10	0.00	0.00	2.00	\$570	\$76
LOGG-T-SC-16	0.00	2.40	0.00	\$4,600	\$610
LOGG-T-GA-08	0.00	2.00	0.00	\$3,400	\$450
LOGG-T-FL-01	0.00	6.80	0.00	\$13,000	\$1,700
LOGG-T-FL-04	1.20	7.20	0.00	\$19,000	\$2,500
LOGG-T-FL-06	0.00	4.20	0.00	\$8,000	\$1,100
LOGG-T-FL-08	2.00	0.00	2.00	\$7,600	\$1,000
LOGG-T-FL-11	4.00	3.60	2.00	\$22,000	\$2,900
LOGG-T-FL-12, 20	0.00	6.00	0.00	\$11,000	\$1,500
LOGG-T-FL-13	6.00	7.59	0.00	\$35,000	\$4,700

PROPOSED CRITICAL HABITAT UNIT <sup>1,2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS			10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	FORMAL	INFORMAL	TECHNICAL ASSISTANCE	PRESENT VALUE	ANNUALIZED
LOGG-T-FL-14	4.00	9.59	0.00	\$32,000	\$4,200
LOGG-T-FL-15	2.00	7.59	0.00	\$21,000	\$2,800
LOGG-T-FL-16, 26	0.00	1.20	0.00	\$2,300	\$310
LOGG-T-FL-17, 18	0.00	1.80	0.00	\$3,400	\$460
LOGG-T-FL-19	2.00	4.80	2.00	\$17,000	\$2,200
LOGG-T-FL-21	2.00	6.00	0.00	\$19,000	\$2,500
LOGG-T-FL-23	0.00	3.60	0.00	\$6,900	\$920
LOGG-T-FL-25	0.00	3.20	0.00	\$5,700	\$760
LOGG-T-FL-28, 31	0.00	2.00	0.00	\$3,400	\$450
LOGG-T-FL-29	8.00	0.00	0.00	\$28,000	\$3,700
LOGG-T-FL-30	2.00	0.00	0.00	\$7,000	\$940
LOGG-T-FL-40	10.40	13.60	30.50	\$72,000	\$9,500
LOGG-T-FL-41	9.20	8.00	8.17	\$49,000	\$6,500
LOGG-T-FL-42	0.00	4.00	12.17	\$10,000	\$1,400
LOGG-T-FL-43	0.00	0.00	1.17	\$330	\$44
LOGG-T-FL-44	0.00	0.00	2.50	\$710	\$94
LOGG-T-FL-45	0.00	0.00	0.50	\$140	\$19
LOGG-T-FL-46	0.00	4.00	3.50	\$7,800	\$1,000
LOGG-T-FL-47	0.00	0.00	1.50	\$430	\$57
LOGG-T-AL-01	2.00	22.00	8.00	\$47,000	\$6,200
LOGG-T-AL-02	0.00	12.00	0.00	\$20,000	\$2,700
<b>TOTAL</b>	<b>59.8</b>	<b>170.58</b>	<b>76</b>	<b>\$530,000</b>	<b>\$70,000</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>					
LOGG-T-FL-02	0.00	6.00	0.00	\$11,000	\$1,500
LOGG-T-FL-03	2.00	6.00	0.00	\$19,000	\$2,500
LOGG-T-FL-05	0.00	4.20	0.00	\$8,000	\$1,100
LOGG-T-FL-10	2.00	12.00	0.00	\$30,000	\$4,000
<b>TOTAL</b>	<b>4</b>	<b>3.6</b>	<b>0</b>	<b>\$68,000</b>	<b>\$9,100</b>
<b>Notes:</b>					
1. For unit names, please refer to Exhibit 1-2 in Chapter 1 of this report.					
2. Information presented in this table is for each unit specified. In many cases multiple units have the same number of consultations and the same impacts, these units have been combined into one table entry.					
3. The level of effort per consultation represents approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The unit cost estimates therefore may not sum to the total costs reported due to rounding.					

147. As shown in Exhibit 4-1, in the areas proposed for critical habitat designation, we anticipate that the greatest impacts on construction activities will occur in proposed critical habitat unit LOGG-T-FL-40 (Perdido Key, Escambia County). This is due to the relatively high number of forecast section 7 consultations in this unit, which include both Corps-related activities (forecast based on historical activity in this unit) as well as planned future transportation projects as reported by FDOT. In the areas being considered for exclusion, we anticipate that the greatest impacts on construction activities will occur in proposed critical habitat unit LOGG-T-FL-10 (Sebastian Inlet – Indian River Shores, Indian River County), also due to the fact that we forecast section 7 consultations both for Corps- and transportation-related activities.

#### 4.6 ASSUMPTIONS AND LIMITATIONS

148. The economic impacts presented in this chapter are based on a number of assumptions that may affect the estimates. This section presents the key assumptions and the extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation. Exhibit 4-2 presents the key assumptions made and the potential bias they introduce in the analysis.

EXHIBIT 4-2. ASSUMPTIONS AND LIMITATIONS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future rates of consultation activity for construction-related activities. This analysis assumes that past consultations provide a good indication of future activity.	<b>Unknown.</b> May overestimate or underestimate incremental impacts.	<b>Likely minor.</b> Data are not available to determine whether construction activities carried out or permitted by the Corps and USCG are likely to change over time. To the extent that these activities increase over the next ten years, our analysis underestimates the potential incremental administrative burden of critical habitat for the loggerhead. The estimated incremental impacts per consultation are, however, relatively minor and we accordingly do not anticipate variations in consultation rates to significantly change the findings of our analysis.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>locations</i> of consultation activity for construction-related activities.</p>	<p><b>Unknown.</b> May overestimate or underestimate incremental impacts in a given area.</p>	<p><b>Potentially major.</b> Although the expected rate of consultation on construction activities carried out or permitted by the Corps and USCG is not likely to vary significantly from year to year, the location of these consultations may change. As a result, relying on the approximate location of past consultation activity may underestimate impacts in certain locations while overestimating impacts in others.</p>
<p>One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit occur in the area being proposed for designation.</p>	<p>May result in an <b>overestimate</b> of costs in areas proposed for designation and an <b>underestimate</b> of costs in areas considered for exclusion.</p>	<p><b>Likely minor.</b> The effect of this assumption is limited to the distribution of impacts across areas proposed for designation and areas considered for exclusion in one proposed critical habitat unit in Florida. The forecast level of construction activity in this unit is minor (less than two consultations annually) and therefore the overall affect is likely minor.</p>
<p>This analysis does not quantify potential indirect impacts associated with time delay.</p>	<p>May result in an <b>underestimate</b> of costs.</p>	<p><b>Likely minor.</b> For new projects, Federal agencies will be required to consult with USFWS due to the presence of the loggerhead. Therefore, the indirect incremental impact associated with time delay on new projects would be limited to any costs (e.g., additional cost of renting equipment) incurred specifically during the additional time necessary to complete the analysis of adverse modification of critical habitat.</p>

**CHAPTER 5 | SAND PLACEMENT ACTIVITIES****5.1 INTRODUCTION**

149. As described in the Proposed Rule, substantial amounts of sand are deposited along Gulf of Mexico and Atlantic Ocean beaches to prevent erosion, overwash, island migration, and other natural processes.<sup>99</sup> While sand placement activities can result in increased nesting on severely eroded sections of beach where little or no suitable nesting habitat previously existed, it can also have negative effects on the suitability of nesting habitat, most likely as a result of changes in physical beach characteristics (beach profile, sediment grain size, beach compaction, frequency and extent of escarpments). However, as described in the Proposed Rule, 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 and, if incorporated, the sand placement projects are not expected to result in adverse modification of critical habitat.
150. This chapter presents information about the potential economic impacts of the proposed terrestrial critical habitat designation on sand placement activities. The analysis forecasts costs associated with anticipated future consultations on sand placement activities over the next ten years.

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<sup>99</sup> Proposed Critical Habitat Rule, 78 FR 18010, March 25, 2013.

### KEY FINDINGS OF THE SAND PLACEMENT ACTIVITIES ANALYSIS

#### QUANTIFIED IMPACTS AND CONCLUSIONS:

- ▲ For areas proposed for critical habitat designation, present value economic impacts of terrestrial critical habitat designation for the loggerhead on sand placement activities are approximately \$270,000 over the next ten years (seven percent discount rate). For areas being considered for exclusion, present value impacts are approximately \$2,500 over the next ten years (seven percent discount rate). These impacts reflect additional administrative effort as part of future section 7 consultations to consider the potential for these activities to adversely affect the critical habitat.
- ▲ USFWS' primary concern relative to sand placement activities is the negative effect on the suitability of nesting habitat as a result of changes in physical beach characteristics. Existing regulations and recommendations provide significant baseline protections to loggerhead terrestrial habitat. In particular, as part of section 7 consultation due to the listing of the species, USFWS makes recommendations to reduce disturbance of loggerheads during sand placement activities, including timing restrictions, sand specifications, lighting limits, and turtle monitoring.
- ▲ According to the USFWS, it is unlikely that future section 7 consultations would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the continued existence of the species. That is, USFWS anticipates that it is unlikely that critical habitat designation will generate a change in the outcome of future section 7 consultations due to the presence of critical habitat. This analysis accordingly does not forecast any changes to the scope, scale, or management of sand placement activities due to the critical habitat rule. Quantified direct incremental impacts of the designation are therefore limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of future section 7 consultations.

#### GEOGRAPHIC DISTRIBUTION OF IMPACTS:

- ▲ We forecast the greatest level of administrative costs for consultations on sand placement projects to be incurred in LOGG-T-NC-03 (Topsail Island, Onslow and Pender Counties). This is due to the relatively high number of forecast section 7 consultations in this unit, based on information provided by the Corps' Wilmington District and the Bureau of Ocean Energy Management (BOEM).

#### KEY UNCERTAINTIES:

- ▲ While this analysis relies on the best available information regarding the potential location of future projects, the rate and locations of future projects are uncertain. Absent a specific activity forecast, we rely on the historical rate and distribution of activity to forecast the location and frequency of consultation on these projects over the next ten years.
- ▲ While USFWS anticipates it is unlikely that critical habitat designation will change the outcome of future section 7 consultations on construction activities, the final determination regarding recommended conservation efforts will be made at the time of individual consultations on projects or activities.
- ▲ Project proponents may experience indirect effects of the designation including costs associated with project delay due to litigation and the increased length of time it will take for USFWS to review projects. Forecasting the likelihood of third party litigation and potential length of associated project delays is considered too speculative to be quantified in this analysis. However, delays attributable to the additional time to consider critical habitat as part of future section 7 consultation, if any, would most likely be minor.

## 5.2 SCOPE AND SCALE OF POTENTIAL FUTURE SAND PLACEMENT ACTIVITIES

151. In general, sand placement activities in the areas proposed for terrestrial critical habitat designation are undertaken by the Corps. As described in Section 5.4 of this chapter, due to lack of information on specific future sand placement projects in certain areas proposed for critical habitat designation, we rely on historical data on section 7 consultations to forecast future section 7 consultations. Based on this historical data, we anticipate that future sand placement activities will occur in proposed critical habitat units in Alabama, Florida, and South Carolina. In addition, we received information from the Corps' Wilmington District, the Bureau of Ocean Energy Management (BOEM), and the USFWS South Carolina Field Office regarding known future sand placement activities occurring in areas overlapping proposed critical habitat in North Carolina, South Carolina, and Alabama. We also received information from the Corps' Jacksonville District regarding the likely reinitiation of a Statewide Programmatic Biological Opinion (SPBO) to the Corps for Shore Protection Activities in Florida, which is described in more detail in section 5.3.1. The historical data does not contain sand placement consultations in Georgia or Mississippi, and we therefore do not forecast future sand placement-related section 7 consultations in proposed critical habitat in these states.
152. Section 5.5 of this chapter provides a specific forecast of future section 7 consultations associated with this activity over the ten year timeframe of the analysis.

## 5.3 BASELINE REGULATION OF SAND PLACEMENT ACTIVITIES

153. Many regulations provide baseline protection for the loggerhead within the areas being considered for proposed critical habitat designation. The primary protection for the loggerhead is the listing of the species under the Act; however, other regulations provide protections with respect to particular activities or within certain areas, as described below.

### 5.3.1 FEDERAL MANAGEMENT

#### Endangered Species Act

154. As described in Section 4.3.1, the Endangered Species Act is the primary source of protection for the loggerhead and its habitat and provides baseline protection for the loggerhead. USFWS currently consults on sand placement projects within the areas being considered for terrestrial critical habitat. In general, USFWS will consult with Federal agencies on a per-project basis. However, in 2011, USFWS issued a SPBO to the Corps for Shore Protection Activities in Florida, which addresses the impacts of planning and regulatory sand placement activities on the loggerhead. USFWS expects that consultation on the SPBO will be reinitiated to incorporate consideration of the terrestrial critical habitat.<sup>100</sup> Therefore, we include costs associated with this reinitiation in our section 7 consultation forecasts presented in Section 5.5 of this chapter.

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<sup>100</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. "Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle." See Appendix D.

155. Measures recommended by USFWS in the SPBO and other section 7 consultations on sand placement to minimize the impact of sand placement on the loggerhead include:
- Use beach compatible sand;
  - Conduct work outside of the period of peak sea turtle egg laying and egg hatching in some areas;
  - Remove all derelict concrete, metal, and coastal armoring geotextile material and other debris prior to any sand placement to the maximum extent possible;
  - Incorporate certain design specifications when restoring or creating dunes;
  - Conduct daily surveys for sea turtle nests;
  - Conduct monitoring and remediation for sand compaction and escarpments after completion of the project;
  - Implement lighting management to minimize the potential for disorientations of nesting turtles and hatchlings; and
  - Conduct educational programs for and distribute educational materials to residents and/or visitors to minimize disturbance to nesting sea turtles, nests, and emerging hatchlings.<sup>101</sup>
156. USFWS would likely recommend measures similar to those described above for sand placement projects carried out within the areas proposed for critical habitat designation.<sup>102</sup> These measures are considered baseline impacts and would be recommended regardless of critical habitat designation.<sup>103</sup>

#### Clean Water Act

157. Section 404 of the Clean Water Act requires parties to obtain a permit from the Corps prior to discharging dredge or fill material into “water of the United States.”<sup>104</sup> In-water and coastal construction activities occurring within the study area for this analysis may require section 404 permitting. The Corps’ review of projects for the issuance of section 404 permits requires section 7 consultation with USFWS under the Act to the extent that a project may affect listed species or critical habitat. As part of the section 404 permit process, the Corps reviews the potential effects of the proposed action on plant and animal populations and recommends efforts to avoid adverse effects to these populations

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<sup>101</sup> U.S. Fish and Wildlife Service. August 22, 2011. Revised Statewide Programmatic Biological Opinion for the U.S. Army Corps of Engineers Planning and Regulatory Sand Placement Activities in Florida.

<sup>102</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. “Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle.” See Appendix D.

<sup>103</sup> Note that while these measures are all considered standard, not all measures may be applicable to every project depending on the type of project and its location.

<sup>104</sup> 16 U.S.C. § 1344.

in addition to the wetlands themselves. In general, conservation efforts for plants and animals include:

- Select sites or manage discharges to ensure that habitat remains suitable for indigenous species;
- Avoid sites having unique habitat or other value, including habitat of threatened or endangered species;
- Utilize habitat development and restoration techniques to minimize adverse impacts and compensate for destroyed habitat;
- Time discharge to avoid biologically critical time periods; and
- Avoid the destruction of remnant natural sites within areas already affected by development.<sup>105</sup>

158. These conservation efforts would be required by the Corps for section 404 permits regardless of critical habitat designation.<sup>106</sup> Accordingly, impacts of implementing these conservation efforts provide baseline protection to the loggerhead.

#### Rivers and Harbors Act

159. Section 10 of the Rivers and Harbors Act regulates the construction of any structure in or over any navigable water of the United States, as well as the excavating from or depositing of material in such waters and the accomplishment of any other work affecting the course, location, condition, or capacity of such waters.<sup>107</sup> Under Section 10, these projects require approval from the Corps and are subject permit requirements. The permit review process includes adherence to 404(b)(1) guidelines. These guidelines, established by the EPA, constitute the substantive environmental criteria used in evaluating activities regulated under Section 404 of the Clean Water Act.<sup>108</sup> For example, projects must be evaluated to identify appropriate and practicable changes to the project plan to minimize environmental impact of the discharges. Accordingly, permit conditions associated with section 10 permits provide baseline protection for the loggerhead and its habitat.

#### Coastal Zone Management Act

160. Please refer to section 4.3.1 of this report for information on the baseline protections afforded by the CZMA.

#### 5.3.2 STATE MANAGEMENT

161. In addition to the Federal protections described above, various state agencies have management programs that provide protections to the loggerhead and its habitat with

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<sup>105</sup> U.S. Fish and Wildlife Service. August 22, 2011. Revised Statewide Programmatic Biological Opinion for the U.S. Army Corps of Engineers Planning and Regulatory Sand Placement Activities in Florida.

<sup>106</sup> *Ibid.*

<sup>107</sup> 33 U.S.C. §403

<sup>108</sup> 40 CFR § 230.1

respect to sand placement activities. The coastal management programs described in Chapter 4 contain protective measures relevant to sand placement activities; see Section 4.3.2 of this report for more information on these programs in North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi.

#### 5.4 METHODOLOGY FOR EVALUATING IMPACTS TO SAND PLACEMENT ACTIVITIES

162. To identify the direct incremental impacts of the designation to sand placement activities, we forecast the number of future section 7 consultations. As described in Section 5.3, USFWS expects that the SPBO on sand placement activities in Florida will be reinitiated to consider potential impacts to critical habitat. According to the SPBO, the Corps and USFWS will reinitiate consultation on the SPBO every five years.<sup>109</sup> Therefore, we forecast two programmatic reinitiations during the ten-year timeframe of the analysis: one in 2014, following critical habitat designation, and one in 2019. We assume that consultation with USFWS will not be necessary on any individual sand placement projects in Florida due to the existence of the SPBO.<sup>110</sup> We split the costs associated with the consultations on the SPBO across all of the proposed critical habitat units in Florida. Note that one of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit all occur in the area being proposed for designation. This may result in an overestimate of impacts to sand placement activities in areas proposed for critical habitat designation.
163. We expect that sand placement activities will also occur in other areas of the proposed critical habitat designation not covered by the SPBO. To determine the potential level of future sand placement activities in Mississippi, Alabama, Georgia, South Carolina, and North Carolina, we contacted the Corps and requested information regarding planned future activities in the proposed terrestrial critical habitat areas. The Corps' Wilmington District provided information about planned future sand placement activities for the proposed critical habitat units in North Carolina. In several proposed critical habitat units, the Corps has consulted with the Service on navigation disposal and sand placement projects. The Corps expects these consultations will be reinitiated following designation of critical habitat. Specifically, reinitiations are expected in LOGG-T-NC-01 associated with four navigation disposal projects; in LOGG-T-NC-03 associated with four navigation disposal projects; in LOGG-T-NC-05 associated with one navigation disposal project and two sand placement projects; in LOGG-T-NC-07 associated with one

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<sup>109</sup> U.S. Fish and Wildlife Service. August 22, 2011. Revised Statewide Programmatic Biological Opinion for the U.S. Army Corps of Engineers Planning and Regulatory Sand Placement Activities in Florida.

<sup>110</sup> While there is an opportunity for project proponents to "opt out" of the SPBO and conduct separate individual project consultations, the Service believes they are more likely to conduct consultations under the SBPO.

navigation disposal project; and in LOGG-T-NC-08 associated with one navigation disposal project.<sup>111,112</sup>

164. In addition, several projects are currently in the “study phase” and the Corps expects that these projects will undergo section 7 consultation with the Service. Specifically, consultations are expected in LOGG-T-NC-03, 07, and 08 associated with three, two, and one sand placement projects, respectively.<sup>113</sup> While the Corps is uncertain when these consultations will occur, we conservatively assume that consultations will occur in 2014 following designation of critical habitat. In addition, while the Corps is uncertain whether these consultations will be formal or informal in nature, we conservatively assume that the consultations will be formal.
165. Sand placement projects generally require renourishment over time. The Army Corps’ Wilmington District states that the sand placement projects they authorize have varying renourishment intervals depending on the project, but generally require renourishment every three to four years.<sup>114</sup> This analysis conservatively assumes that Army Corps sand placement projects will require renourishment every three years. On the other hand, navigation dredging and the associated disposal projects are contingent upon factors including navigation needs and funding and are not expected to occur at regular intervals.<sup>115</sup> The Service expects to coordinate with Army Corps on renourishment projects to determine if the renourishment fits under the existing consultation.<sup>116</sup> Therefore, this analysis assumes that an informal consultation will be necessary for renourishment projects every three years after the initial consultation.
166. Some of the sand placement projects undertaken or authorized by the Corps use sand from offshore borrow areas regulated by BOEM. BOEM provided information about planned future sand placement projects using offshore sand. Specifically, consultation on one project in unit LOGG-T-NC-01 is expected to occur in 2015 with renourishment in 2018 and 2021, one project in units LOGG-T-NC-02 and 03 is expected to occur in 2018, one project in unit LOGG-T-SC-09 is expected to occur in 2014 with renourishment in 2020, and one project in units LOGG-T-AL-01, 02, and 03 is expected to occur in 2014

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<sup>111</sup> Personal communication with Doug Piatkowski, Corps Wilmington District, on 5/23/13 and 5/28/13.

<sup>112</sup> In addition, the Corps’ Wilmington District expressed concern that consultations reinitiated as a result of the designation of critical habitat may be subject to new terms and conditions because USFWS has recently updated their “template” biological opinion for sand placement projects. While the terms and conditions requested are not expected to change due to the designation of critical habitat, the designation does necessitate reinitiation of the consultation earlier than may otherwise be required. Thus, the timing of implementation of the new terms and conditions may be earlier due to the designation of critical habitat and some incremental impacts may result.

<sup>113</sup> Personal communication with Doug Piatkowski, Corps Wilmington District, on 5/23/13 and 5/28/13.

<sup>114</sup> Personal communication with Doug Piatkowski, Corps Wilmington District, on 5/28/13.

<sup>115</sup> *Ibid.*

<sup>116</sup> Personal communication with the U.S. Fish and Wildlife Service biologist on December 17, 2013.

with renourishment in 2017, 2020, and 2023.<sup>117</sup> We assume that all of the initial consultations will be formal and consultations on renourishment activities will be informal. Where a project is expected to overlap more than one unit, we divide the cost equally across the units. If the timing of a project is unknown, we conservatively assume that the project will occur in 2014 with renourishment every three years.

167. BOEM also provided information on future sand placement projects that are expected to use offshore sand located in areas outside of the proposed terrestrial critical habitat. BOEM and the Corps may consult with the Service on whether these projects jeopardize the loggerhead, but consultation on adverse modification of critical habitat is not expected.<sup>118</sup> Therefore, we do not include these projects in this analysis.
168. Lastly, the USFWS South Carolina Field Office indicated that consultation on one future sand placement project in unit LOGG-T-SC-16 is likely.<sup>119</sup> As described above, we conservatively assume that this consultation will occur in 2014 and is formal. Additionally, we assume that renourishment will occur every three years and will require informal consultation with the Service.
169. In addition to the information obtained on planned future sand placement projects, we rely on historical section 7 consultation data from USFWS' TAILS database from 2008 to 2012. Based on this data, Corps-related sand placement activities have occurred in the following proposed critical habitat units: in Alabama in LOGG-T-AL-01, 02, and 03; and in South Carolina in LOGG-SC-10 and 11.<sup>120,121</sup>
170. For purposes of this analysis, we assume that the past rate and location of consultation on sand placement is reflective of the future rate and location of consultations on average. According to a Regional Environmental Specialist in the Corps' South Atlantic Division, historical data on consultations undertaken by the Corps during the past five years is likely to be a good indication of future levels of activity.<sup>122</sup> The assumption that the geographical distribution of the past consultation efforts is also indicative of future efforts remains an uncertainty of the analysis, as described in section 5.6.

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<sup>117</sup> Personal communication with Megan Butterworth, BOEM Division of Environmental Assessment, on 11/15/2013.

<sup>118</sup> Personal communication with Geoffrey Wikel, BOEM Division of Environmental Assessment, on 11/21/2013.

<sup>119</sup> Personal communication with the U.S. Fish and Wildlife Service, South Carolina Field Office, on July 25, 2013.

<sup>120</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. TAILS report. April 22, 2013.

<sup>121</sup> While historical sand placement consultations between USFWS and the Corps have also occurred in proposed critical habitat units in Florida, we do not forecast future sand placement consultations based on TAILS data, as we assume that future Corps sand placement projects in Florida are covered by the SPBO described in Section 5.3.1.

<sup>122</sup> Personal communication with Regional Environmental Specialist, South Atlantic Division, U.S. Army Corps of Engineers, on May 9, 2013.

#### 5.4.1 QUANTIFYING THE IMPACTS OF ADDITIONAL CONSERVATION EFFORTS

171. As described in Section 2.3.2, we anticipate that critical habitat designation will not generate additional recommendations for project modification. As such, direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation.
172. In addition to the direct incremental impacts of critical habitat designation, potential exists for indirect impacts: that is, impacts of the designation that may occur outside of the section 7 consultation process. We are not aware of any state or local requirements of loggerhead critical habitat conservation (although there are many regulations pertaining to protection of the loggerhead itself, as described in section 5.3). There is, however, another type of indirect effect that may stem from the designation, which occurs when project proponents, land managers and landowners may face time delays, regulatory uncertainty, and stigma as a result of critical habitat.
173. The Corps has expressed concern that the critical habitat designation may result in project delays.<sup>123</sup> However, the indirect incremental costs that may result from such effects are highly uncertain. Project delays may increase costs in two ways. First, the value of a project is maximized if its benefits are realized as soon as possible and its costs are postponed as long as possible. Any change in schedule that results in benefits being postponed or costs incurred sooner than necessary will reduce the present value of the project. Second, time delays can result in additional logistical costs that would not have been necessary if the project had progressed according to its anticipated schedule. Examples of logistical costs include the extra expense of renting equipment during delays and costs to secure and hold financing.
174. This analysis does not quantify potential indirect incremental impacts of loggerhead terrestrial critical habitat. Forecasting the likelihood of third party litigation and potential length of project delays is considered too speculative for this analysis. We assume that delays attributable to the designation of critical habitat for the loggerhead would be minor since critical habitat is unlikely to generate recommendations for additional conservation efforts. Therefore, the incremental impact associated with time delay on new projects would be limited to the additional time necessary to complete the analysis of adverse modification of critical habitat. We do quantify the actual time spent on the analysis of adverse modification as a direct administrative cost of the regulation, as described in the following section.

#### 5.4.2 QUANTIFYING THE ADMINISTRATIVE COSTS

175. Once we establish a reasonably foreseeable forecast of consultations, we assign each consultation a likely level of administrative effort for USFWS, Federal action agency, and third party participants, where applicable. In previous economic analyses, IEc has applied

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<sup>123</sup> Personal communication with Regional Environmental Specialist, U.S Army Corps of Engineers, South Atlantic Division on May 9, 2013.

a general section 7 consultation cost model based on surveys with Field Offices and Federal agencies conducted in 2002, and assumptions regarding the fraction of time spent considering jeopardy versus adverse modification (see Exhibit 2-1 in Chapter 2 of this report). We use this cost model for assigning level of effort (administrative cost) per consultation.

#### 5.5 RESULTS OF ANALYSIS

176. Exhibit 5-1 summarizes the total estimated administrative costs of sand placement-related consultations forecasted based on the above information for the ten-year timeframe of the analysis, from 2014 to 2023. Present value costs are discounted at a seven percent discount rate.

EXHIBIT 5-1. FORECAST SECTION 7 CONSULTATIONS FOR SAND PLACEMENT ACTIVITIES AND IMPACTS BY UNIT (2013\$, SEVEN PERCENT DISCOUNT RATE)

PROPOSED CRITICAL HABITAT UNIT <sup>1, 2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS				10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	PROGRAMMATIC	FORMAL	INFORMAL	TECHNICAL ASSISTANCE	PRESENT VALUE	ANNUALIZED
<b>AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION</b>						
LOGG-T-NC-01	0.00	5.00	2.00	0.00	\$45,000	\$6,000
LOGG-T-NC-02	0.00	0.50	0.00	0.00	\$1,800	\$240
LOGG-T-NC-03	0.00	7.50	9.00	0.00	\$67,000	\$8,900
LOGG-T-NC-05	0.00	3.00	6.00	0.00	\$37,000	\$5,000
LOGG-T-NC-07	0.00	3.00	6.00	0.00	\$28,000	\$3,700
LOGG-T-NC-08	0.00	2.00	3.00	0.00	\$19,000	\$2,500
LOGG-T-SC-09	0.00	1.00	1.00	0.00	\$6,200	\$820
LOGG-T-SC-10, 11	0.00	1.00	0.00	0.00	\$3,500	\$470
LOGG-T-SC-16	0.00	1.00	3.00	0.00	\$9,200	\$1,200
LOGG-T-FL-01, 04, 06-09, 11-47	0.04	0.00	0.00	0.00	\$610	\$82
LOGG-T-AL-01	0.00	1.00	4.00	2.00	\$11,000	\$1,500
LOGG-T-AL-02	0.00	1.00	2.00	0.00	\$7,100	\$950
LOGG-T-AL-03	0.00	1.00	1.00	0.00	\$5,400	\$720
<b>TOTAL</b>	<b>1.83</b>	<b>28.00</b>	<b>37.00</b>	<b>2.00</b>	<b>\$270,000</b>	<b>\$36,000</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>						
LOGG-T-FL-02, 03, 05, 10	0.04	0.00	0.00	0.00	\$610	\$82
<b>TOTAL</b>	<b>0.17</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>\$2,500</b>	<b>\$330</b>
<b>Notes:</b>						
1. For unit names, please refer to Exhibit 1-2 in Chapter 1 of this report.						
2. Information presented in this table is for each unit specified. In many cases multiple units have the same number of consultations and the same impacts, these units have been combined into one table entry.						
3. The level of effort per consultation represents approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The unit cost estimates therefore may not sum to the total costs reported due to rounding.						

177. As shown in Exhibit 5-1, in the areas proposed for critical habitat designation, we anticipate that the greatest impacts on sand placement activities will occur in proposed critical habitat unit LOGG-T-NC-03 (Topsail Island, Onslow and Pender Counties). This result is due to the relatively high number of forecast section 7 consultations in this unit, based on information provided by the Corps' Wilmington District and BOEM. In the areas being considered for exclusion, we anticipate that costs will be the same in all units; the costs are attributed to the reinitiations of the SPBO in 2014 and 2019.

## 5.6 ASSUMPTIONS AND LIMITATIONS

178. The economic impacts presented in this chapter are based on a number of assumptions that may affect the estimates. This section presents the key assumptions and the extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation. Exhibit 5-2 presents the key assumptions made and the potential bias they introduce in the analysis.

EXHIBIT 5-2. ASSUMPTIONS AND LIMITATIONS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>rates</i> of consultation activity for Corps-related activities. This analysis assumes that past consultations provide a good indication of future activity.	<b>Unknown.</b> May overestimate or underestimate incremental impacts.	<b>Likely minor.</b> Data are not available to determine whether sand placement activities carried out or permitted by the Corps are likely to change over time. To the extent that these activities increase over the next ten years, for example due to an increase in storm activity and sea level rise, our analysis underestimates the potential incremental administrative burden of critical habitat for the loggerhead. The estimated incremental impacts per consultation are, however, relatively minor and we accordingly do not anticipate variations in consultation rates to significantly change the findings of our analysis.
This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>locations</i> of consultation activity for Corps-related activities.	<b>Unknown.</b> May overestimate or underestimate incremental impacts in a given area.	<b>Potentially major.</b> Although the expected rate of consultation on sand placement activities carried out or permitted by the Corps is not likely to vary significantly from year to year, the location of these consultations may change. As a result, relying on the approximate location of past consultation activity may underestimate impacts in certain locations while overestimating impacts in others.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit occur in the area being proposed for designation.</p>	<p>May result in an <b>overestimate</b> of costs in areas proposed for designation and an <b>underestimate</b> of costs in areas considered for exclusion.</p>	<p><b>Likely minor.</b> The effect of this assumption is limited to the distribution of impacts across areas proposed for designation and areas considered for exclusion in one proposed critical habitat unit in Florida. The forecast annual level of consultations in this unit is minor (less than one consultation annually) and therefore the overall affect is likely minor.</p>
<p>This analysis does not quantify potential indirect impacts associated with time delay.</p>	<p>May result in an <b>underestimate</b> of costs.</p>	<p><b>Likely minor.</b> For new projects, the Corps will be required to consult with USFWS due to the presence of the loggerhead. Therefore, the indirect incremental impact associated with time delay on new projects would be limited to any costs (e.g., additional cost of renting equipment) incurred specifically during the additional time necessary to complete the analysis of adverse modification of critical habitat.</p>

**CHAPTER 6 | ADDITIONAL ACTIVITIES****6.1 INTRODUCTION**

179. This chapter presents information about the potential economic impact of the proposed terrestrial critical habitat designation on recreation (Section 6.2), lighting management (Section 6.3), disaster response (Section 6.4), oil and gas activities (Section 6.5), and offshore renewable energy (Section 6.6). The analysis forecasts costs associated with anticipated future consultations on these activities over the next ten years. Section 6.7 presents the key assumptions and the extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation on each of these additional activities.

**KEY FINDINGS OF THE ADDITIONAL ACTIVITIES ANALYSIS****QUANTIFIED IMPACTS AND CONCLUSIONS:**

- ▲ Recreation: For areas proposed for critical habitat designation, present value economic impacts of terrestrial critical habitat designation for the loggerhead on recreation activities are approximately \$120,000 over the next ten years (seven percent discount rate). For areas being considered for exclusion, present value impacts are approximately \$21,000 over the next ten years (seven percent discount rate).
- ▲ Lighting Management: For areas proposed for critical habitat designation, present value economic impacts of terrestrial critical habitat designation for the loggerhead on lighting management activities are approximately \$32,000 over the next ten years (seven percent discount rate). For areas being considered for exclusion, present value impacts are approximately \$370 over the next ten years (seven percent discount rate).
- ▲ Disaster Response: For areas proposed for critical habitat designation, present value economic impacts of terrestrial critical habitat designation for the loggerhead on disaster response activities are approximately \$53,000 over the next ten years (seven percent discount rate). For areas being considered for exclusion, present value impacts are approximately \$4,900 over the next ten years (seven percent discount rate).
- ▲ Oil and Gas: For areas proposed for critical habitat designation, present value economic impacts of terrestrial critical habitat designation for the loggerhead on disaster response activities are approximately \$6,600 over the next ten years (seven percent discount rate). For areas being considered for exclusion, present value impacts are approximately \$140 over the next ten years (seven percent discount rate).
- ▲ Offshore Renewable Energy: No offshore renewable energy projects are forecast over the next 10 years and therefore no costs associated with consultation on such activities are anticipated. If a project does occur, the Army Corps may need to consult with USFWS on adverse modification of terrestrial loggerhead critical habitat if cables that transmit electricity from offshore facilities to onshore electrical substations transverse the areas proposed for designation.
- ▲ According to the USFWS, it is unlikely that future section 7 consultations would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the continued existence of the species. That is, USFWS anticipates that it is unlikely that critical habitat designation will generate a change in the outcome of future section 7 consultations due to the presence of critical habitat. This analysis accordingly does not forecast any changes to the scope, scale, or implementation of species and habitat management activities due to the critical habitat rule. Quantified direct incremental impacts of the designation are therefore limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of future section 7 consultations.

**GEOGRAPHIC DISTRIBUTION OF IMPACTS:**

- ▲ We forecast the greatest level of administrative costs for consultations on these activities to be incurred in Florida in proposed critical habitat unit LOGG-T-FL-07 (Canaveral National Seashore South-Merritt Island National Wildlife Refuge (NWR)-Kennedy Space, Brevard County). This is due to the relatively high number of forecast section 7 consultations in this unit for recreation activities, based on both historical rates of consultation between 2008 and 2012 and on information provided by USFWS regarding the likely level of future consultation with USCG.

**KEY UNCERTAINTIES:**

- ▲ While this analysis relies on the best available information regarding the potential location of future projects, the rate and locations of future projects are uncertain. This analysis relies in part on the historical rate and distribution of activity to forecast the location and frequency of consultation on these projects over the next ten years.
- ▲ While USFWS anticipates it is unlikely that critical habitat designation will change the outcome of future section 7 consultations on construction activities, the final determination regarding recommended conservation efforts will be made at the time of individual consultations on projects or activities.

## 6.2 RECREATION

180. Beach cleaning, beach driving, human presence, and recreational beach equipment can all reduce the quality of nesting habitat. These activities may also deter nesting by adult females and/or impede hatchlings during their nest-to-sea migration. This section presents information about the potential economic impacts of the proposed terrestrial critical habitat designation on recreation. The analysis forecasts costs associated with anticipated future consultations on recreation activities over the next ten years.

### 6.2.1 SCOPE AND SCALE OF POTENTIAL FUTURE RECREATION ACTIVITIES

181. In general, recreation activities affecting areas proposed for terrestrial critical habitat designation are likely to be permitted or undertaken by USCG or the NPS. However, other agencies (for example, BLM) may enter into consultation with USFWS on recreation-related activities as well.
182. USCG issues marine event permits for boat regattas, firework displays, boat parades, fishing tournaments, sailboat races, and other marine events. While these events take place in the water, they have the potential to affect loggerhead terrestrial habitat. For example, USFWS has consulted with USCG in the past on boat races that include beach viewing areas, as these events have resulted in trampling of nests.<sup>124</sup> In addition, NPS manages recreation activities occurring within the following areas overlapping proposed critical habitat: Cumberland Island National Seashore (LOGG-T-GA-07, 08), Fort Matanzas National Monument (LOGG-T-FL-03), Canaveral National Seashore (LOGG-T-FL-06, 07), Everglades National Park (LOGG-T-FL-33-35), Dry Tortugas National Park (LOGG-T-FL-36), and Gulf Islands National Seashore (LOGG-T-MS-01, 02; LOGG-T-FL-40).
183. We anticipate future section 7 consultations in all NPS-managed areas, as well as in proposed critical habitat units where consultations have historically occurred for other recreation activities, including those with USCG. Section 6.2.3 provides a specific forecast of future section 7 consultations associated with recreation activities over the ten-year timeframe of the analysis.

### 6.2.2 BASELINE REGULATION OF RECREATION ACTIVITIES

184. Federal, State, and local regulations provide baseline protection for the loggerhead within areas proposed for critical habitat designation. The primary protection for the loggerhead is the listing of the species under the Act; however, other regulations provide protections with respect to recreation activities, as described below.

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<sup>124</sup> U.S. Fish and Wildlife Service. March 15, 1994. Biological Opinion on The Greater Jacksonville Offshore Grand Prix Festival, Duval County.

#### U.S. Coast Guard

185. USCG manages marine events conducted in navigable waters of the U.S. through their Marine Event Permitting program. According to Title 33, Part 100.15 of the Code of Federal Regulations, “an individual or organization planning to hold a regatta or marine parade which by its nature, circumstances, or location will introduce extra or unusual hazards to the safety of life on the navigable waters of the United States, shall submit an application to the Coast Guard.”<sup>125</sup> Such events include boat regattas, firework displays (on or near waterways), boat parades, fishing tournaments, sailboat races, and other marine events. USCG requires that applicants contact USFWS prior to submitting their application to the USCG for approval and include feedback from the agency in their application.<sup>126</sup>

#### Endangered Species Act

186. As described in Section 4.3.1, the Endangered Species Act is the primary source of protection for the loggerhead and its habitat and provides baseline protection for the loggerhead. USFWS currently consults on recreation activities within the areas being considered for terrestrial critical habitat. In general, USFWS will consult with Federal agencies on a per-project basis. However, in 2010 USFWS issued a “Guidance to Proceed” to the U.S. Coast Guard for marine events occurring in several of the Florida counties containing proposed critical habitat, including Indian River, St. Lucie, Palm Beach, Broward, Monroe, Collier, Lee, Charlotte, and Sarasota.<sup>127</sup> Specifically, USFWS provided USCG with guidance and subsequent clearance to proceed with marine events in these counties.<sup>128</sup> We anticipate that the Guidance to Proceed will be reinitiated following designation of critical habitat, and forecast costs associated with this consultation, as presented in Section 6.2.3.
187. In the Guidance to Proceed, USFWS recommended various measures to minimize the impact of recreation activities on the loggerhead, including:
- Conduct a sea turtle awareness meeting prior to the event for all event officials and participants to inform all parties of the potential presence of sea turtles and the civil and criminal penalties that could result from the harassment, injury, or death of these species;
  - Distribute sea turtle educational packages to each event participant;

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<sup>125</sup> 33 U.S.C. § 100.15

<sup>126</sup> United States Coast Guard, District 8, Marine Event Permits. *FAQs*. Retrieved from [http://www.uscg.mil/d8/sectUMR/Response/docs/marine\\_event%20fags01.pdf](http://www.uscg.mil/d8/sectUMR/Response/docs/marine_event%20fags01.pdf).

<sup>127</sup> U.S. Fish and Wildlife Service. May 10, 2010. “Guidance to Proceed with Events Authorized by the U.S. Coast Guard.” Retrieved from <http://www.fws.gov/verobeach/MammalsPDFs/20100510LetterServicetoUSCGGuidancetoProceedwithEvents.pdf>.

<sup>128</sup> *Ibid.*

- Make spectators along the beach aware of nesting sea turtles and the penalties associated with disturbing nests, hatchlings, or adults while on the beach or in the water. Install temporary signage to this effect on the beach. Coordinate with local sea turtle nest monitoring entities;
- Ensure all participating vessels adhere to speed zones; and
- Incorporate specific language into USCG permits to reduce direct event-related effects to sea turtles.<sup>129</sup>

188. USFWS would likely recommend measures similar to those described above for recreation activities carried out within the areas proposed for critical habitat designation.<sup>130</sup> These measures are considered baseline impacts and would be recommended regardless of critical habitat designation.

#### National Park Service

189. NPS actively manages areas overlapping proposed critical habitat in the following areas: Cumberland Island National Seashore (LOGG-T-GA-07, 08), Fort Matanzas National Monument (LOGG-T-FL-03), Canaveral National Seashore (LOGG-T-FL-06, 07), Everglades National Park (LOGG-T-FL-33-35), Dry Tortugas National Park (LOGG-T-FL-36), and Gulf Islands National Seashore (LOGG-T-MS-01, 02; LOGG-T-FL-40). Chapter 3 of this report provides detailed information on the management plans for each of these areas and the baseline protections they afford the loggerhead. Please refer to Section 3.3 of Chapter 3 for more information. We forecast costs associated with reinitiation of section 7 consultation on these management plans, as described in Chapter 3.

#### Habitat Conservation Plans

190. Three of the HCPs described in Chapter 3 of this report include protective measures for the loggerhead with respect to recreation activities. Specifically, St. Johns County HCP, Volusia County HCP, and Gulf County draft HCP contain measures related to beach driving, beach horseback riding, equipment storage, and other recreation activities. For more information on these HCPs, please refer to Section 3.3 of Chapter 3. We forecast costs associated with reinitiation of section 7 consultation on these HCPs, as described in Chapter 3.

#### 6.2.3 POTENTIAL IMPACTS TO RECREATION ACTIVITIES

191. To identify the direct incremental impacts of the designation to recreation activities, we forecast the number of future section 7 consultations over the ten-year timeframe of the analysis. As described in Section 2.3.2, we anticipate that critical habitat designation will not generate additional recommendations for project modification. Accordingly, we

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<sup>129</sup> Ibid.

<sup>130</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. October 15, 2012. "Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle." See Appendix D.

expect that direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation.

192. As described in Section 6.2.2, we anticipate that USFWS's Guidance to Proceed with USCG will be reinitiated to consider potential impacts of proposed critical habitat designation on recreation activities in the counties containing proposed critical habitat. Therefore, we forecast costs associated with reinitiation of consultation in 2014, following critical habitat designation. We split the costs associated with these consultations across all of the proposed critical habitat units in the counties covered by the Guidance to Proceed (LOGG-T-FL-10-39).
193. To determine the likely future rate of section 7 consultation for recreation activities in areas within proposed designation that are not covered by the Guidance to Proceed, we contacted representatives from the USCG's Seventh, Eighth, and Fifth Coast Guard Districts. However, USCG was unable to identify the likely number of future recreation-related section 7 consultations that may occur in areas proposed for critical habitat designation, outside of the reinitiation of the Guidance to Proceed.<sup>131,132,133</sup> Therefore, we contacted USFWS biologists responsible for overseeing section 7 consultations on recreation in the areas within proposed designation that are not covered by the Guidance to Proceed. USFWS anticipates approximately one future informal consultation annually on USCG recreation activities in the following units: LOGG-T-FL-01, and 05-09.<sup>134</sup> We therefore forecast costs associated with these consultations over the ten-year timeframe of the analysis.
194. In addition, we rely on historical section 7 consultation data from USFWS' TAILS database to forecast future section 7 consultations on recreation activities occurring in areas proposed for critical habitat designation. According to the data, consultations on recreation activities have occurred in the following proposed critical habitat units: in Georgia in LOGG-T-GA-08; in Florida in LOGG-T-FL-04, 07, 11, 13, 41, and 42; and in Alabama in LOGG-T-AL-01 and 02.<sup>135</sup> The assumption that the geographical distribution of the past consultation efforts is also indicative of future efforts remains an uncertainty of the analysis, as described in section 6.7.
195. Lastly, BLM owns four tracts of beachfront in Alabama in proposed critical habitat unit LOGG-T-AL-01. BLM has indicated that activities requiring consultation with USFWS in the future may occur with greater frequency than the historical consultation rate; over the next ten years, BLM expects approximately one informal consultation per year for

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<sup>131</sup> Personal communication with Waterways Management Branch, Eighth District, U.S. Coast Guard, on April 4, 2013.

<sup>132</sup> Personal communication with Waterways Management Branch, Seventh District, U.S. Coast Guard, on April 11, 2013.

<sup>133</sup> Personal communication with Aids to Navigation Operations Branch, Fifth District, U.S. Coast Guard, on April 17, 2013.

<sup>134</sup> Personal communication with Biologist, North Florida Field Office, U.S. Fish and Wildlife Service, on May 3, 2013.

<sup>135</sup> U.S. Fish and Wildlife Service to Industrial Economics, Inc. TAILS report. April 22, 2013.

either species and habitat management or recreation.<sup>136</sup> At this time, specific activities are unknown, so the analysis assumes that there is equal likelihood that the consultation will be for species and habitat management or recreation.

196. One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit all occur in the area being proposed for designation. This may result in an overestimate of impacts to recreation activities in areas proposed for critical habitat designation.
197. Once we establish a reasonably foreseeable forecast of consultations, we assign each consultation a likely level of administrative effort for USFWS, the Federal action agency, and third party participants, where applicable. In previous economic analyses, IEc has applied a general section 7 consultation cost model based on surveys with Field Offices and Federal agencies conducted in 2002, and assumptions regarding the fraction of time spent considering jeopardy versus adverse modification (see Exhibit 2-1 in Chapter 2 of this report). We use this cost model for assigning level of effort (administrative cost) per consultation.

#### Results

198. Exhibit 6-1 summarizes the total estimated administrative costs of recreation consultations forecasted based on the above information for the ten-year timeframe of the analysis, from 2014 to 2023.
199. As shown in Exhibit 6-1, in the areas proposed for critical habitat designation, we anticipate that the greatest impacts on recreation activities will occur in proposed critical habitat unit LOGG-T-FL-07 (Canaveral National Seashore South-Merritt Island National Wildlife Refuge (NWR)-Kennedy Space, Brevard County). This result is due to the relatively high number of forecast section 7 consultations in this unit, based on both historical rates of consultation between 2008 and 2012 and on information provided by USFWS regarding the likely level of future consultation with USCG. In the areas being considered for exclusion, we anticipate that the greatest impacts on recreation activities will occur in proposed critical habitat unit LOGG-T-FL-05 (Ormond-by-the-Sea-Granada Blvd., Volusia County), due to the forecasted levels of future section 7 consultation on recreation activities with USCG, according to USFWS.

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<sup>136</sup> Personal communication with Biologist, Southeastern States Field Office, Bureau of Land Management, on April 17, 2013.

EXHIBIT 6-1. FORECAST SECTION 7 CONSULTATIONS FOR RECREATION ACTIVITIES AND IMPACTS BY UNIT (2013\$, SEVEN PERCENT DISCOUNT RATE)

PROPOSED CRITICAL HABITAT UNIT <sup>1,2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS			10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	FORMAL	INFORMAL	TECHNICAL ASSISTANCE	PRESENT VALUE	ANNUALIZED
<b>AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION</b>					
LOGG-T-GA-08	0.00	0.00	2.00	\$570	\$76
LOGG-T-FL-01, 06, 08, 09	0.00	10.00	0.00	\$17,000	\$2,300
LOGG-T-FL-04, 41	0.00	0.00	2.00	\$570	\$76
LOGG-T-FL-07	0.00	12.00	2.00	\$21,000	\$2,800
LOGG-T-FL-11	0.03	2.00	2.00	\$4,300	\$570
LOGG-T-FL-12, 14-39	0.03	0.00	0.00	\$310	\$42
LOGG-T-FL-13	0.03	0.00	2.00	\$880	\$120
LOGG-T-FL-42	0.00	2.00	0.00	\$3,400	\$450
LOGG-T-AL-01	0.00	9.00	1.00	\$16,000	\$2,100
LOGG-T-AL-02	0.00	0.00	1.00	\$280	\$38
<b>TOTAL</b>	<b>0.97</b>	<b>65.00</b>	<b>14.00</b>	<b>\$120,000</b>	<b>\$16,000</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>					
LOGG-T-FL-03	0.00	2.00	0.00	\$3,400	\$450
LOGG-T-FL-05	0.00	10.00	0.00	\$17,000	\$2,300
LOGG-T-FL-10	0.03	0.00	0.00	\$310	\$42
<b>TOTAL</b>	<b>0.03</b>	<b>12.00</b>	<b>0.00</b>	<b>\$21,000</b>	<b>\$2,700</b>
<b>Notes:</b>					
1. For unit names, please refer to Exhibit 1-2 in Chapter 1 of this report.					
2. Information presented in this table is for each unit specified. In many cases multiple units have the same number of consultations and the same impacts, these units have been combined into one table entry.					
3. The level of effort per consultation represents approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The unit cost estimates therefore may not sum to the total costs reported due to rounding.					

### 6.3 LIGHTING MANAGEMENT

200. Artificial lighting deters adult female turtles from emerging from the ocean to nest and can disorient nesting turtles and hatchlings. While lighting management may be considered as part of a consultation on another economic activity (for example, coastal development or species and habitat management), certain agencies may consult on lighting as a stand-alone activity.

### 6.3.1 SCOPE AND SCALE OF POTENTIAL FUTURE LIGHTING ACTIVITIES

201. Future section 7 consultations on lighting management are expected to occur in all of the proposed critical habitat units due to the fact that USCG and USFWS are in the process of developing a nationwide programmatic consultation on aids to navigation (ATON) lighting management, which will consider impacts on the loggerhead and its critical habitat.<sup>137</sup>

### 6.3.2 BASELINE REGULATION OF LIGHTING ACTIVITIES

202. Federal, State, and local regulations provide baseline protection for the loggerhead within areas proposed for critical habitat designation. The primary protection for the loggerhead is the listing of the species under the Act. The Act provides baseline protection for the loggerhead under sections 7, 9, and 10. In particular, section 7 of the Act requires Federal agencies to consult with USFWS to ensure that any action authorized, funded, or carried out will not jeopardize the continued existence of the loggerhead. The portion of the administrative costs of consultations under the jeopardy standard, along with the impacts of conservation efforts resulting from consideration of this standard, are considered baseline impacts. In addition to the Act, other regulations provide protections with respect to recreation activities, as described below.
203. According to the Proposed Rule, many efforts are underway to reduce light pollution on sea turtle nesting beaches.<sup>138</sup> While these efforts are most extensive in Florida due to dense coastal development, development and enforcement of mandatory lighting ordinances is occurring in other states as well. For example, Palm Beach County regulates beachfront lighting in certain areas through the Palm Beach County Unified Development Code (ULDC) Article 14.A, Sea Turtle Protection and Sand Preservation Ordinance, which requires that all coastal construction adhere to lighting standards and also requires all properties that fall within the Zone of Jurisdiction to obtain a permit to install or replace light sources.<sup>139</sup> In addition, many of the management plans and HCPs described in Chapter 3 of this report contain baseline protections with respect to lighting management (see Section 3.3 for more information).

### 6.3.3 POTENTIAL IMPACTS TO LIGHTING ACTIVITIES

204. To identify the direct incremental impacts of the designation to lighting management activities, we forecast the number of future section 7 consultations likely to occur over the ten-year timeframe of the analysis. As described in Section 2.3.2, we anticipate that critical habitat designation will not generate additional recommendations for project modification. As such, we expect that direct incremental impacts of the designation will

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<sup>137</sup> Personal communication with Environmental Planning Team Lead, U.S. Coast Guard Headquarters, on May 8, 2013.

<sup>138</sup> Proposed Critical Habitat Rule, 78 FR 18012, March 25, 2013.

<sup>139</sup> Palm Beach County. Sea Turtle Lighting Regulations. Retrieved from <http://www.co.palm-beach.fl.us/erm/coastal/sea-turtles/seaturtlelighting.htm>.

likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation.

205. As described in Section 6.3.1, USCG and USFWS are in the process of developing a nationwide programmatic consultation on ATON lighting management.<sup>140</sup> As the consultation is at the very early stages, we forecast costs in 2014 associated with considering the impacts of ATON lighting on the proposed terrestrial critical habitat. We split the costs associated with this new programmatic consultation across all of the proposed terrestrial critical habitat units.
206. In addition, we rely on historical section 7 consultation data from USFWS' TAILS database to forecast future section 7 consultations on lighting management activities occurring in areas proposed for critical habitat designation. Based on these data, lighting management activities have occurred in the following proposed critical habitat units: in Florida in LOGG-FL-04, 07- 09, and 40-47; and in Alabama in LOGG-T-AL-02. Using these data, we forecast future lighting management-related section 7 consultations over a ten-year period for each proposed critical habitat unit. The assumption that the geographical distribution of the past consultation efforts is also indicative of future efforts remains an uncertainty of the analysis, as described in section 6.7.
207. One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit all occur in the area being proposed for designation. This may result in an overestimate of impacts to lighting activities in areas proposed for critical habitat designation.
208. Once we establish a reasonably foreseeable forecast of consultations, we assign each consultation a likely level of administrative effort for USFWS, the Federal action agency, and third party participants, where applicable. In previous economic analyses, IEc has applied a general section 7 consultation cost model based on surveys with Field Offices and Federal agencies conducted in 2002, and assumptions regarding the fraction of time spent considering jeopardy versus adverse modification (see Exhibit 2-1 in Chapter 2 of this report). We use this cost model for assigning level of effort (administrative cost) per consultation.

#### Results

209. Exhibit 6-2 summarizes the total estimated administrative costs of lighting management consultations forecasted based on the above information for the ten-year timeframe of the analysis, from 2014 to 2023.

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<sup>140</sup> Personal communication with Environmental Planning Team Lead, U.S. Coast Guard Headquarters, on May 8, 2013.

**EXHIBIT 6-2. FORECAST SECTION 7 CONSULTATIONS FOR LIGHTING MANAGEMENT ACTIVITIES AND IMPACTS BY UNIT (2013\$, SEVEN PERCENT DISCOUNT RATE)**

PROPOSED CRITICAL HABITAT UNIT <sup>1,2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS				10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	PROGRAMMATIC	FORMAL	INFORMAL	TECHNICAL ASSISTANCE	PRESENT VALUE	ANNUALIZED
<b>AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION</b>						
LOGG-T-NC-01-08	0.01	0.00	0.00	0.00	\$94	\$12
LOGG-T-SC-01-22	0.01	0.00	0.00	0.00	\$94	\$12
LOGG-T-GA-01-08	0.01	0.00	0.00	0.00	\$94	\$12
LOGG-T-FL-01, 06, 11-39	0.01	0.00	0.00	0.00	\$94	\$12
LOGG-T-FL-04	0.01	0.00	2.00	0.00	\$3,500	\$460
LOGG-T-FL-07	0.01	0.67	0.00	8.00	\$4,700	\$630
LOGG-T-FL-08, 09	0.01	0.67	0.00	0.00	\$2,400	\$320
LOGG-T-FL-40	0.01	0.00	0.00	2.50	\$800	\$110
LOGG-T-FL-41	0.01	0.00	0.00	3.50	\$1,100	\$140
LOGG-T-FL-42	0.01	0.00	2.00	3.50	\$4,500	\$600
LOGG-T-FL-43-45	0.01	0.00	0.00	0.50	\$240	\$31
LOGG-T-FL-46	0.01	0.00	1.00	2.50	\$2,500	\$330
LOGG-T-FL-47	0.01	0.00	1.00	0.50	\$1,900	\$260
LOGG-T-MS-01, 02	0.01	0.00	0.00	0.00	\$94	\$12
LOGG-T-AL 01, 03	0.01	0.00	0.00	0.00	\$94	\$12
LOGG-T-AL-02	0.01	0.00	0.00	2.00	\$660	\$88
<b>TOTAL</b>	<b>0.96</b>	<b>2.00</b>	<b>6.00</b>	<b>24.00</b>	<b>\$32,000</b>	<b>\$4,300</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>						
LOGG-T-FL-02, 03, 05, 10	0.01	0.00	0.00	0.00	\$94	\$12
<b>TOTAL</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>\$370</b>	<b>\$50</b>
<b>Notes:</b>						
1. For unit names, please refer to Exhibit 1-2 in Chapter 1 of this report.						
2. Information presented in this table is for each unit specified. In many cases multiple units have the same number of consultations and the same impacts, these units have been combined into one table entry.						
3. The level of effort per consultation represents approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The unit cost estimates therefore may not sum to the total costs reported due to rounding.						

210. As shown in Exhibit 6-2 in the areas proposed for critical habitat designation, we anticipate that the greatest impacts on lighting management activities will occur in proposed critical habitat unit LOGG-T-FL-07 (Canaveral National Seashore South-Merritt Island National Wildlife Refuge (NWR)-Kennedy Space, Brevard County). This

is due to the relatively high number of forecast section 7 consultations in this unit, based on both historical rates of consultation between 2008 and 2012 and on the programmatic consultation with USCG. In the areas being considered for exclusion, we anticipate that all of the units will experience the same level of impacts on lighting management activities, due to the programmatic consultation with USCG.

#### 6.4 DISASTER RESPONSE

211. Oil spills in the vicinity of nesting beaches place turtles at risk from direct exposure of contaminants, and also negatively impact nesting habitat. Clean-up activities may also be harmful, as they may deter nesting turtles, destroy nests, and/or entrap hatchlings.

##### 6.4.1 SCOPE AND SCALE OF POTENTIAL FUTURE DISASTER RESPONSE ACTIVITIES

212. This analysis does not forecast future disaster response activities associated with oil spills or other disasters. We do, however, forecast future programmatic section 7 consultations that consider the impacts of disaster response activities on the loggerhead and its critical habitat, in preparation for future disasters.

##### 6.4.2 BASELINE REGULATION OF DISASTER RESPONSE ACTIVITIES

213. The primary protection for the loggerhead with respect to disaster response activities is the listing of the species under the Act. The Act provides baseline protection for the loggerhead under sections 7, 9, and 10. In particular, section 7 of the Act requires Federal agencies to consult with USFWS to ensure that any action authorized, funded, or carried out will not jeopardize the continued existence of the loggerhead. The portion of the administrative costs of consultations under the jeopardy standard, along with the impacts of conservation efforts resulting from consideration of this standard, are considered baseline impacts.

214. In the past, USFWS and the Federal Emergency Management Agency (FEMA) have conducted section 7 consultations to consider the potential impacts of disaster response activities on the loggerhead. These include one programmatic consultation on the repair and replacement of pre-existing structures in Florida following a Federally-declared disaster, and one programmatic consultation on emergency berm repair following a Federally-declared disaster. We expect that these programmatic consultations will be reinitiated following designation of terrestrial critical habitat, and again every five years, in order to consider the potential impacts of these activities on critical habitat.

##### 6.4.3 POTENTIAL IMPACTS TO DISASTER RESPONSE ACTIVITIES

215. To identify the direct incremental impacts of the designation to disaster response activities, we forecast the number of future section 7 consultations likely to occur over the ten-year timeframe of the analysis. As described in Section 2.3.2, we anticipate that critical habitat designation will not generate additional recommendations for project modification. As such, we expect that direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation.

216. As described in Section 6.4.2, we expect that two programmatic consultations between USFWS and FEMA will be reinitiated in 2014, following designation of critical habitat, and again every five years, in order to consider the potential impacts of disaster response activities on loggerhead critical habitat. We assign each consultation a likely level of administrative effort for USFWS, the Federal action agency, and third party participants, where applicable. In previous economic analyses, IEc has applied a general section 7 consultation cost model based on surveys with Field Offices and Federal agencies conducted in 2002, and assumptions regarding the fraction of time spent considering jeopardy versus adverse modification (see Exhibit 2-1 in Chapter 2 of this report). We use this cost model for assigning level of effort (administrative cost) per consultation. We split the costs associated with these reinitiations across all of the proposed terrestrial critical habitat units in Florida.

#### Results

217. For each proposed critical habitat unit, the total estimated present value economic impacts of terrestrial critical habitat designation on disaster response activities are approximately \$1,200 over the next ten years (2014-2023, seven percent discount rate), for a total present value impact of approximately \$53,000. For areas being considered for exclusion, present value impacts are approximately \$4,900 over the next ten years (2014-2023, seven percent discount rate). These impacts reflect the additional administrative effort of considering potential impacts to critical habitat during the reinitiation of the two programmatic consultations between USFWS and FEMA forecasted to occur in 2014 and 2019.

### 6.5 OIL AND GAS ACTIVITIES

218. This section evaluates the potential impacts of the proposed terrestrial critical habitat designation for the loggerhead on oil and gas activities (i.e., exploration, production, decommissioning, and emergency spill response activities) in the study area. In general, these activities take place offshore and section 7 consultation on these activities occurs with NMFS. USFWS has indicated that they are likely to review oil and gas leases in Federal waters for the risk of oil spills to beaches.<sup>141</sup> In addition, USFWS may consult with the Bureau of Safety and Environmental Enforcement (BSEE) on oil spill response activities. However, the analysis does not forecast consultations on these efforts as the likelihood and timing of these consultations is highly uncertain.

#### 6.5.1 SCOPE AND SCALE OF POTENTIAL FUTURE OIL AND GAS ACTIVITIES

219. Offshore oil and gas activities currently occur in the Gulf of Mexico in both Federal and state waters. While the specific amount of offshore deposits and reserves available in the Atlantic are uncertain, future oil and gas activities may occur there during the time period of this analysis (i.e., within the next ten years). Limited offshore oil and gas activities are occurring in state waters off the coast of Mississippi and Alabama. Mississippi's active

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<sup>141</sup> Personal communication with U.S. Fish and Wildlife Service biologist on April 23, 2013.

offshore oil and gas activities are minimal. Currently there are no known operating wells in the vicinity of proposed terrestrial critical habitat for the loggerhead; however, two previously active wells were located near proposed critical habitat unit LOGG-T-MS-01 (Horn Island, Jackson County).<sup>142</sup> Oil and gas production in Alabama's state waters is declining and operators have not proposed any new well locations for many years. Alabama's currently active oil production in the vicinity of proposed terrestrial critical habitat for the loggerhead is located outside of Mobile Bay, south of proposed unit LOGG-T-AL-01 (Mobile Bay-Little Lagoon Pass, Baldwin County).<sup>143</sup>

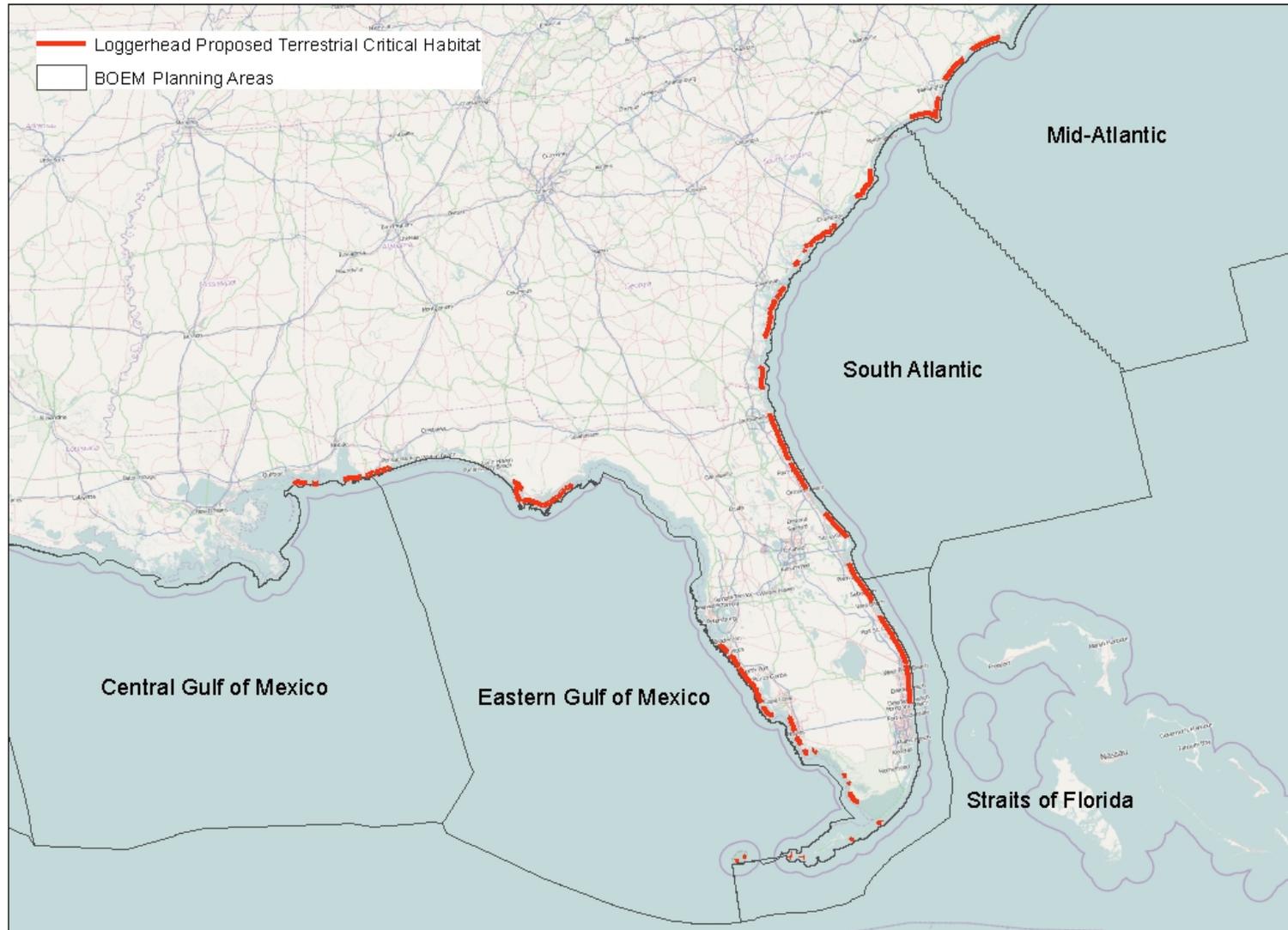
220. Federal waters are managed as separate planning areas by BOEM. The proposed terrestrial critical habitat area is located on beaches associated with the Central Gulf of Mexico, Eastern Gulf of Mexico, Straits of Florida, South Atlantic, and Mid-Atlantic planning areas (shown in Exhibit 6-3). Currently, Federal oil and gas exploration and production activities occur in the Central Gulf of Mexico. The South- and Mid-Atlantic planning areas do not currently produce any oil or gas, but are being considered for potential future development.

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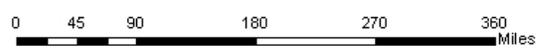
<sup>142</sup> Mississippi State Oil and Gas Board. 2013. MSOGB Online Mapping Tool. <http://gis.ogb.state.ms.us/MSOGBOnline/>. Accessed January 22, 2013.

<sup>143</sup> Email communication with Phillip Hinesley, Chief, Coastal Section of the State Lands Division, on January 18, 2013.

EXHIBIT 6-3. MAP OF BOEM ATLANTIC AND GULF OF MEXICO PLANNING AREAS AND PROPOSED CRITICAL HABITAT



Source:  
 1. U.S. Fish and Wildlife Service, Panama City Field Office  
 2. Bureau of Ocean Energy Management, Planning Areas  
 3. OpenStreetMap, ESRI Online



### 6.5.2 BASELINE REGULATION OF OIL AND GAS ACTIVITIES

221. Existing regulations, policies, best management practices, and guidelines implemented by Federal and state governments provide a baseline level of protection to the loggerhead and its habitat absent designation of critical habitat. Baseline protections accorded the loggerhead and its habitat are described in this section.

#### Federal Regulations

222. The Endangered Species Act is the primary source of protection for the loggerhead and its habitat. The Act provides baseline protection for the loggerhead under sections 7, 9, and 10. In particular, section 7 of the Act requires Federal agencies to consult with USFWS to ensure that any action authorized, funded, or carried out will not jeopardize the continued existence of the loggerhead. The portion of the administrative costs of consultations under the jeopardy standard, along with the impacts of conservation efforts resulting from consideration of this standard, are considered baseline impacts. In general NMFS will consult on offshore oil and gas activities that potentially threaten the loggerhead. USFWS will also review offshore leases to evaluate the potential for harm to loggerhead turtles and nests on the beach, especially the risk from oil spills.<sup>144</sup>
223. In addition to the Act, the following Federal regulations apply to offshore oil and gas activities and provide protection to the loggerhead and its terrestrial habitat:
- **National Environmental Protection Act (NEPA):** NEPA requires Federal agencies and others using Federal funds or assets to assess the environmental impacts of major Federal projects or decisions such as issuing permits, spending Federal money, or affecting Federal lands. An EIS is prepared and made available for public comment for projects that the Federal agency views as having potentially significant environmental impacts. Oil and gas activities have typically been subject to NEPA, and associated EISs have considered potential environmental impacts, including impacts on the loggerhead.
  - **BOEM Operating Requirements and Procedures:** BOEM requires oil and gas activity operators to consider and avoid turtles and sensitive turtle habitats, especially areas related to migration, nesting, and concentration areas.<sup>145</sup> BOEM considers various seasonal and temporal avoidance measures, which may include limiting proximity of exploration and development activities to sensitive habitats, limiting use of lights in sensitive habitats, and requiring that surveyors be present to look specifically for sea turtles when developing mitigation measures for activities that the agency regulates.<sup>146</sup> BOEM also issues notices to lessees and operators (NTL), which outline requirements and clarifications to Federal

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<sup>144</sup> Personal communication with Fish and Wildlife Service biologist, on April 24, 2013.

<sup>145</sup> Personal communication with Kim Skrupsky, Marine Biologist, BOEM on January 17, 2013.

<sup>146</sup> *Ibid.*

regulations. These NTLs provide operators a better understanding of the scope and meaning of a regulation by explaining BOEM's interpretations of a requirement. A number of these NTLs provide guidance for operators in avoiding and mitigating potentially adverse interactions with loggerhead sea turtles in offshore Federal waters. Under 2012-JOINT-G01 operating vessels are directed to avoid striking turtles by maintaining lookouts when entering known turtle habitats and prohibiting operations with a 50 foot buffer around any turtle sightings. BOEM NTL 2004-G06 further clarified structure removal operations in the Gulf of Mexico outer continental shelf (OCS), requiring that these activities not take place when turtles are in the area. These NTLs provide extensive protections to loggerheads.

- **Title 30, Mineral Resources, Part 250 – Oil and Gas and Sulphur Operations in the Outer Continental Shelf (30 CFR Part 250):** 30 CFR Part 250 outlines regulations related to oil, gas, and sulphur exploration, development, and production operations on the OCS. Of particular importance to the loggerhead and its habitat, Subpart C – Pollution Prevention and control –requires operators to not endanger the marine environment and wildlife during operations via unauthorized discharge of pollutants into the offshore waters, prohibits the creation of unreasonable risk to marine habitat and aquatic life, and requires the proper disposal and use of materials, equipment, tools, containers, and other items (Section 250.300). Subpart Q implements stringent requirements to consider and observe and avoid turtles when decommissioning any oil or gas structure.
- **The Outer Continental Shelf Lands Act (OCSLA):** OCSLA, as amended, provides guidelines for implementing an OCS oil and gas exploration and development program, and also for protecting human, marine, and coastal environments. For example, under the OCSLA Section 1345, the Secretary of the Interior must conduct a study of any area or region included in any oil and gas lease sale or other lease in order to establish information needed for assessment and management of environmental impacts on the human, marine, and coastal environments. This requirement includes considering effects and impacts on the loggerhead and its habitat.

#### State Regulations

224. State offshore oil and gas regulations vary across the states based largely on the existence of an oil and gas industry. States without current and proposed oil and gas activities in their waters generally do not have regulations related to oil and gas activity. States without current or proposed oil and gas activity in their waters include Georgia and Florida. North Carolina and South Carolina, which are not currently undertaking oil and gas activities but may in the near future, have not yet promulgated regulations to govern

these activities. However, they are both currently proposing administrative rules and regulations to be implemented in the next three to five years.<sup>147</sup>

225. Alabama and Mississippi, which currently have offshore oil and gas production in state waters, have promulgated regulations regarding oil and gas activities that afford protection to the loggerhead sea turtle and its habitat.
- **Alabama:** Alabama Department of Environmental Management's Division 8 Regulations provide broad protections to wildlife habitat of endangered species (ADEM 335-8-2-.01; ADEM 335-8-2-.08). Alabama's Department of Conservation and Natural Resources also provides broad regulation that prohibits interference with wildlife habitat and natural behavior (ADCNR 220-3-.33). Due to the threatened status of the loggerhead, protections against take and interference from operations of oil and gas wells in state waters provide protections for the loggerhead.
  - **Mississippi:** Mississippi's Oil and Gas Board Rule OS-8 provides broad protections to all aquatic life by prohibiting operators from polluting water or damaging aquatic life through disposal of oil, operational drilling muds, detergents and dispersants, or solid wastes. These prohibitions provide baseline protections to loggerheads by preventing pollutants from entering loggerhead habitat.

#### 6.5.3 POTENTIAL IMPACTS TO OIL AND GAS ACTIVITIES

226. No impacts are expected to oil and gas activities in state waters due to the designation of the proposed critical habitat for the loggerhead. As discussed in Section 6.5.1, oil and gas activities in state waters offshore of the proposed terrestrial critical habitat are limited and currently only occurring in Alabama and Mississippi. Oil and gas operations in these areas are declining and no future projects were identified that would require consultation with USFWS.
227. USFWS is expected to consult with BOEM on future oil and gas activities in Federal waters. BOEM plans offshore Federal oil and gas leases on a five-year cycle within their planning areas (see Exhibit 6-3). The lease plans require BOEM to consider the environmental effects of developing oil and gas operations in the plan area through development of a NEPA EIS. The current cycle (2012 through 2017) considers the active leases in the Central Gulf of Mexico Planning Area. The majority of the Eastern Gulf of Mexico Planning Area is under Congressional Moratorium until 2022. According to BOEM, the Straits of Florida Planning Area is considered a low resource potential area having low support for potential leasing capability. The South Atlantic and Mid-Atlantic

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<sup>147</sup> Personal communication with Director, Division of Energy, Mineral, and Land Resources at NC Department of Natural Resources, on January 11, 2013.

Planning Areas are being considered for seismic studies to test for reserves, but leasing is not expected before 2017.<sup>148</sup>

228. Several oil and gas development leases are considered during the current cycle in the Gulf of Mexico. In particular, five oil and gas lease sales are scheduled between 2012 and 2017 in the Central Gulf of Mexico Planning Area. Due to the volume of leases, BOEM and NMFS undertake section 7 consultation on activities in this region at a programmatic level (i.e., once for the entire lease proposal). BSEE would also be a party to these programmatic consultations. Should future gas and oil leases occur in the Atlantic, however, they would likely require section 7 consultations at the project level, due to insufficient historical precedence of offshore oil and gas activities within the area.<sup>149</sup> NMFS confirms that a “second tier” of consultations would likely occur at the project level for activities undertaken under the programmatic consultation. This project-specific consultation would involve biologists confirming that the projects fit the requirements of the programmatic. In addition, these projects are subject to annual reporting requirements to ensure they are carried out consistent with the programmatic.<sup>150</sup>
229. This analysis assumes that USFWS will similarly consult with BOEM once for the 5-year lease program and again at the individual lease (project) level. These consultations will primarily focus on the risk that oil spills pose to nesting loggerheads, nests, and hatchlings on the beach, as well as the loggerhead’s terrestrial habitat. We assume that these consultations will require an informal level of effort.
230. The timing of future activity in the Mid- and South Atlantic is uncertain. Similarly, uncertainty exists regarding the future of activity in the Eastern Gulf of Mexico Planning Area following the anticipated end of the current moratorium in 2022. For the purposes of this analysis, we assume BOEM and USFWS will undertake a consultation in 2014 for the proposed seismic testing and scoping activities covering the Mid- and South Atlantic Planning Areas, another in 2017 for the following five-year lease sale for the Central Gulf of Mexico Planning Area, and two in 2022 related to the expiration of the moratorium in the Eastern Gulf of Mexico Planning Area and the next five year lease for the Central Gulf Planning Area. We note, however, that should any Atlantic leases be sold from 2018 onward, consultations will likely be necessary at the project level. However due to the uncertainty regarding timing of these lease sales and lack of a historical consultation reference, we do not forecast potential individual consultations.
231. In addition, as described above, NMFS anticipates that all projects that are subject to their programmatic consultations will require an additional “second tier” project-level

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<sup>148</sup> Bureau of Ocean Energy Management, 2012. Gulf of Mexico OCS Oil and Gas Lease Sales: 2012-2017. Final Environmental Impact Statement. Volume I: Chapters 1-4.

<sup>149</sup> Personal communication with Marine Biologist, US Department of the Interior Bureau of Ocean Energy Management on January 17, 2013.

<sup>150</sup> Personal communication with National Marine Fisheries Service biologist, on March 12, 2013.

consultation to ensure that the project is consistent with the requirements of the programmatic. NMFS expects that these project-level consultations involve a relatively minor level of effort and would be undertaken regardless of critical habitat designation.<sup>151</sup> USFWS may similarly require a “second tier” project-level consultation. As the frequency and locations of additional projects within the broader planning areas are uncertain, we do not forecast impacts of critical habitat designation on these project-specific consultations.

232. As described in Section 2.3.2, we anticipate that critical habitat designation will not generate additional recommendations for project modification. As such, direct incremental impacts of the designation will likely be limited to additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of section 7 consultation. To quantify these administrative costs, we assign each consultation a likely level of administrative effort for USFWS, Federal action agency, and third party participants, where applicable. In previous economic analyses, IEc has applied a general section 7 consultation cost model based on surveys with Field Offices and Federal agencies conducted in 2002, and assumptions regarding the fraction of time spent considering jeopardy versus adverse modification (see Exhibit 2-1 in Chapter 2 of this report). We use this cost model for assigning level of effort (administrative cost) per consultation.

#### Results

233. Exhibit 6-4 summarizes the total estimated administrative costs of consultations on oil and gas activities in Federal waters forecasted based on the above information for the ten-year timeframe of the analysis, from 2014 to 2023. Present value costs are discounted at a seven percent discount rate.
234. As shown in Exhibit 6-4, in the areas proposed for critical habitat designation, we anticipate that the greatest impacts on oil and gas activities will occur in proposed critical habitat units LOGG-T-MS-01, LOGG-T-MS-02, LOGG-T-AL-01, and LOGG-T-AL-02. This is because these units are adjacent to the BOEM Central Gulf of Mexico Planning Area for which two future consultations are anticipated. In the areas being considered for exclusion, we anticipate that the greatest impacts on oil and gas activities will occur in proposed critical habitat units LOGG-T-FL-02, LOGG-T-FL-03, and LOGG-T-FL-05, due to the anticipated future consultation for proposed seismic testing and scoping activities in the BOEM South Atlantic Planning Area.

#### EXHIBIT 6-4. FORECAST SECTION 7 CONSULTATIONS FOR OIL AND GAS ACTIVITIES AND IMPACTS BY UNIT (2013\$, SEVEN PERCENT DISCOUNT RATE)

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<sup>151</sup> Personal communication with NMFS, email to Industrial Economics, Inc. dated March 12, 2013.

PROPOSED CRITICAL HABITAT UNIT(S) <sup>1,2</sup>	NUMBER OF FORECAST SECTION 7 CONSULTATIONS	10-YEAR IMPACTS (2014-2023) <sup>3</sup>	
	INFORMAL	PRESENT VALUE	ANNUALIZED
<b>AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION</b>			
LOGG-T-NC-01-08	0.02	\$48	\$6
LOGG-T-SC-01-22	0.02	\$48	\$6
LOGG-T-GA-01-08	0.02	\$48	\$6
LOGG-T-FL-01-09	0.02	\$48	\$6
LOGG-T-FL-19-36, 40-47	0.04	\$50	\$7
LOGG-T-MS-01, 02	0.50	\$790	\$100
LOGG-T-AL-01, 02	0.50	\$790	\$100
<b>TOTAL</b>	<b>3.94</b>	<b>\$6,600</b>	<b>\$870</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>			
LOGG-T-FL-02, 03, 05	0.02	\$48	\$6
<b>TOTAL</b>	<b>0.06</b>	<b>\$140</b>	<b>\$19</b>
<p><b>Notes:</b></p> <p>1. For unit names, please refer to Exhibit 1-2 in Chapter 1 of this report.</p> <p>2. Information presented in this table is for each unit specified. In many cases multiple units have the same number of consultations and the same impacts, these units have been combined into one table entry.</p> <p>3. The level of effort per consultation represents approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The unit cost estimates therefore may not sum to the total costs reported due to rounding.</p>			

## 6.6 OFFSHORE RENEWABLE ENERGY ACTIVITIES

235. Offshore renewable energy projects represent a primary threat to marine loggerhead habitat and therefore would require consultation with NMFS. In addition, these projects represent a secondary threat to terrestrial loggerhead habitat as cables that transmit electricity from offshore facilities to onshore electrical substations may have to pass over or under the proposed terrestrial habitat. In the event that power cables need to transverse terrestrial habitat for the loggerhead, Army Corps would be required to consult with the USFWS and BOEM would likely be a participating agency on this consultation.<sup>152</sup> The Economic Analysis of Critical Habitat Designation of Marine Habitat for the Northwest Atlantic Ocean Distinct Population Segment of the Loggerhead Sea Turtle includes a detailed discussion of the potential impacts to offshore renewable energy projects. The analysis finds that no offshore renewable energy projects are likely to occur over the next 10 years in the area from North Carolina to Florida where critical habitat is proposed. Therefore, no costs are anticipated due to consultation on such projects.

<sup>152</sup> Personal communication with the Bureau of Ocean Energy Management on October 30, 2013.

## 6.7 ASSUMPTIONS AND LIMITATIONS

236. The economic impacts presented in this chapter are based on a number of assumptions that may affect the estimates. This section presents the key assumptions and the extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation. Exhibit 6-5 presents the key assumptions made and the potential bias they introduce in the analysis.

EXHIBIT 6-5. ASSUMPTIONS AND LIMITATIONS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>rates</i> of consultation activity for recreation and lighting management activities. This analysis assumes that past consultations provide a good indication of future activity.	<b>Unknown.</b> May overestimate or underestimate incremental impacts.	<b>Likely minor.</b> Data are not available to determine whether lighting management and recreation activities are likely to change over time. To the extent that these activities increase over the next ten years, our analysis underestimates the potential incremental administrative burden of critical habitat for the loggerhead. The estimated incremental impacts per consultation are, however, relatively minor and we accordingly do not anticipate variations in consultation rates to significantly change the findings of our analysis.
This analysis relies on patterns of consultation within the past five years (2008 to 2012) to forecast future <i>locations</i> of recreation and lighting management activities.	<b>Unknown.</b> May overestimate or underestimate incremental impacts in a given area.	<b>Potentially major.</b> Although the expected rate of consultation on recreation and lighting management activities is not likely to vary significantly from year to year, the location of these consultations may change. As a result, relying on the approximate location of past consultation activity may underestimate impacts in certain locations while overestimating impacts in others.
One of the proposed critical habitat units (LOGG-T-FL-01) contains an area proposed for critical habitat designation (in Duval County) as well as an area being considered for exclusion (in St. Johns County). The historical TAILS data do not allow us to determine with certainty whether forecast projects are located in the area being considered for exclusion in this unit. Therefore, to be conservative, we assume that activities forecast for this unit occur in the area being proposed for designation.	May result in an <b>overestimate</b> of costs in areas proposed for designation and an <b>underestimate</b> of costs in areas considered for exclusion.	<b>Likely minor.</b> The effect of this assumption is limited to the distribution of impacts across areas proposed for designation and areas considered for exclusion in one proposed critical habitat unit in Florida. The forecast annual level of consultations in this unit is minor (less than two consultations annually for recreation, and less than one consultation annually for lighting, disaster, and oil and gas) and therefore the overall affect is likely minor.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>This analysis does not provide estimates of project-specific future section 7 consultations for activities that are covered under the BOEM planning area-wide consultations for oil and gas activities.</p>	<p>May result in an <b>underestimate</b> of costs.</p>	<p><b>Likely minor.</b> Data are not available to predict the frequency and location of particular projects within the broader planning areas. According to NMFS, the project-specific consultations are likely, however, to involve relatively minor administrative effort as they will primarily be focused on review of projects to ensure they are operating consistent with their programmatic consultation. The USFWS review of these consultations would likely be very minor in nature.</p>
<p>This analysis does not provide estimates of infrequent and non-scheduled consultations (i.e., events of significant impact), such as the informal consultations that resulted from the Deepwater Horizon oil spill.</p>	<p>May result in an <b>underestimate</b> of costs.</p>	<p><b>Likely minor.</b> Events of significant impact are unpredictable and infrequent. Additionally, other events that may fall under this category, such as reissuances of permits are infrequent and are not always scheduled. However, USFWS will review each individual project or activity at the time of consultation to determine whether additional conservation is needed to avoid adverse modification of critical habitat.</p>

## CHAPTER 7 | POTENTIAL ECONOMIC BENEFITS

237. The previous chapters of this report evaluate the potential impacts that may be generated by the designation of terrestrial critical habitat for the loggerhead sea turtle. This chapter contemplates potential economic benefits resulting from the designation. First, we introduce economic methods employed to quantify benefits of species and habitat conservation, and discuss the availability of existing literature to support valuation in the context of this rulemaking. We then provide a qualitative description of the potential categories of ancillary benefits that may result from loggerhead turtle conservation activities.

### KEY FINDINGS

- The primary goal of critical habitat designation for the loggerhead sea turtle is to support its long-term conservation and recovery. Conservation and recovery of the species may result in benefits, including use benefits (wildlife-viewing), non-use benefits (existence values), and ecosystem service benefits (e.g., water quality improvements and enhanced habitat conditions for other species).
- The extent to which critical habitat designation for the loggerhead sea turtle may improve the DPS' population or recovery potential is unknown. That is, information is not available on the potential percent increase in loggerhead populations, or the incremental change in the probability of recovery, generated by the critical habitat rule.
- Benefits of critical habitat designation would stem from changes in the level or type of conservation efforts being implemented for the species. As described in the previous chapters, USFWS does not anticipate that critical habitat designation will change the level or types of conservation efforts undertaken.
- Absent information on the incremental change in loggerhead population or recovery potential associated, we are unable to monetize associated incremental use and non-use benefits. However, this chapter summarizes available information values of the loggerhead sea turtle from existing studies.

### 7.1 ESTIMATING CONSERVATION BENEFITS

238. The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species, such as the loggerhead sea turtle.<sup>153</sup> Thus, attempts to develop monetary estimates of the benefits of this proposed critical habitat designation

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<sup>153</sup> The term "conservation" means "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary" (16 U.S.C. 1532).

would focus on the public's willingness to pay to achieve the conservation benefits to the DPS resulting from this designation.

239. Quantification and monetization of species conservation benefits requires two primary pieces of information: (1) data on the incremental change in loggerhead sea turtle population or in the probability of loggerhead recovery that is expected to result from the designation; and (2) data on the public's willingness to pay for this incremental change. Neither data element is readily available for this analysis; thus, we do not quantify or monetize the conservation benefits of this Proposed Rule.
240. Determining the incremental effect of critical habitat on loggerhead conservation and recovery is complicated. Such an evaluation would require the ability to isolate and quantify the effect of the designated critical habitat separately from all other ongoing or planned conservation efforts for the DPS, such as the protections afforded the species due to sections 7, 9 and 10 of the Act under the listing of the DPS, or the implementation of the Recovery Plan.
241. As described in Chapter 2 of the report, USFWS does not anticipate that critical habitat will change how a project or activity is implemented. However, even in the case that critical habitat designation did have an effect on the conservation and recovery of the loggerhead, it is uncertain whether the existing economics literature would support valuation of that change. While a number of published studies estimate the value the public places on protecting loggerhead sea turtles, none of these studies specifically estimates the value of the types of incremental changes in recovery probability that could result from the designation.
242. In the remainder of this section, we provide a more detailed description of the economic techniques that economists would employ to monetize these types of conservation benefits. We also present a brief review of the existing literature valuing loggerhead sea turtle protection. These studies provide evidence that the public may have a positive value for efforts that will increase the recovery probability of the species. However, for the reasons described above, they cannot be applied to estimate the incremental changes resulting from critical habitat designation.

#### 7.1.1 ECONOMIC METHODS USED TO VALUE USE AND NON-USE VALUES OF SPECIES AND HABITAT CONSERVATION

243. Various economic benefits, measured in terms of social welfare or regional economic performance, may result from conservation efforts for listed species. The benefits can be placed into two broad categories: (1) those associated with the primary goal of species conservation (i.e., direct benefits), and (2) those additional beneficial services that derive from the conservation efforts but are not the purpose of the Act (i.e., ancillary benefits, such as improved water quality).
244. Because the purpose of the Act is to provide for the conservation of endangered and threatened species and their ecosystems, the benefits of actions taken under the Act are often measured in terms of the value placed by the public on species preservation (e.g., avoidance of extinction, and/or increase in a species' population). Such social welfare

values for a species may reflect both use and non-use values for the species. Use values derive from a direct use for a species, such as commercial harvesting or recreational wildlife-viewing opportunities. Non-use values are not derived from direct use of the species, but instead reflect the utility the public derives from knowledge that a species continues to exist (e.g., existence or bequest values).

245. As a result of actions taken to preserve endangered and threatened species, such as habitat management, various other benefits may accrue to the public. Conservation efforts may result in improved environmental quality, which in turn may have collateral human health or recreational use benefits. In addition, conservation efforts undertaken for the benefit of a threatened or endangered species may enhance shared habitat for other wildlife. Such benefits may result from modifications to projects, or may be collateral to such actions.
246. Economists apply a variety of methodological approaches in estimating both use and non-use values for species and for habitat improvements, including stated preference and revealed preference methods. Stated preference techniques include such tools as the contingent valuation method, conjoint analysis, or contingent ranking methods. In simplest terms, these methods employ survey techniques, asking respondents to state what they would be willing to pay for a resource or for programs designed to protect that resource. A substantial body of literature has been developed that describes the application of this technique to the valuation of natural resource assets.
247. More specific to use values for species or habitats, revealed preference techniques examine individuals' behavior in markets in response to changes in environmental or other amenities (i.e., people "reveal" their value through their behavior). For example, travel cost models are frequently applied to value access to recreational opportunities, as well as to value changes in the quality and characteristics of these opportunities. Basic travel cost models are rooted in the idea that the value of a recreational resource can be estimated by analyzing the travel and time costs incurred by individuals visiting the site. Another revealed preference technique is hedonic analysis, which is often employed to determine the effect of site-specific characteristics on property values.

#### 7.1.2 USE AND NON-USE VALUATION STUDIES

248. Numerous published studies estimate individuals' willingness to pay to protect endangered species.<sup>154</sup> The economic values reported in these studies reflect various groupings of benefit categories (including both use and non-use values). For example, these studies assess public willingness to pay for wildlife-viewing opportunities, for the option of seeing or experiencing the species in the future, to assure that the species will exist for future generations, and simply knowing a species exists, among other values.
249. An ideal study for use in valuing the use and non-use values that may derive from critical habitat designation for the loggerhead sea turtle would be specific to the Northwest Atlantic Ocean DPS, the policy question at hand (implementation of the specific

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<sup>154</sup> See, for example, the summary in Richardson, L. and J. Loomis. March 2009. The Total Economic Value of Threatened, Endangered, and Rare Species: An Updated Meta-Analysis. *Ecological Economics* 68(5): 1535-1548.

conservation efforts associated with critical habitat designation), and the relevant population holding such values (e.g., citizens of the United States). No such study has been undertaken to date for the loggerhead sea turtle.

250. Absent primary research specific to the policy question (benefits of critical habitat designation for the loggerhead sea turtle), resource management decisions can often be informed by applying the results of existing valuation research to a new policy question – a process known to economists as benefit transfer. Benefit transfer involves the application of unit value estimates, functions, data, and/or models from existing studies to estimate the benefits associated with the resource under consideration.
251. The OMB has written guidelines for conducting credible benefit transfers. The important steps in the OMB guidance are: (1) specify the value to be estimated for the rulemaking; and (2) identify appropriate studies to conduct benefits transfer based on the following criteria:
- The selected studies should be based on adequate data, sound and defensible empirical methods and techniques;
  - The selected studies should document parameter estimates of the valuation function;
  - The study and policy contexts should have similar populations (e.g., demographic characteristics). The market size (e.g., target population) between the study site and the policy site should be similar;
  - The good, and the magnitude of change in that good, should be similar in the study and policy contexts;
  - The relevant characteristics of the study and policy contexts should be similar;
  - The distribution of property rights should be similar so that the analysis uses the same welfare measure (i.e., if the property rights in the study context support the use of willingness-to-accept measures while the rights in the rulemaking context support the use of willingness-to-pay measures, benefits transfer is not appropriate); and
  - The availability of substitutes across study and policy contexts should be similar.

#### 7.1.3 AVAILABLE LITERATURE VALUING LOGGERHEAD SEA TURTLE POPULATIONS

249. We undertook a literature review to identify existing research regarding the use and non-use values the public holds for conserving the loggerhead sea turtle in the U.S. This search identified few studies focusing on the loggerhead sea turtle in the U.S., the majority focusing on ecotourism benefits of sea turtles in Australia, Costa Rica, and other countries not relevant to this rulemaking. The identified studies focused on the U.S. did not distinguish separate use (e.g., recreational opportunities) and non-use (the knowledge that the loggerhead and its habitat will be conserved in the present and for future generations) values.

250. A study by Whitehead (1993) applies the contingent valuation method to elicit information on the public's value to reduce the risk of loggerhead sea turtle extinction to zero for the next 25 years. North Carolina household respondents were asked to contribute to a fund that would reduce risk of extinction to zero. The results indicate the mean willingness to pay for a loggerhead protection program that would preclude extinction of the species for 25 years is \$10.98 (1991 dollars) per North Carolina household (this equates to \$18.23 in 2012 dollars).<sup>155</sup>
251. Wallmo and Lew (2012) evaluated people's preferences to downlist eight threatened and endangered marine species, including the loggerhead sea turtle. The focus of the study was to determine if some marine taxa are more valuable than others to the public in the United States. Simply stated, respondents to the stated preference choice experiment were asked about their willingness-to-pay for different additional protection actions for a variety of species with the understanding that the protection actions would achieve specified downlisting objectives (i.e., downlisting from endangered to threatened or recovered). The analysts found a positive willingness-to-pay to improve the status of all species, and identified significant differences in the relative willingness-to-pay estimates. Values range from mean willingness-to-pay for recovery of \$40.49 to \$71.62 U.S dollars (2011 dollars) per household every year for ten years. The mean willingness to pay for recovering the loggerhead was \$43.72.<sup>156</sup>
252. The identified studies do not support a benefit transfer based analysis to quantify benefits of the critical habitat designation. First, information on the effect of critical habitat is insufficient to support such an analysis. Appropriate allocation of benefits would require modeling changes in loggerhead populations over time, or changes in the probability or timing of loggerhead recovery, in response to the specific incremental conservation efforts associated with the critical habitat designation. The timing and extent to which the Northwest Atlantic loggerhead DPS would be expected to recover, and the extent to which this recovery would be associated with the critical habitat-related conservation efforts, are, however, unknown. Absent this information, conducting a credible benefit transfer analysis that quantifies benefits of this rulemaking on loggerhead sea turtle use and non-use values is not possible. The information in this discussion is therefore provided for context and to demonstrate that the public holds a positive value for conservation of the loggerhead. Furthermore, while we have reviewed these studies in order to provide general information on previous research regarding economic values of loggerhead sea turtles, we do not promote a particular estimate, nor offer judgments regarding the quality of the underlying valuation studies.
253. As described above, an ideal study for estimating economic use and non-use values of critical habitat designation would be specific to the species in question (or would address

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<sup>155</sup> Whitehead, John. 1993. Total Economic Values for Coastal and Marine Wildlife: Specification, Validity, and Valuation Issues. *Marine Resource Economics* 8:119-132.

<sup>156</sup> Wallmo, Kristy and Daniel K. Lew. 2012. Public Willingness to Pay for Recovering and Downlisting Threatened and Endangered Marine Species. *Conservation Biology* 48(5):830-839.

a closely related species), would consider valuation in a context close to the policy issues in question (i.e., economic benefits of implementing the conservation efforts associated with designating critical habitat for this DPS), and would address a relevant population holding these values (citizens of the United States). While the studies identified and described above are specific to the loggerhead and address willingness to pay across relevant populations, none consider valuation in the context of the specific conservation efforts that may be associated with critical habitat designation. Wallmo and Lew (2012) estimate the value to U.S. households of recovering loggerhead populations. While these values are relevant to critical habitat, they are not benefits expected to result specifically from the critical habitat rule. The estimates represent social welfare benefits of recovery of the species; critical habitat supports recovery of the species but does not in and of itself lead to recovery. The benefits described in this study are associated with the full suite of regulatory and voluntary conservation actions that ultimately lead to recovery of the loggerhead sea turtle population.

254. A recent study by Richardson and Loomis (2009) estimates a model (i.e., a willingness to pay function) to value threatened or endangered species based on estimates from multiple studies. This type of study is referred to as a “meta-analysis.”<sup>157</sup> The meta-analysis is based on 31 studies with 67 willingness to pay (WTP) observations published from 1985 to 2005 evaluating economic values of endangered, threatened or rare species primarily applying contingent valuation methods. The economic values expressed in the studies that inform the model reflect primarily recreational use, as well as non-use values. Some of the studies, however, are solely focused on the non-use component of the economic value. The species included in the study are primarily marine and riverine species (whales, dolphins, seals, otters, sea lions, salmon and other listed fish species), but include some avian and other species, including sea turtles. The study referenced in the meta-analysis is the Whitehead (1993) study described above.
255. A key variable required for the resulting willingness to pay function is the change in the species population levels resulting from the rule. Thus, absent the information on the effect of the critical habitat designation on loggerhead populations, the Richardson and Loomis model does not provide a means to estimate the incremental benefit of the rule in terms of the public’s willingness to pay.
256. Overall, the studies identified through our literature review provide some indication of the values to humans of loggerhead sea turtle populations. The absence of information on the effect of the designation on loggerhead populations, however, precludes application of these values to estimate the public’s willingness to pay for the critical habitat rule.

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<sup>157</sup> Richardson, Leslie and John Loomis. 2009. The Total Economic Value of Threatened, Endangered and Rare Species: An Updated Meta-Analysis. *Ecological Economics*: 1535-1548. This paper updates a 1996 study on the same topic by Loomis and White (Loomis, John and D.S. White. Economic Benefits of Rare and Endangered Species: A Meta-Analysis. *Ecological Economics* (1996): 197-206).

**7.2 QUALITATIVE DISCUSSION OF THE ECOSYSTEM SERVICE BENEFITS OF CRITICAL HABITAT DESIGNATION FOR THE LOGGERHEAD SEA TURTLE**

257. Benefits beyond use and non-use values may also be achieved through a species listing or designation of critical habitat. For example, the public may hold a value for habitat conservation, beyond its willingness to pay for conservation of a specific species. Studies have estimated the public's willingness to pay for wildlife management and preservation programs, and for marine species protection in general. These studies do not provide values that can be used to establish the incremental values associated with this proposed terrestrial critical habitat designation, however.
258. The potential ecosystem service benefits of the rule are difficult to discern as USFWS has identified that critical habitat designation is not expected to change the conservation efforts recommended in the terrestrial habitat for the DPS. Accordingly, we are not able to determine environmental co-benefits of the rule.
259. All conservation efforts undertaken as a result of critical habitat designation relate to the maintenance or enhancement of the use and non-use value (e.g., existence value) that the public may hold specifically for the loggerhead sea turtle. Further, conservation efforts undertaken for the loggerhead may also result in improvements to ecosystem health that are shared by other, coexisting species (including other endangered or threatened species). The maintenance or enhancement of use and non-use values for these other species, or for biodiversity in general, may also result from these conservation efforts for the loggerhead.

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## APPENDIX A | ADDITIONAL STATUTORY REQUIREMENTS

260. This appendix addresses the remaining analytical requirements under administrative law and executive order. Section A.1 presents an analysis of impacts to small entities which is conducted pursuant to the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 and Executive Order 13272. Section A.2 assesses the effects of the Proposed Rule on state, local, and Tribal governments and the private sector as required by Title II of the Unfunded Mandates Reform Act of 1995 (UMRA). Section A.3 addresses the potential for federalism concerns as required by Executive Order 13132. Lastly, Section A.4 considers potential impacts to the energy industry in response to Executive Order 13211, entitled, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use.”
261. The analyses in this appendix rely on the estimated incremental impacts resulting from the proposed terrestrial critical habitat designation. The incremental impacts of the rulemaking are most relevant for these analyses because they reflect costs that may be avoided or reduced based on decisions regarding the composition of the final rule.

**A.1 RFA/SBREFA ANALYSIS**

262. When a Federal agency proposes regulations, the RFA requires the agency to prepare and make available for public comment an analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions as defined by the RFA).<sup>158</sup> No initial regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the RFA to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have significant economic impact on a substantial number of small entities.
263. Three types of small entities are defined in the RFA:
- **Small Business** - Section 601(3) of the RFA defines a small business as having the same meaning as small business concern under section 3 of the Small Business Act. This includes any firm that is independently owned and operated and is not dominant in its field of operation. The U.S. Small Business Administration (SBA) has developed size standards to carry out the purposes of the Small Business Act, and those size standards can be found in 13 CFR 121.201. The size standards are matched to North American Industry

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<sup>158</sup> 5 U.S.C. § 601 et seq.

Classification System (NAICS) industries. The SBA definition of a small business applies to a firm's parent company and all affiliates as a single entity.

- **Small Governmental Jurisdiction** - Section 601(5) defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000. Special districts may include those servicing irrigation, ports, parks and recreation, sanitation, drainage, soil and water conservation, road assessment, etc. When counties have populations greater than 50,000, those municipalities of fewer than 50,000 can be identified using population reports. Other types of small government entities are not as easily identified under this standard, as they are not typically classified by population.
- **Small Organization** - Section 601(4) defines a small organization as any not-for-profit enterprise that is independently owned and operated and not dominant in its field. Small organizations may include private hospitals, educational institutions, irrigation districts, public utilities, agricultural co-ops, etc.

264. The courts have held that the RFA/SBREFEA requires Federal agencies to perform a regulatory flexibility analysis of forecast impacts to small entities that are directly regulated. In the case of *Mid-Tex Electric Cooperative, Inc., v. Federal Energy Regulatory Commission (FERC)*, FERC proposed regulations affecting the manner in which generating utilities incorporated construction work in progress in their rates. The generating utilities that expected to be regulated were large businesses; however, their customers – transmitting utilities such as electric cooperatives – included numerous small entities. In this case, the court agreed that FERC simply authorized large electric generators to pass these costs through to their transmitting and retail utility customers, and FERC could therefore certify that small entities were not directly impacted within the definition of the RFA.<sup>159</sup>
265. Similarly, *American Trucking Associations, Inc. v. Environmental Protection Agency* addressed a rulemaking in which EPA established a primary national ambient air quality standard for ozone and particulate matter.<sup>160</sup> The basis of EPA's RFA/SBREFEA certification was that this standard did not directly regulate small entities; instead, small entities were indirectly regulated through the implementation of state plans that incorporated the standards. The court found that, while EPA imposed regulation on states, it did not have authority under this rule to impose regulations directly on small entities and therefore small entities were not directly impacted within the definition of the RFA.
266. Following the court decisions described above, this analysis considers only those entities directly regulated by the Proposed Rule. The regulatory mechanism through which

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<sup>159</sup> 773 F. 2d 327 (D.C. Cir. 1985).

<sup>160</sup> 175 F. 3d 1027, 1044 (D.C. Cir. 1999).

critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with USFWS, to insure that any action authorized, funded, or carried by the Agency is not likely to adversely modify critical habitat. Therefore, under a strict interpretation of the definition of a “directly regulated entity,” only Federal action agencies are subject to a regulatory requirement (i.e., to avoid adverse modification) as the result of the designation. Because Federal agencies are not small entities, under this interpretation, USFWS may certify that the proposed critical habitat rule will not have a significant economic impact on a substantial number of small entities.

267. USFWS acknowledges, 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. While these entities are not directly regulated, USFWS has requested information regarding the potential number of third parties participating in consultations on an annual basis in order to ensure a robust examination of the effects of this Proposed Rule. Below, we provide that information. We also provide information to assist USFWS in determining whether these entities are likely to be “small,” and whether the number of potentially affected small entities is “substantial.”<sup>161</sup>
268. Importantly, the impacts of the 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 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.

#### THIRD-PARTY PARTICIPANTS IN CONSULTATIONS

269. As detailed in the report, quantified incremental impacts associated with this rulemaking are expected to consist of administrative costs associated with forecast section 7 consultations. Of the activities described in the report, small entities are not anticipated to incur incremental costs associated with disaster response or oil and gas activities, due to the fact that the forecast section 7 consultations concerning these activities are expected to involve only USFWS and Federal agencies.
270. The report also describes impacts associated with species and habitat management; in-water and coastal development; sand placement; recreation; and lighting management. While we expect that Federal agencies are the only entities that will be directly regulated as a result of the critical habitat designation, potential exists for third parties to be involved in section 7 consultations. Specifically, for species and habitat management, sand placement, recreation, and lighting management, counties may be involved in future section 7 consultations. For in-water and coastal development, businesses may be involved in future section 7 consultations. Therefore, to be conservative, we present

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<sup>161</sup> The RFA does not provide quantitative thresholds to defining the terms “substantial” and “significant.” In its guidance to Federal agencies on complying with the RFA, SBA provides qualitative descriptions of these terms, leaving the Agencies with discretion to interpret these terms on a case-by-case basis.

information on small governmental jurisdictions (counties) and small businesses that may be involved in the forecast consultations for these activities. Exhibit A-1 describes these third parties by NAICS code for each of the relevant activities, highlighting the relevant small business thresholds.

**EXHIBIT A-1. RELEVANT ACTIVITIES AND THIRD PARTY INVOLVEMENT**

RELEVANT ACTIVITY	DESCRIPTION OF POTENTIAL THIRD PARTIES	NAICS CODE	SBA SIZE STANDARD
In-Water and Coastal Development	Highway, Street, and Bridge Construction - This industry comprises establishments primarily engaged in the construction of highways (including elevated), streets, roads, airport runways, public sidewalks, or bridges.	237310	\$33.5 million
	Other Heavy and Civil Engineering Construction - This industry comprises establishments primarily engaged in heavy and engineering construction projects (excluding highway, street, bridge, and distribution line construction).	237990	
	Dredging and Surface Cleanup Activities (a subset of Other Heavy and Civil Engineering Construction, above)	237990 <sup>1</sup>	\$20.0 million
Species and Habitat Management; Sand Placement; Lighting Management; and Recreation	County Governments, to the extent that they develop HCPs or other management plans, or apply for Federal permits for recreation or sand placement activities.	NA	Population of 50,000
<p>Source: U.S. Small Business Administration, "Table of Small Business Size Standards Matched to North American Classification System Codes," 7 January 2013. Accessed at <a href="http://www.sba.gov/content/table-small-business-size-standards">http://www.sba.gov/content/table-small-business-size-standards</a>.</p> <p>Notes:</p> <p>1. To be considered small for purposes of Government procurement, a firm must perform at least 40 percent of the volume dredged with its own equipment or equipment owned by another small dredging concern.</p>			

## SUMMARY OF FINDINGS

### Impacts to Small Government Jurisdictions

271. Of the county governments potentially involved in future section 7 consultation on species and habitat management; sand placement; lighting management; and recreation, only two counties are considered a small government jurisdiction as defined in Section 601(5) of the RFA. Gulf County, Florida and Colleton County, South Carolina with

populations of 15,844 and 38,611, respectively, are considered small governmental jurisdictions.<sup>162</sup> The total potential annualized incremental economic impact to Gulf County is \$650 (seven percent discount rate), which represents less than 0.01 percent of the county's reported revenues in 2011.<sup>163</sup> This impact is the total third party cost of forecast section 7 consultations on species and habitat management (associated with the potential reinitiation of formal consultation on the Gulf County draft HCP should it be approved prior to final designation of terrestrial critical habitat); sand placement; lighting management; and recreation, that are expected to occur in the proposed critical habitat units located in Gulf County, Florida, as described in Chapters 3, 5, and 6 of the report. We exclude costs associated with programmatic consultations, as these are expected to involve only USFWS and a Federal agency. Note that proposed critical habitat unit LOGG-T-FL-41 contains areas in both Bay and Gulf Counties. For purposes of this analysis, we conservatively assume that the full third party costs associated with consultations in this unit are incurred by Gulf County, which may result in an overestimate of costs.

272. The total potential annualized incremental economic impact to Colleton County is \$240 (seven percent discount rate), which represents less than 0.01 percent of the county's reported revenues in 2011.<sup>164</sup> This impact is the total third party cost of forecast section 7 consultations on four sand placement projects that are expected to occur in proposed critical habitat unit LOGG-T-SC-16.

#### Impacts to Small Businesses

273. Based on the number of past consultations and information about potential future actions likely to take place within proposed critical habitat areas, this analysis forecasts the number of additional consultations that may take place as a result of critical habitat (see Chapters 3 through 6). Ideally, this analysis would directly identify the number of small entities which may engage in activities that overlap with the proposed designation; however, USFWS's TAILS database tracks the Federal agency that is involved in the consultation process, and does not identify past permit recipients or the particulars that would allow USFWS to determine whether the recipients were small entities. Nor does the database include information that would determine how often Federal agencies have hired small entities to complete various actions associated with these consultations.
274. In the absence of this information, this analysis utilizes Dun and Bradstreet databases to determine the number of small businesses operating within the NAICS codes identified in Exhibit A-1 in each county containing proposed critical habitat units.

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<sup>162</sup> U.S. Census Bureau, July 2011

<sup>163</sup> Gulf County, Florida. September 30, 2011. Annual Financial Statements. Retrieved from [http://www.myflorida.com/audgen/pages/county\\_efile%20rpts/2011%20gulf%20county.pdf](http://www.myflorida.com/audgen/pages/county_efile%20rpts/2011%20gulf%20county.pdf).

<sup>164</sup> Colleton County, South Carolina. Financial Statements and Independent Auditors' Report, June 30, 2011. Retrieved from <http://www.colletoncounty.org/Data/Sites/1/media/finance/2011AuditRpt.pdf>.

275. Estimated impacts to small entities are summarized by industry in Exhibit A-2. Within the potentially affected industries, approximately 95 percent of businesses are classified as “small.” Within areas proposed for critical habitat designation, the quantified annualized impacts to small entities are estimated to be \$15,000, or approximately 12 percent of total quantified incremental impacts anticipated as a result of this rule.<sup>165</sup> In areas being considered for exclusion, the quantified annualized impacts to small entities are estimated to be \$1,800, or approximately 11 percent of total quantified incremental impacts anticipated as a result of this rule.
276. Exhibit A-2 presents an estimate of the number of potentially affected small entities, as well as the per-entity impact of the Proposed Rule, according to two scenarios. These scenarios are intended to reflect the range of uncertainty regarding the number of small entities that may be affected by the designation and the potential impacts of critical habitat designation on their annual revenues. Under Scenario 1, this analysis assumes that one small entity will be involved in each future consultation forecast and accordingly estimates a high-end estimate of the number of potentially affected small entities and a low-end estimate of the potential effect in terms of percent of revenue. However, some entities may participate in more than one consultation and thus this scenario may overstate the number of small entities likely to be affected by the rule and understate the potential revenue effect.
277. Under Scenario 2, this analysis assumes costs associated with each consultation action are borne by a single small entity within an industry. This method understates the number of small entities affected, but overstates the likely impacts on an entity. As such, this method arrives at a low-end estimate of potentially affected entities and a high-end estimate of potential effects on revenue, assuming that quantified costs represent a complete accounting of the costs likely to be borne by private entities. While these scenarios present a broad range of potentially affected entities and the associated revenue effects, we expect the actual number of small entities effected and revenue effects will be somewhere in the middle.

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<sup>165</sup> Total annualized impacts to small entities are calculated by first taking the portion of administrative costs that may be borne by third parties. This analysis then assumes that the portion of these impacts that may be borne by small entities is equivalent to the percentage of businesses that are considered small. For example, if 97 percent of entities engaged in development activities in a given unit are considered small, this analysis assumes that 97 percent of impacts for that unit and industry will be borne by small entities.

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## EXHIBIT A-2. SUMMARY OF QUANTIFIED IMPACTS TO SMALL ENTITIES BY ACTIVITY TYPE

METRIC		In-water and Coastal Development
[A]	Total Annualized Impacts to Small Entities	In areas proposed for critical habitat designation: \$15,000 In areas considered for exclusion: \$1,800
[B]	Estimated Average Annual Revenues for Small Entities <sup>1</sup>	\$7,660,000
SCENARIO 1: ASSUMES ALL SMALL ENTITIES WITHIN PROPOSED CRITICAL HABITAT SHARE INCREMENTAL COSTS EQUALLY		
[C]	Estimated Number of Small Entities conducting activities in proposed critical habitat areas	In areas proposed for critical habitat designation: 306 businesses In areas considered for exclusion: 32 businesses
[D]	Estimated Impact per Small Entity ([A]/[C])	In areas proposed for critical habitat designation: \$49 In areas considered for exclusion: \$56
[E]	Impact per Small Entity as Percentage of Revenues ([D]/[B])	In areas proposed for critical habitat designation: 0.001% In areas considered for exclusion: 0.001%
SCENARIO 2: ASSUMES ONE ENTITY BEARS ALL THIRD PARTY COSTS		
[F]	Estimated Impact per Small Entity ([A])	In areas proposed for critical habitat designation: \$15,000 In areas considered for exclusion: \$1,800
[G]	Impact per Small Entity as Percentage of Revenues ([F]/[B])	In areas proposed for critical habitat designation: 0.20% In areas considered for exclusion: 0.02%
<p>1. Annual revenues are estimated using Risk Management Association (RMA), <i>Annual Statement Studies: Financial Ratio Benchmarks 2012 to 2013</i>, 2012. The following method was used to develop these estimates:</p> <p>a) Matched affected economic activities to available NAICS codes in RMA data. The following codes are used for affected industries: 237310 (Highway, Street, and Bridge Construction), and 237990 (Other Heavy and Civil Engineering Construction).</p> <p>b) For each NAICS code, RMA provides the net sales and the number of entities falling within several sales categories: \$0 to \$1 million, \$1 to 3 million, \$3 to \$5 million, \$5 to \$10 million, \$10 to \$25 million, and greater than \$25 million. Based on the number of entities and total net sales falling within each sales category, this analysis developed an estimate of average net sales (revenues) per small entity. Specifically, the analysis averages data for the sales categories at or below the small business threshold for each industry. For example, if the small business threshold is \$4 million, this analysis uses the following sales categories: \$0 to \$1 million and \$1 to 3 million. For activities with a threshold of \$33.5 million, this analysis used sales categories up to \$10 to \$25 million. This represents a conservative approach to the analysis, as revenues per entity will appear lower, and therefore impacts higher, than if higher revenue categories were included. For industries that have a threshold based on the number of employees, all categories up to \$10 to \$25 million are used.</p>		

## A.2 UNFUNDED MANDATES REFORM ACT (UMRA) ANALYSIS

278. Title II of UMRA requires agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector.<sup>166</sup> Under Section 202 of UMRA, USFWS must prepare a written statement, including a cost-benefit analysis, for rules that may result in the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any one year. If a written statement is needed, Section 205 of UMRA requires USFWS to identify and consider a reasonable number of regulatory alternatives. USFWS must adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule, unless the Secretary publishes an explanation of why that alternative was not adopted. The provisions of Section 205 do not apply when they are inconsistent with applicable law.
279. The proposed rule 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. Therefore, this rule does not place an enforceable duty upon State, local, or Tribal governments, or the private sector.

## A.3 FEDERALISM IMPLICATIONS

280. Executive Order 13132, entitled “Federalism,” requires USFWS to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.”<sup>167</sup> “Policies that have federalism implications” are defined in the Executive Order to include regulations that have “substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.”<sup>168</sup> Under Executive Order 13132, USFWS may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or USFWS consults with State and local officials early in the process of developing the regulation.

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<sup>166</sup> 2 U.S.C. 1531 et seq.

<sup>167</sup> 64 FR 43255, August 10, 1999.

<sup>168</sup> *Ibid.*

281. This Proposed Rule does not have direct federalism implications. The designation of critical habitat directly affects only the responsibilities of Federal agencies. As a result, the Proposed Rule does not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in the Order.
282. State or local governments may be indirectly affected by the proposed revision if they require Federal funds or formal approval or authorization from a Federal agency as a prerequisite to conducting an action. In these cases, the State or local government agency may participate in the section 7 consultation as a third party. As discussed in Chapter 2, one of the key conclusions of the incremental analysis is that we do not expect critical habitat designation to generate additional requests for project modification in any of the proposed critical habitat units. Incremental economic impacts of the designation will likely be limited to minor additional administrative costs to USFWS, Federal agencies and third parties of considering critical habitat as part of the forecast section 7 consultations. Therefore, the proposed revision of critical habitat is also not expected to have substantial indirect impacts on State or local governments.

#### A.4 POTENTIAL IMPACTS TO THE ENERGY INDUSTRY

283. Pursuant to Executive Order No. 13211, “Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use,” issued May 18, 2001, Federal agencies must prepare and submit a “Statement of Energy Effects” for all “significant energy actions.” The purpose of this requirement is to ensure that all Federal agencies “appropriately weigh and consider the effects of the Federal Government’s regulations on the supply, distribution, and use of energy.”<sup>169</sup>
284. The Office of Management and Budget provides guidance for implementing this Executive Order, outlining nine outcomes that may constitute “a significant adverse effect” when compared with the regulatory action under consideration:
- Reductions in crude oil supply in excess of 10,000 barrels per day (bbls);
  - Reductions in fuel production in excess of 4,000 barrels per day;
  - Reductions in coal production in excess of 5 million tons per year;
  - Reductions in natural gas production in excess of 25 million Mcf per year;
  - Reductions in electricity production in excess of 1 billion kilowatts-hours per year or in excess of 500 megawatts of installed capacity;
  - Increases in energy use required by the regulatory action that exceed the thresholds above;

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<sup>169</sup> Memorandum For Heads of Executive Department Agencies, and Independent Regulatory Agencies, Guidance For Implementing E.O. 13211, M-01-27, Office of Management and Budget, July 13, 2001, <http://www.whitehouse.gov/omb/memoranda/m01-27.html>.

- Increases in the cost of energy production in excess of one percent;
- Increases in the cost of energy distribution in excess of one percent; or
- Other similarly adverse outcomes.<sup>170</sup>

285. As discussed in Chapter 6, oil and gas projects may affect the essential features of critical habitat for the loggerhead sea turtle. As described in Chapter 2, however, USFWS does not anticipate that critical habitat will change conservation efforts recommended during section 7 consultation for these projects. Consequently, it is unlikely the identified activities and projects will be affected by the designation beyond the quantified administrative impacts. Therefore, the proposed designation is not expected to impact the level of energy production. It is unlikely that any impacts to the industry that remain unquantified will result in a change in production above the one billion kilowatt-hour threshold identified in the Executive Order. Therefore, it appears unlikely that the energy industry will experience “a significant adverse effect” as a result of the critical habitat designation for the loggerhead sea turtle.

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<sup>170</sup> *Ibid.*

## APPENDIX B | SENSITIVITY OF RESULTS TO DISCOUNT RATE

EXHIBIT B-1. FORECAST ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION BY UNIT, 3 PERCENT DISCOUNT RATE, 2014-2023 (2013\$)

UNIT	TOTAL PRESENT VALUE	ANNUALIZED
AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION		
LOGG-T-NC-01	\$54,000	\$6,100
LOGG-T-NC-02	\$3,600	\$420
LOGG-T-NC-03	\$85,000	\$9,600
LOGG-T-NC-04	\$1,500	\$170
LOGG-T-NC-05	\$51,000	\$5,900
LOGG-T-NC-06	\$1,500	\$170
LOGG-T-NC-07	\$38,000	\$4,400
LOGG-T-NC-08	\$22,000	\$2,500
LOGG-T-SC-01	\$4,700	\$530
LOGG-T-SC-02	\$4,700	\$530
LOGG-T-SC-03	\$560	\$64
LOGG-T-SC-04	\$560	\$64
LOGG-T-SC-05	\$560	\$64
LOGG-T-SC-06	\$820	\$93
LOGG-T-SC-07	\$820	\$93
LOGG-T-SC-08	\$820	\$93
LOGG-T-SC-09	\$17,000	\$2,000
LOGG-T-SC-10	\$5,500	\$630
LOGG-T-SC-11	\$4,800	\$550
LOGG-T-SC-12	\$560	\$64

UNIT	TOTAL PRESENT VALUE	ANNUALIZED
LOGG-T-SC-13	\$560	\$64
LOGG-T-SC-14	\$560	\$64
LOGG-T-SC-15	\$560	\$64
LOGG-T-SC-16	\$17,000	\$1,900
LOGG-T-SC-17	\$560	\$64
LOGG-T-SC-18	\$560	\$64
LOGG-T-SC-19	\$560	\$64
LOGG-T-SC-20	\$560	\$64
LOGG-T-SC-21	\$560	\$64
LOGG-T-SC-22	\$560	\$64
LOGG-T-GA-01	\$3,500	\$400
LOGG-T-GA-02	\$6,000	\$680
LOGG-T-GA-03	\$7,700	\$870
LOGG-T-GA-04	\$3,500	\$400
LOGG-T-GA-05	\$6,000	\$680
LOGG-T-GA-06	\$3,500	\$400
LOGG-T-GA-07	\$3,500	\$400
LOGG-T-GA-08	\$9,800	\$1,100
LOGG-T-FL-01	\$39,000	\$4,400
LOGG-T-FL-04	\$35,000	\$3,900
LOGG-T-FL-06	\$34,000	\$3,900
LOGG-T-FL-07	\$36,000	\$4,100
LOGG-T-FL-08	\$36,000	\$4,100
LOGG-T-FL-09	\$28,000	\$3,100
LOGG-T-FL-11	\$38,000	\$4,300
LOGG-T-FL-12	\$17,000	\$1,900
LOGG-T-FL-13	\$46,000	\$5,200
LOGG-T-FL-14	\$41,000	\$4,600

UNIT	TOTAL PRESENT VALUE	ANNUALIZED
LOGG-T-FL-15	\$28,000	\$3,200
LOGG-T-FL-16	\$5,800	\$660
LOGG-T-FL-17	\$7,100	\$810
LOGG-T-FL-18	\$7,100	\$810
LOGG-T-FL-19	\$22,000	\$2,600
LOGG-T-FL-20	\$30,000	\$3,500
LOGG-T-FL-21	\$24,000	\$2,800
LOGG-T-FL-22	\$2,800	\$310
LOGG-T-FL-23	\$11,000	\$1,300
LOGG-T-FL-24	\$3,200	\$370
LOGG-T-FL-25	\$10,000	\$1,100
LOGG-T-FL-26	\$11,000	\$1,300
LOGG-T-FL-27	\$3,200	\$370
LOGG-T-FL-28	\$7,300	\$840
LOGG-T-FL-29	\$37,000	\$4,300
LOGG-T-FL-30	\$12,000	\$1,300
LOGG-T-FL-31	\$7,300	\$840
LOGG-T-FL-32	\$4,000	\$460
LOGG-T-FL-33	\$12,000	\$1,300
LOGG-T-FL-34	\$12,000	\$1,300
LOGG-T-FL-35	\$12,000	\$1,300
LOGG-T-FL-36	\$8,100	\$930
LOGG-T-FL-37	\$3,400	\$390
LOGG-T-FL-38	\$3,400	\$390
LOGG-T-FL-39	\$3,400	\$390
LOGG-T-FL-40	\$98,000	\$11,000
LOGG-T-FL-41	\$65,000	\$7,400
LOGG-T-FL-42	\$36,000	\$4,100

UNIT	TOTAL PRESENT VALUE	ANNUALIZED
LOGG-T-FL-43	\$4,800	\$550
LOGG-T-FL-44	\$18,000	\$2,100
LOGG-T-FL-45	\$4,600	\$520
LOGG-T-FL-46	\$17,000	\$1,900
LOGG-T-FL-47	\$7,000	\$790
LOGG-T-MS-01	\$1,400	\$150
LOGG-T-MS-02	\$1,400	\$150
LOGG-T-AL-01	\$110,000	\$12,000
LOGG-T-AL-02	\$41,000	\$4,700
LOGG-T-AL-03	\$8,400	\$950
<b>TOTAL</b>	<b>\$1,400,000</b>	<b>\$160,000</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>		
LOGG-T-FL-01	\$3,200	\$370
LOGG-T-FL-02	\$20,000	\$2,300
LOGG-T-FL-03	\$34,000	\$3,800
LOGG-T-FL-05	\$38,000	\$4,400
LOGG-T-FL-10	\$49,000	\$5,500
<b>TOTAL</b>	<b>\$140,000</b>	<b>\$16,000</b>
<p>Note: The level of effort per consultation represents approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The unit cost estimates therefore may not sum to the total costs reported due to rounding.</p>		

EXHIBIT B-2. QUANTIFIED ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION BY ACTIVITY,  
3 PERCENT DISCOUNT RATE, 2014-2023

ACTIVITY	TOTAL PRESENT VALUE (2013\$)
<b>AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION</b>	
Species and Habitat Management	\$240,000
In-water and Coastal Development	\$620,000
Sand Placement	\$300,000
Recreation	\$150,000
Lighting Management	\$38,000
Disaster Response	\$60,000
Oil and Gas	\$8,000
<b>TOTAL</b>	<b>\$1,400,000</b>
<b>AREAS CONSIDERED FOR EXCLUSION</b>	
Species and Habitat Management	\$32,000
In-water and Coastal Development	\$78,000
Sand Placement	\$2,800
Recreation	\$25,000
Lighting Management	\$390
Disaster Response	\$5,600
Oil and Gas	\$150
<b>TOTAL</b>	<b>\$140,000</b>
<b>Notes:</b> 1. Costs were estimated using a discount rate of 3 percent. 2. The levels of effort per consultation represent approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The cost estimates may therefore not sum to the total costs reported due to rounding.	

## APPENDIX C | UNDISCOUNTED IMPACTS

EXHIBIT C-1. FORECAST ANNUAL ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION BY SPECIFIC UNIT, UNDISCOUNTED, (2013\$)

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AREAS PROPOSED FOR CRITICAL HABITAT DESIGNATION										
LOGG-T-NC-01	\$45,000	\$5,200	\$160	\$160	\$2,600	\$160	\$160	\$2,600	\$160	\$160
LOGG-T-NC-02	\$310	\$160	\$160	\$160	\$2,700	\$160	\$160	\$160	\$160	\$160
LOGG-T-NC-03	\$65,000	\$160	\$160	\$7,400	\$2,700	\$160	\$7,400	\$160	\$160	\$7,400
LOGG-T-NC-04	\$310	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$160
LOGG-T-NC-05	\$36,000	\$640	\$640	\$5,500	\$640	\$640	\$5,500	\$640	\$640	\$5,500
LOGG-T-NC-06	\$310	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$160
LOGG-T-NC-07	\$25,000	\$240	\$240	\$5,100	\$240	\$240	\$5,100	\$240	\$240	\$5,100
LOGG-T-NC-08	\$15,000	\$160	\$160	\$2,600	\$160	\$160	\$2,600	\$160	\$160	\$2,600
LOGG-T-SC-01	\$680	\$530	\$530	\$530	\$530	\$530	\$530	\$530	\$530	\$530
LOGG-T-SC-02	\$680	\$530	\$530	\$530	\$530	\$530	\$530	\$530	\$530	\$530
LOGG-T-SC-03	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-04	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-05	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-06	\$470	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-07	\$470	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
LOGG-T-SC-08	\$470	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-09	\$6,700	\$1,600	\$1,600	\$1,600	\$1,600	\$1,600	\$3,000	\$610	\$610	\$610
LOGG-T-SC-10	\$780	\$630	\$630	\$630	\$630	\$630	\$630	\$630	\$630	\$630
LOGG-T-SC-11	\$700	\$550	\$550	\$550	\$550	\$550	\$550	\$550	\$550	\$550
LOGG-T-SC-12	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-13	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-14	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-15	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-16	\$6,200	\$1,000	\$1,000	\$3,400	\$1,000	\$1,000	\$2,500	\$48	\$48	\$2,500
LOGG-T-SC-17	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-18	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-19	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-20	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-21	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-SC-22	\$200	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48	\$48
LOGG-T-GA-01	\$550	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400
LOGG-T-GA-02	\$1,200	\$640	\$640	\$640	\$640	\$640	\$640	\$640	\$640	\$640
LOGG-T-GA-03	\$1,000	\$880	\$880	\$880	\$880	\$880	\$880	\$880	\$880	\$880
LOGG-T-GA-04	\$550	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
LOGG-T-GA-05	\$1,200	\$640	\$640	\$640	\$640	\$640	\$640	\$640	\$640	\$640
LOGG-T-GA-06	\$550	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400
LOGG-T-GA-07	\$550	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400
LOGG-T-GA-08	\$2,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
LOGG-T-FL-01	\$6,300	\$5,000	\$5,100	\$5,000	\$5,000	\$6,100	\$3,100	\$3,100	\$3,100	\$3,100
LOGG-T-FL-04	\$11,000	\$4,600	\$4,700	\$4,600	\$4,600	\$5,800	\$730	\$730	\$730	\$730
LOGG-T-FL-06	\$6,000	\$4,300	\$4,400	\$4,300	\$4,300	\$5,400	\$2,600	\$2,600	\$2,600	\$2,600
LOGG-T-FL-07	\$6,300	\$3,800	\$3,900	\$3,800	\$3,800	\$5,000	\$3,800	\$3,800	\$3,800	\$3,800
LOGG-T-FL-08	\$5,300	\$4,000	\$4,100	\$4,000	\$4,000	\$5,100	\$4,000	\$4,000	\$4,000	\$4,000
LOGG-T-FL-09	\$4,600	\$2,900	\$3,000	\$2,900	\$2,900	\$4,100	\$2,900	\$2,900	\$2,900	\$2,900
LOGG-T-FL-11	\$6,200	\$4,600	\$4,700	\$4,600	\$4,600	\$5,800	\$3,200	\$3,200	\$3,200	\$3,200
LOGG-T-FL-12	\$4,900	\$2,500	\$2,600	\$2,500	\$2,500	\$3,600	\$66	\$66	\$66	\$66
LOGG-T-FL-13	\$7,500	\$5,900	\$6,000	\$5,900	\$5,900	\$7,000	\$3,600	\$3,600	\$3,600	\$3,600
LOGG-T-FL-14	\$6,900	\$5,300	\$5,400	\$5,300	\$5,300	\$6,400	\$3,000	\$3,000	\$3,000	\$3,000
LOGG-T-FL-15	\$5,400	\$3,800	\$3,900	\$3,800	\$3,800	\$4,900	\$1,600	\$1,600	\$1,600	\$1,600
LOGG-T-FL-16	\$2,100	\$550	\$650	\$550	\$550	\$1,700	\$66	\$66	\$66	\$66
LOGG-T-FL-17	\$2,400	\$790	\$900	\$790	\$790	\$1,900	\$66	\$66	\$66	\$66
LOGG-T-FL-18	\$2,400	\$790	\$900	\$790	\$790	\$1,900	\$66	\$66	\$66	\$66
LOGG-T-FL-19	\$4,600	\$3,000	\$3,100	\$3,000	\$3,000	\$4,200	\$1,100	\$1,100	\$1,200	\$1,100

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
LOGG-T-FL-20	\$19,000	\$2,400	\$2,500	\$2,400	\$2,400	\$3,600	\$10	\$10	\$100	\$10
LOGG-T-FL-21	\$5,000	\$3,400	\$3,500	\$3,400	\$3,400	\$4,600	\$1,000	\$1,000	\$1,100	\$1,000
LOGG-T-FL-22	\$1,600	\$10	\$120	\$10	\$10	\$1,200	\$10	\$10	\$100	\$10
LOGG-T-FL-23	\$3,100	\$1,500	\$1,600	\$1,500	\$1,500	\$2,700	\$66	\$66	\$160	\$66
LOGG-T-FL-24	\$1,700	\$66	\$170	\$66	\$66	\$1,200	\$66	\$66	\$160	\$66
LOGG-T-FL-25	\$2,600	\$1,000	\$1,100	\$1,000	\$1,000	\$2,200	\$550	\$550	\$640	\$550
LOGG-T-FL-26	\$2,800	\$1,200	\$1,300	\$1,200	\$1,200	\$2,300	\$710	\$710	\$800	\$710
LOGG-T-FL-27	\$1,700	\$66	\$170	\$66	\$66	\$1,200	\$66	\$66	\$160	\$66
LOGG-T-FL-28	\$2,100	\$550	\$650	\$550	\$550	\$1,700	\$550	\$550	\$640	\$550
LOGG-T-FL-29	\$5,700	\$4,100	\$4,200	\$4,100	\$4,100	\$5,200	\$4,100	\$4,100	\$4,200	\$4,100
LOGG-T-FL-30	\$2,700	\$1,100	\$1,200	\$1,100	\$1,100	\$2,200	\$1,100	\$1,100	\$1,200	\$1,100
LOGG-T-FL-31	\$2,100	\$550	\$650	\$550	\$550	\$1,700	\$550	\$550	\$640	\$550
LOGG-T-FL-32	\$2,500	\$66	\$170	\$66	\$66	\$1,200	\$66	\$66	\$160	\$66
LOGG-T-FL-33	\$2,600	\$1,100	\$1,200	\$1,100	\$1,100	\$2,200	\$1,100	\$1,100	\$1,100	\$1,100
LOGG-T-FL-34	\$2,600	\$1,100	\$1,200	\$1,100	\$1,100	\$2,200	\$1,100	\$1,100	\$1,100	\$1,100
LOGG-T-FL-35	\$2,600	\$1,100	\$1,200	\$1,100	\$1,100	\$2,200	\$1,100	\$1,100	\$1,100	\$1,100
LOGG-T-FL-36	\$2,900	\$550	\$650	\$550	\$550	\$1,700	\$550	\$550	\$640	\$550
LOGG-T-FL-37	\$1,900	\$66	\$170	\$66	\$66	\$1,200	\$66	\$66	\$66	\$66
LOGG-T-FL-38	\$1,900	\$66	\$170	\$66	\$66	\$1,200	\$66	\$66	\$66	\$66

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
LOGG-T-FL-39	\$1,900	\$66	\$170	\$66	\$66	\$1,200	\$66	\$66	\$66	\$66
LOGG-T-FL-40	\$15,000	\$13,000	\$13,000	\$13,000	\$13,000	\$15,000	\$7,500	\$7,500	\$7,600	\$7,500
LOGG-T-FL-41	\$9,000	\$7,700	\$7,800	\$7,700	\$7,700	\$8,900	\$6,700	\$6,700	\$6,800	\$6,700
LOGG-T-FL-42	\$14,000	\$2,800	\$2,900	\$2,800	\$2,800	\$3,900	\$2,800	\$2,800	\$2,900	\$2,800
LOGG-T-FL-43	\$1,500	\$290	\$400	\$290	\$290	\$1,400	\$290	\$290	\$380	\$290
LOGG-T-FL-44	\$3,800	\$1,800	\$1,900	\$1,800	\$1,800	\$2,900	\$1,800	\$1,800	\$1,900	\$1,800
LOGG-T-FL-45	\$1,500	\$260	\$370	\$260	\$260	\$1,400	\$260	\$260	\$350	\$260
LOGG-T-FL-46	\$2,900	\$1,700	\$1,800	\$1,700	\$1,700	\$2,800	\$1,700	\$1,700	\$1,800	\$1,700
LOGG-T-FL-47	\$1,800	\$540	\$650	\$540	\$540	\$1,700	\$540	\$540	\$640	\$540
LOGG-T-MS-01	\$370	\$0	\$0	\$600	\$0	\$0	\$0	\$0	\$600	\$0
LOGG-T-MS-02	\$370	\$0	\$0	\$600	\$0	\$0	\$0	\$0	\$600	\$0
LOGG-T-AL-01	\$15,000	\$12,000	\$12,000	\$13,000	\$12,000	\$12,000	\$13,000	\$12,000	\$13,000	\$13,000
LOGG-T-AL-02	\$6,100	\$4,300	\$4,300	\$5,700	\$4,300	\$4,300	\$5,100	\$4,300	\$4,900	\$5,100
LOGG-T-AL-03	\$2,300	\$550	\$550	\$1,400	\$550	\$550	\$1,400	\$550	\$550	\$1,400
<b>TOTAL</b>	<b>\$440,000</b>	<b>\$130,000</b>	<b>\$130,000</b>	<b>\$160,000</b>	<b>\$140,000</b>	<b>\$180,000</b>	<b>\$120,000</b>	<b>\$94,000</b>	<b>\$96,000</b>	<b>\$120,000</b>
<b>AREAS BRING CONSIDERED FOR EXCLUSION</b>										
LOGG-T-FL-01	\$3,300	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
LOGG-T-FL-02	\$7,200	\$2,600	\$2,700	\$2,600	\$2,600	\$3,700	\$170	\$170	\$170	\$170
LOGG-T-FL-03	\$9,500	\$4,100	\$4,200	\$4,100	\$4,100	\$5,200	\$1,700	\$1,700	\$1,700	\$1,700

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
LOGG-T-FL-05	\$11,000	\$4,300	\$4,400	\$4,300	\$4,300	\$5,400	\$2,600	\$2,600	\$2,600	\$2,600
LOGG-T-FL-10	\$18,000	\$6,000	\$6,100	\$6,000	\$6,000	\$7,100	\$1,100	\$1,100	\$1,100	\$1,100
<b>TOTAL</b>	<b>\$49,000</b>	<b>\$17,000</b>	<b>\$17,000</b>	<b>\$17,000</b>	<b>\$17,000</b>	<b>\$21,000</b>	<b>\$5,600</b>	<b>\$5,600</b>	<b>\$5,600</b>	<b>\$5,600</b>

The levels of effort per consultation represent approximate averages based on the best available cost information. The cost estimates in this report are accordingly rounded to two significant digits to reflect this imprecision. The cost estimates may therefore not sum to the total costs reported due to rounding.

**APPENDIX D | USFWS INCREMENTAL EFFECTS MEMORANDUM FOR THE  
NORTHWEST ATLANTIC OCEAN DISTINCT POPULATION SEGMENT OF THE  
LOGGERHEAD SEA TURTLE**

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October 15, 2012

ES-JAFL/SE

Memorandum

To: Regional Director, Fish and Wildlife Service, Atlanta, Georgia  
(Attention: Janet Mizzi, Chief, Endangered and Threatened Species)

From: David L. Hankla, Field Supervisor, North Florida Ecological Services Office,  
Jacksonville, Florida

Subject: Incremental Effects Memorandum for the Economic Analysis of the Proposed  
Rule to Designate Terrestrial Critical Habitat for Loggerhead Sea Turtle

**Introduction**

The purpose of this document is to provide information to serve as a basis for the U.S. Fish and Wildlife Service (Service) to conduct an economic analysis of the proposed terrestrial (nesting beach) critical habitat designation for the loggerhead sea turtle. The National Marine Fisheries Service (NMFS) will be preparing similar information for the proposed marine critical habitat.

Section 4(b)(2) of the Endangered Species Act (Act) requires the Service to consider the economic, national security, and other relevant impacts of designating critical habitat. The Service may exclude an area from critical habitat if it determines that the benefits of exclusion outweigh the benefits of including the area as critical habitat, unless the exclusion will result in the extinction of the species. To support its weighing of the benefits of excluding versus including an area as critical habitat, the Service prepares an economic analysis for each proposed critical habitat designation, which describes and, where possible, monetizes the economic impacts (costs and benefits) of the proposed designation.

Determining the economic impacts of critical habitat designation involves evaluating the “without critical habitat” baseline versus the “with critical habitat” scenario. Impacts of a designation equal the difference, or the increment, between these two scenarios. Measured differences between the baseline (the world without critical habitat) and the designated critical habitat (the world with critical habitat) may include, but are not limited to, changes in land or resource use, environmental quality, or time and effort expended on administrative and other activities by Federal landowners, Federal action agencies, and in some instances, State and local governments or private third parties. These are the “incremental effects” that serve as the basis for the economic analysis.

One important function of this memorandum is to provide detailed information about the differences between actions that may be required to avoid jeopardy versus actions that may be

required to avoid adverse modification. The information provided below is intended to identify all possible differences between the “with” and “without” critical habitat designation for the loggerhead sea turtle under the different section 7 standards.

## **Background**

The loggerhead sea turtle was originally listed worldwide as a threatened species in 1978. No critical habitat was designated for the loggerhead sea turtle at that time. Pursuant to a joint memorandum of understanding, the Service has jurisdiction over sea turtles in the terrestrial environment, and NMFS has jurisdiction over sea turtles in the marine environment. On September 22, 2011, the Service and NMFS jointly published a final rule revising the loggerhead’s listing from a single worldwide threatened species to nine Distinct Population Segments (DPSs) listed as either threatened or endangered. Only two of these DPSs – the Northwest Atlantic Ocean and North Pacific Ocean – occur within U.S. jurisdiction. Loggerhead sea turtle nesting does not occur within the United States in the North Pacific Ocean DPS. Therefore, this memorandum only provides information related to the proposed designation of terrestrial critical habitat in the Northwest Atlantic Ocean DPS.

In total, 90 terrestrial habitat units encompassing 1189.9 kilometers (km) (739.3 miles) of Atlantic Ocean and Gulf of Mexico shoreline are being proposed for designation as critical habitat for the Northwest Atlantic Ocean DPS. Eight units occur in North Carolina, 22 in South Carolina, 8 in Georgia, 47 in Florida, 3 in Alabama, and 2 in Mississippi. All 90 units are occupied by loggerhead sea turtles. The proposed terrestrial critical habitat designation includes lands under Federal (19%), State (21%), and other (private and local government) (60%) land ownership. Parts of these lands are subject to beach sand placement; beach armoring and other shoreline stabilization measures; coastal construction; recreational activities, including off-road vehicle use; erosion and sea level rise; and natural and human-caused disasters and response to natural and human-caused disasters.

## **Baseline Analysis**

The following discussion describes the existing regulatory circumstances that are anticipated without terrestrial critical habitat being designated for the loggerhead sea turtle. In the baseline scenario, section 7 of the Act requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out in or adjacent to the loggerhead sea turtle’s terrestrial habitat will not likely jeopardize the continued existence of the species.

### *Conservation plans and regulatory mechanisms that provide protection to the species and its habitat without critical habitat designation*

The following are ongoing conservation efforts that provide some benefits to loggerhead sea turtle nesting habitat and are considered part of the baseline because these activities are occurring without critical habitat designation. If a specific plan is addressed in the item, we have indicated where it is available for review.

1. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (Recovery Plan). While not a regulatory document, the Recovery Plan describes

conservation strategies and those measures that can be implemented to recover the Northwest Atlantic loggerhead sea turtle. Both the Service and NMFS have National Sea Turtle Coordinators responsible for conducting and coordinating recovery actions for the loggerhead sea turtle throughout its U.S. range. In addition, numerous stakeholders are involved in recovery of the loggerhead sea turtle, including the Florida Fish and Wildlife Conservation Commission (FFWCC), Florida Department of Environmental Protection (FDEP), Georgia Department of Natural Resources, South Carolina Department of Natural Resources, North Carolina Wildlife Resources Commission, Alabama State Parks, U.S. Fish and Wildlife Service National Wildlife Refuges (NWRs), National Park Service, U.S. Department of Defense, U.S. Geological Survey, counties and municipalities, academia, non-governmental organizations, and others. The Recovery Plan can be found at

<http://www.fws.gov/northflorida/SeaTurtles/Turtle%20Factsheets/loggerhead-sea-turtle.htm>.

2. Volusia County Habitat Conservation Plan. Beach driving is prohibited on the majority of sea turtle nesting beaches in the southeastern United States; however, there are some areas where beach driving still occurs, such as Volusia County, Florida. Volusia County developed a habitat conservation plan (HCP) to minimize and mitigate the impacts of County-regulated driving on 57.3 km (35.6 miles) of beaches, and received a section 10(a)(1)(B) incidental take permit from the Service in 1996. The incidental take permit was renewed in 2005. The Volusia County HCP limits the potential for sea turtle-vehicle interactions through several mechanisms, which include limiting public access to daylight hours, requiring that public safety vehicles that operate at night follow specific guidelines, limiting public driving primarily to those areas where nest densities are lowest, requiring that all driving and parking occur outside a marked Conservation Zone near the dune (where the majority of nests are typically deposited in Volusia County) in those areas where public driving is permitted, conspicuously marking all nests so they can be avoided, and smoothing out vehicle ruts seaward of nests during periods when hatchlings are expected to emerge. Mitigation measures to offset unavoidable take have included developing and implementing a beach lighting management plan and rehabilitation of stranded sea turtles. The HCP can be found at <http://www.volusia.org/core/fileparse.php/4145/urlt/VolusiaHCPDec2007small2.pdf>.
3. St. Johns County Habitat Conservation Plan. St. Johns County, Florida, developed an HCP to minimize and mitigate the impacts of County-regulated driving on 46.0 km (28.6 miles) of beaches, and received a section 10(a)(1)(B) incidental take permit from the Service in 2006. The St. Johns County HCP limits the potential for sea turtle-vehicle interactions through several mechanisms, which include limiting public access to daylight hours, requiring that all driving and parking occur outside a marked Conservation Zone near the dune, conspicuously marking all nests so they can be avoided, and smoothing out vehicle ruts seaward of nests during periods when hatchlings are expected to emerge. Mitigation measures to offset unavoidable take have included developing and implementing a beach lighting management plan; restoring the primary dune along Summer Haven to minimize vehicles on the beach, reduce light trespass on the beach, and enhance the beach/dune habitat for nesting sea turtles; instituting a beach horseback

riding registration and education program; and restricting Porpoise Point vehicular access to allow re-establishment of natural dune features. The HCP can be found at <http://www.co.st-johns.fl.us/HCP/HabitatConservation.aspx>.

4. Indian River County Habitat Conservation Plan. Indian River County, Florida, developed an HCP to minimize and mitigate the impacts of the County's issuance of permits authorizing the construction of emergency (temporary) coastal armoring structures in areas used by nesting sea turtles on 35.9 km (22.3 miles) of beaches, and received a section 10(a)(1)(B) incidental take permit from the Service in 2004. The Indian River County HCP includes measures that minimize the potential for sea turtle impacts through several mechanisms, which include pre-project proactive planning, stringent pre-construction assessments and permitting, implementation of construction precautions during the nesting season, relocation of known sea turtle nests that would be affected by construction, and requirements for post-construction monitoring during the nesting season. Mitigation measures to offset unavoidable take have included protection of beachfront property through previous acquisition, implementation of a predator control program, and systematic sea turtle nesting surveys. The HCP can be found at <http://www.ecological-associates.com/IRC-Final-HCP-July-2003.pdf>.
5. Gulf County Coastal Habitat Conservation Plan. The Gulf County Coastal HCP (currently a draft document under review by the Service) represents a collaborative effort and commitment from the HCP Working Group to assist Gulf County, Florida, with the development and implementation of a plan for the protection and conservation of select federally listed species. The HCP Working Group is composed of representatives from Gulf County, Eglin Air Force Base (AFB), FDEP, and the Service. The HCP focuses on assessing and reducing potential impacts resulting from coastal artificial lighting, beach driving, and other related recreational activities through avoidance, minimization, and mitigation. The HCP provides a management strategy under which vehicular access and restricted beach driving may continue in a manner that is compatible with sea turtle protection. The HCP planning process also includes management initiatives to ensure that the effects of the authorized incidental take will be avoided where possible and adequately minimized and/or mitigated to the maximum extent practicable. The comprehensive HCP additionally considers cumulative coastal impacts to sea turtles not only from beach driving, but also from artificial coastal lighting.
6. Casey Key Geotextile Core System Habitat Conservation Plan. Three private property owners on Casey Key, Florida, developed an HCP to install and annually maintain a 760-foot long by 25-foot wide geotextile container system along the seaward portion of their property to protect it from the effects of erosion. The structure serves as the core of a reconstructed dune. The HCP includes measures that minimize the potential for sea turtle impacts by conducting construction and sand maintenance activities outside of the main part of sea turtle nesting season, constructing the geotube structure as far landward as possible, incorporating a mild dune slope into the project design, using only beach compatible sand, maintaining 3 feet of sand over the structure throughout the nesting season, implementing an escarpment remediation plan, ensuring no residential lights are visible from the beach, storing recreational equipment off the beach and dune,

implementing a physical and biological monitoring program, hiring a coordinator to ensure proper HCP implementation, and removing the geotextile container system if it meets the failure criteria as per State statutes and county ordinances. A mitigation measure to offset unavoidable take is the implementation of a predator control program.

7. Federal Land Management Agency Plans. The National Park Service actively manages for loggerhead sea turtles on Cape Hatteras National Seashore, Cape Lookout National Seashore, Cumberland Island National Seashore, Fort Matanzas National Monument, Canaveral National Seashore, Dry Tortugas National Park, Gulf Islands National Seashore (Florida and Mississippi Districts), and Padre Island National Seashore. Each of these entities has developed draft or final management plans that can be found at:
- Cape Hatteras National Seashore – <http://www.nps.gov/caha/parkmgmt/planning.htm>
  - Cape Lookout National Seashore – <http://www.nps.gov/caloc/parkmgmt/current-documents.htm>
  - Cumberland Island National Seashore – <http://www.nps.gov/cuis/parkmgmt/cumberland-island-management-documents.htm>
  - Fort Matanzas National Monument – <http://parkplanning.nps.gov/projectHome.cfm?parkID=378&projectId=11093> (this link provides information on efforts currently underway to develop a draft plan that will replace an existing 1982 plan; an electronic copy of the 1982 plan is available from the North Florida Ecological Services Office if needed)
  - Canaveral National Seashore – <http://www.nps.gov/cana/parkmgmt/planning.htm> (this link is for a draft plan that will replace an existing 1982 plan; an electronic copy of the 1982 plan is available from the North Florida Ecological Services Office if needed)
  - Dry Tortugas National Park – <http://www.nps.gov/drto/parkmgmt/index.htm>
  - Gulf Islands National Seashore – <http://www.nps.gov/guis/parkmgmt/general-management-plan.htm> (this link is for a draft plan that will replace an existing 1978 plan; an electronic copy of the 1978 plan is available from the North Florida Ecological Services Office if needed)
  - Padre Island National Seashore – <http://www.nps.gov/pais/parkmgmt/planning.htm>

The Service actively manages for loggerhead sea turtles on the Chincoteague NWR, Back Bay NWR, Pea Island NWR, Cape Romain NWR, Wassaw NWR, Blackbeard Island NWR, Merritt Island NWR, Archie Carr NWR, Hobe Sound NWR, Key West NWR, Ten Thousand Islands NWR, Egmont Key NWR, St. Vincent NWR, and Bon Secour NWR. Each of these refuges has developed draft or final comprehensive conservation plans that can be found at:

- Chincoteague NWR – <http://www.fws.gov/northeast/planning/refugeccps.html>
- Back Bay NWR – <http://www.fws.gov/northeast/planning/Back%20Bay/ccphome.html>
- Pea Island NWR – <http://www.fws.gov/southeast/planning/CCP/PeaIslandFinalPg.html>

- Cape Romain NWR – <http://www.fws.gov/southeast/planning/CCP/CapeRomainFinalPg.html>
- Wassaw NWR – <http://www.fws.gov/savannah/ccp.html>
- Blackbeard Island NWR – <http://www.fws.gov/savannah/ccp.html>
- Merritt Island NWR – <http://www.fws.gov/southeast/planning/CCP/MerrittIslandFinalPg.html>
- Archie Carr NWR – <http://www.fws.gov/southeast/planning/CCP/ArchieCarrFinalPg.html>
- Hobe Sound NWR – <http://www.fws.gov/southeast/planning/CCP/HobeSoundFinalPg.html>
- Key West NWR – <http://www.fws.gov/southeast/planning/CCP/LowerFLkeysFinalPg.html>
- Ten Thousand Islands NWR – <http://www.fws.gov/southeast/planning/CCP/10ThousIslandFinalPg.html>
- Egmont Key NWR – <http://www.fws.gov/southeast/planning/CCP/TampaBayFinalCCPPg.html>
- St. Vincent NWR – <http://www.fws.gov/southeast/planning/CCP/StVincentDraftsinglePgDoc.html>
- Bon Secour NWR – <http://www.fws.gov/southeast/planning/CCP/BonScourFinalPg.html>

The Bureau of Land Management (BLM) owns four tracts of beachfront totaling 1.77 km (1.1 miles) in Baldwin County, Alabama, where loggerhead sea turtle nesting occurs. BLM lands are included in the Fort Morgan sea turtle nesting surveys and nest protection efforts by the Bon Secour NWR. BLM conducts land management activities to monitor and protect beach habitat. BLM also owns four tracts of beachfront totaling 1.34 km (0.85 mile) in Walton County, Florida, that are leased to the County. BLM consulted with the Service on the original leases to Walton County and continues to consult when the leases are modified. The County funds sea turtle nesting surveys and nest protection on these parcels.

The U.S. Department of Defense (DOD), with the assistance of the Service and the States, is responsible under the Sikes Act (16 U.S.C. 670a-670f, as amended) for carrying out programs and implementing management strategies to conserve and protect biological resources on its lands. The Sikes Act was amended in 1997 to develop and implement mutually agreed upon Integrated Natural Resource Management Plans (INRMPs) through voluntary cooperative agreements between the DOD installation, the Service, and the respective State fish and wildlife agencies. INRMPs provide for the management of natural resources, including fish, wildlife, and plants; allow multipurpose uses of resources; and provide public access necessary and appropriate for those uses, without any net loss in the capability of an installation to support its military mission. DOD has five military installations with beachfront totaling 107 km (66.4 miles) in North Carolina and Florida where loggerhead sea turtles are known to nest. These properties include Marine Corps Base Camp Lejeune in North Carolina, and Cape Canaveral Air Force Station, Patrick Air Force Base, Eglin Air Force Base, and Tyndall Air Force Base in

Florida. Four of these five installations (all but Tyndall Air Force Base) were determined to contain the physical and biological features (PBFs) essential to the conservation of the species, occur within the species' historic geographic range, and contain one or more of the primary constituent elements (PCEs) sufficient to support the terrestrial life-history processes of the species, and thus were selected for potential critical habitat designation. However, we are proposing to exempt these four installations from critical habitat designation because their INRMPs incorporate measures to benefit the conservation of the loggerhead sea turtle.

8. Designated Critical Habitat for Other Species. The proposed terrestrial critical habitat for the loggerhead sea turtle includes areas that have already been designated as critical habitat for four other species: piping plover, St. Andrew beach mouse, Perdido Key beach mouse, and Alabama beach mouse. An online map of the critical habitat locations for these four species is available at: <http://criticalhabitat.fws.gov/crithab/>.

*Federal agencies and other project proponents that are likely to consult with the Service under section 7 without critical habitat*

Federal agencies and projects that would likely go through the section 7 consultation process if no critical habitat is designated include the following:

1. U.S. Army Corps of Engineers (beach sand placement, groin construction, jetty construction, pier construction, coastal armoring).
2. Federal Emergency Management Agency (repair and replacement of pre-existing structures and emergency berm repair following a federally declared disaster).
3. National Park Service (land management planning, visitor related activities and facilities, land and natural resource management).
4. U.S. Department of Defense (military installation lighting, military mission and training activities, military mission-related and public beach driving, Integrated Natural Resources Management Plan development).
5. U.S. Coast Guard (boat races that include beach viewing areas, beachfront navigation aid placement including lighthouse maintenance and lighting).
6. U.S. Department of Transportation (highway and bridge construction, lighting, and maintenance).
7. U.S. Fish and Wildlife Service (issuance of section 10 permits for enhancement of survival, habitat conservation plans, and safe harbor agreements; national wildlife refuge conservation planning and special use permits; Partners for Fish and Wildlife Program and Coastal Program projects; and section 6 program projects, including land acquisition projects, benefiting the loggerhead sea turtle).

*Service administrative effort for section 7 consultations without critical habitat*

Since the nine loggerhead DPSs were listed on September 22, 2011, through the end of June 30, 2012, we have conducted 157 informal and 19 formal section 7 consultations throughout the Northeast (VA), Southeast (NC, SC, GA, FL, AL, MS, and LA), and Southwest (TX) Regions of the Service that address effects to the Northwest Atlantic Ocean DPS of the loggerhead sea turtle. Of our total section 7 workload in the States identified above for these three Regions, an average of 5.7% of total informal consultations and 29.7% of total formal consultations have addressed effects to the loggerhead sea turtle. All of the formal section 7 consultations that addressed adverse effects to Northwest Atlantic loggerhead sea turtles also addressed adverse effects to other species. See the table below for information by State.

<b>State</b>	<b>Number of Informal Consultations that Addressed Effects to Loggerhead Sea Turtles</b>	<b>Total Number of Informal Consultations</b>	<b>Percentage of Total Informal Consultations that Addressed Effects to Loggerhead Sea Turtles</b>	<b>Number of Formal Consultations that Addressed Effects to Loggerhead Sea Turtles</b>	<b>Total Number of Formal Consultations</b>	<b>Percentage of Total Formal Consultations that Addressed Effects to Loggerhead Sea Turtles</b>
VA	3	393	0.8	1	12	8.3
NC	8	87	9.2	0	3	0.0
SC	0	468	0.0	1	1	100.0
GA	0	120	0.0	0	6	0.0
FL	48	451	10.6	12	31	38.7
AL	7	100	7.0	4	9	44.4
MS	5	557	0.9	0	3	0.0
LA	11	338	3.3	2	5	40.0
TX	75	214	35.0	0	3	0.0
<b>TOTAL</b>	<b>157</b>	<b>2728</b>	<b>5.7</b>	<b>19</b>	<b>64</b>	<b>29.7</b>

*What types of project modifications are currently recommended or will likely be recommended by the Service to avoid jeopardy (i.e., the continued existence of the species)?*

To date, there have been no consultations conducted by the Service that have resulted in a finding of jeopardy to the loggerhead sea turtle. However, current formal consultations contain the following terms and conditions. If we determine that an action jeopardizes Northwest Atlantic loggerhead sea turtles in a future section 7 consultation, recommended project modifications could include one or more of the measures below, depending on the proposed action. In addition, the Recovery Plan includes information and ideas in the Recovery Action Narrative under items 2 and 6 for designing or conducting projects or activities to minimize impacts to loggerhead sea turtles in their terrestrial habitat (NMFS and Service 2008, pages II-24–II-30).

1. For beach sand placement projects, conduct the work outside the main part of the sea turtle nesting and hatching season. Note that such work in Brevard through Broward Counties, FL; Manasota Key in Sarasota and Charlotte Counties, FL; St. Joseph Peninsula State Park, St. Joseph peninsula, and Cape San Blas in Gulf County, FL; and St. George Island in Franklin County, FL, is already required to avoid the main part of the nesting and hatching season because of the high loggerhead sea turtle nesting densities within the recovery units where these beaches are located. If a finding of jeopardy is made outside these areas, we would recommend the project be modified to avoid the main part of the nesting season. Other terms and conditions required in current formal non-jeopardy consultations without critical habitat include the use of beach compatible sand and monitoring and remediation for sand compaction and escarpment formation.
2. Implement lighting management to minimize the potential for disorientations of nesting turtles and hatchlings.
3. Site coastal construction projects, including coastal armoring structures, as far landward as practicable to minimize impacts to nesting habitat, nesting sea turtles, nests, and emerging hatchlings.
4. For sloped geotextile revetment armoring structures, ensure a minimum of 3 feet of beach compatible sand over the entire structure be present prior to and maintained throughout each sea turtle nesting season.
5. Conduct educational programs for and distribute educational materials to residents and/or visitors to minimize disturbance to nesting sea turtles, nests, and emerging hatchlings.

### **Adverse Modification Analysis**

The following discussion describes the regulatory circumstances that are anticipated with designation of critical habitat, as proposed, for the Northwest Atlantic Ocean DPS of the loggerhead sea turtle. Once critical habitat is designated, section 7 of the Act requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat. As will be discussed in more detail below (pp. 11–13), the key factor for determining adverse modification is whether, with implementation of the proposed Federal action, the affected critical habitat will continue to have the capability to serve its intended conservation role for the species. From section 3(3) of the Act:

The terms “conserve,” “conserving,” and “conservation” mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided under the Endangered Species Act are no longer necessary.

Thus, designation of critical habitat helps ensure that proposed project actions will not result in the adverse modification of habitat to the point that the species will not achieve recovery,

meaning they will not be capable of being removed from the threatened or endangered species list.

*What Federal agencies or project proponents are likely to consult with the Service under section 7 based on designation of critical habitat? What kinds of additional activities are likely to undergo consultation with critical habitat?*

Occupied critical habitat units and their PCEs reflect the needs of the species, which are clearly defined in the Recovery Plan. As discussed above, all proposed critical habitat units are occupied. Therefore, modifications to the PCEs are closely tied to adverse effects to the species, so that activities that would require consultation for critical habitat are primarily the same as activities that currently require jeopardy consultation for the species. For instance, sand placement projects affecting the nesting substrate (e.g., change in sand composition) and beach elevation may affect the nest incubation environment (e.g., gas diffusion, sand temperature) and hatchling orientation (e.g., increased elevation of the beach increasing the visibility of lighting landward of the beach). Thus, altering these terrestrial habitat components may affect loggerhead sea turtle reproductive success. The alterations may result in brief impacts to nesting turtle and hatchling behavior or may ultimately affect the survivorship of eggs, hatchlings, or adults. These examples illustrate alterations to the PCEs that would also affect loggerhead sea turtles.

The following ongoing actions by action agencies may need to be reinitiated to address critical habitat:

1. U.S. Army Corps of Engineers – Biological opinions (including the Statewide Programmatic Biological Opinion for Shore Protection Activities along the Coast of Florida) for sand placement, groin construction, jetty construction or reconstruction, pier construction or reconstruction, and coastal armoring projects that have not yet been completed.
2. U.S. Department of Transportation – Biological opinions on highway and bridge construction projects (e.g., Stump Hole project in Gulf County, Florida).
3. Federal Emergency Management Agency – Programmatic consultation for repair and replacement of pre-existing structures in Florida following a federally declared disaster and programmatic biological opinion for Emergency Berm Repair for the Florida Coast following a federally declared disaster.
4. National Aeronautics and Space Administration – Biological opinion on lighting management at the Kennedy Space Center.
5. U.S. Fish and Wildlife Service – Issuance of section 10 permits for enhancement of survival, habitat conservation plans, and safe harbor agreements; national wildlife refuge conservation planning and special use permits; Partners for Fish and Wildlife Program and Coastal Program projects; and section 6 program projects, including land acquisition projects, benefiting the loggerhead sea turtle.

*How much administrative effort does or will the Service expend to address adverse modification in its section 7 consultations with critical habitat? Estimate the difference compared to baseline.*

To address adverse modification in section 7 consultations with critical habitat, the Service will likely have to complete reinitiations for all of the formal consultations identified in the previous section. In addition, because all 90 critical habitat units are currently occupied, increased administrative costs would come from doing an adverse modification analysis if the project was to occur within one or more of the 90 occupied units. In addition and assuming that the historical section 7 workload outlined previously will continue, we project that 3.8% of informal and 32.1% of formal consultations conducted annually in NC, SC, GA, FL, AL, and MS will address effects to the loggerhead sea turtle and its critical habitat.

*What project proponents are likely to pursue HCPs under section 10 after the designation of critical habitat?*

Under the Act, incidental take of critical habitat is not provided as is incidental take of a species. When a non-Federal entity voluntarily seeks coverage under the Act, it is for incidental take of the species only. The internal Service section 7 consultation on the issuance of the HCP/incidental take permit addresses the potential for adverse modification of critical habitat within the HCP area. Thus, the designation of critical habitat does not provide a trigger for a non-Federal entity to pursue an HCP.

Although not the result of designating critical habitat, we anticipate FDEP will complete a statewide Florida Beaches HCP and apply for an incidental take permit in 2016. In 2008, FDEP, in coordination with the FFWCC, the Service, and multiple stakeholder partners, began developing a statewide multispecies HCP for Florida's beaches. The purpose of the Florida Beaches HCP is to ensure FDEP and its permittees are in compliance with the Act while fulfilling its responsibilities through its Coastal Construction Control Line permitting program. The HCP will provide comprehensive conservation statewide for 25 state and federally listed species, including the loggerhead sea turtle.

We also anticipate receiving a second HCP for the placement of a geotextile core system on Casey Key, Florida. The project will encompass only 920 feet of the 7.4 miles and 35 miles of available sea turtle nesting habitat on Casey Key and in Sarasota County, respectively. Although the Project would result in the permanent alteration of sea turtle nesting habitat, we anticipate it will be designed to minimize the potential exposure of the structures and to ensure that a minimum of 3 feet of beach compatible sand will be maintained annually over the structure throughout the sea turtle nesting season to provide suitable habitat for nesting sea turtles.

*What types of project modifications might the Service make during a section 7 consultation to avoid destruction or adverse modification of critical habitat that are different than those for avoiding jeopardy?*

When consulting with other agencies under section 7 of the Act in designated critical habitat, the Service conducts independent analyses for jeopardy and for adverse modification. Jeopardy

occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced (50 CFR 402.02). According to the Director's Memorandum of December 9, 2004 (Application of the "Destruction or Adverse Modification" Standard under Section 7(a)(2) of the Endangered Species Act), the analysis for "destruction or adverse modification of designated critical habitat" considers whether critical habitat would remain functional to serve the intended conservation role for the species.

Jeopardy and adverse modification are not equivalent standards; however, the outcome of section 7 consultations under these standards may be similar in some cases. Alterations of occupied habitat that diminish the value of the habitat would result in adverse modification if the effect is severe enough to render the habitat incapable of providing its intended conservation function. If the action also would affect the remaining population, population size, reproduction, and recruitment to the extent that the likelihood of survival in the wild is appreciably reduced, a jeopardy determination also would result. Because the ability of this species to exist is closely tied to the quality of its habitats, significant alterations of its occupied habitat may result in jeopardy as well as adverse modification. Therefore, we anticipate that section 7 consultation analyses will result in no differences between recommendations to avoid jeopardy or adverse modification in occupied areas of critical habitat.

The Service is not proposing to designate unoccupied terrestrial habitat for the loggerhead sea turtle. For occupied habitat, proposed actions that would adversely affect the PBFs in the designated critical habitat would usually also result in sufficient harm or harassment to constitute jeopardy to the species. For example, proposed activities that would permanently alter nesting habitat to such an extent that critical habitat would be adversely modified also would usually result in a jeopardy determination. As such, project modifications that minimize effects to the loggerhead sea turtle also would minimize effects to the PBFs associated with critical habitat. Accordingly, in occupied critical habitat it would be rare that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat and measures needed to avoid jeopardizing the species. Absent reasonably foreseeable economic impacts that are distinctly attributable to the critical habitat portion of the analysis, economic impacts from conservation efforts that avoid adverse modification of critical habitat coincidental to avoid jeopardizing the species would generally be coextensive with the effects of the loggerhead sea turtle's listing and within the regulatory baseline. Therefore, we do not anticipate significant incremental effects in regard to developing and implementing conservation actions in currently occupied terrestrial habitat for the loggerhead sea turtle, although we acknowledge that this could occur.

Pursuant to the current framework under which section 7 consultations without critical habitat are conducted, it is unlikely that a future section 7 analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the continued existence of the species in areas of occupied habitat. These measures are listed above under the section discussing project modifications that are currently recommended or will likely be recommended by the Service to avoid jeopardy. Also, the PCEs are so closely tied to the survival of the species that actions that degrade or alter the PCEs almost always result in adverse effects to the species in occupied

habitat. There is an active Northwest Atlantic loggerhead sea turtle recovery program that encourages good working relationships. Many action agencies have voluntarily implemented conservation measures in terrestrial habitat in accordance with the Recovery Plan.

The vast majority of Service biological opinions for loggerhead sea turtles are for beach sand placement projects. The type of take associated with these projects is considered temporary and primarily non-lethal, and the effects to sea turtles are the result of habitat modification for the approximate 2-year period it takes for a beach to equilibrate post-sand placement. Service terms and conditions include nesting surveys to identify and relocate sea turtle nests that would be smothered by sand placement or crushed beneath construction equipment away from the activities so they are spared from direct take. Although there is some potential reduction in hatching success of relocated nests, most of the take anticipated would be for nests not detected by beach monitoring prior to construction or reduction of sea turtle nesting effort as a result of construction related disturbance. Such parameters represent small and difficult to detect take levels that cannot be monitored. As a result, in beach sand placement section 7 consultations, the anticipated take is estimated as a distance (or area) of beach temporarily disturbed by construction activities. Since the impact of beach sand placement projects on sea turtle nesting has been shown to last for an approximately 2-year period, the extent of incidental take in the form of linear feet of beach taken represents the amount of habitat that would have a temporary nesting habitat modification. During the 2-year period that the beach is equilibrating post-sandy placement, nesting sea turtles may have decreased nesting in the project area but may still nest in adjacent nesting habitat that has not been disturbed.

### **Conclusion**

In summary, the incremental effects of the designated critical habitat for the Northwest Atlantic Ocean DPS of the loggerhead sea turtle will likely be low. The Service and Federal action agencies have a long history of completing loggerhead sea turtle consultations without critical habitat. Through recovery planning, we work cooperatively with our Federal partners to implement standardized conservation measures in projects. Additionally, the majority of the consultations are for beach sand placement activities that have temporary effects on the loggerhead sea turtle.

All administrative economic effects associated with reinitiating section 7 consultation as a result of a new critical habitat designation would appropriately be considered an incremental effect of the designation. For a new section 7 consultation, the jeopardy analysis and the adverse modification analysis would be analyzed separately. Costs associated with the jeopardy analysis would be in the baseline, and the costs associated with the adverse modification analysis would be attributable to the designation and therefore incremental. In cases where we determine that an adverse modification finding may be likely, we will work with the Federal agency involved to identify reasonable and prudent alternatives that would eliminate or reduce the effects to a point where adverse modification is no longer likely. The resulting project modifications would also appropriately be considered an incremental cost of the critical habitat designation.

Thus, we anticipate the following incremental effects: (1) an increased workload for action agencies and the Service to re-initiate consultation for ongoing actions, (2) a minor increased workload for action agencies and the Service to conduct consultations for a few new actions, and

(3) potential but unidentified project modifications to avoid adverse modification of critical habitat in terrestrial habitat that would not be required to avoid jeopardy, but required to ensure the species' conservation.

We appreciate the opportunity to provide this information for you. If you have any questions or require clarification of any the items described here, please do not hesitate to call Sandy MacPherson of this office at (904) 731-3328 or Lorna Patrick of our Regional Office at (850) 769-0552 ext. 229.