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

Final Report | April 29, 2014

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LIST OF ACRONYMS AND ABBREVIATIONS

Act	Endangered Species Act
ADCNR	Alabama's Department of Conservation and Natural Resources
ADEM	Alabama Department of Environmental Management
ASMFC	Atlantic States Marine Fisheries Commission
BOEM	Bureau of Ocean Energy Management
BPM	best management practices
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DPS	Distinct Population Segment
EA	environmental assessment
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FMP	Fishery Management Plans
FONSI	finding of no significant impact
FRFA	final regulatory flexibility analysis
GARBO	Gulf Regional Biological Opinion
HCP	Habitat Conservation Plan
INRMP	Integrated Natural Resources Management Plan
IRFA	initial regulatory flexibility analysis
LPDES	Louisiana Pollution Discharge Elimination System
MOGB	Mississippi's Oil and Gas Board
MPRSA	Marine Protection, Research and Sanctuaries Act
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act

NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NTL	notices to lessees and operators
OCRM	Ocean and Coastal Resource Management
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OMB	U.S. Office of Management and Budget
PCE	Primary Constituent Element
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
RMA	Risk Management Association
SAFMC	South Atlantic Fishery Management Council
SARBO	South Atlantic Regional Biological Opinion
SBA	U.S. Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
STSSN	Sea Turtle Stranding and Salvage Network
TED	Turtle Excluder Device
UMRA	Unfunded Mandates Reform Act
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 the designation of critical habitat for the Northwest Atlantic Ocean Distinct Population Segment (DPS) of 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.[1] 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.[2] 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. NMFS and the USFWS are now proposing critical habitat for the Northwest Atlantic Ocean DPS.

2. 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 that may be 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.[3]

3. Section 4(b)(2) of the Act requires NMFS to consider the economic, national security, and other impacts of designating a particular area as critical habitat. NMFS 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, NMFS prepared this economic analysis to evaluate potential impacts of designating particular as marine critical habitat for the DPS. This economic analysis specifically considers the marine areas being considered for critical habitat designation; USFWS is developing a separate economic analysis to consider potential impacts of terrestrial critical habitat designation.

[1] 43 FR 32800, July 28, 1978

[2] 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.

[3] 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.

SUMMARY OF FINDINGS

ESTIMATED ECONOMIC IMPACTS*:

- Quantified impacts of the rule reflect additional administrative effort as part of future consultations on projects. The estimated present value impact of critical habitat is $950,000 over the next ten years ($110,000 annualized).
- This analysis finds that impacts of critical habitat designation will most likely be limited to incremental administrative effort to consider potential adverse modification as part of future section 7 consultations. According to NMFS, it is unlikely that critical habitat will generate new or different recommendations for conservation efforts. This is because the conservation efforts that would be recommended to avoid jeopardy would most likely also avoid adverse modification of critical habitat. Consequently, impacts are greatest with respect to units or activities that are expected to be subject to the greatest numbers of consultations over the next ten years.

KEY UNCERTAINTY:

- While NMFS does not anticipate that activities and projects will be subject to additional conservation recommendations due to critical habitat designation, possible exceptions are activities that may alter the habitat in such a way as to impact transit back and forth from the nearshore waters to the beach for nesting loggerhead sea turtles (for example, construction of large emergent structures parallel to the shore). Such projects have the potential to generate adverse modification of critical habitat but may or may not constitute a jeopardy concern. NMFS may therefore request modifications to these activities specifically to avoid adverse modification of critical habitat (e.g., recommending that structures be located farther offshore). It is therefore possible that particular projects may be subject to incremental economic impacts of the critical habitat designation. Based on NMFS' experience consulting on projects due to the presence of the species, however, it has not identified a circumstance in which the presence of critical habitat would have changed the conservation recommendations made. That is, NMFS was unable to identify specific projects for which critical habitat would have generated recommendations for conservation efforts that were not recommended to avoid potential jeopardy to the DPS. Similarly, NMFS has not identified any specific future projects for which critical habitat will result in additional or different conservation recommendations.

DISTRIBUTION OF IMPACTS ACROSS UNITS:

- Quantified impacts are anticipated to be greatest in the Atlantic *Sargassum* habitat unit, LOGG-S-01 (37 percent of total impacts) and the Gulf of Mexico S*argassum* unit, LOGG-S-02 (13 percent of total impacts). The relative magnitude of these costs is driven by the overall level of activity in these areas due to the substantial size of the units. Impacts are also anticipated to be relatively high in the southern-most constricted migratory corridor habitat (LOGG-N-19) and concentrated breeding habitat (LOGG-N-19) in Florida (each representing ten percent of total impacts). These costs are due primarily to the frequency of consultations on in-water construction, dredging and disposal activities.

DISTRIBUTION OF IMPACTS ACROSS ACTIVITIES:

- The quantified impacts to in-water construction, dredging and disposal are greatest (approximately 68 percent of total impacts), followed by fisheries activities (27 percent of total impacts). However, the quantified impacts represent only minor additional administrative effort as part of future section 7 consultation on these activities.

BENEFITS:

- While this analysis relies on the best available information from the U.S. Army Corps of Engineers (Corps) and Bureau of Ocean Energy Management (BOEM) regarding the potential location of future marine construction and dredging projects, the rate and locations of future projects are significantly uncertain. Absent a complete activity forecast, we rely on the historical rate and distribution of activity, as well as some project-specific forecast from BOEM, to forecast the location and frequency of consultation on these projects.

*Present value impacts are estimating applying a seven percent discount rate.

4. This analysis employs the best data available to analyze the economic impacts of designating particular areas as critical habitat; these impacts represent the "benefits of exclusion." NMFS presents its formal consideration of the benefits of including particular areas (the "benefits of inclusion") within the designation in a separate report.[4] Together, these two reports support NMFS in determining whether the benefits of excluding any particular area outweigh the benefits of designating that area. These determinations are required under Section 4(b)(2) before any exclusion can be made. Such determinations will be documented in NMFS' accompanying 4(b)(2) report.

ANALYTIC METHODS

5. Once critical habitat is designated, section 7 of the Act requires Federal agencies to consult with NMFS to ensure that any action they authorize, fund, or carry out *will not likely result in the destruction or adverse modification of critical habitat*. NMFS 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.

6. 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 loggerhead critical habitat within these areas; (2) links these threats with particular human activities; (3) identifies the modifications to these activities that would avoid or minimize the threats; and (4) to the extent feasible, quantifies and monetizes the economic impact of the modifications and administrative effort associated with the section 7 consultation process.

7. Based on the proposed critical habitat rule, discussions with biologists at NMFS, review of the ESA section 7 consultation history for the loggerhead, and review of public comments received on the draft version of this analysis, we have identified the following key activities that may have an adverse impact on the physical and biological features of loggerhead critical habitat:

   - **Nearshore and in-water construction, dredging, and sediment disposal** – construction and maintenance of offshore structures such as breakwaters, groins, jetties, and artificial reefs; construction and maintenance of coastal or marine infrastructure (e.g., bridges); dredging and sediment disposal; channel blasting;
   - **Fisheries management** –commercial fisheries, commercial harvest of *Sargassum*, and related activities;
   - **Oil and gas exploration and development** - decommissioning of old oil and gas platforms, construction of oil and gas platforms, oil and gas activity transport, oil spill response activities;

[4] National Marine Fisheries Service. 2013. *Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtles*, May.

- **Renewable energy projects** –ocean thermal energy, wave energy, and offshore wind energy;
- **Some military activities** – in-water training and research; and
- **Aquaculture** – marine species propagation.

8. These activities are the focus of this analysis as they are the key activities that may present threats to the marine critical habitat area being considered for designation. While these activities are characterized by NMFS as activities that "may affect" critical habitat and would warrant consultation, NMFS does not anticipate that these activities would be likely to result in an "adverse modification" determination.

9. 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 marine 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.

10. Incremental impacts include the costs associated with additional administrative effort required to conduct section 7 consultations (including new consultations that otherwise would have been limited to jeopardy issues, reinitiated consultations, or new consultations occurring specifically because of the designation) as well as the costs associated with conservation efforts that would not have been undertaken absent critical habitat designation.

11. To quantify the economic impacts of critical habitat designation on the activities listed above, we undertake the following general steps:

    1. **Forecast frequency and locations of potential habitat threats:** In the areas being considered for critical habitat, determine the future scope and scale of the economic activities identified.
    2. **Characterize loggerhead conservation without critical habitat**: Identify the baseline protections (e.g., statutes, regulations, and policies) that direct the management of the activities in the absence of the critical habitat designation. This includes the conservation efforts that would be implemented due to the Federal listing of the DPS.
    3. **Identify additional conservation efforts due to critical habitat designation:** Determine whether critical habitat designation is likely to generate additional (i.e., incremental) conservation efforts. If so, define the nature of the additional conservation efforts.
    4. **Estimate the costs of the additional conservation efforts and administrative effort undertaken due to critical habitat designation.** Quantify any additional

conservation efforts that may be undertaken in order for projects and activities to avoid adverse modification of critical habitat. In addition, quantify the additional administrative effort that may be required as part of future section 7 consultations in order to consider the potential effects of projects or activities on critical habitat.

5. **Aggregate the per project impacts over space and time.** For each unit being considered for critical habitat designation, calculate present value and annualized impacts for all projects and activities over a ten year time frame.

12. The analysis estimates impacts based on activities that are reasonably foreseeable, including activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. In general, the time frame considered to forecast economic impacts in the study area is ten years. The extent of economic activity across the study area is significantly uncertain beyond this timeframe.

13. To calculate present value and annualized impacts, guidance provided by the U.S. Office and Management and Budget (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 consumption of goods and services in the future).[5] 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

14. NMFS is considering designating marine critical habitat across five habitat types, each serving a distinct lifecycle function for the DPS. NMFS is proposing 36 units as marine critical habitat for the turtles. Some of the units include multiple habitat types (e.g., both winter concentration and constricted migratory corridor habitat) resulting in 42 distinct unit/habitat type combinations, as follows: nearshore reproductive habitat (34 units), winter concentration habitat, (2 units), concentrated breeding habitat (2 units), constricted migratory corridor habitat (4 units).

15. In addition, NMFS is considering designating *Sargassum* habitat as critical habitat in two units (one in the Atlantic and one in the Gulf of Mexico). NMFS is soliciting public comment on the designation of the *Sargassum* units in the Proposed Rule. To provide NMFS with information on the potential economic impacts of critical habitat designation across all areas under consideration, this analysis evaluates the *Sargassum* habitat units along with the areas being proposed for designation. The study area for this analysis therefore includes 38 units comprising 44 distinct unit/habitat type combinations.

[5] 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.

16. The individual habitat types are defined and identified within the *Draft Biological Report* as follows:[6]

- **Nearshore reproductive habitat.** Generally, the nearshore reproductive habitat units include nearshore areas extending directly seaward from the coast 1.6 kilometer (one mile) from each end of the unit (in cases of long, straight beaches, usually found along the east coast) or 90 degrees from the coast seaward 1.6 kilometer (one mile) (in cases of beaches along islands or where the rounding at their ends would potentially include a significant number of nests, and thus hatchlings and nesting females for that beach). Where beaches are within 1.6 kilometer (one mile) of each other, nearshore areas were connected, either along the shoreline or by delineating on GIS a straight line from the end of one beach to the beginning of another (either from island to island or across an inlet or the mouth of an estuary). Although generally following these rules, the exact delineation of each unit was determined individually as each was unique.
- **Winter concentration habitat**. NMFS has identified the winter concentration area off North Carolina as the continental shelf waters between the 20 and 100 meter (65.6 and 328 feet) depth contours, from Cape Hatteras to Cape Fear (diagonal line to the 100 meter (328 feet) depth contour). The western and eastern boundaries of this habitat are the 20 meter and 100 meter (65.6 and 328 feet) contours, respectively. The northern boundary of this unit starts at Cape Hatteras (35° 27 N) in a straight latitudinal line between 20 meter and 100 meter (65.6 and 328 feet) depth contours. The southern boundary is a 37.5 kilometer (23.25 mile) line that extends from the 20 meter (65.6 feet) depth contour at approximately 33° 47' N, 77° 58' W (off Cape Fear) to the 100 meter (328 feet) depth contour at approximately 33° 2' N, 77° 31' W.
- **Concentrated breeding habitat**. NMFS has identified two concentrated breeding habitat areas. The first breeding habitat area is located in the nearshore waters just south of Cape Canaveral, Florida, beginning south of Titusville extending south to Floridana Beach. The second breeding habitat area runs along southeastern Florida from the Martin County/Palm Beach County line to the Marquesas Keys.
- **Migratory corridor habitat**. NMFS has identified two migratory habitat areas - North Carolina and southern Florida. The North Carolina migratory corridor contains the waters between 36° N. latitude and Cape Lookout (approximately 34° 58' N) from the edge of the Outer Banks, North Carolina, barrier islands to the 200 meter (656 feet) depth contour (continental shelf). The southern Florida migratory corridor stretches along the Florida coast from the tip of Cape Canaveral (28.46° N. latitude) to the westernmost edge of the Marquesas Keys (82.17° W. longitude). The northern border stretches from shore to the 30 meter (98.4 feet) contour line. The seaward border then stretches from the northeastern-

[6] Descriptions of habitat types and locations from: National Marine Fisheries Service. 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtles, May.

most corner to the intersection of the 200 meter (656 feet) contour line and 27° N. latitude parallel. The seaward border then follows the 200 meter (656 feet) contour line to the westernmost edge at the Marquesas Keys (82.17° W. longitude).

- ***Sargassum* habitat.** *Sargassum* habitat is ephemeral and the habitat features are not present at all times throughout the area. Therefore, NMFS identified the essential features of *Sargassum* critical habitat as U.S. waters south of 40° N. latitude in the Atlantic Ocean and Gulf of Mexico from 10 meter (32.8 feet) depth contour to the outer boundary of the Exclusive Economic Zone (EEZ), where there are convergence zones, surface water downwelling and other features that support concentrated *Sargassum*, water temperatures warm enough to support *Sargassum* growth and loggerhead inhabitance, and *Sargassum* in concentrations that support adequate prey abundance and cover. NMFS decided to separate the large geographical area of *Sargassum* habitat into two components, the Gulf of Mexico and the U.S. Atlantic Ocean.

RESULTS AND KEY FINDINGS

17. For all projected future activity in the critical habitat areas being considered for designation, NMFS does not anticipate recommending conservation efforts to avoid adverse modification of critical habitat beyond those already requested to avoid jeopardy to the DPS. Therefore, quantified impacts in this analysis are limited to additional administrative effort to consider critical habitat as part of future section 7 consultations. Exhibit ES-1 summarizes these estimated economic impacts of the proposed rule. The total estimated present value of the quantified impacts is $950,000 over the next ten years. This is equivalent to $110,000 on an annualized basis. Quantified impacts are anticipated to be greatest in the Atlantic *Sargassum* habitat unit, LOGG-S-01 (37 percent) and the Gulf of Mexico S*argassum* unit, LOGG-S-02 (13 percent). These costs reflect the overall level of activity of all types in these areas, which is driven by the size of these units, rather than by the potential for activities to adversely affect this habitat type in particular.

18. Impacts are also anticipated to be relatively great in the southern-most constricted migratory corridor habitat (LOGG-N-19) and concentrated breeding habitat (LOGG-N-19) in Florida (each representing ten percent of total impacts). These costs are due primarily to the frequency of consultations anticipated for in-water construction, dredging, and sediment disposal activities.

19. The majority of anticipated impacts are administrative costs associated with consultation on nearshore and in-water construction, dredging, and sediment disposal activities (68 percent) and fisheries and related activities (27 percent).

20. 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, for example due to litigation associated with critical habitat. Forecasting the likelihood of third party litigation and potential length of

any associated project delays is speculative, and we accordingly do not quantify such impacts in this analysis.

21. Exhibit ES-2 summarizes economic impacts associated with designation of critical habitat for the loggerhead by economic activity. Following are the key findings of our analysis with respect to each of the economic activities evaluated:

- **Nearshore and in-water construction, dredging, and disposal:** Quantified impacts related to construction, dredging, and disposal projects are estimated to be $650,000 ($74,000 annualized) over the next ten years. These impacts reflect additional administrative effort to consider the potential for these activities to adversely affect critical habitat in future section 7 consultations. We forecast the greatest level of administrative costs for consultations on construction projects to be incurred in the Gulf of Mexico *Sargassum* habitat unit (LOGG-S-02) and Atlantic *Sargassum* habitat unit (LOGG-S-01), the constricted migratory corridor unit in southern Florida (LOGG-N-19) and the concentrated breeding habitat in southern Florida (LOGG-N-19). These four units combined constitute 73 percent of the forecast costs to construction, dredging, and disposal activities. Substantial baseline measures already protect loggerhead habitat, and NMFS anticipates that it is unlikely that critical habitat designation will generate recommendations for additional conservation efforts with respect to these activities.

  A possible exception would be projects that may alter the habitat in such a way as to impact transit back and forth from the nearshore waters to the beach for nesting loggerhead sea turtles (for example, large emergent structures parallel to the shore) and/or to impact egress of hatchling loggerheads from the nearshore waters to open water. Depending on the design and location of such projects, NMFS may determine that this constitutes adverse modification but would not jeopardize the DPS. In this case, critical habitat designation has the potential to generate costs of modifying these projects. NMFS has not identified past instances of projects for which adverse modification would have generated incremental conservation recommendations, above and beyond those recommended to avoid jeopardy, however. In addition, at the time of this analysis no projects of this nature were currently planned or proposed within the areas being considered for critical habitat. Future interest in development of structures that could impede loggerhead transit could increase the incremental costs of the rule in the case that NMFS recommends modification due to the presence of critical habitat. *The potential for this activity to occur is a key uncertainty of this analysis.*

- **Fisheries:** Quantified impacts associated with commercial fisheries and related activities are estimated to be approximately $260,000 over the next ten years ($29,000 annualized). These impacts reflect additional administrative effort as part of future section 7 consultations to consider the potential for fisheries activities to adversely affect the critical habitat. We anticipate the majority of impacts in the Atlantic *Sargassum* habitat (LOGG-S-01), where the greatest number of future consultations is expected. Due to the substantial baseline

regulation of fisheries within the area focused on protection of loggerhead sea turtles (as described in Chapter 4), NMFS has not identified any conservation efforts that may be recommended to avoid adverse effects of fisheries on the essential features of critical habitat that would not be recommended to avoid jeopardy absent critical habitat designation.

- **Oil and gas exploration and development**: Quantified impacts related to oil and gas activities are estimated to be $17,000 ($1,900 annualized) over the next ten years. Generally, consultations on oil and gas activities are undertaken between the Bureau of Ocean Energy Management (BOEM) and NMFS at the programmatic level absent critical habitat designation. Following critical habitat designation, we expect these programmatic consultations would continue to occur and would be subject to additional administrative effort to consider potential effects of activities on the essential features of critical habitat. Thus, the impacts to oil and gas activities reflect the incremental effort dedicated to these programmatic consultations due to critical habitat.

  The consultations and associated costs quantified in this analysis are limited to *Sargassum* habitat in the Gulf of Mexico (LOGG-S-02). Substantial uncertainty exists with respect to the nature and timing of oil and gas activities in the Atlantic Ocean; as a result, this analysis does not speculate regarding a consultation forecast for activities in these areas. However, existing regulations and policies related to oil and gas activities in both the Gulf and Atlantic provide substantial baseline protections to the loggerhead and its habitat. NMFS has not identified the need for additional conservation efforts with respect to oil and gas activities specifically to avoid adverse modification of critical habitat. Thus, consultations on oil and gas activities in the Atlantic and Gulf of Mexico Planning Areas are not expected to be measurably affected by the critical habitat designation beyond limited additional administrative effort on the part of BOEM and NMFS.

- **Renewable energy development:** Quantified impacts related to energy projects are estimated to be $34,000 ($3,800 annualized) over the next ten years. As a developing industry, activity projected over the next ten years is uncertain. Available information from BOEM suggests that future activity is likely to be concentrated in the Atlantic *Sargassum* critical habitat unit (LOGG-S-01). Because NMFS does not anticipate recommending modifications to these projects beyond what would already recommended to avoid jeopardy, incremental costs of critical habitat designation are limited to administrative costs associated with consideration of critical habitat in future section 7 consultations.

- **Military activities:** They key threat identified by NMFS associated with military activities is the presence of noise in constricted migratory corridor habitat. NMFS routinely consults on military activities and would expect to recommend conservation to avoid adverse effects of habitat from noise even absent critical habitat designation. Absent information on the expected frequency of military activities occurring within constricted migratory corridor habitat, we do not

forecast consultation but anticipate that the incremental impact of additional administrative effort will be minor.

- **Aquaculture**: We do not anticipate measurable economic impacts on the aquaculture industry due to designation of loggerhead critical habitat. Very few aquaculture projects currently exist or are proposed within the areas being considered for designation. Those that do overlap are limited to bivalve propagation, which does not pose any of the identified threats to loggerhead habitat. It appears unlikely that significant new development of aquaculture facilities in the areas being considered for critical habitat will occur. In the case that future aquaculture operations are proposed within these areas, we expect impacts would most likely be limited to relatively minor additional administrative costs as part of future section 7 consultations.

22. 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.

23. In order to quantify the benefit to human populations of loggerhead conservation and recovery, we would need to quantify the extent to which the critical habitat designation, and marine critical habitat designation, in particular, 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 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.

24. Exhibit ES-3 discusses key assumptions and limitations underlying the analysis of impacts across activities, and identifies the likely direction and magnitude of bias these assumptions introduce into our analysis.

EXHIBIT ES-1. FORECAST ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION BY SPECIFIC UNIT, 2014-2023 (2013$)

HABITAT UNIT	TOTAL PRESENT VALUE (2013 DOLLARS)	ANNUALIZED (2013 DOLLARS)	PERCENT OF TOTAL
NEARSHORE REPRODUCTIVE HABITAT			
LOGG-N-03	$12,000	$1,400	1%
LOGG-N-04	$5,000	$570	1%
LOGG-N-05	$5,000	$570	1%
LOGG-N-06	$5,000	$570	1%
LOGG-N-07	$5,000	$570	1%
LOGG-N-08	$5,000	$570	1%
LOGG-N-09	$5,000	$570	1%
LOGG-N-10	$3,300	$370	0%
LOGG-N-11	$3,300	$370	0%
LOGG-N-12	$3,300	$370	0%
LOGG-N-13	$10,000	$1,200	1%
LOGG-N-14	$4,800	$550	1%
LOGG-N-15	$8,500	$960	1%
LOGG-N-16	$1,400	$160	0%
LOGG-N-17	$6,100	$700	1%
LOGG-N-18	$12,000	$1,300	1%
LOGG-N-19	$17,000	$2,000	2%
LOGG-N-20	$5,000	$570	1%
LOGG-N-21	$1,600	$180	0%
LOGG-N-22	$1,600	$180	0%
LOGG-N-23	$1,600	$180	0%
LOGG-N-24	$1,600	$180	0%
LOGG-N-25	$1,600	$180	0%
LOGG-N-26	$5,000	$570	1%
LOGG-N-27	$5,000	$570	1%
LOGG-N-28	$5,000	$570	1%
LOGG-N-29	$1,600	$180	0%
LOGG-N-30	$8,600	$980	1%
LOGG-N-31	$8,400	$950	1%
LOGG-N-32	$16,000	$1,800	2%
LOGG-N-33	$6,700	$760	1%
LOGG-N-34	$6,000	$680	1%
LOGG-N-35	$6,000	$680	1%
LOGG-N-36	$6,000	$680	1%
WINTER CONCENTRATION HABITAT			
LOGG-N-01	$3,100	$350	0%
LOGG-N-02	$3,100	$350	0%
CONCENTRATED BREEDING HABITAT			
LOGG-N-17	$26,000	$2,900	3%

HABITAT UNIT	TOTAL PRESENT VALUE (2013 DOLLARS)	ANNUALIZED (2013 DOLLARS)	PERCENT OF TOTAL
LOGG-N-19	$92,000	$10,000	10%
CONSTRICTED MIGRATORY CORRIDOR HABITAT			
LOGG-N-01	$17,000	$1,900	2%
LOGG-N-17	$19,000	$2,100	2%
LOGG-N-18	$25,000	$2,800	3%
LOGG-N-19	$92,000	$10,000	10%
***SARGASSUM* HABITAT**			
LOGG-S-01	$360,000	$40,000	37%
LOGG-S-02	$120,000	$14,000	13%
Total	**$950,000**	**$110,000**	**100%**

Note: Present value estimates are calculated applying a seven percent discount rate. 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 in this table may therefore not sum to the total costs reported due to rounding.

EXHIBIT ES-2. QUANTIFIED ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION BY ACTIVITY, 2014-2023

ACTIVITY	TOTAL PRESENT VALUE (2013$)	ANNUALIZED (2013$)	PERCENT OF TOTAL
Nearshore and In-Water Construction, Dredging, and Disposal	$650,000	$74,000	68%
Fisheries	$260,000	$29,000	27%
Oil and Gas Exploration and Development	$17,000	$1,900	2%
Renewable Energy Projects	$34,000	$3,800	4%
Total	**$950,000**	**$110,000**	**100%**

Notes:

1. Costs were estimated using a discount rate of 7 percent. See Appendix B for a presentation of impacts using a 3 percent discount rate, and Appendix C for a presentation of undiscounted impacts.
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.

EXHIBIT ES-3. KEY ASSUMPTIONS AND LIMITATIONS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
Critical habitat designation is unlikely to change the conservation efforts recommended to avoid adverse effects on the loggerhead and its habitat as part of future section 7 consultations.	May result in an **underestimate** of costs.	**Likely minor.** Given presently available information, NMFS anticipates that it is unlikely that critical habitat designation will generate additional or different recommendations for conservation efforts for the loggerhead and its habitat with respect to most types of activity. However, NMFS 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.
The analysis relies on estimates of the effort and costs required to complete section 7 consultations.	**Unknown.** May overestimate or underestimate incremental impacts.	**Likely minor.** The estimated costs of consultation used in this analysis are based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2013, a review of consultation records from several U.S. Fish and Wildlife Service field offices across the country conducted in 2002, and input from NMFS staff. To the extent that completion of a given section 7 consultation requires significantly more or less effort than the estimates employed in this analysis, the total cost of critical habitat designation may be greater or less than the reported estimated costs.
This analysis assumes that inclusion of an adverse modification analysis in future consultations, in addition to the jeopardy analysis, will result in additional cost and effort.	May result in an **overestimate** of costs.	**Likely minor.** NMFS has indicated that, in some cases, it may be more straightforward to relate an activity to the potential for adverse modification than to jeopardy. In such instances, it is possible that the critical habitat designation may actually generate some time saving benefit to the consultation. While the effort required to link activity-related threats to adverse modification of habitat may be less than it would have been to link those threats to jeopardy, each consultation will, however, need to include both jeopardy and adverse modification analyses. We therefore anticipate that time saving benefits, if any, would be minor.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
This analysis does not quantify administrative impacts associated with the need to consider loggerhead critical habitat for consultations where loggerheads are not a focal species.	May result in an **underestimate** of costs.	**Likely minor.** Costs associated with consideration of loggerhead habitat in future Section 7 consultations unrelated to the DPS itself are expected to be *di minimis.*
No projects are identified that may constitute a concern for adverse modification but not with respect to jeopardy for the DPS (e.g., projects that may alter the habitat in such a way as to impact transit back and forth from the nearshore waters to the beach for nesting loggerhead sea turtles and egress of hatchlings from nearshore waters out to open water).	May result in an **underestimate** of costs.	**Potentially major.** NMFS has identified such projects as activities that may be subject to additional conservation efforts due to loggerhead critical habitat designation. Therefore, if such a project occurs within an area designated as critical habitat for the loggerhead, incremental costs may be associated with the conservation efforts recommended. The likelihood of such a project occurring within the next ten years is uncertain.
This analysis does not quantify potential indirect impacts associated with time delay.	May result in an **underestimate** of costs.	**Likely minor.** For new construction, dredging, and channelization projects, the Corps will be required to consult with NMFS with respect to the loggerhead even absent critical habitat designation. While critical habitat may increase the time and effort spent on these consultations, the incremental impact associated with time delay 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. This incremental time spent in 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. This analysis does not speculate regarding the nature, frequency, timing, or outcome of potential lawsuits.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
For some activities, the analysis relies on patterns of historical consultation to forecast future rates of consultation activity. This analysis assumes that past consultations rates provide a good indication of future activity levels.	**Unknown.** May overestimate or underestimate incremental impacts.	**Likely minor.** Data are not available to determine whether the frequency or locations of construction, dredging, and sediment disposal activities, or fisheries management 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. 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.
The analysis of costs related to construction, dredging and disposal activities relies on patterns of historical consultation to forecast future locations of consultation activity.	**Unknown.** May overestimate or underestimate incremental impacts in a given area	**Potentially major.** Although the expected rate of consultation on construction, dredging, and disposal activities is not likely to vary much 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.
The analysis of fisheries activities makes assumptions regarding distribution of past consultations across habitat units, and relies on patterns of historical consultation to forecast future locations of consultation activity.	**Unknown.** May overestimate or underestimate incremental impacts in a given area.	**Likely minor.** Because fisheries activities are not confined to a specific geographic location, this analysis makes assumptions regarding the critical habitat units included in historical consultations, and how those costs are distributed across relevant units. Variations in the locations of future consultation from the past or in how past consultations are assigned to critical habitat units are unlikely to significantly change the overall findings of our analysis, but may over or underestimate the costs assigned to any given habitat unit.
This analysis does not provide estimates of project-specific future section 7 consultations in the Mid- and South Atlantic Planning Areas for oil and gas activities.	May result in an **underestimate** of costs.	**Likely minor.** Data are not available to determine an accurate forecast schedule of consultations associated with the potential opening of the Mid- and South Atlantic Planning Areas after 2017. NMFS would likely review each potential project or activity in the Atlantic Planning Areas at the time of consultation to determine whether additional conservation efforts are needed to avoid adverse modification of critical habitat.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
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.	May result in an **underestimate** of costs.	**Likely minor**. 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, NMFS 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.
This analysis assumes future alternative energy projects in Texas state waters will not come online in the next ten years due to significant uncertainty in the Texas energy market and markedly low prices of other forms of energy.	May result in an **underestimate** of costs.	**Likely minor.** While it is uncertain when these projects will come online, should some or all of these projects complete within the next ten years, the only likely impacts of critical habitat designation on these projects are additional administrative effort as part of future section 7 consultations.
This analysis does not expect measurable impacts to military activities.	May result in an **underestimate** of costs.	**Likely minor.** We expect the additional administrative effort as part of future consultations on military activities will be relatively minor. The primary threats to loggerhead associated with military activities (for example, noise) constitute jeopardy concerns and NMFS has a history of working with the military with respect to these threats even absent critical habitat designation.

CHAPTER 1 | INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

1. Under the provisions of the Endangered Species Act (the Act), the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) propose to designate critical habitat for the Northwest Atlantic Ocean Distinct Population Segment (DPS) of loggerhead sea turtles (*Caretta caretta*). The USFWS and NMFS are developing separate proposed rules for the terrestrial nesting habitat (USFWS) and marine habitat (NMFS), respectively. This economic analysis is focused on the potential economic impacts of marine critical habitat designation for the loggerhead sea turtles. A separate economic analysis is being developed to evaluate potential economic impacts associated with the terrestrial critical habitat designation.

2. 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 that may be 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.[1]

3. Section 4(b)(2) of the Act requires NMFS to consider the economic, national security, and other impacts of designating a particular area as critical habitat. NMFS 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.[2]

4. This report employs the best data available to analyze the economic impacts of designating particular areas as critical habitat; these impacts represent the "benefits of exclusion." NMFS presents its formal consideration of the benefits of including particular areas (the "benefits of inclusion") within the designation in a separate report.[3] Together, these two reports support NMFS in determining whether the benefits of excluding any particular area outweigh the benefits of designating that area. These determinations are required under Section 4(b)(2) to support exclusion decisions.

[1] 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.

[2] 16 U.S.C. § 1533(b)(1)(A).

[3] NMFS, 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtle, *Caretta caretta*. May.

5. This chapter begins with a summary of relevant statutory and regulatory information concerning the critical habitat designation. It then provides an overview of the biological requirements, species and habitat threats, and areas being considered for marine critical habitat designation for the loggerhead sea turtle.

1.2 BACKGROUND

6. In 1978, the loggerhead sea turtle was listed worldwide as a threatened species.[4] A Joint Memorandum of Agreement provided the USFWS jurisdiction over the species' terrestrial habitat and NMFS jurisdiction over the marine habitat. In 2011, NMFS and USFWS published a joint rulemaking revising the species' listing from a single, worldwide threatened species to nine DPSs. The two DPSs occurring in U.S. jurisdiction are the Northwest Atlantic Ocean DPS and the North Pacific Ocean DPS.[5] The 2011 revised listing rule precipitated the proposed critical habitat designation for the Northwest Atlantic Ocean DPS; NMFS and USFWS did not identify any critical habitat for the North Pacific Ocean DPS. This analysis is accordingly focused on the areas being considered for marine critical habitat for the Northwest Atlantic Ocean DPS.

7. The Act defines critical habitat under section 3(5)(A) 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.

8. Once critical habitat is designated, section 7 of the Act requires Federal agencies to consult with NMFS 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*. NMFS 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.

9. This analysis refers to "conservation efforts" as a generic term for recommendations NMFS 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

[4] National Marine Fisheries Service and U.S. Fish and Wildlife Service, Listing and Protecting Loggerhead Sea Turtles as "Threatened Species" and Populations of Green and Olive Ridley Sea Turtles as Threatened Species or "Endangered Species," 43 Federal Register 32800, July 28, 1978.

[5] National Marine Fisheries Service and U.S. Fish and Wildlife Service, Endangered and Threatened Species; Determination of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened, 76 Federal Register 58868, September 22, 2011.

adverse effects of projects or activities on the loggerhead and/or its habitat. The current ESA Section 7 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 the Services' 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 measures** are actions the Director believes necessary or appropriate to minimize the impacts, i.e., amount or extent, of incidental take.
- **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.[6]

10. Section 7 of the Act also requires Federal agencies to consult with NMFS 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, NMFS 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.

11. In some instances, it is difficult to distinguish between impacts stemming exclusively from critical habitat designation and impacts resulting from other loggerhead 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

[6] 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.

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

12. In 2001, the U.S. Tenth Circuit Court of Appeals instructed the 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.[7] The court's decision was based on USFWS' reliance on a regulatory definition of adverse modification that has since been invalidated. Subsequently, other courts have held that an incremental analysis of impacts stemming solely from the critical habitat rulemaking is proper.[8]

13. 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."[9] 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.

14. In some cases, it may be more straightforward for NMFS to tie an activity threat to adverse modification than to jeopardy. For example, the presence of large emergent structures in the nearshore waters off of an important nesting beach may be a jeopardy concern even absent critical habitat designation, and NMFS may accordingly recommend modifications to such projects to avoid jeopardy. Once critical habitat is designated, however, demonstrating the potential for the project to adversely modify critical habitat may be simpler than demonstrating the potential for jeopardy. Although the link to adverse modification may be more readily drawn, the outcome of the section 7 consultation would not be different in this case. That is, in the absence of critical habitat it may require additional time on the part of NMFS to demonstrate the potential for a project to result in jeopardy (and, in this way, critical habitat designation generates a time-saving benefit) but the loggerhead conservation efforts NMFS would recommend would be the same. As a result, where adverse modification provides a simpler means to recommend loggerhead conservation efforts, but the outcome of consultation is not changed as a result of critical habitat designation, we do not assume impacts of the conservation efforts are incremental effects of the designation.

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[7] New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service, 248 F.3d 1277 (10th Cir. 2001).

[8] See, for example: *Cape Hatteras Access Preservation Alliance v. Department of Interior*, 344 F. Supp. 2d 108 (D.D.C.); CBD v. BLM, 422 F. Supp/. 2d 1115 (N.D. Cal. 2006); Center for Biological Diversity et al., Plaintiffs, v. Bureau of Land Management et al., Defendants and American Sand Association, et al., Defendant Intervenors. Order re: Cross Motions for Summary Judgment. Case 3:03-cv-02509 Document 174 Filed 03/14/2006. Pages 44-45.

[9] OMB, "Circular A-4," September 17, 2003.

1.3 OVERVIEW OF SPECIES AND HABITAT

15. As indicated by the definition of critical habitat, important factors in delineating a critical habitat designation include the species' life history, historical distribution and abundance, and habitat requirements. To derive a measure of economic impacts occurring within discrete areas of critical habitat, this analysis: (1) characterizes existing or potential threats to the proposed critical habitat occurring within these areas; (2) links these threats to particular human activities; (3) identifies the potential conservation efforts that would avoid the threats; and (4) to the extent feasible, quantifies and monetizes the economic impact of the conservation efforts.

1.3.1 NORTHWEST ATLANTIC DPS OF LOGGERHEAD SEA TURTLE AND HABITAT REQUIREMENTS[10]

16. The loggerhead sea turtle occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. Nesting habitat for the species is focused at the western rims of the Atlantic and Indian Oceans, with one of the two largest nesting aggregations (of greater than 10,000 nesting females per year) occurring within the United States: specifically, peninsular Florida as part of the Northwest Atlantic Ocean DPS. The Northwest Atlantic Ocean DPS also comprises nesting aggregations of 1,000 to 9,999 females annually on beaches from Georgia north to North Carolina, and aggregates of 100 to 999 in the Northern Gulf of Mexico.

17. While nesting aggregations indicate loggerhead use of terrestrial habitat, population sizes within the marine habitat are more difficult to discern. The function of each habitat type within the lifecycle of the loggerhead turtles is described in Exhibit 1-1, which describes the five habitat types being considered for marine critical habitat designation for the Northwest Atlantic Ocean DPS of loggerhead sea turtle. NMFS is proposing 36 distinct areas as marine critical habitat for the turtles. In addition to the 36 units being proposed for critical habitat designation, NMFS is considering designating *Sargassum* habitat as critical habitat in two units (LOGG-S-01 in the Atlantic and LOGG-S-02 in the Gulf of Mexico) as described in Exhibit 1-1. NMFS is soliciting public comment on the designation of the *Sargassum* units in the Proposed Rule. To provide NMFS with information on the potential economic impacts of critical habitat designation across all areas under consideration, this analysis evaluates the *Sargassum* habitat units along with the areas being proposed for designation. The study area for this analysis therefore includes 38 units. Of note, some of the units include multiple habitat types (e.g., both winter concentration and constricted migratory corridor habitat) and, therefore, some of the units identified in Exhibit 1-1 are double counted across habitat types. Exhibit 1-2 describes the physical and biological features and the associated primary constituent elements of critical habitat for of each habitat type.

[10] NMFS, 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtle, *Caretta caretta*. May.

EXHIBIT 1-1. MARINE AREAS RECOMMENDED FOR POTENTIAL CRITICAL HABITAT DESIGNATION

HABITAT AREA	FUNCTION	DELINEATION OF CRITICAL HABITAT UNITS
Nearshore Reproductive Habitat	Hatchling swim frenzy and internesting area directly off of high density nesting beaches and beaches adjacent to them	Four recovery units comprising 34 proposed critical habitat units: • Northern Recovery Unit: 11 critical habitat units in North Carolina, South Carolina and Georgia • Peninsular Florida Recovery Unit: 16 critical habitat units in Florida • Dry Tortugas Recovery Unit: 1 critical habitat units • Northern Gulf of Mexico Unit: 6 critical habitat units along the Gulf Coast of Mississippi, Alabama and Florida
Winter Concentration Habitat	Wintering area for loggerheads inhabiting northern foraging areas	Two critical habitat units within continental shelf waters off the coast of North Carolina
Concentrated Breeding Habitat	High-density breeding areas	Two critical habitat units in nearshore waters in Florida
Constricted Migratory Corridor Habitat	Key migration corridors	Four units representing two corridors off the coasts of North Carolina and Florida
Sargassum Habitat	Concentrated developmental and foraging area for post-hatchling and juvenile life stages	Two units in Atlantic Ocean and Gulf of Mexico.

Source:
NMFS, 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtle, *Caretta caretta*. May.

EXHIBIT 1-2. PHYSICAL AND BIOLOGICAL FEATURES AND PRIMARY CONSTITUENT ELEMENTS OF MARINE CRITICAL HABITAT UNDER CONSIDERATION FOR THE LOGGERHEAD SEA TURTLE

HABITAT TYPE	PHYSICAL AND BIOLOGICAL FEATURES	PRIMARY CONSTITUENT ELEMENTS
Nearshore Reproductive Habitat	Portion of nearshore waters adjacent to nesting beaches that are used by hatchlings to egress to the open-water environment as well as by nesting females to transit between beach and open water during the nesting season.	1) Nearshore waters with direct proximity to nesting beaches that support critical aggregations of nesting turtles (e.g., highest density nesting beaches) to 1.6 km (one mile) offshore.
		2) Waters sufficiently free of obstructions or artificial lighting to allow transit through the surf zone and outward toward open water.
		3) Waters with minimal manmade structures that could promote predators (i.e., nearshore predator concentration caused by submerged and emergent offshore structures), disrupt wave patterns necessary for orientation, and/or create excessive longshore currents.
Winter Concentration Habitat	Warm water habitat south of Cape Hatteras near the western edge of the Gulf Stream that supports meaningful aggregations of juveniles and adults during the winter months.	1) Water temperatures above 10°C during the colder months of November through April.
		2) Continental shelf waters in proximity to the western boundary of the Gulf Stream.
		3) Water depths between 20 and 100 meters.
Concentrated Breeding Habitat	Sites that support meaningful aggregations of both male and female adult individuals during the breeding season.	1) Meaningful concentrations of reproductive male and female loggerheads.
		2) Proximity to primary Florida migratory corridor.
		3) Proximity to Florida nesting grounds.
Constricted Migratory Corridor Habitat	High use migratory corridors that are constricted (limited in width) by land on one side and the edge of the continental shelf and Gulf Stream on the other side.	1) Constricted continental shelf area relative to nearby continental shelf waters that concentrate migratory pathways.
		2) Passage conditions to allow for migration to and from nesting, breeding, and/or foraging areas.
Sargassum Habitat	Developmental and foraging habitat for young loggerheads where surface waters form accumulations of floating material, especially *Sargassum*.	1) Convergence zones, surface-water downwelling areas, and other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for optimal growth of *Sargassum* and inhabitance of loggerheads.
		2) *Sargassum* in concentrations that support adequate prey abundance and cover.
		3) Available prey and other material associated with *Sargassum* habitat such as, but not limited to, plants and cyanobacteria and animals endemic to the *Sargassum* community such as hydroids and copepods.
		4) Sufficient water depth and proximity to available currents to ensure offshore transport, and foraging and cover requirements by Sargassum for post-hatchling loggerheads, i.e., >10 m depth to ensure not in surf zone.

Source:
National Marine Fisheries Service. 2013. Draft Biological Report on Designation of Marine Critical Habitat for the Loggerhead Sea Turtle, *Caretta caretta*. May.

18. These areas being considered for critical habitat include both state and Federal jurisdictional waters in the Atlantic Ocean and the Gulf of Mexico, as follows:

- Nearshore Reproductive Habitat - state waters;
- Winter Concentration Habitat – Federal waters;
- Concentrated Breeding Habitat – Federal and state waters;
- Constricted Migratory Corridor Habitat – Federal and state waters; and
- *Sargassum* Habitat – Federal and state waters.

1.3.2 THREATS AND HUMAN ACTIVITIES[11]

19. Threats to the primary constituent elements of the loggerhead's habitat may affect the potential for conservation and recovery of the DPS. Based on a review of potential impacts, NMFS has identified the following activities that may adversely affect the primary constituent elements of critical habitat for the loggerhead:

- **Nearshore and in-water construction (Chapter 3)** – NMFS has identified the construction of offshore structures such as breakwaters, groins, jetties, or artificial reefs as a threat to the nearshore reproductive and constricted migratory habitats for the loggerhead. Such structures may block or impede efficient passage of hatchlings or females and concentrate hatchling predators.
- **Dredging and ocean disposal (Chapter 3)** – NMFS has identified dredging and disposal of sediments as a potential threat to the loggerhead in four of the five habitat types being considered for designation (excluding *Sargassum* habitat). These activities may affect sufficient habitat suitability, disrupt the use of habitat and thus affect concentration of reproductive loggerheads, and alter the conditions needed for efficient passage of loggerheads within migratory corridors and nearshore habitats.
- **Fisheries management (Chapter 4)** - NMFS has identified fishing and related activities as a potential threat to loggerhead sea turtle habitat in four of the five habitat types being considered for designation: nearshore reproductive, concentrated breeding, constricted migratory corridors, and *Sargassum* habitats. Fishing and related activities can disrupt use of habitat and affect concentrations of reproductive loggerheads, alter the conditions necessary for efficient passage through nearshore reproductive habitat and migratory corridors, or remove the habitat feature itself as a harvested commodity (i.e., *Sargassum*).
- **Oil and gas exploration and development (Chapter 5)** - Oil and gas exploration and development activities are considered potential threats to loggerhead critical habitat in all five of the habitat types proposed for designation. These activities include decommissioning of old oil and gas platforms, construction of oil and gas platforms, oil and gas activity and transport, oil spill response activities, as well as

[11] NMFS, 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtle, *Caretta caretta*. May.

interaction between platforms and *Sargassum* habitats. These activities may affect critical habitat through pollution from spills or other discharges, light pollution during normal operations, and blasting that may occur during decommissioning activities.

- **Renewable energy projects (Chapter 6)** – Renewable energy projects are considered potential threats to all types of loggerhead habitat. These activities, including wind, hydrokinetic, and tidal energy exploration, siting, and production activities, are forecast to occur in only two of the habitat types being considered for designation: constricted migratory and *Sargassum* habitats. These activities have the potential to disrupt habitat use through construction and power generation activities, as well as interaction between these structures and *Sargassum* habitats.
- **Aquaculture (Chapter 6)** – NMFS has identified aquaculture specifically as a potential threat to loggerhead sea turtle critical habitat in constricted migratory corridor and winter concentration habitats, where fixed structures and lighting can affect sufficient habitat suitability or alter conditions needed for efficient passage. In addition, lighting that can attract predators and disorient hatchlings, which can be associated with aquaculture facilities, is identified as a threat to nearshore reproductive habitat.
- **Some military activities (Chapter 6)** – Noise pollution from some military activities is identified as a threat in constricted migratory habitat for the loggerhead. Military maneuvers involving explosives or low frequency sonar may potentially harm loggerheads in all life stages, but information on the scope and extent of the impacts is uncertain.[12]

20. These activities are the focus of this analysis as they are the key activities that may present threats to the marine critical habitat area being considered for designation. While these activities are characterized by NMFS as activities that "may affect" critical habitat and would warrant consultation, NMFS does not anticipate that these activities would be likely to result in an "adverse modification" determination. Accordingly, this analysis reflects the NMFS determination that it is not likely that consultations on these activities will generate recommendations for additional Reasonable and Prudent Alternatives or conservation efforts.

21. This analysis also considers the extent to which critical habitat may influence project plans in anticipation of consultation. In other words, in the case that project proponents integrate additional conservation efforts into project plans in order to avoid NMFS recommending additional conservation efforts via section 7 consultation, associated costs are considered incremental impacts of the designation. With respect to the loggerhead sea turtle, however, project proponents and permitting agencies are generally well-aware of the conservation needs for the species and its habitat due to a long history of conservation

[12] National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*): Second Revision. December.

planning and consultations with NMFS. Because critical habitat is not likely to change the nature of the habitat conservation needs, it is unlikely that project proponents will alter their plans in anticipation of consultation regarding critical habitat.

22. Of note, NMFS has consulted on additional activities with respect to potential effects on loggerhead, including shoreline restoration, surveys and research efforts, and Federal Emergency Management Agency (FEMA) projects (e.g., flood control). While NMFS expects to continue to consult on these activities, the designation of critical habitat is expected to have a limited effect on these activities and, as such, they are not a focus of this economic analysis.

23. Determining how the key activity threats may be modified as a result of critical habitat designation, and estimating the costs of these potential modifications, is the crux of this analysis. To support the Section 4(b)(2) decision-making process, the analysis identifies the spatial distribution of these activities and, where possible, disaggregates impacts to particular geographic areas.

1.3.3 DESCRIPTION OF STUDY AREA

24. The area being considered for critical habitat designation includes 38 units. As described above, however, a number of these units include multiple habitat types. We accordingly present impacts for each of 44 "habitat areas." For example, Unit LOGG-NC-19 includes both nearshore reproductive and constricted migratory corridor components. Exhibits 1-4 and 1-5 map the areas being considered for marine critical habitat designation.

EXHIBIT 1-3. 44 CRITICAL HABITAT AREAS UNDER CONSIDERATION (COMPRISING THE 38 UNITS)

CRITICAL HABITAT UNIT	
Nearshore Reproductive Habitat	LOGG-N-03
	LOGG-N-04
	LOGG-N-05
	LOGG-N-06
	LOGG-N-07
	LOGG-N-08
	LOGG-N-09
	LOGG-N-10
	LOGG-N-11
	LOGG-N-12
	LOGG-N-13
	LOGG-N-14
	LOGG-N-15
	LOGG-N-16
	LOGG-N-17
	LOGG-N-18
	LOGG-N-19
	LOGG-N-20
	LOGG-N-21

CRITICAL HABITAT UNIT	
	LOGG-N-22
	LOGG-N-23
	LOGG-N-24
	LOGG-N-25
	LOGG-N-26
	LOGG-N-27
	LOGG-N-28
	LOGG-N-29
	LOGG-N-30
	LOGG-N-31
	LOGG-N-32
	LOGG-N-33
	LOGG-N-34
	LOGG-N-35
	LOGG-N-36
Winter Concentration Habitat	LOGG-N-01
	LOGG-N-02
Concentrated Breeding Habitat	LOGG-N-17
	LOGG-N-19
Constricted Migratory Corridor Habitat	LOGG-N-01
	LOGG-N-17
	LOGG-N-18
	LOGG-N-19
Sargassum Habitat	LOGG-S-01
	LOGG-S-02

1.4 ORGANIZATION OF REPORT

25. 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 three 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 as amended by the Small Business Regulatory Enforcement and Fairness Act; (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; (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 IEc developed by NMFS describing potential effects of critical habitat designation on the outcome of future section 7 consultations.

EXHIBIT 1-4. OVERVIEW OF AREAS BEING CONSIDERED FOR CRITICAL HABITAT DESIGNATION BY HABITAT TYPE

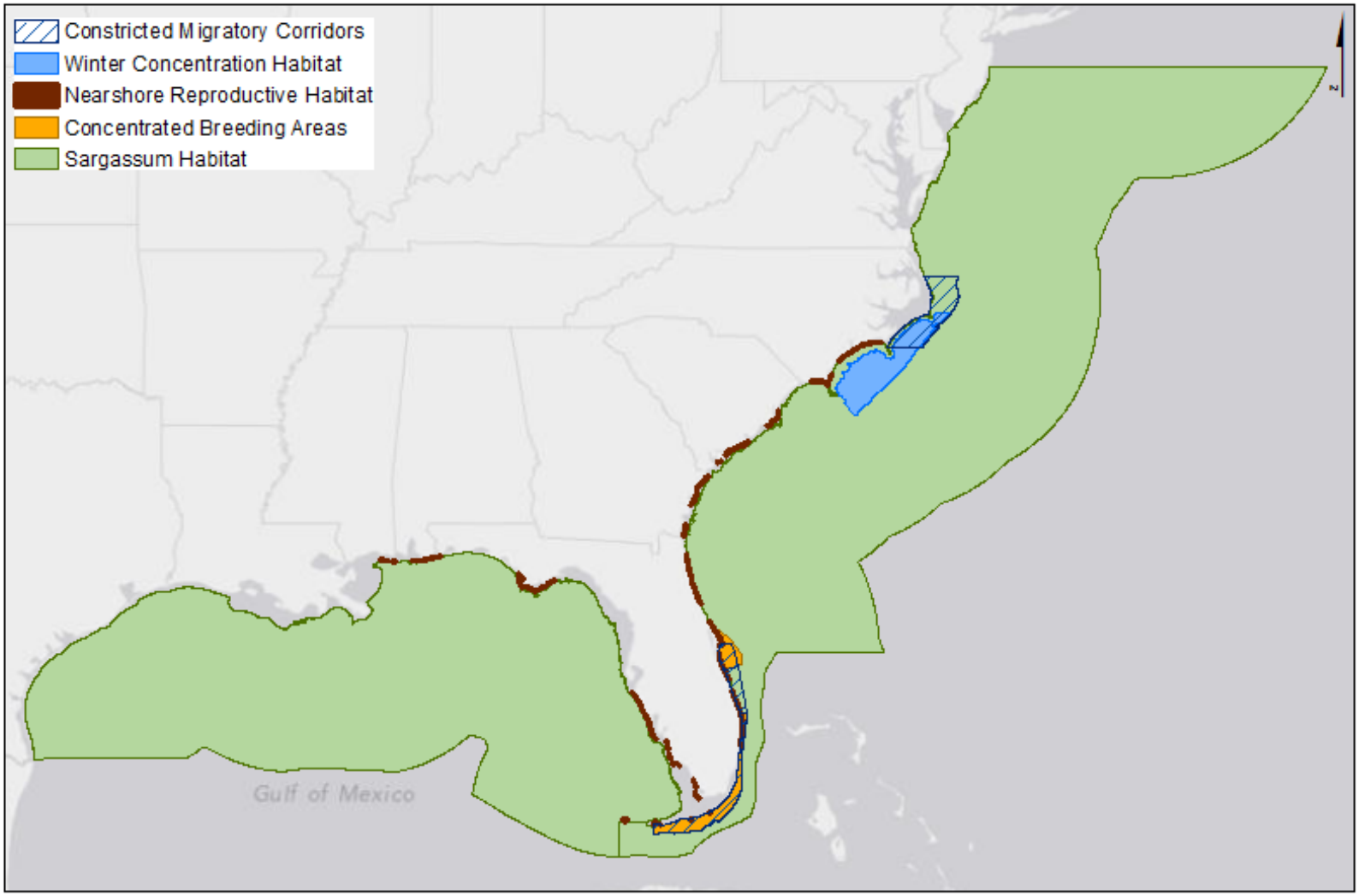
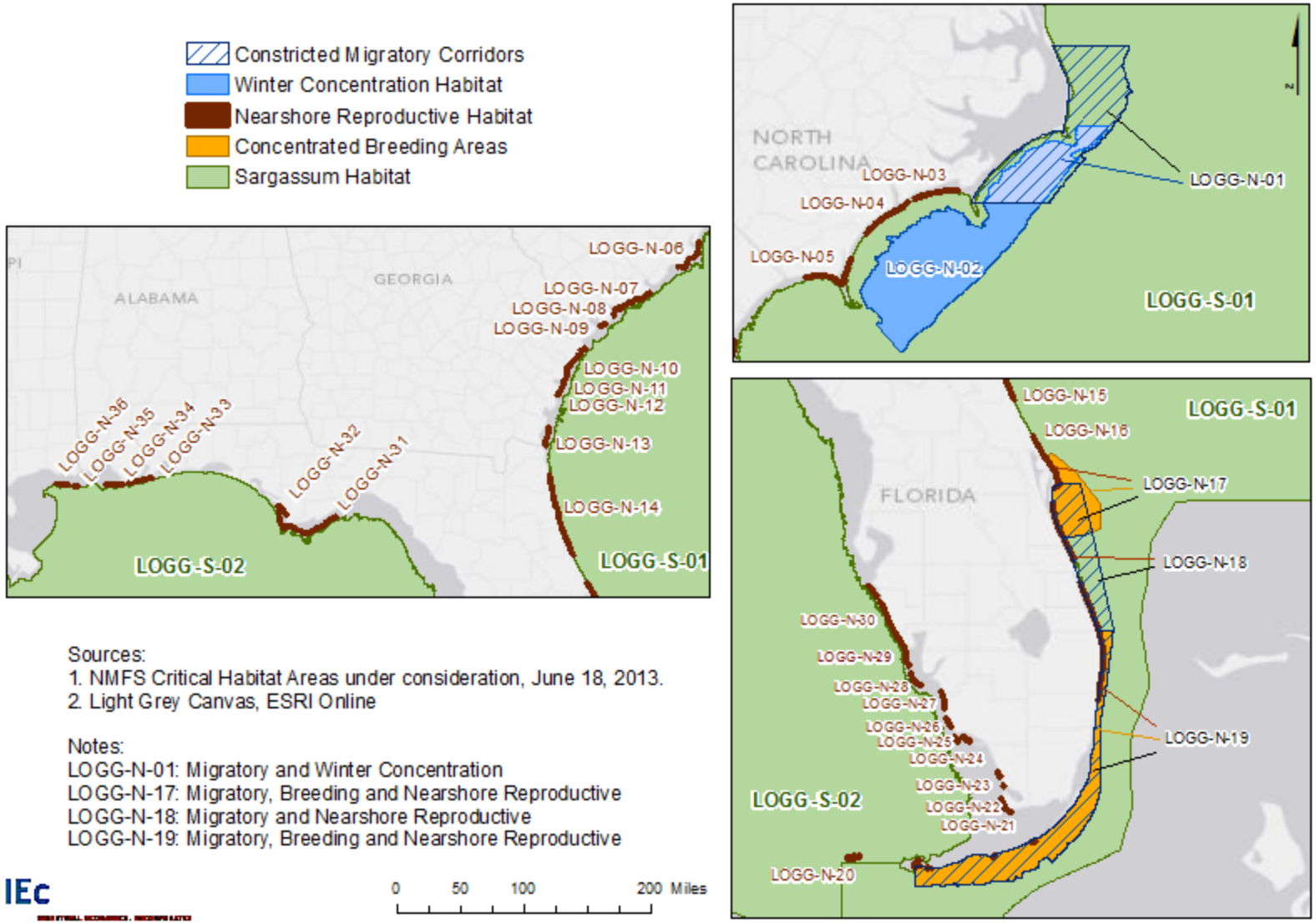


EXHIBIT 1-5. AREAS BEING CONSIDERED FOR CRITICAL HABITAT DESIGNATION BY HABITAT TYPE



Sources:
1. NMFS Critical Habitat Areas under consideration, June 18, 2013.
2. Light Grey Canvas, ESRI Online

Notes:
LOGG-N-01: Migratory and Winter Concentration
LOGG-N-17: Migratory, Breeding and Nearshore Reproductive
LOGG-N-18: Migratory and Nearshore Reproductive
LOGG-N-19: Migratory, Breeding and Nearshore Reproductive

IEc

CHAPTER 2 | FRAMEWORK FOR THE ANALYSIS

26. The purpose of this report is to identify and analyze the potential economic impacts associated with the designation of marine critical habitat areas for the loggerhead sea turtle. This chapter presents the framework applied to evaluate the potential economic impacts of critical habitat designation.

27. This analysis examines the impacts of restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the areas being considered for critical habitat designation. This analysis employs "without critical habitat" and "with critical habitat" scenarios. The "without critical habitat" scenario represents the baseline for the analysis, considering protections afforded the loggerhead absent critical habitat designation; for example, under Federal listing and other Federal, state, and local regulations. The "with critical habitat" scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the loggerhead.

28. According to section 4(b)(2) of the Act, NMFS 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.**[13] In addition, this information allows NMFS 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).[14]

29. 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

[13] 16 U.S.C. § 1533(b)(2).

[14] 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.

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

30. The 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."[15] 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 regulation. Significant debate has occurred regarding whether assessing the impacts of NMFS's proposed regulations using this baseline approach is appropriate in the context of critical habitat designations.

31. In 2001, the U.S. Tenth Circuit Court of Appeals instructed NMFS 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.[16] 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].[17]

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

[16] *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001).

[17] *Ibid.*

32. 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.[18] 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 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.'[19]

33. More recently, in 2010, the U.S. Ninth Circuit Court of Appeals came to similar conclusions during its review of critical habitat designations for the Mexican spotted owl and 15 vernal pool species.[20]

34. 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 area being considered for 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.

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[18] *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).

[19] *Center for Biological Diversity v. United States Bureau of Land Management,* 422 F.Supp.2d 1115 (N.D. Cal. 2006).

[20] *Home Builders Association of Northern California v. United States Fish and Wildlife Service,* 616 F.3d 983 (9th Cir. 2010), cert. denied, 179 L. Ed 2d 301, 2011 U.S. Lexis 1392, 79 U.S.L.W. 3475 (2011); *Arizona Cattle Growers v. Salazar*, 606 F. 3d 1160 (9th Cir. 2010), cert. denied, 179 L. Ed. 2d 300, 2011 U.S. Lexis 1362, 79 U.S.L.W. 3475 (2011).

2.2 CATEGORIES OF POTENTIAL ECONOMIC EFFECTS OF SPECIES CONSERVATION

35. 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 NMFS under section 7 represent opportunity costs of loggerhead conservation efforts.

36. 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

37. 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.[21]

38. 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 NMFS 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

[21] 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.

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.

39. 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.

40. This analysis begins by measuring impacts associated with conservation efforts undertaken to protect the loggerhead and its habitat. As noted above, in some cases, 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

41. 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.[22] 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.

Impacts on Small Entities, Governments, and Energy Supply, Distribution, and Use

42. 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.[23] It also assesses the potential for impacts to state, local and Tribal governments and the private sector as required by Title II of UMRA.[24] 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.[25]

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[22] 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.

[23] 5 U.S.C. §§ 601 *et seq*.

[24] 2 U.S.C. § 1531 *et seq.*

[25] Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001.

Regional Economic Effects

43. 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.

44. 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.

45. 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

46. 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 areas being considered for designation. This section provides a description of the methodology used to separately identify baseline protections from the incremental impacts stemming from the 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

47. 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 NMFS 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.

48. 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 areas being considered for critical habitat designation.

- Section 7 of the Act, absent critical habitat designation, requires Federal agencies to consult with NMFS 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. For context, Exhibit B-1 provides the estimated costs to address jeopardy in a section 7 consultation.
- 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."[26] 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 Habitat Conservation Plan (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.[27] The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that effects of incidental take are adequately avoided or minimized. Development and implementation of HCPs is considered a baseline protection for the species and habitat unless the HCP is determined to be

[26] 16 U.S.C. § 1532.

[27] U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning," August 6, 2002, accessed at http://endangered.fws.gov/hcp/.

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.

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

2.3.2 IDENTIFYING INCREMENTAL IMPACTS

50. 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.

51. 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

52. 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 NMFS through section 7 consultation to avoid potential destruction or adverse modification of critical habitat.

53. Section 7(a)(2) of the Act requires Federal agencies to consult with NMFS whenever activities that they undertake, authorize, permit, or fund may affect a listed species or designated critical habitat. In some cases, consultations will involve NMFS 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 a CWA section 404 permit.

54. During a consultation, NMFS, 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 proposed 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.

55. Section 7 consultations with NMFS may be either informal or formal. *Informal consultation*s consist of discussions between NMFS, 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 NMFS's determination in its Biological Opinion (BO) of whether the action is likely to jeopardize a species or adversely modify critical habitat and recommendations to minimize those impacts. 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

56. As described above, parties involved in section 7 consultations include NMFS, 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.

57. 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.

58. While this analysis does identify and quantify incremental administrative costs resulting from the first two scenarios (additional effort to consider adverse modification and re-initiation of past consultations), we did not identify any incremental consultations that would result solely from the designation of critical habitat for the loggerhead.

59. 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. We also engaged NMFS staff in discussion regarding whether the estimated incremental administrative effort is reflective of their experience with consultations considering potential adverse modification of critical habitat for other species. Based on feedback received during these discussions, we adjusted the expected incremental administrative costs for consultations on fisheries, as discussed in Chapter 4 of this analysis.

60. Exhibit 2-1 provides the incremental administrative consultation costs applied in this analysis. These costs are applied to quantify administrative costs of all consultations in this analysis, unless otherwise noted (e.g., for fisheries consultations in *Sargassum* habitat as described in Chapter 4).

Section 7 Conservation Efforts Impacts

61. 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	**NMFS**	**FEDERAL AGENCY**	**THIRD PARTY**	**BIOLOGICAL ASSESSMENT**	**TOTAL COSTS**
NEW CONSULTATION RESULTING ENTIRELY FROM CRITICAL HABITAT DESIGNATION (TOTAL COST OF A CONSULTATION CONSIDERING BOTH JEOPARDY AND ADVERSE MODIFICATION)					
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
NEW CONSULTATION CONSIDERING ONLY ADVERSE MODIFICATION (UNOCCUPIED HABITAT)					
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
RE-INITIATION OF CONSULTATION TO ADDRESS ADVERSE MODIFICATION					
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
ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A NEW CONSULTATION (ADDITIVE WITH BASELINE COSTS, SHOWN ABOVE, OF CONSIDERING JEOPARDY)					
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

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 Service field offices across the country conducted in 2002.

Notes:

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.
2. Estimates reflect average hourly time required by staff.
3. Costs of Biological Assessments associated with a given consultation may be borne by the Federal agency, third party (where applicable) or a combination of these parties to consultation.

Indirect Impacts

62. 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, and 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

63. 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

64. In addition to the indirect effects of compliance with other laws or 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 -** NMFS conducts each section 7 consultation 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 NMFS under section 7 may face uncertainty concerning whether conservation efforts will be recommended by NMFS 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.

65. 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. In addition, critical habitat may influence project plans in anticipation of consultation. In other words, in the case that project proponents integrate additional conservation efforts into project plans in order to avoid NMFS recommending additional conservation efforts via section 7 consultation, associated costs would be considered incremental impacts of the designation.

2.3.3 BENEFITS

66. Under Executive Order 12866, OMB directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions.[28] 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.[29]

67. 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.[30]

68. 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

[28] Executive Order 12866, Regulatory Planning and Review, September 30, 1993.

[29] 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

[30] *Ibid.*

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

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

2.3.5 ANALYTIC TIME FRAME

70. 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 analysis on the basis of a judgment about the foreseeable future."[31] The "foreseeable future" for this analysis includes, but it 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. OMB supports this time frame stating that "for most agencies, a standard time period of analysis is ten to 20 years, and rarely exceeds 50 years."[32] 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

71. 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.[33] 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.

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

[32] *Ibid*.

[33] 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 | NEARSHORE AND IN-WATER CONSTRUCTION, DREDGING, AND SEDIMENT DISPOSAL

3.1 INTRODUCTION

72. This chapter evaluates the potential effect of critical habitat designation for loggerhead sea turtles on nearshore and in-water construction, dredging, and disposal of sediment activity in the Atlantic Ocean and the Gulf of Mexico. NMFS has identified the construction of offshore structures such as breakwaters, groins, jetties, and artificial reefs as a threat to the nearshore reproductive habitat and constricted migratory corridor habitat for the loggerhead. Such structures may block or impede efficient passage of hatchlings or females and concentrate hatchling predators.[34] Other threats related to construction activities include channel blasting and marina and dock/pier development, and the noise associated with those activities, which can alter the conditions needed for efficient passage through migratory corridors Construction activities discussed in this chapter may also include transportation (i.e. bridge construction and maintenance) and utility projects. Dredging and disposal of sediments is identified as a potential threat to the loggerhead in four of the five habitat types being considered for designation (i.e., nearshore reproductive, concentrated breeding, winter concentration area, and constricted migratory corridors). Dredging and the associated disposal of sediments may affect sufficient habitat suitability, disrupt the use of habitat and thus affect concentration of reproductive loggerheads, and alter the conditions needed for efficient passage of loggerheads within migratory corridors and nearshore habitats.[35]

73. This chapter presents information on the potential for additional restrictions on construction, dredging, and disposal activities to reduce the effects of these activities on loggerhead critical habitat, and the associated economic implications of these restrictions. In addition, the analysis forecasts administrative costs associated with anticipated future consultations on construction, dredging, and disposal activities over the next ten years.

[34] NMFS. 2013. Draft Biological Report on the Designation of Marine Critical Habitat for the Loggerhead Sea Turtle, *Caretta caretta*. May.

[35] *Ibid*.

KEY FINDINGS OF THE NEARSHORE AND IN-WATER CONSTRUCTION, DREDGING, AND DISPOSAL ANALYSIS

QUANTIFIED IMPACTS AND CONCLUSIONS:

- Present value economic impacts of critical habitat designation for the loggerhead on construction, dredging, and disposal activities are approximately $650,000 over the next ten years. 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.
- NMFS' primary concerns relative to construction, dredging, and disposal activities include obstructions to transit through the surf zone in nearshore reproductive habitat, manmade structure that attract predators or disrupt wave patterns in nearshore reproductive habitat, artificial lighting in nearshore reproductive habitat, and barriers to passage in constricted migratory corridors. Existing regulations and recommendations provide significant baseline protections to loggerhead habitat. In particular, NMFS makes recommendations to reduce disturbance of loggerheads including timing restrictions, equipment requirements, lighting limits, and turtle monitoring as part of section 7 consultation due to the listing of the species.
- NMFS has not identified any conservation efforts that may be recommended to avoid adverse effects of these activities on the essential features of critical habitat that would not already be recommended to avoid potential adverse effects on the species itself. That is, NMFS 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, dredging, or disposal activities due to critical habitat.

GEOGRAPHIC DISTRIBUTION OF IMPACTS:

- This analysis finds that designation of the Atlantic *Sargassum* habitat unit (LOGG-S-01), Gulf of Mexico *Sargassum* habitat unit (LOGG-S-02), Unit LOGG-N-19 (concentrated breeding habitat), and Unit LOGG-N-19 (constricted migratory corridor habitat) will generate the greatest economic costs with present value incremental impacts of $200,000, $100,000, $85,000, and $85,000, respectively. Designation of the majority of the critical habitat units (23 units) is expected to generate relatively minor costs, i.e., present value impacts of less than $1,000 per unit. This is due to the relative lack of activity in these areas. As described in Exhibit 3-4, estimated impacts in all remaining units are in between $1,000 and $18,000.

KEY UNCERTAINTIES:

- While this analysis relies on the best available information from the Corps and BOEM regarding the potential location of future projects, the rate and locations of future projects are highly uncertain. 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 as well as activity specific information from BOEM.
- While NMFS anticipates it is likely that critical habitat designation will not change the outcome of future section 7 consultations on most construction, dredging, and disposal activities, the final determination regarding recommended conservation efforts will be made at the time of individual consultations on projects or activities.
- NMFS anticipates that projects that alter the habitat in such a way as to impact transit back and forth from the nearshore waters to the beach for nesting loggerhead sea turtles may result in additional conservation efforts due to the designation of critical habitat. An example may be the construction of large, emergent structures parallel to the shore, such as breakwaters. NMFS has not identified specific projects that would constitute an adverse modification concern and not a jeopardy concern, however, and our communication with the Corps did not identify specific proposals for large emergent structures within the proposed critical habitat area.
- 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 NMFS 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.

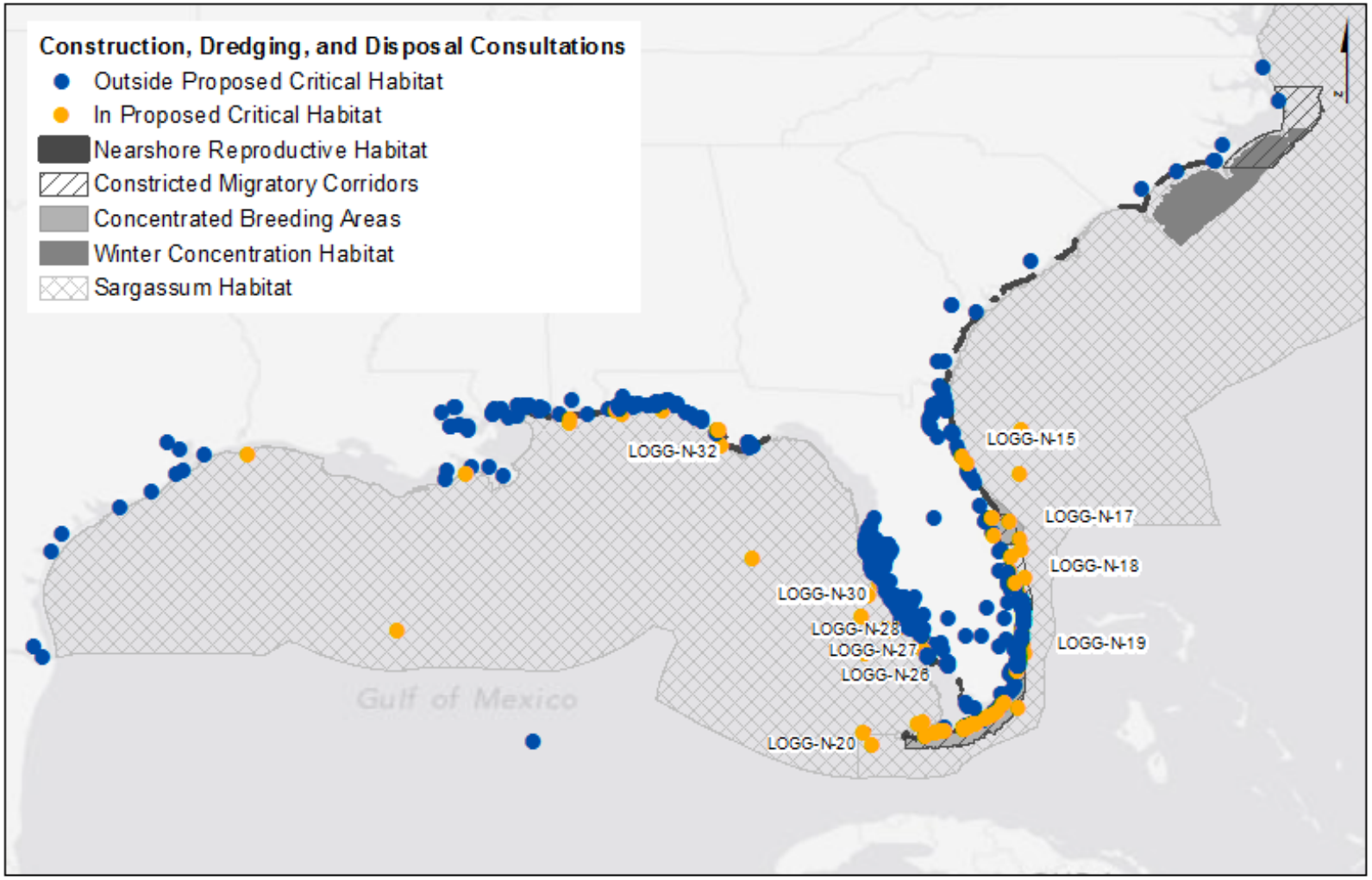
3.2 SCOPE AND SCALE OF POTENTIAL FUTURE CONSTRUCTION, DREDGING, AND DISPOSAL ACTIVITIES

74. The following section describes the scope and scale of nearshore and in-water construction, dredging, and disposal activities that may be affected by designation of critical habitat for the loggerhead sea turtle. Construction, dredging, and disposal occurring within the areas being considered for critical habitat designation for the loggerhead may have a Federal nexus through multiple channels, including most typically the Corps. The Corps undertakes these activities as Civil Works projects and also permits activities carried out by local communities. Other common Federal nexuses exist through the Federal Highway Administration funding of bridge construction and maintenance projects and the Bureau of Ocean Energy Management (BOEM) permitting of offshore dredging.

75. Between 2008 and 2012, NMFS participated in 936 consultations related to construction, dredging, and disposal projects that considered the loggerhead. Of these consultations, only 106 considered projects within the areas being considered for marine critical habitat designation. This is because the majority of construction and dredging activity occurs within harbors, estuaries, and channels that are not being considered for marine critical habitat designation for the loggerhead. Exhibit 3-1 depicts the locations of the past consultations on construction, dredging, and disposal projects that considered the loggerhead and highlights those on projects falling within the critical habitat units under consideration.

76. A number of the 106 consultations considered a project or activity that overlapped multiple critical habitat types (e.g., migratory and breeding habitat). Exhibit 3-2 presents additional information on these consultations and their geographic distribution. Overall, over the past five years, NMFS has participated in 21 formal and 85 informal consultations on construction, dredging, and disposal projects within the areas being considered for critical habitat designation.

EXHIBIT 3-1. LOCATION OF PAST CONSTRUCTION, DREDGING, AND DISPOSAL CONSULTATIONS (2008 - 2012)



Sources:
1. NMFS Critical Habitat Areas under consideration, June 18, 2013.
2. NMFS Loggerhead Turtle Consultations (2008 - 2012)
3. Light Gray Canvas, ESRI Online

EXHIBIT 3-2. PAST CONSTRUCTION, DREDGING, AND DISPOSAL CONSULTATIONS WITHIN AREAS BEING CONSIDERED FOR CRITICAL HABITAT DESIGNATION (2008 - 2012)

CRITICAL HABITAT UNIT	FORMAL	INFORMAL	TOTAL
LOGG-N-03 (Nearshore Reproductive Habitat)	1		**1**
LOGG-N-13 (Nearshore Reproductive Habitat)	1		**1**
LOGG-N-15 (Nearshore Reproductive Habitat)	1		**1**
LOGG-N-17 (Breeding)		2	**2**
LOGG-N-17 (Migratory/Breeding)		3	**3**
LOGG-N-17 (Nearshore/Migratory/Breeding)	2		**2**
LOGG-N-18 (Nearshore/Migratory)	1	4	**5**
LOGG-N-19 (Migratory/Breeding)	2	35	**37**
LOGG-N-19 (Nearshore/Migratory/Breeding)	2	10	**12**
LOGG-N-20 (Nearshore Reproductive Habitat)		1	**1**
LOGG-N-26 (Nearshore Reproductive Habitat)		1	**1**
LOGG-N-27 (Nearshore Reproductive Habitat)		1	**1**
LOGG-N-28 (Nearshore Reproductive Habitat)		1	**1**
LOGG-N-30 (Nearshore Reproductive Habitat)	1		**1**
LOGG-N-31 (Nearshore Reproductive Habitat)		2	**2**
LOGG-N-32 (Nearshore Reproductive Habitat)	2		**2**
LOGG-S-01 (*Sargassum*)	4	5	**9**
LOGG-S-01 (*Sargassum*); LOGG-N-17 (Migratory/Breeding)		1	**1**
LOGG-S-01 (*Sargassum*); LOGG-N-18 (Migratory)		3	**3**
LOGG-S-02 (*Sargassum*)	4	16	**20**
5-year Total	**21**	**85**	**106**
Annual Average	**4.2**	**17**	**21.2**

Source:
Personal communication with NMFS biologist on February 26, 2013.
Notes:
Construction projects include transportation and utility projects.

77. The Corps has identified various ongoing and planned dredging projects that may be affected by the designation of critical habitat for the loggerhead. In particular, the Jacksonville District has identified four projects that will be continuing from 2012 into 2013, 16 projects scheduled to begin in 2013, 11 projects scheduled to begin in 2014, and five projects scheduled to begin in 2015.[36] The Mobile District has identified one project that will be continuing from 2012 into 2013, nine projects

[36] Personal communication with Kenneth Dugger, U.S. Army Corps of Engineers, Jacksonville District on January 17, 2013.

scheduled to begin in 2013, and one project expected to begin in 2014.[37] The Wilmington District estimates that there are 22 ongoing navigation dredging projects with ocean front beach disposal activities. In addition, the Wilmington District estimates that there are 16 Federal and 23 non-Federal beach nourishment projects permitted by the Corps that are currently underway or recently completed. Of these, 11 use offshore "borrow areas," which may be located within the areas being considered for marine critical habitat designation.[38]

78. In addition, the Corps provided data on the location of disposal sites that are currently active or may be used in the future.[39] These data indicate that many offshore disposal sites are located within the areas being considered for critical habitat designation for the loggerhead, especially *Sargassum* habitat. In general, NMFS will consult on a dredging activity and the associated disposal sites in conjunction with one another. It is uncertain how the provided data on disposal locations links to a particular project that would require consultation with NMFS.

79. Some of the sand placement projects undertaken or authorized by the Corps use sand from outer continental shelf (OCS) borrow areas regulated by BOEM. BOEM provided information on planned nourishment and renourishment projects using OCS sand as well as the OCS borrow areas. Consultations on the nourishment and renourishment projects themselves are generally conducted between the Corps and FWS and are discussed in the Economic Analysis of Terrestrial Critical Habitat Designation. However, BOEM may also consult with NMFS on offshore dredging activities. We assume that dredging is necessary for each of the planned nourishment and renourishment projects described by BOEM.

80. Exhibit 3-3 provides details on the planned BOEM dredging projects. 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.[40] Note that the majority of these consultations will be to consider effects to *Sargassum* habitat. NMFS does not consider dredging and disposal of sediments to be a threat to *Sargassum* habitat because the localized effects are not at the large scale of concern with respect to *Sargassum*. Therefore, we assume that all BOEM dredging consultations will be informal.

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[37] U.S. Army Corps of Engineers, Mobile District. Navigation Section, Dredging Schedules. Viewed on http://www.sam.usace.army.mil/Library/MapsandCharts.aspx February 13, 2013.

[38] Personal communication with David Bauman, U.S. Army Corps of Engineers, South Atlantic Division on January 18, 2013.

[39] Personal communication with Cheryl Bosley, U.S. Army Corps of Engineers, Mobile District on February 13, 2013.

[40] 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 (Personal communication with Douglas Piatkowski, Biologist, U.S. Army Corps of Engineers Wilmington District on May 28, 2013).

EXHIBIT 3-3. PLANNED OCS SAND DREDGING FOR BEACH NOURISHMENT AND RENOURISHMENT PROJECTS

CRITICAL HABITAT UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	TOTAL
LOGG-N-14 (Nearshore Reproductive Habitat)	0.5			0.5			0.5			0.5	**2**
LOGG-N-18 (Migratory)			0.5			0.5					**1**
LOGG-N-19 (Migratory)		0.3			0.3			0.3			**1**
LOGG-N-19 (Breeding)		0.3			0.3			0.3			**1**
LOGG-S-01 (*Sargassum*)	19.5	6.3	5.5	9.5	3.3	4.5	14.5	4.3	7	9.5	**84**
LOGG-S-02 (*Sargassum*)	4			2			4			2	**12**
Total	**24**	**7**	**6**	**12**	**4**	**5**	**19**	**5**	**7**	**12**	**101**

Sources: Personal communication with Megan Butterworth, Biological Oceanographer, BOEM, November 15, 2013; Personal communication with Geoffrey Wikel, Branch of Environmental Coordination Chief, BOEM, November 20, 2013.
Note: Borrow area data provided by BOEM indicate that a borrow area in North Carolina overlaps LOGG-N-05 (Nearshore Reproductive Habitat) and a borrow area in Florida overlaps LOGG-N-17 (Migratory/Breeding). However, the data necessary to tie the borrow areas to the specific nourishment projects provided by BOEM were not available.

81. BOEM expects that dredging of OCS sand may increase in the future due to increasingly limited state sand resources and nearshore conflicts for the use of state sand.[41] In particular, BOEM expects a 25 percent increase in the use of OCS sand in the Atlantic from Cape Henry, VA to the Savannah River along the border of South Carolina and Georgia and from St. Johns River in Jacksonville, FL through Miami-Dade County, FL. In the Gulf of Mexico, BOEM expects a 25 percent increase in OCS dredging from Collier County to Pinellas County in Florida.[42] Due to this increase in OCS dredging, the rate of consultation between BOEM and NMFS may increase. However, this increase will be offset by a decrease in consultations between the Corps and NMFS or FWS for dredging of state sand resources. Therefore we do not expect the overall rate of consultation to increase.

3.3 BASELINE REGULATION OF CONSTRUCTION ACTIVITIES

82. Existing regulations, policies, best management practices, and guidelines implemented by Federal and state governments provide a baseline level of protection to loggerhead turtle habitat even absent designation of critical habitat. Baseline protections related to construction, dredging, and disposal activities afforded to loggerhead turtle habitat are described in this section.

[41] Public comment from Jill Lewandowski, Environmental Consultation Branch Chief, U.S. Department of the Interior, Bureau of Ocean Energy Management, September 19, 2013.

[42] Personal communication with Megan Butterworth, Biological Oceanographer, BOEM, November 15, 2013.

3.3.1 FEDERAL REGULATIONS

83. Numerous Federal regulations provide baseline protection for the loggerhead within the areas being considered for proposed critical habitat designation. The primary Federal protection for the loggerhead is the listing of the DPS under the Act; however, other regulations provide protections with respect to particular activities or within certain areas. These Federal regulations are described below.

Clean Water Act

84. Section 404 of the CWA requires parties to obtain a permit from the Corps prior to discharging dredge or fill material into "waters of the United States."[43] Construction, dredging, and disposal activities within the study area are likely to require section 404 permitting. The Corps' review of projects for the issuance of section 404 permits requires section 7 consultation with the Service to the extent that the 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.[44]

85. These conservation efforts would be required by the Corps for section 404 permits regardless of critical habitat designation.[45] Accordingly, impacts of implementing these conservation efforts provide baseline protection to the loggerhead and its habitat.

National Environmental Policy Act

86. The U.S. Environmental Protection Agency (EPA) is responsible for carrying out the requirements of the National Environmental Policy Act (NEPA) (40 CFR Part 6). 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,

[43] 16 U.S.C. § 1344.

[44] 40 C.F.R. Part 230.75.

[45] *Ibid*.

spending Federal money, or affecting Federal lands. 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. Marine construction, dredging, and disposal activities have typically been subject to NEPA, and associated EISs have considered potential environmental impacts, including impacts on the loggerhead.

National Marine Sanctuaries Act

87. The National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as national marine sanctuaries. The primary objective of the NMSA is to protect marine resources and the Act provides several tools for carrying out this objective, including:

- The authority to issue regulations, which may limit activities occurring within a sanctuary;
- The requirement for sanctuaries to prepare and periodically update management plans;
- The authority to assess civil penalties for violations or the NMSA or its implementing regulations; and
- The requirement for Federal agencies whose actions are likely to destroy, cause loss of, or injure a sanctuary resource to consult with the program before taking action.[46]

88. There are four National Marine Sanctuaries that overlap with the areas being considered for critical habitat designation. These are the Monitor, Gray's Reef, Florida Keys, and Flower Garden Banks sanctuaries. The Monitor sanctuary overlaps the Atlantic *Sargassum* habitat unit, constricted migratory corridor Unit LOGG-N-01, and winter concentration habitat Unit LOGG-N-01. The Gray's Reef sanctuary overlaps the Atlantic *Sargassum* habitat unit. The Florida Keys sanctuary overlaps Atlantic and Gulf *Sargassum* habitat units, concentrated breeding area Unit LOGG-N-19, and nearshore reproductive habitat Unit LOGG-N-19. The Flower Garden Banks sanctuary overlaps the Gulf *Sargassum* habitat unit. These areas may receive some baseline protections from the sanctuary resources being protected from injury or harm. In particular, the Florida Keys sanctuary management plan designates areas that must be avoided by ships, bans oil drilling, and provides for education and public outreach, all of which may benefit the loggerhead.[47]

[46] NOAA, National Marine Sanctuaries Program. About Your Sanctuaries, Legislation. Viewed on http://sanctuaries.noaa.gov/about/legislation/welcome.html February 15, 2013.

[47] NOAA, National Marine Sanctuary Program. 2007. Florida Keys National Marine Sanctuary Revised Management Plan.

Coastal Zone Management Act

89. The Coastal Zone Management Act (CZMA) of 1972 provides for management of the nation's coastal resources and balances economic development with environmental 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 marine areas being considered for critical habitat designation.[48] Provisions of these programs that provide specific protection to the areas considered for marine critical habitat designation are discussed in greater detail in the State Regulations Section below.

90. 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.[49]

Marine Protection, Research, and Sanctuaries Act

91. The Marine Protection, Research and Sanctuaries Act (MPRSA), also known as the Ocean Dumping Act, prohibits the dumping of material into the ocean that would unreasonably degrade or endanger human health or the marine environment. The Corps issues permits under MPRSA for ocean dumping using EPA's environmental criteria and subject to EPA's concurrence [50] This regulation would cover off-shore dumping of dredged material, which is considered a threat to the loggerhead and its habitat.

Endangered Species Act

92. 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

[48] NOAA, Coastal Zone Management Program. Coastal Programs: Partnering with States to Manage Our Coastline. Viewed on http://coastalmanagement.noaa.gov/programs/czm.html February 15, 2013.

[49] *Ibid*.

[50] EPA. Marine Protection, Research and Sanctuaries Act (Ocean Dumping Act). Viewed on http://www.epa.gov/history/topics/mprsa/ March 11, 2013.

consult with NMFS to ensure that any action authorized, funded, or carried out with not likely 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.

93. NMFS currently consults on construction, dredging, and disposal projects within the areas being considered for marine critical habitat. In general, NMFS will consult with Federal agencies on a per-project basis. A couple of notable exceptions include the South Atlantic Regional Biological Opinion (SARBO) and the Gulf Regional Biological Opinion (GARBO) for hopper dredging.[51] These regional Biological Opinions were issued by NMFS through consultation with the Corps on hopper dredging activities and consider all activity at the regional level, thus avoiding the need for consultation on each dredging effort. Future hopper dredging projects carried out in the areas being considered for proposed critical habitat designation will likely be covered by these Regional Biological Opinions and will not require individual consultations with NMFS.

94. In addition, NMFS recently consulted with the Corps on their proposal to reauthorize 48 existing nationwide permits and establish two new nationwide permits that authorize the discharge or dredged or fill materials into water of the United States from 2012 through 2017. This programmatic consultation covered many species, including the loggerhead. The Biological Opinion issued by NMFS does not assess the effects of individual discharges authorized by one or more of these permits, but instead is a national-level consultation on an action or series of actions affecting many species. Specific uses of these proposed permits would require subsequent consultations by NMFS regions where a proposed activity may affect listed species.[52]

95. In the past, NMFS has recommended various measures to minimize the impact of construction, dredging, and disposal projects on the loggerhead. Measures regularly recommended by NMFS in consultation to minimize the impact of construction activities include:

- Avoid collisions with turtles;
- Make construction personnel aware that turtles are protected under the Act;
- Ensure that siltation barriers be made of material in which a sea turtle cannot become entangled, be properly secured, and be regularly monitored;
- Construction vessels must operate at “no wake/idle” speeds and follow marked channels;

[51] In addition to these two consultations that consider activities at a regional level, the Corps has consulted with the FWS on sand placement activities in Florida. This statewide programmatic consultation will be considered in detail in the economic analysis of proposed terrestrial habitat for the loggerhead as the consultation primarily deals with activities occurring on beaches.

[52] NMFS. 2012b. Endangered Species Consultation Biological Opinion on U.S. Army Corps of Engineers' Nationwide Permit Program. February.

- Monitor area for turtles and take precautions if turtles are sighted within 100 yards of operation;
- Display educational signage;
- Participate in the sea turtle stranding and salvage network (STSSN);
- Provide recycling bins for used fishing line to decrease turtle entanglement in or ingestion of marine debris;
- Minimize night time lighting; and
- Reporting requirements.[53,54]

Measures recommended to minimize the impact of dredging and disposal include:

- Restrict hopper dredging to the months of December through March;
- Screen inflow and outflow of dredged material;
- Equipment requirements such as sea turtle deflecting dragheads;
- Vessels used for dredging or material transport should avoid approaching sea turtles closer than 100 yards; and
- Monitoring and reporting requirements.[55,56,57]

96. NMFS would recommend measures similar to those described above for construction, dredging, and disposal projects carried out within the areas being considered for critical habitat designation. These measures are considered baseline impacts and would be recommended regardless of critical habitat designation.

3.3.2 STATE REGULATIONS

97. In addition to the Federal protections described above, various States have 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 marine critical habitat designation.

[53] NMFS. 2006. Sea Turtle and Smalltooth Sawfish Construction Conditions.

[54] NMFS. 2012a. Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Critical Habitat for Loggerhead Sea Turtle. October.

[55] NMFS, Southeast Regional Office. 1997. Regional Biological Opinion on Hopper Dredging along the South Atlantic Coast.

[56] National Marine Fisheries Service, Southeast Regional Office, "Gulf of Mexico Regional Biological Opinion (GRBO) to the U.S. Army Corps of Engineers on Hopper Dredging of Navigation Channels and Borrow Areas in the U.S. Gulf of Mexico," 2007.

[57] NMFS. 2012b.

New Jersey

98. The New Jersey Coastal Management Program regulates development within coastal areas. The Waterfront Development Law protects and maintains navigation and commerce on and adjacent to New Jersey's tidal waterways. Regulated activities include construction of docks, piers, and bridges; laying undersea cable sand pipelines; and dredging and filling operations. Regulated areas include tidally flowed waterways seaward of the mean high water line.[58] This area may overlap with the *Sargassum* habitat off the coast of New Jersey.

Maryland

99. Maryland's Coastal Management Program includes policies surrounding the dredging and disposal of dredged material that require environmental analysis of dredging projects; prohibit dredging activities during certain months to accommodate spawning fish, submerged vegetation, and shellfish areas; and dictate the location of disposal sites. Policies related to navigation limit channelization and restrict the location of new or expanded facilities for the mooring, docking, or storing of vessels.[59] These policies may provide some protection to the *Sargassum* habitat off the coast of Maryland.

Virginia

100. The Virginia Coastal Zone Management Program is currently in the process of developing a comprehensive ocean plan that aims to sustain and grow ocean industries while also protecting the ocean's habitats. This Virginia Marine Spatial Plan will cover the area from mean low water out to the 200 mile Exclusive Economic Zone and will therefore overlap with the *Sargassum* habitat off the coast of Virginia.[60]

North Carolina

101. The North Carolina Coastal Area Management Act requires that project proponents receive a permit for any sort of development within an Area of Environmental Concern, which includes navigable waters. 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

[58] NJ Department of Environmental Protection, Office of Coastal Planning. 2002. The New Jersey Coastal Management Program, Coastal Zone Boundaries.

[59] Maryland Department of Natural Resources, Chesapeake & Coastal Program. 2011. Maryland's Enforceable Coastal Policies.

[60] Virginia Department of Environmental Quality. Virginia CZM Program Coastal Needs Assessment and Strategies, FY2011-2015. Viewed on http://www.deq.state.va.us/Programs/CoastalZoneManagement/FundsInitiativesProjects/CoastalNeedsAssessment/CoastalNeedsAssessmentFY20112016.aspx February 13, 2013.

period.[61] North Carolina's policies may provide protection for loggerhead critical habitat in state waters.

South Carolina

102. South Carolina's Office of Ocean and Coastal Resource Management (OCRM) is responsible for managing ocean resources within state waters. Through the South Carolina Coastal Management Program, OCRM regulates marine activities such as the development of ports, bridges, marine-related facilities (marinas, boat ramps, docks, and piers), artificial reefs, and dredging. OCRM considers wildlife when making their permitting decisions and states that activities deemed to have a significant negative impact on wildlife or their habitat will not be approved unless overriding socio-economic considerations are involved.[62] South Carolina's policies may provide protection for loggerhead critical habitat in state waters.

Georgia

103. Georgia Coastal Management Program policies address coastal activities that have a reasonably foreseeable effect on coastal resources, including transportation facilities (e.g., ports and bridges), marine related facilities, and dredging. These activities are subject to the numerous provisions including those of the Shore Protection Act, Coastal Marshlands Protection Act, Revocable License Program (for use of state-owned tidal water bottoms), 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. Ocean Management has been designated as a Special Management Area. 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.[63] Georgia's policies may provide protection to loggerhead critical habitat in state waters.

Florida

104. The Florida Coastal Management Program is comprised of a network of agencies implementing 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, which extend onto the state's sovereignty land seaward of the mean high-water line. This program ensures that construction activities do not use

[61] 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.

[62] South Carolina Department of Health and Environment Control, Office of Ocean and Coastal Resource Management. 1995. Policies and Procedures of the South Carolina Coastal Management Program. July.

[63] Georgia Department of Natural Resources, Coastal Resources Division. 1997. Georgia Coastal Management Program Final Environmental Impact Statement.

improper in-water construction techniques or damage marine resources.[64] Florida's policies may provide protection to loggerhead critical habitat in state waters.

Alabama

105. The Alabama Coastal Area Management Program includes regulation of projects having the potential to impact Alabama's coastal resources. This includes permitting of projects impacting waterbottoms, such as dredging, marina construction, and shoreline stabilization projects. Alabama's policies focus on protecting coastal areas and emphasis is given to avoiding activities that alter the natural environment if alternatives exist.[65] Alabama's policies may provide protection to loggerhead critical habitat in state waters.

3.4 METHODOLOGY FOR EVALUATING IMPACTS TO CONSTRUCTION ACTIVITIES

3.4.1 QUANTIFYING THE IMPACTS OF ADDITIONAL CONSERVATION EFFORTS

106. Additional restrictions on construction, dredging, and disposal activity in potential critical habitat areas will only be requested by NMFS to the extent that baseline protections do not adequately protect the habitat from adverse modification. According to NMFS, projects or activities that may alter the habitat in such a way as to impact transit back and forth from the nearshore waters to the beach for nesting loggerhead sea turtles (for example, large emergent structures parallel to the shore) have the potential to generate adverse modification of critical habitat but not necessarily jeopardy to the DPS. NMFS may therefore recommend conservation efforts to avoid adverse modification of the critical habitat, for example, recommending that structures be moved farther offshore. In considering the consultation history, however, NMFS was not able to identify a particular project for which adverse modification would have been a concern where jeopardy was not. It is therefore highly uncertain whether this may be the case for future projects.[66]

107. As the Corps would likely need to permit any such structures, we interviewed each of the Corps' Districts with jurisdiction over the proposed critical habitat area to identify the potential for such projects in the foreseeable future. The Corps did not, however, identify plans for the construction of large emergent structures over the next ten years.[67] As a result, while we anticipate that critical habitat designation may affect these types of projects, for example by dictating the location at which they will avoid adversely modifying critical habitat for the loggerhead, we do not quantify the potential impacts of this additional conservation effort.

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[64] Florida Department of Environmental Protection, Coastal Management Program. 2012. Florida Coastal Management Program Guide. February.

[65] Alabama Department of Environmental Management. 2012. Coastal Area Management Program Division 335-8. ADEM Admin. Code R. 335-8. April.

[66] Personal communication with NMFS biologist on November 12, 2012.

[67] Personal communication with U.S. Army Corps of Engineers on January 16, 2013.

108. For all other construction, dredging, and disposal activities NMFS anticipates that it is most likely that existing baseline protections provide adequate protection of loggerhead habitat (i.e., adequate to avoid adverse modification of critical habitat). As such, NMFS does expect to request additional modifications as part of section 7 consultation on these activities.

109. Particular concern was raised by the Corps that any additional timing restrictions placed on dredging activities due to the designation of critical habitat for the loggerhead could result in significant costs. Hopper dredging in the southeast region is generally limited to the months of December through March due to loggerhead presence. Further timing restrictions placed on this activity due to the designation of critical habitat may lead to increased costs due to limited supply of dredging equipment. In addition, new dredgers may need to be purchased to accommodate the amount of dredging that must occur over a limited timeframe.[68] NMFS does not anticipate requesting further timing restrictions due to the designation of critical habitat. Therefore, we do not expect these costs to occur.

110. In addition to direct effects resulting from recommendations made by NMFS during future section 7 consultations, project proponents may experience indirect effects of the designation. The Corps has expressed concern that critical habitat:

- May be used in litigation to further delay or prevent projects.
- Will increase the length of time for NMFS to review projects.[69]

111. 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.

112. This analysis does not quantify potential indirect incremental impacts of loggerhead marine 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, especially for new consultations, because 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

[68] Personal communication with Douglas Piatkowski, Biologist, U.S. Army Corps of Engineers Wilmington District on January 14, 2013.

[69] Personal communication with U.S. Army Corps of Engineers on January 16, 2013.

the additional time necessary to complete the analysis of adverse modification of critical habitat.

113. 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. As described in Chapter 1, NMFS anticipates that in some cases the designation of critical habitat may actually reduce the time needed to complete a consultation due to a more straightforward connection between a project and adverse modification of critical habitat, as opposed to jeopardy. That is, it may be more straightforward for NMFS to tie an activity threat to adverse modification than to jeopardy in certain instances. For example, the presence of large emergent structures in the nearshore waters off of an important nesting beach may be a jeopardy concern even absent critical habitat designation, however once critical habitat is designated it may be simpler for NMFS to demonstrate the potential for the project to adversely modify critical habitat than to demonstrate potential jeopardy. In this example, in the absence of critical habitat NMFS may require additional time to demonstrate the potential for a project to result in jeopardy and critical habitat accordingly generates a time-saving benefit. The extent to which this would be the case, and the estimated decreased level of effort, are uncertain.[70]

3.4.2 QUANTIFYING THE ADMINISTRATIVE COSTS

114. This analysis relies on the location and frequency of past consultations to forecast the number of future actions anticipated to require consultation on critical habitat on an annual basis as well as information from BOEM on planned OCS dredging projects. The data necessary on timing and location of other planned construction, dredging, and disposal projects are not available at this time. As discussed in Section 3.2, the Corps provided information on ongoing and planned dredging projects in the Jacksonville, Mobile, and Wilmington Districts, beach nourishment projects in the Wilmington District, and disposal locations. The Corps was not able to provide data on the extent to which these projects overlap the areas being considered for proposed critical habitat designation. However, the data provided do indicate that a number of the projects are located in harbors and channels that are not being considered for critical habitat designation. Therefore, not all of the projects identified by the Corps will be required to consult with NMFS to consider adverse modification of critical habitat for the loggerhead.

115. For purposes of this analysis, we assume that the past rate and location of consultation on construction, dredging, and disposal actions is reflective of the future rate and location of consultations on average. Based on the rate of consultation on construction, dredging, and disposal project over the last five years, we estimate that on average there are 4.2 formal and 17 informal consultations on construction, dredging and disposal projects within areas proposed for critical habitat designation annually (see Exhibit 3-1). To test this assumption, we compared the project

[70] Personal communication with NMFS biologist on February 19, 2013.

information provided by the Corps to the recent consultation history to determine whether the consultation history is a reasonable indicator of the frequency and location of future projects. The information provided by the Corps indicates that the activities they expect will require consultation with NMFS are similar to those that NMFS has consulted on in the past (i.e., dredging and disposal). In addition, the rate of past consultation activity appears to be in line with the information provided by the Corps. However, there is not enough information to determine whether the geographical distribution of the past consultation efforts is also indicative of future efforts and this remains an uncertainty of the analysis.

116. We estimate that 101 informal consultations will occur over the next 10 years on OCS dredging activities (see Exhibit 3-3). This consultation forecast is based on information provided by BOEM on planned nourishment and renourishment projects. We assume that dredging is necessary for each of these projects. Note that some of the projects described by BOEM may be ongoing projects captured in the historical rate of consultation, therefore including separate consultations on these activities may lead to an overestimate of the number of future consultations.

117. In addition to the project-specific consultations described above, we assume that the two formal consultations on regional hopper dredging activities (SARBO and GARBO) as well as the programmatic consultation on Corps nationwide permits will need to be reinitiated in 2014 to consider adverse modification of critical habitat for the loggerhead. This analysis assumes that the administrative costs associated with these consultations are spread evenly across all units within the areas covered by the consultations. Costs are spread across all units within the covered areas because the activities covered by these consultations, in particular dredging and disposal, are considered threats to all five types of habitat and therefore it is feasible that there could be a consultation in any given unit in the future.

118. Where a consultation considers multiple units, the best option would be to weight it by the level of relevant activity (e.g., if 90 percent of the dredging activity is occurring in nearshore reproductive habitat, it should get 90 percent of a dredging consultation cost). This is difficult for construction, dredging, and disposal activities because it is unclear where activities will be concentrated. The second best option depends on the situation. If the first best option is not available, we consider the following options:

- **Split costs by area:** In some cases the argument can be made that the amount of time/effort spent on a given unit in consultation is a function of its size. This would be true in units where there are more types and levels of threats (i.e., more projects and types of projects) the bigger the area. If this is the case we would weight impacts by area.
- **Split costs evenly:** In other cases it is less likely to be true that the complexity of evaluating effects of a project on a given unit are associated with its size. For example, where the habitat function and level of activities are generally homogenous, the evaluation of effects of the project on the unit may be less

complex despite the size of the unit. This seems to be the case for the loggerhead.

119. Therefore, costs associated with the reinitiation of SARBO are spread evenly across the 26 habitat areas in the Atlantic from North Carolina southward, costs associated with the reinitiation of GARBO are spread evenly across the 18 habitat areas in the Gulf of Mexico, and costs associated with the reinitiation of the programmatic on nationwide permits are spread evenly across all 44 habitat areas (see Exhibit 3-4).

3.5 RESULTS OF ANALYSIS

120. We estimate that one programmatic and two formal consultations will be reinitiated in 2014 to address the adverse modification of critical habitat for the loggerhead. In addition, we estimate that 42 formal and 271 informal new consultations on construction, dredging, and disposal activities will occur over the next ten years. Due to the widely-recognized presence of loggerhead turtles in the proposed areas, we assume that these new consultations would have occurred absent critical habitat. Given our assumptions about costs per consultation, the present value incremental impacts of critical habitat designation for the loggerhead on construction, dredging, and disposal activities are estimated to be $650,000, or $74,000 on an annualized basis, assuming a seven percent discount rate.

121. Exhibit 3-4 summarizes the total estimated administrative costs of consultations on construction, dredging, and disposal activities by unit over the ten-year period of analysis, from 2014 to 2023. Present value costs are discounted at a seven percent discount rate.

EXHIBIT 3-4. INCREMENTAL ADMINISTRATIVE COSTS OF CONSTRUCTION, DREDGING, AND DISPOSAL CONSULTATIONS, 2014-2023 ($2013)

CRITICAL HABITAT UNIT		PRESENT VALUE IMPACTS (7% DISCOUNT RATE)	ANNUALIZED IMPACTS
Nearshore Reproductive Habitat	LOGG-N-03	$7,800	$890
Nearshore Reproductive Habitat	LOGG-N-04	$740	$85
Nearshore Reproductive Habitat	LOGG-N-05	$740	$85
Nearshore Reproductive Habitat	LOGG-N-06	$740	$85
Nearshore Reproductive Habitat	LOGG-N-07	$740	$85
Nearshore Reproductive Habitat	LOGG-N-08	$740	$85
Nearshore Reproductive Habitat	LOGG-N-09	$740	$85
Nearshore Reproductive Habitat	LOGG-N-10	$740	$85
Nearshore Reproductive Habitat	LOGG-N-11	$740	$85
Nearshore Reproductive Habitat	LOGG-N-12	$740	$85
Nearshore Reproductive Habitat	LOGG-N-13	$7,800	$890

CRITICAL HABITAT UNIT		PRESENT VALUE IMPACTS (7% DISCOUNT RATE)	ANNUALIZED IMPACTS
Nearshore Reproductive Habitat	LOGG-N-14	$4,200	$470
Nearshore Reproductive Habitat	LOGG-N-15	$7,800	$890
Nearshore Reproductive Habitat	LOGG-N-16	$740	$85
Nearshore Reproductive Habitat	LOGG-N-17	$5,400	$620
Nearshore Reproductive Habitat	LOGG-N-18	$11,000	$1,300
Nearshore Reproductive Habitat	LOGG-N-19	$17,000	$1,900
Nearshore Reproductive Habitat	LOGG-N-20	$4,300	$490
Nearshore Reproductive Habitat	LOGG-N-21	$900	$100
Nearshore Reproductive Habitat	LOGG-N-22	$900	$100
Nearshore Reproductive Habitat	LOGG-N-23	$900	$100
Nearshore Reproductive Habitat	LOGG-N-24	$900	$100
Nearshore Reproductive Habitat	LOGG-N-25	$900	$100
Nearshore Reproductive Habitat	LOGG-N-26	$4,300	$490
Nearshore Reproductive Habitat	LOGG-N-27	$4,300	$490
Nearshore Reproductive Habitat	LOGG-N-28	$4,300	$490
Nearshore Reproductive Habitat	LOGG-N-29	$900	$100
Nearshore Reproductive Habitat	LOGG-N-30	$7,900	$900
Nearshore Reproductive Habitat	LOGG-N-31	$7,700	$870
Nearshore Reproductive Habitat	LOGG-N-32	$15,000	$1,700
Nearshore Reproductive Habitat	LOGG-N-33	$900	$100
Nearshore Reproductive Habitat	LOGG-N-34	$900	$100
Nearshore Reproductive Habitat	LOGG-N-35	$900	$100
Nearshore Reproductive Habitat	LOGG-N-36	$900	$100
Winter Concentration Habitat	LOGG-N-01	$740	$85
Winter Concentration Habitat	LOGG-N-02	$740	$85
Concentrated Breeding Habitat	LOGG-N-17	$18,000	$2,100
Concentrated Breeding Habitat	LOGG-N-19	$85,000	$9,600
Constricted Migratory Corridor Habitat	LOGG-N-01	$740	$85
Constricted Migratory Corridor Habitat	LOGG-N-17	$12,000	$1,300
Constricted Migratory Corridor Habitat	LOGG-N-18	$18,000	$2,000
Constricted Migratory Corridor Habitat	LOGG-N-19	$85,000	$9,600
Sargassum Habitat	LOGG-S-01	$200,000	$23,000
Sargassum Habitat	LOGG-S-02	$100,000	$12,000
Total		**$650,000**	**$74,000**

3.6 ASSUMPTIONS AND LIMITATIONS

122. 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 critical habitat designation. Exhibit 3-5 presents the key assumptions made and the potential bias they introduce in the analysis.

EXHIBIT 3-5. 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 *rates* of consultation activity. This analysis assumes that past consultations provide a good indication of future activity.	**Unknown.** May overestimate or underestimate incremental impacts.	**Likely minor.** Data are not available to determine whether construction, dredging, and disposal activities subject to consultation (e.g., those 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, 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 *locations* of consultation activity.	**Unknown.** May overestimate or underestimate incremental impacts in a given area.	**Potentially major.** Although the expected rate of consultation on construction, dredging, and disposal activities is not likely to vary much 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.
Critical habitat designation is unlikely to change the conservation efforts recommended to avoid adverse effects on the loggerhead and its habitat as part of future section 7 consultations on most construction, dredging, and disposal activities.	May result in an **underestimate** of costs.	**Likely minor.** Given presently available information, NMFS anticipates that it is unlikely that critical habitat designation will generate additional or different recommendations for conservation efforts for the loggerhead and its habitat with respect to most construction, dredging, and disposal activities. However, NMFS 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.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
No plans for the construction of structures that may alter the habitat in such a way as to impact transit back and forth from the nearshore waters to the beach for nesting loggerhead sea turtles were identified.	May result in an **underestimate** of costs.	**Potentially major.** NMFS has identified the construction of such structures as an activity that may be subject to additional conservation efforts due to loggerhead critical habitat designation. Therefore, if such a project occurs within an area designated as critical habitat for the loggerhead incremental costs associated conservation efforts may occur. The likelihood of such a project occurring within the next ten years is small, but if one does occur the resulting impacts may be significant.
This analysis does not quantify potential indirect impacts associated with time delay.	May result in an **underestimate** of costs.	**Likely minor.** For new projects, the Corps will be required to consult with NMFS 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.

CHAPTER 4| FISHERIES

4.1 INTRODUCTION

123. This chapter evaluates the potential effect of critical habitat designation for loggerhead sea turtles on fishing and related activities in the Atlantic Ocean and the Gulf of Mexico. Fishing activities may be subject to additional costs as a result of designation of critical habitat to the extent that designation, and the subsequent requirement to prevent adverse modification of critical habitat, results in additional restrictions and regulations.

124. NMFS has identified fishing activity as a potential threat to loggerhead sea turtle habitat in four of the five of the habitat types being considered for designation (nearshore reproductive, concentrated breeding, constricted migratory corridor, and *Sargassum* habitats).[71] According to the *Draft Biological Report*, fishing and related activities have the potential to affect the physical and biological features of important habitat for the loggerhead sea turtle via disturbance of habitat use caused by the presence of fishing gear, creation of a barrier to passage, or removal of the habitat feature itself as a harvested commodity (i.e., *Sargassum*).[72]

4.2 PROFILE OF FISHERIES AND RELATED ACTIVITIES POTENTIALLY AFFECTING CRITICAL HABITAT

125. NMFS' Sustainable Fisheries Division manages commercial fisheries occurring in Federal waters through the development, review, and amendments to Fishery Management Plans (FMPs).The authorization of continued operation of Federal fisheries conveyed by development and revision of FMPs provide the primary Federal nexus through which section 7 consultations on fisheries would occur.

126. *The Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle* identifies fisheries employing a wide variety of gear types, including trawl nets, dredges, longlines, other hook and line types, gillnets, purse seines, haul seines, channel nets, pots and traps, pound nets, and weirs as threatening the recovery of loggerhead sea turtles.[73] Since 2002, NMFS has provided section 7 consultations on numerous fisheries operating

[71] NMFS. 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtle, *Caretta caretta*. May.

[72] An FMP was developed by the South Atlantic Fishery Management Council (SAFMC) which does allow for limited harvest of *Sargassum* in Federal waters off of North Carolina. However, no *Sargassum* harvest has taken place since 1997 and the SAFMC and NMFS do not anticipate any activity in this fishery in the future.

[73] NMFS and USFWS. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*). Second Revision. December.

on the Atlantic coast and in the Gulf of Mexico that represent potential threats to the continued existence of loggerhead turtles. These fisheries include:

- the American lobster fishery;
- the Atlantic sea scallop fishery;
- the Atlantic bluefish fishery;
- the spiny dogfish fishery;
- the monkfish fishery;
- the northeast multispecies fishery;
- the Atlantic squid, mackerel and butterfish fishery;
- the summer flounder, scup, and black sea bass fishery;
- the skate fishery;
- the red crab fishery;
- the northeast tilefish fishery;
- the Atlantic pelagic longline fishery;
- the Atlantic commercial bottom longline shark fishery;
- the coastal migratory pelagics fishery;
- the South Atlantic snapper-grouper fishery;
- the Southeast Atlantic and Gulf of Mexico shrimp fisheries;
- the spiny lobster fisheries in the Gulf of Mexico and South Atlantic;
- the Gulf of Mexico stone crab fishery; and
- the Gulf of Mexico reef fish fishery.

KEY FINDINGS OF THE FISHERIES ANALYSIS

QUANTIFIED IMPACTS AND CONCLUSIONS:

- Present value economic impacts of critical habitat designation for the loggerhead on fisheries are approximately $260,000 over the next ten years. These impacts reflect additional administrative effort as part of future section 7 consultations to consider the potential for fisheries activities to adversely affect the critical habitat.
- NMFS' primary concerns relative to fishery activities include disturbance of the loggerhead's use of the habitat or transit through the habitat, and reduction in the quantity of available habitat, as would occur with the commercial harvest of *Sargassum*. Existing regulations and recommendations provide significant baseline protections to loggerhead habitat. Time and area closures to certain gear types, gear modifications, and investment in observer coverage are currently required or recommended to reduce disturbance of loggerheads when they are present (i.e., using the habitat). The South Atlantic Fishery Management Council's Fishery Management Plan for *Sargassum* significantly limits the amount of *Sargassum* that may be harvested in U.S. waters, and no harvest has occurred since 1997.
- Due to the substantial baseline regulation of fisheries within the proposed critical habitat area, NMFS has not identified any conservation efforts that may be recommended to avoid adverse effects of fisheries on the essential features of critical habitat that would not already be recommended to avoid potential adverse effects on the species itself. That is, NMFS 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 fisheries or related activities due to the critical habitat rule.

GEOGRAPHIC DISTRIBUTION OF IMPACTS:

- We anticipate the most significant administrative costs to be incurred in the Atlantic *Sargassum* habitat unit, LOGG-S-01, where the historic rate of consultation on fisheries activities has been the greatest.

KEY UNCERTAINTIES:

- While NMFS anticipates it is most likely that critical habitat designation will not change the outcome of future section 7 consultations on fisheries activities, the final determination regarding conservation recommendations will be made at the time of individual consultations on projects or activities.
- The rate and locations of future consultations on fisheries activities 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 over the next ten years.

127. In addition to these Federal fisheries, other fisheries that occur in state waters may also pose a threat to the recovery of the loggerhead turtle, including shrimp and other trawl fisheries (e.g., whelk), the Virginia poundnet fishery, beach gillnet fisheries, other gillnet fisheries, and various finfish and shellfish pot fisheries.[74, 75] However, NMFS may only influence fishing activities taking place in state waters if a Federal nexus exists. A Federal nexus may exist because an activity involves Federal funding or requires a Federal permit – situations that do not generally apply to the operation of state-managed

[74] Personal communication with multiple state fisheries representatives and turtle recovery coordinators.

[75] Note that some fisheries (e.g., shrimp) may have both a state and Federal component.

commercial fisheries. It may also exist if NMFS issues a Federal ESA regulation restricting certain fishing practices (for example, as occurred in the Virginia poundnet fishery).

128. Of the fisheries identified as potential recovery threats to the loggerhead, only those with the potential to adversely affect the PCEs of critical habitat are relevant to this analysis. Exhibit 4-1 identifies the types of fishing activities that are identified as threats to each type of habitat identified as being potentially threatened by fishing activity in the *Draft Biological Report*.[76]

129. For a fishery to be subject to additional costs a result of critical habitat designation it must pose a threat to an identified habitat's PCEs and NMFS must have the authority to influence how the activity is carried out (i.e., a Federal nexus must exist). Exhibit 4-2 identifies those fisheries meeting these criteria, which may experience economic impacts associated with the critical habitat designation.[77] Exhibit 4-3 identifies those fisheries that may present a threat to the continued existence of loggerhead turtles, but do not threaten its habitat or are not subject to a Federal nexus. In the following sections, we evaluate the extent to which each fishery identified in Exhibit 4-2 may be subject to economic impacts as a result of designation of critical habitat for the loggerhead.

[76] The PCEs of winter concentration habitat are not potentially threatened by fishing activities.

[77] This analysis is limited to fisheries that occur within the areas identified for potential designation as critical habitat. Thus, it does not include some fisheries that are known to, or have the potential to, interact with loggerhead turtles and their habitat, if they are prosecuted in areas that are not being considered for designation (e.g., the Pamlico sound large mesh gillnet fishery and various blue crab trap/pot fisheries, which take place in estuaries).

EXHIBIT 4-1. FISHERIES ACTIVITY THREATS BY HABITAT TYPE

HABITAT TYPE	GENERAL LOCATION	TYPE OF THREAT		
		HABITAT DESTRUCTION/ USE DISRUPTION	BARRIERS TO PASSAGE	HARVEST OF HABITAT
Nearshore Reproductive Habitat	State waters within one mile of highest density nesting beaches in MS, AL, FL, GA, SC, and NC		Fishing gear that can block or impede efficient passage of hatchlings or females[1]	
Concentrated Breeding Habitat	State and Federal waters off Atlantic coast of FL	Fishing activities which can disrupt use of habitat and thus affect concentrations of reproductive loggerheads[2]		
Constricted Migratory Corridors	State and Federal waters off Atlantic coast of FL and NC		Fishing activities, particularly those using fixed gear (pots, pound nets), which can alter habitat conditions needed for efficient passage[3]	
Sargassum Habitat	Primarily Federal waters within Atlantic and Gulf of Mexico			Commercial harvest that would directly decrease the amount of habitat[4]

Source:
NMFS. 2013. Draft Biological Report on the Designation of Marine Critical Habitat for the Loggerhead Sea Turtle, *Caretta caretta.* May.

Notes:
1. Threatens the Primary Constituent Elements (PCE) "waters directly off the highest density nesting beaches," and "waters sufficiently free of obstructions…to allow transit through the surf zone and outward toward open water."
2. Threatens the PCE "concentrations of reproductive male and female loggerheads."
3. Threatens the PCE "passage conditions allow for migration to and from nesting, breeding, and/or foraging areas."
4. Threatens the PCE "*Sargassum* in concentrations that support adequate prey abundance and cover." Note that the threat being referenced is related to harvest of *Sargassum* itself, rather than harvest of commercial finfish/shellfish species. Additionally, no *Sargassum* harvest has taken place since 1997 and the South Atlantic Fishery Management Council and NMFS do not anticipate any activity in this fishery in the future.

EXHIBIT 4-2. FISHERIES POTENTIALLY SUBJECT TO ECONOMIC IMPACTS RESULTING FROM CRITICAL HABITAT DESIGNATION BY HABITAT TYPE AND THREAT

HABITAT TYPE	FISHERY BY THREAT		
	HABITAT USE DISRUPTION	BARRIERS TO PASSAGE	HARVEST OF HABITAT
Nearshore Reproductive Habitat		None identified. [1]	
Concentrated Breeding Habitat[2,3]	Southeast shrimp, spiny lobster, Atlantic shark bottom longline, coastal migratory pelagics, south Atlantic snapper grouper, bluefish.		
Constricted Migratory Corridors		Monkfish (gillnet), coastal migratory pelagics (gillnet), spiny lobster, spiny dogfish (gillnet), snapper-grouper (pots), summer flounder/scup/black sea bass (pots). [4]	
Sargassum Habitat			Commercial harvest of *Sargassum*[5]

Notes:

1. A number of fisheries (e.g., beach gillnet, blue crab pot) present a potential threat to nearshore reproductive habitat. However, all fishing activity occurring in nearshore reproductive habitat is state-managed, and lacks the Federal nexus necessary to trigger section 7 consultation.
2. We assume that those fisheries with the potential to disrupt the use of this habitat are those that have been identified as potential threats to the continued existence of loggerhead turtles (i.e., those for which section 7 consultations have been conducted).
3. Although the beach seine fishery in Florida presents a potential threat to concentrated breeding habitat, as a state-waters fishery, it is lacking the Federal nexus necessary to trigger section 7 consultation.
4. Only those segments of each fishery prosecuted with select fixed gear types threaten critical habitat and may be subject to economic impacts as a result of critical habitat designation.
5. An FMP was developed by the South Atlantic Fishery Management Council which does allow for limited harvest of Sargassum in Federal waters off of North Carolina. However, no Sargassum harvest has taken place since 1997 and the SAFMC and NMFS do not anticipate any activity in this fishery in the future.

EXHIBIT 4-3. FISHERIES NOT LIKELY TO BE SUBJECT TO ECONOMIC IMPACTS AS A RESULT OF CRITICAL HABITAT DESIGNATION

FISHERY	REASON FOR EXCLUSION
American lobster	Fishery operates primarily outside (north or offshore) of the critical habitat units being considered for designation that are threatened by fishing activity (i.e. nearshore reproductive, concentrated breeding, and constricted migratory corridor habitats).
Atlantic sea scallop	
Atlantic squid, mackerel, and butterfish	
Red crab	
Northeast tilefish	
Northeast multispecies	Fishery operates primarily outside (north) of two of the three critical habitat units being considered for designation that are threatened by fishing activity (i.e. nearshore reproductive and concentrated breeding habitats). Trawl gear used in this fishery is not considered a threat to the constricted migratory habitat with which this fishery's operational area overlaps.
Skate	
Pelagic longline	Habitat threatened by this type of gear (concentrated breeding habitat) is closed to this gear type year-round.[1]
Gulf of Mexico shrimp	Habitat in Gulf of Mexico that is threatened by fishing activities is limited to nearshore reproductive habitat. Activity occurring in nearshore reproductive habitat is part of state-waters fishery, and is lacking the Federal nexus necessary to trigger section 7 consultation.
Gulf of Mexico reef fish	
Gulf of Mexico stone crab	
Gulf of Mexico spiny lobster	
Virginia poundnet	Fishery operates primarily outside of the critical habitat units being considered for designation (Chesapeake Bay).
Beach seine	As a state-waters fishery, it is lacking the Federal nexus necessary to trigger section 7 consultation.
Beach gillnet	

Notes:
1. NMFS. 2011. HMS Commercial Compliance Guide. Prepared by the Office of Sustainable Fisheries, Highly Migratory Species Division. November.
2. Florida Administrative Code 68B-4.0081

4.2.1 NEARSHORE REPRODUCTIVE HABITAT

130. NMFS identifies waters within one mile of the highest density nesting beaches as potentially threatened by fishing activity. The *Draft Biological Report* identifies fishing gear that can block or impede efficient passage of hatchlings or females as the threat that warrants special management consideration with respect to nearshore reproductive habitat for the loggerhead. The nearshore reproductive habitat areas that NMFS proposes for designation occur entirely within state waters. We interviewed state fisheries managers and turtle recovery coordinators in all states containing proposed nearshore reproductive habitat to identify the scope and scale of fisheries that may affect critical habitat PCEs and thus may be subject to economic impacts as a result of the critical habitat designation. The analysis relied upon information provided by state fishery managers and sea turtle recovery coordinators, as well as information contained within the report *Characterization of Fisheries Operating in State Waters of the Atlantic Ocean from Maine to Florida,* to determine if the activity was potentially occurring in the proposed

nearshore habitat areas.[78,79] We then consider whether a Federal nexus exists by which NMFS has the authority to recommend modifications to the operation of these fisheries.

131. Multiple fisheries are potentially occurring in nearshore reproductive habitat that may affect the loggerhead turtle and its habitat (e.g., black sea bass pots, spiny lobster traps/pots, stone crab traps/pots, beach seine fisheries, and beach gillnet fisheries). However, because the fisheries operating in nearshore reproductive habitat are state-managed, they are lacking the Federal nexus by which NMFS can recommend management measures for these fisheries.[80] Critical habitat designation for the loggerhead is therefore unlikely to generate economic impacts to fisheries occurring in nearshore reproductive habitat.

4.2.2 CONCENTRATED BREEDING HABITAT

132. Concentrated breeding habitat is identified in the state and Federal waters off the east coast of Florida. The *Draft Biological Report* identifies "fishing activity that would disrupt use of this habitat and thus affect concentrations of reproductive loggerheads" as the threat of concern with respect to fisheries in this habitat type. The analysis relies upon information collected through interviews with state and Federal contacts, contained within the report *Characterization of Fisheries Operating in State Waters of the Atlantic Ocean from Maine to Florida,* and within each relevant past Biological Opinion to determine which fisheries occur in the identified concentrated breeding habitat and have the potential to disrupt habitat use.[81]

133. Our analysis of impacts to fisheries within concentrated breeding habitat accordingly focuses on the following fisheries:[82,83]

- southeast shrimp;
- spiny lobster;
- Atlantic shark bottom longline[84];
- coastal migratory pelagics;
- south Atlantic snapper grouper (including black sea bass pots); and

[78] Personal communication with multiple state fisheries representatives and turtle recovery coordinators.

[79] Atlantic States Marine Fisheries Commission (ASMFC). 2006. Characterization of Fisheries Operating in State Waters of the Atlantic Ocean from Maine to Florida. April.

[80] Personal communication with multiple state fisheries representatives and turtle recovery coordinators.

[81] ASMFC, 2006

[82] The Atlantic pelagic longline fishery targeting swordfish and tunas is identified as a threat to loggerhead turtles and their habitat. However, the entire area identified as concentrated breeding habitat is closed to pelagic longline fishing year-round (NMFS, 2011).

[83] Blue crab pots were mentioned by several state representatives as a threat to loggerheads. However, these fisheries are largely limited to estuarine areas outside of proposed critical habitat.

[84] A significant portion of the identified concentrated breeding habitat is closed to this gear type due to Florida's ban on longline gear in state waters (F.A.C. 68B-4.0087)

- bluefish.

134. These fisheries all occur in both state and Federal waters. Because those portions of the fisheries managed by the states are not subject to a Federal nexus, only the Federally-managed portions of these fisheries are potentially subject to economic impacts as a result of the designation of critical habitat.

135. Although the beach seine fishery in Florida was also identified as a potential threat to loggerheads and their habitat, as a state-waters-only fishery, it is lacking the Federal nexus necessary to trigger section 7 consultation regarding potential effects on the loggerhead and its habitat.

4.2.3 WINTER CONCENTRATION HABITAT

136. According to the *Draft Biological Report*, the PCEs of winter concentration habitat include:

- Water temperatures above 10° C during colder months of November through April;
- Continental shelf waters in proximity to the western boundary of the Gulf Stream; and
- Water depths between 20 and 100 meters.

137. Fishing activity does not have the potential to modify or destroy these identified habitat features, and the *Draft Biological Report* does not identify fisheries as a threat to this habitat. Critical habitat designation for the loggerhead is therefore unlikely to affect fisheries occurring in winter concentration habitat.

4.2.4 CONSTRICTED MIGRATORY CORRIDORS

138. Constricted migratory corridor habitat is identified in the state and Federal waters off the east coasts of Florida and North Carolina. The *Draft Biological Report* identifies fixed gear fisheries that can impede passage as the fishery-related threat of concern. The fisheries identified as a threat to this habitat, and thus potentially subject to economic impacts as a result of the critical habitat designation, are those that:

- Are identified as potential threats to the continued existence of loggerhead turtles (i.e., those for which section 7 consultations have been conducted) or that state contacts have identified as threats to turtles;
- are fixed gear fisheries; and
- occur in the identified constricted migratory habitat.

139. The analysis relies upon information collected through interviews with state and Federal contacts, and information contained within the report *Characterization of Fisheries Operating in State Waters of the Atlantic Ocean from Maine to Florida* and within each

relevant past Biological Opinion, to determine which fisheries occur in the identified constricted migratory corridor habitat .[85] These fisheries include[86]:

- monkfish;
- coastal migratory pelagics;
- spiny lobster;
- spiny dogfish; and
- black sea bass pot fishery (a component of both the southeast snapper-grouper fishery and the northeast summer flounder, scup, and black sea bass fishery).

140. It is important to note that all of these fisheries employ a variety of gear types. Only those segments of the fishery operating with fixed gears such as trap/pots or sink (anchored) gillnets are considered to be a threat to this habitat's PCEs and thus are potentially subject to economic impacts by the proposed designation. Additionally, these fisheries all occur in both state and Federal waters. Because those portions of the fisheries managed by the states are not subject to a Federal nexus, only the Federally-managed portions of these fisheries are potentially subject to economic impacts by the designation of critical habitat.

141. Exhibit 4-4 presents a consolidated list of the fisheries identified as threats to the PCEs of identified critical habitat and thus potentially subject to economic impacts by the designation of critical habitat under consideration, as well as descriptive information about each fishery.

4.2.5 *SARGASSUM* HABITAT

142. The harvest of *Sargassum* itself is identified as the primary threat to *Sargassum* habitat.[87] An FMP was developed by the South Atlantic Fishery Management Council which does allow for limited harvest of *Sargassum* in Federal waters off of North Carolina.[88] However, no *Sargassum* harvest has taken place since 1997 and the SAFMC and NMFS do not anticipate any activity in this fishery in the future.[89] The levels of harvest set within the plan were designed in part to protect *Sargassum* as habitat for turtles, thus, if harvest on the scale envisioned in the FMP were to occur, its effect on *Sargassum* habitat would likely be minimal. There is no directed harvest of *Sargassum* in the Gulf of Mexico.

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[85] ASMFC, 2006

[86] Blue crab pots were mentioned by several state representatives as a threat to loggerheads. However, these fisheries are largely limited to estuarine areas outside of critical habitat designations under consideration.

[87] Although operation of finfish and shellfish fisheries is not considered a primary threat to *Sargassum* habitat, future section 7 consultations will need to consider impacts of fishing activity on this habitat for all fisheries that occur therein. For this reason, we include administrative costs related to northeast fisheries (i.e., those operating north of North Carolina) in the Administrative Costs analysis.

[88] South Atlantic Fishery Management Council (SAFMC). 2002. Fishery Management Plan for Pelagic *Sargassum* Habitat of the South Atlantic Region. Second Revised Final. November.

[89] Email communication with Roger Pugliese, Senior Fishery Biologist, South Atlantic Fishery Management Council, January 28, 2013.

EXHIBIT 4-4. COMPARISON OF FISHERIES THAT MAY AFFECT LOGGERHEAD HABITAT

FISHERY	PRIMARY GEAR TYPES	KEY SPECIES TARGETED	PRIMARY AREA OF OPERATION	2011 LANDINGS (LBS)	2011 EX-VESSEL VALUE	COMMENTS ON EXTENT OF OVERLAP OF THE FISHERY WITH RELEVANT CRITICAL HABITAT
Southeast shrimp	Otter trawl	Pink shrimp, brown shrimp, white shrimp	Coastal, nearshore and estuarine waters from NC to southeast FL	22,198,000[6] (head-off)	$51,110,000[6]	Of habitat types threatened by this type of fishing activity, fishery overlaps with concentrated breeding habitat. Significant portions of this fishery occur within state waters and are not subject to a Federal nexus.
Spiny lobster	Trap/pot	Spiny lobster	Southern FL, especially FL Keys	5,813,578[8]	$38,799,862[8]	Majority of fishery (91 percent by weight) occurs in the Gulf of Mexico where there is only very minimal critical habitat of concern relative to fisheries proposed (i.e., nearshore reproductive habitat only). Any portion of the fishery occurring in state waters (e.g., in nearshore reproductive habitat) is not subject to a Federal nexus.
Atlantic commercial bottom longline shark	Bottom longline	Large coastal sharks, including blacktip, bull, lemon, nurse, spinner, silky and tiger sharks (NMFS, 2011).	VA/NC to FL	Unavailable[7]	Unavailable[7]	A significant portion of the habitat area of concern relative to this gear type (concentrated breeding habitat) is closed to this type of gear year-round (Florida Administrative Code 68B-4.0087).
Coastal migratory pelagics	Hook and line, cast net, and gillnet	King mackerel, cero mackerel, Spanish mackerel[1]	Throughout Southeast Atlantic, but primarily NC and FL	7,711,013[1]	$11,255,657[1]	Data on the specific distribution of this fishery were not available. However, given its general concentration in North Carolina and Florida, it is possible that there is significant overlap with migratory corridors and concentrated breeding habitat. Any portion of the fishery occurring in state waters is not subject to a Federal nexus.
Atlantic bluefish	For commercial fishery, gillnets and bottom otter trawl	Bluefish	ME to FL, with commercial landings primarily MA to NC, and FL	5,520,296[4,5]	$3,168,169[4,5]	Of habitat types threatened by this type of fishing activity, fishery overlaps with concentrated breeding habitat. Significant portion of commercial fishery (approximately 60 percent by weight) occurs north of the units being considered for designation of concern relative to fisheries. Any portion of the fishery occurring in state waters is not subject to a Federal nexus.

FISHERY	PRIMARY GEAR TYPES	KEY SPECIES TARGETED	PRIMARY AREA OF OPERATION	2011 LANDINGS (LBS)	2011 EX-VESSEL VALUE	COMMENTS ON EXTENT OF OVERLAP OF THE FISHERY WITH RELEVANT CRITICAL HABITAT
Spiny dogfish	Sink gillnets, bottom longlines, and bottom otter trawls	Spiny dogfish	Primarily ME to Cape Hatteras, NC, with bulk of landings in MA.	21,550,886[8]	$4,643,794[8]	Of habitat types threatened by this type of fishing activity, fishery overlaps with constricted migratory corridor habitat. Majority of fishery (88 percent by weight) occurs north of units being considered for designation that are of concern relative to fisheries. Any portion of the fishery occurring in state waters is not subject to a Federal nexus.
Monkfish (goosefish)	Bottom trawls (primarily north of Cape Cod, MA) and bottom gillnets (Cape Cod, MA south to NC)	Monkfish	US EEZ from ME to NC	18,926,923[4]	$26,514,831[4]	Of habitat types threatened by this type of fishing activity, fishery overlaps with nearshore reproductive and constricted migratory corridor habitats. Majority of fishery (99.7 percent by weight) occurs north of the units being considered for designation that are of concern relative to fisheries. Any portion of the fishery occurring in state waters is not subject to a Federal nexus.
Snapper grouper	Vertical line, longline, black sea bass pots	Vermillion snapper, yellowtail snapper, greater amberjack, gag grouper[1]	North Carolina to Key West, FL	8,019,108[1]	$20,891,747[1]	Data on the specific distribution of this fishery were not available. However, given its general concentration from North Carolina through Florida, it is possible that there is significant overlap with nearshore reproductive, migratory corridors and concentrated breeding habitat. Any portion of the fishery occurring in state waters is not subject to a Federal nexus.
Northeast black sea bass	Otter trawl, pot/trap	Black sea bass	Cape Hatteras, North Carolina to U.S./Canadian border	1,150,000[9]	$3,680,000[9]	Of habitat types threatened by this type of fishing activity, fishery overlaps with constricted migratory corridor habitat. Majority of fishery occurs north of the units being considered for designation that are of concern relative to fisheries. Any portion of the fishery occurring in state waters is not subject to a Federal nexus.

FISHERY	PRIMARY GEAR TYPES	KEY SPECIES TARGETED	PRIMARY AREA OF OPERATION	2011 LANDINGS (LBS)	2011 EX-VESSEL VALUE	COMMENTS ON EXTENT OF OVERLAP OF THE FISHERY WITH RELEVANT CRITICAL HABITAT

Sources and Notes:

All information presented in this table comes from the individual fishery's most recent Biological Opinion unless otherwise noted.

1. Unpublished data from Nick Farmer, NMFS Southeast Regional Office. Provided on January 28, 2013. Data represent landings by commercial vessels in waters under the jurisdiction of the South Atlantic Fishery Management Council.
2. Unpublished data from James Primrose, NMFS Southeast Fisheries Science Center. Provided on January 25, 2013. Weight converted from head-off to head-on using conversion factor of 1.58.
3. Florida Fish and Wildlife Conservation Commission Marine Fisheries Information System. 2010 Annual Landings Summary. Downloaded from http://myfwc.com/research/saltwater/fishstats/commercial-fisheries/landings-in-florida/ on January 28, 2013.
4. NMFS Office of Science and Technology. Commercial Fisheries Statistics. Annual Landings with Group Subtotals, 2011. Downloaded from http://www.st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/annual-landings-with-group-subtotals/index on January 28, 2012.
5. Data represent commercial landings. Because the bluefish fishery is primarily a recreational fishery, commercial landings data may underrepresent the size of this fishery.
6. NMFS. 2012c. Fisheries of the United States, 2011. Prepared by the Office of Science and Technology. August.
7. Because there is no single permit for this fishery, and the species harvested are harvested with other gears as well, it is difficult to provide data specific to this fishery. This is a predominantly opportunistic fishery, and participants often maintain permits for other fisheries such as reef fish, snapper-grouper, and tilefish (NMFS, 2012c).
8. Data downloaded from the NMFS Annual Commercial Landings Statistics website on January 29, 2013. Data represent all landings in Atlantic coastal states by all gear types.
9. Unpublished data from Moira Kelly, NMFS Northeast Regional Office. Provided on March 5, 2013. Data represent landings by commercial vessels in waters under the jurisdiction of the NMFS Northeast Regional Office.

4.2.6 OTHER RELATED ACTIVITIES

143. In addition to the authorization of commercial fisheries through development and amendments to FMPs, a variety of other activities overseen and permitted by NMFS introduce a Federal nexus for fishery-related activities and may therefore be subject to section 7 consultation considering potential impacts on loggerhead critical habitat. The activities frequently subject to section 7 consultations for loggerhead turtles include:

- **Section 6 Species Recovery Grants to States.** Pursuant to section 6 of the Act, NOAA administers a grant program to "support management, research, monitoring, and outreach activities that provide direct conservation benefits to listed species, recently de-listed species, and proposed and candidate species that reside within a given State." In the past section 7 consultations have occurred with respect to section 6 applications for cooperative agreements regarding fisheries management between states and NMFS.[90]
- **Exempted Fishing Permits.** The Exempted Fishing Permit provisions of the Magnuson-Stevens Fishery Conservation and Management Act allow NMFS to authorize the harvest of species managed under a FMP or other regulation in a way that would otherwise be prohibited (50 CFR 600.745(b)). In certain instances, the activities permitted by these permits may affect loggerhead turtles and their habitat. To the extent that they do, recipients of these permits may be subject to additional requirements with critical habitat designation.

4.3 REGULATION OF FISHING ACTIVITIES IN THE STUDY AREA

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

4.3.1 FEDERAL REGULATIONS

Rules and Recommendations Protecting Turtles from Fishery Interactions

145. The Act provides significant baseline protection to the loggerhead turtle and its habitat. Section 7 of the Act requires Federal agencies to consult with NMFS to ensure that any action authorized, funded, or carried out by that agency will not likely jeopardize the continued existence of any endangered or threatened species.

146. Although the listing of the Northwest Atlantic DPS of the loggerhead did not occur until 2011, the species as a whole was listed as threatened across its entire range in 1978.[91] Since that time, NMFS has consulted on fisheries activities that threaten the loggerhead's continued existence, and numerous regulations have been promulgated that provide significant protection to the loggerhead itself, as well as to its habitat. In particular,

[90] NMFS. Species Recovery Grants to States, http://www.nmfs.noaa.gov/pr/conservation/states/grant.htm, viewed on January 20, 2013.

[91] 43 FR 32800, July 28, 1878

regulations implementing time and area restrictions in both gillnet and longline fisheries in the Atlantic provide baseline protection to loggerhead habitat. These regulations include:

- Virginia/North Carolina Large Mesh Gillnet final rule (67 FR 71895, December 3, 2002)
- Pamlico Sound Gillnet final rule (67 FR 56931, September 6, 2002)
- Atlantic Highly Migratory Species Pelagic Longline final rule (69 FR 40734, July 6, 2004)

147. A suite of additional existing regulations promulgated by NMFS to avoid threats posed by commercial fisheries provide a baseline protection to loggerhead turtles and their habitat.[92] These regulations include:

- Revised turtle excluder device (TED) requirements on shrimp and summer flounder trawls to allow the use of new materials and to modify existing approved TED designs (77 FR 29905, May 21, 2012);
- Framework Adjustment 23 to the Atlantic Sea Scallop Fishery Management Plan (Framework 23) to minimize impacts on sea turtles through the requirement of a turtle deflector dredge (77 FR 20728, April 6, 2012);
- Sea Turtle Observer Requirement Annual Determination for 2011 (75 FR 81201, December 27, 2010);
- Sea Turtle Observer Requirement Annual Determination for 2010 (75 FR 27649, May 18, 2010);
- NMFS Implements Inspection Program in VA Pound Net Fishery (73 FR 68348, November 18, 2008);
- Final Rule Regarding a Modified Sea Scallop Dredge to Protect Sea Turtles (73 FR 18984, April 8, 2008);
- Final Rule on Observer Requirement for Fisheries to Monitor Sea Turtle Bycatch (72 FR 43176, August 3, 2007);
- Sea Scallop Dredge Gear Modification final rule (71 FR 50361, August 25, 2006);
- Correction of Sea Scallop Chain Mat Final Rule (71 FR 66466, November 15, 2006);
- Virginia Pound Net final rule (71 FR 36024, June 23, 2006);
- Atlantic Sea Scallop Fishery - Notice of decision on petition for emergency rulemaking (69 FR 63498, November 2, 2004);
- TED Double Cover Flap Modification final rule (69 FR 31035, June 2, 2004);

[92] Note that some regulations described here pertain to fisheries which do not occur within the habitat types and areas identified as threatened by fishing activity.

- Virginia Pound Net final rule (69 FR 24997, May 5, 2004); and
- TED Opening final rule (68 FR 8456, February 21, 2003).

148. Since the listing of the loggerhead turtle under the Act, NMFS has performed numerous section 7 consultations on commercial fisheries, described previously in this chapter. These consultations have resulted in dozens of terms and conditions relative to the operation of commercial fisheries that constitute additional baseline protection to the loggerhead and its habitat. In particular, recommendations that reduce the threat posed to turtles by fishing gear (e.g., gear modifications, observer coverage requirements) in effect reduce disruption of the loggerhead's use of habitat. These recommendations thus provide additional baseline protection to critical habitat.

149. In addition to the rules and conditions designed specifically for the benefit of sea turtles, loggerheads and their habitat are offered baseline protections via regulations that have been promulgated pursuant to the listing and subsequent development of Take Reduction Plans for other species. Specifically, gear modifications, seasonal and area closures, and other regulations designed to reduce the impacts of fishing activities (especially entanglements) on marine mammals, including the bottlenose dolphin[93], harbor porpoise[94], and Atlantic large whales[95] (right whale, fin whale, minke whale, and humpback whale) all provide some conservation benefit to the loggerhead and its habitat within the area being considered for critical habitat designation.

Rules Protecting *Sargassum*

150. The Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act provide additional conservation consideration and protection for habitats identified as important to marine and anadromous fish species.[96] Specifically, Federal action agencies which fund, permit, or carry out activities that may adversely modify EFH must consult with NMFS on the potential impacts of the action on EFH. NMFS may then provide advisory recommendations on how to limit impacts to the habitat. [97]

151. *Sargassum* is identified as Essential Fish Habitat in both the Gulf of Mexico and in the South Atlantic. In addition, EFH for the *Sargassum* fishery itself was defined as anywhere that *Sargassum* occurs in the Exclusive Economic Zone (EEZ) under the South Atlantic Fishery Management Council's jurisdiction, and in the state waters of North Carolina, South Carolina, Georgia, and the east coast of Florida (see Exhibit 4-5). In

[93] For details on existing regulations pursuant to the Bottlenose Dolphin Take Reduction Plan, see http://www.nmfs.noaa.gov/pr/interactions/trt/bdtrp.htm

[94] For details on existing regulations pursuant to the Harbor Porpoise Take Reduction Plan, see http://www.nero.noaa.gov/protected/porptrp/

[95] For details on existing regulations pursuant to the Atlantic Large Whale Take Reduction Plan, see http://www.nero.noaa.gov/Protected/whaletrp/

[96] Public Law 104-208, Section 305(b)

[97] NMFS. 2010. Essential Fish Habitat: A Marine Fish Habitat Conservation Mandate for Federal Agencies. Prepared by the Habitat Conservation Division, Southeast Regional Office. Revision 09/2010.

addition, the distribution of *Sargassum* in the same geographic area is designated as an EFH Habitat Area of Particular Concern. As a federally-managed habitat, research on the production, distribution and protection of *Sargassum* is encouraged.[98]

152. In addition to protections stemming from its designation as EFH for a number of managed species, *Sargassum* is also offered some baseline protection through the Fishery Management Plan for Pelagic *Sargassum* Habitat of the South Atlantic Region.[99] Although *Sargassum* harvest is not entirely banned by the Plan, it severely limits the quantity of *Sargassum* that may be harvested, as well as the geographic location and timeframe in which it may be harvested. The rules dictating harvest of pelagic *Sargassum* were developed in part recognizing its importance as a habitat for threatened and endangered post-hatchling sea turtles.[100]

4.3.2 STATE REGULATIONS

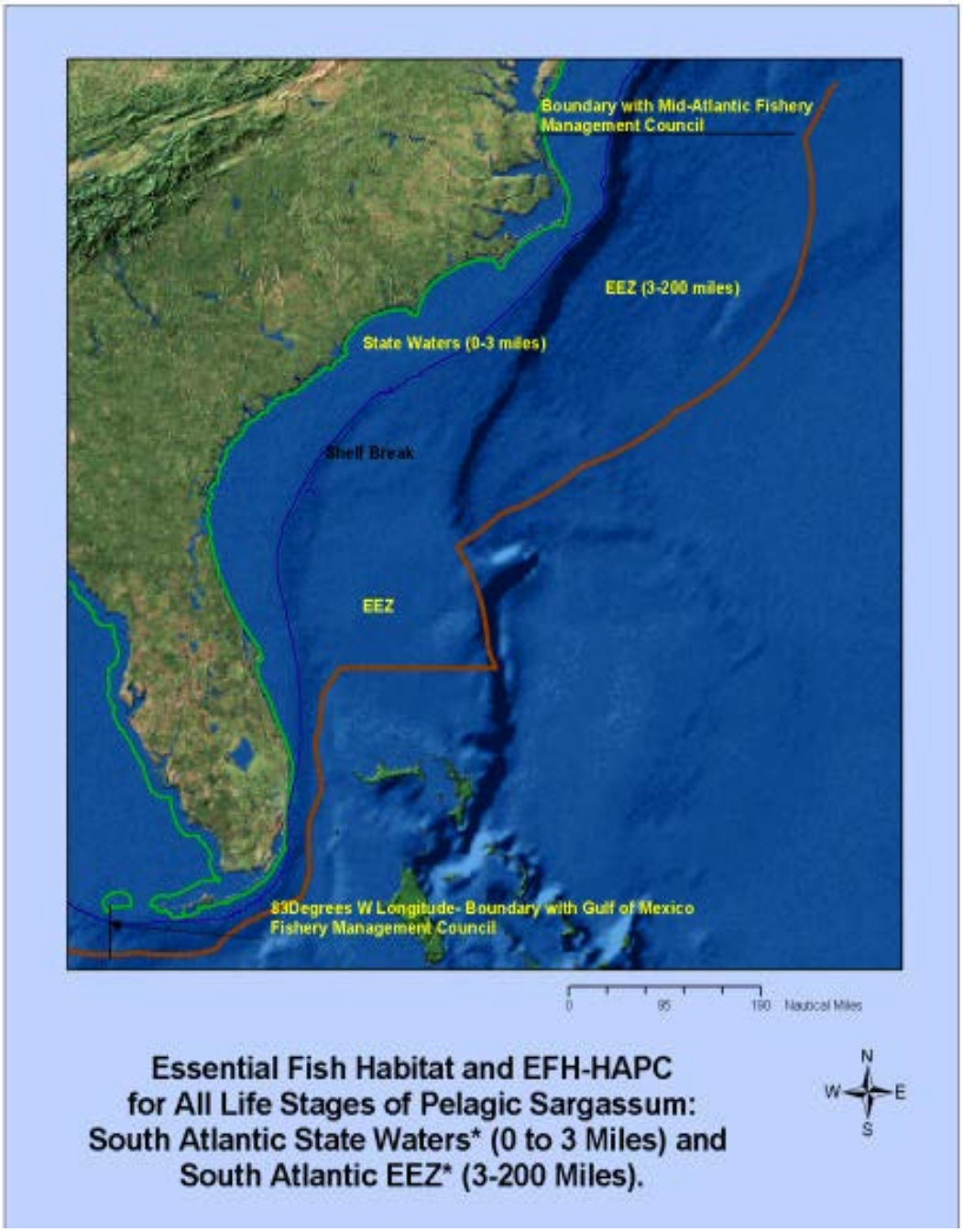
153. This section summarizes those state regulations, policies, and practices that provide conservation benefits to loggerhead turtles and their habitat. This discussion is limited to those states whose waters are included in the proposed designation relative to fishery activities (i.e., nearshore reproductive, concentrated breeding, and migratory corridor habitats). For each state, we focus specifically on regulations pertaining to those fishing activities that have been identified as potentially threatening to the loggerhead and its habitat (see Exhibit 4-1).

[98] SAFMC, 2002

[99] Ibid.

[100] Ibid.

EXHIBIT 4-5. ESSENTIAL FISH HABITAT DESIGNATION FOR PELAGIC *SARGASSUM*



Source: SAFMC, 2002

North Carolina

154. North Carolina's marine fisheries are managed by the North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries. The State has adopted the NMFS requirements for use of TEDs within their shrimp fishery, as codified in the North Carolina Administrative Code.[101]

155. In addition to fishery-specific regulations, the North Carolina Administrative Code established a sea turtle sanctuary in January, 1991 (see Exhibit 4-6). Commercial fishing equipment is banned in this area between June 1 and August 31.[102]

156. Restrictive rolling closures for monkfish gillnet gear implemented as part of the harbor porpoise and bottlenose dolphin Take Reduction Plans limit significantly fishing activity of this type in North Carolina state waters. These rules have not been codified in North Carolina's administrative code.

South Carolina

157. The South Carolina Department of Natural Resources, Marine Resources Division manages state marine fisheries in South Carolina.

158. The State requires the use of TEDs in all trawl nets used in its state waters under the same conditions required by Federal regulation.[103]

159. South Carolina law allows trawling generally from the mouths of rivers out to the 3 mile state boundary. At certain times of the year, trawling is restricted within one-half or one-quarter mile of some beaches.[104] Although these regulations are designed to protect tourism interests, they may provide some benefit to nearshore reproductive turtle habitat.

Florida

160. Florida's marine fisheries are managed by the Florida Fish and Wildlife Conservation Commission, Division of Marine Fisheries Management. The state requires that all trawl gear (with minor exceptions) have a qualified TED.[105] The regulations are largely intended to mirror Federal TED requirements.

161. Fishing with longline gear is prohibited in Florida state waters.[106]

162. Fishing with gillnet gear is prohibited in Florida state waters.[107]

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[101] Prohibited Nets, Mesh Sizes, and Areas, 15A NCAC 03L.0103.

[102] Sea Turtle Sanctuary, 15A NCAC 03I.0107.

[103] SC Code of Law Section 50-5-765

[104] SC Code of Law Section 50-5-710

[105] Florida Administrative Code 68B-31.004: Trawl Gear Specifications: Turtle Excluder Devices Required; Exceptions; Definitions.

[106] Florida Administrative Code 68B-4.0087.

[107] Florida Administrative Code 68B-4.0081.

EXHIBIT 4-6. MAP OF NORTH CAROLINA SEA TURTLE SANCTUARY

Georgia

163. Marine fisheries in Georgia are managed by the Coastal Resources Division of the Georgia Department of Natural Resources. Sea turtle protection measures in the state shrimp fishery follow those implemented in the Federal fishery, and include seasonal tow time limits and use of TEDs. These measures are included in the state's Commercial Saltwater Fishing Regulations as Board Rule 391-2-4-05.

164. Current regulations to protect sea turtles include measures that establish Shrimp Fishery / Sea Turtle Conservation Areas where shrimping effort and sea turtle abundance are high.[108]

Alabama

165. Marine fisheries in Alabama's state waters are managed by the Marine Resources Division of the Alabama Department of Conservation and Natural Resources. Although the state has not itself promulgated shrimp fishery management regulations to protect sea turtles, it enforces those regulations imposed by NMFS through a Joint Enforcement Agreement and Memorandum of Understanding. Federal regulations enforced in Alabama state waters include the use of Turtle Excluder Devices and restrictions on tow times.

Mississippi

166. The Mississippi Department of Marine Resources Office of Marine Fisheries Management manages state fishery resources. Mississippi has not promulgated its own TED regulations, but rather, enforces and follows those developed by NMFS. All commercial shrimp vessels using a mechanical gear retrieval system must have a TED. Skimmer trawl vessels may use 55 minute tow times in lieu of TEDs.[109]

167. State waters within one-half mile of the mainland shoreline, as well as within the boundaries of the Gulf Islands National Seashore (a one mile perimeter around Ship, Horn, and Petit Bois islands) are closed to shrimp trawling.[110]

4.4 METHODOLOGY FOR EVALUATING INCREMENTAL IMPACTS TO FISHING ACTIVITIES

4.4.1 QUANTIFYING THE IMPACTS OF ADDITIONAL CONSERVATION EFFORTS

168. The key finding of our analysis of impacts of the critical habitat designation on fisheries is that NMFS is unlikely to recommend additional conservation efforts for loggerhead turtles following the designation of critical habitat. This finding is attributable to the significant baseline protection already accorded the habitat area due to the regulations and fisheries management practices described above.

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[108] Georgia Department of Natural Resources. 2012. Georgia's Commercial Saltwater Fishing Regulations. March.

[109] Mississippi Department of Marine Resources (DMR). 2012. Guide to Mississippi Saltwater Fishing: Rules and Regulations for 2012-2013. June.

[110] *Ibid.*

169. The threats of concern to loggerhead habitat as a result of fishing activity (summarized in Exhibit 4-1) relate to disturbance of the loggerheads' use of a habitat for a particular purpose. Consequently, the identified fisheries activities constitute threats to the habitat when the loggerhead sea turtles are most likely to be using the habitat (and therefore have their use disrupted). In general, all conservation efforts NMFS would recommend so that fisheries activities would avoid potential adverse effects on habitat would therefore most likely already be recommended so that the activities avoid jeopardy to the species. These baseline protections are described in detail in Section 4.3.1.

170. Although NMFS does not anticipate that critical habitat designation will generate new or different recommendations for loggerhead conservation, the rationale for a particular conservation recommendation may be more readily explained by connecting a practice or activity to potential adverse modification of critical habitat (as opposed to jeopardy to the species). For example, while the use of fixed gear more directly affects the loggerhead's use of habitat (due to impeding passage), NMFS anticipates making the same recommendations for fixed gear fisheries to avoid adverse effects on habitat that it would already make for the fisheries to avoid jeopardy to the species. As such, although the habitat-level effect may be more apparent than the species-level effect, the outcome of consultation on the activity is unchanged by the presence of the critical habitat.[111]

171. In addition to direct effects that possibly result from recommendations made by NMFS during future section 7 consultations, fisherman may experience indirect effects of the designation if state management agencies respond to the designation with additional state regulation. Conversations with relevant state fishery management agency representatives did not reveal indications that any state was likely to impose additional management measures on state fisheries as a result of critical habitat designation for the loggerhead.

4.4.2 QUANTIFYING THE ADMINISTRATIVE COSTS

172. Based on a review of the consultation history provided by NMFS (January 30, 2013), supplemented by the inventory of active and archived Biological Opinions listed on the NMFS Northeast Regional Office and Southeast Regional Office websites, 176 formal and informal section 7 consultations relevant to this analysis were conducted on fisheries-related activities involving loggerhead sea turtle between 2008 and 2012 in the Atlantic Ocean and Gulf of Mexico.[112] Exhibits 4-7 and 4-8 present the total number of formal and informal consultations that the NMFS Northeast Regional Office and Southeast Regional Office, respectively, have conducted annually during this time period. All 20 formal consultations were internal consultations related to authorization of fisheries managed under Federal FMPs, in which NMFS' Protected Resources Division consulted with NMFS' Sustainable Fisheries Division. The 156 informal consultations related to a

[111] In these instances, the time and effort spent on the jeopardy analysis of the consultation may be substantially reduced, however, the additional requirement to conduct an adverse modification analysis will offset some unquantified portion of these savings.

[112] Consultations done in Puerto Rico and the U.S. Virgin Islands, and others conducted on activities outside of the areas being considered for critical habitat designation, have been removed from this analysis.

variety of fishery-related activities including approval of Exempted Fishing Permits, scientific research permits, and Section 6 cooperative agreement applications from states.

173. This analysis relies on the location and frequency of past consultations on fisheries to forecast the number of future actions anticipated to require consultation on critical habitat on an annual basis. Ideally, our consultation forecast would rely on the information on the nature and locations of future FMPs, exempted fishing permits, scientific research permits, and Section 6 applications; however, these data are not available. For purposes of this analysis, we accordingly assume that the past rate and location of consultation on fisheries actions is reflective of the future rate and location of consultations on average.

EXHIBIT 4-7. FORMAL FISHERY-RELATED CONSULTATIONS FOR LOGGERHEADS, 2008 THROUGH 2012

LEAD NMFS OFFICE	RELEVANT CRITICAL HABITAT UNITS	YEAR					TOTAL
		2008	2009	2010	2011	2012	
Northeast Regional Office[1]	*Sargassum*	1	0	8	0	2	11
Southeast Regional Office	Winter concentration, concentrated breeding, constricted migratory corridor, *Sargassum*[2]	1	3	0	3	2	9
Total		**2**	**3**	**8**	**3**	**4**	**20**

Sources:
1. Consultation history provided by NMFS, January 30, 2013
2. NMFS- Southeast Regional Office. Section 7 Consultation – Fishery Biological Opinion. Viewed on http://sero.nmfs.noaa.gov/pr/Section7FisheryBiologicalOpinions.htm, January 30, 2013.
3. NMFS – Northeast Regional Office. Active Biological Opinions. Viewed on http://www.nero.noaa.gov/Protected/section7/bo/actbo.html, January 30, 2013.
4. NMFS – Northeast Regional Office. Archived Biological Opinions. Viewed on http://www.nero.noaa.gov/Protected/section7/bo/arcbo.html, January 30, 2013.

Notes:
1. Total reported here includes all formal consultations conducted in the Northeast region relative to loggerhead turtles that overlap to any extent with the area being considered for designation.
2. Although nearshore reproductive habitat is identified in state waters in the southeast Atlantic and Gulf of Mexico, all identified formal consultations were conducted on fisheries occurring in Federal waters.

EXHIBIT 4-8. INFORMAL FISHERY-RELATED CONSULTATIONS FOR LOGGERHEADS, 2008 THROUGH 2012

LEAD NMFS OFFICE	RELEVANT CRITICAL HABITAT UNITS	YEAR					TOTAL
		2008	2009	2010	2011	2012	
Northeast Regional Office[1]	*Sargassum*	24	23	36	27	10	120
Southeast Regional Office[2,3]	Nearshore reproductive[4], winter concentration, concentrated breeding, constricted migratory corridor, *Sargassum*	6	7	7	10	6	36
Total		**30**	**30**	**35**	**37**	**16**	**156**

Sources:
1. Consultation history provided by NMFS, January 30, 2013

Notes:
1. Figures reported for the Atlantic – Northeast are limited to those consultations for projects occurring inside the critical habitat area under consideration, as identified by NMFS staff.
2. Number of consultations reported for the Southeast may include some consultations conducted on activities in state waters that are outside of any designated critical habitat area.
3. Consultations performed on activities in Texas and Louisiana state waters are assumed to have taken place outside of the proposed critical habitat areas, as only very limited critical habitat is being considered in these areas.
4. All nearshore reproductive habitat is located in state waters. However, the diversity of activities subject to informal consultation is broad, and can include activities occurring in state waters where a Federal nexus exists.

174. Fisheries and related activities are rarely limited to a single critical habitat unit. To estimate the costs of future consultations by individual habitat unit we employ the following methodology. For each historical consultation conducted between 2008 and 2012, we identify the general location of the activity and likely overlap with the areas being considered for critical habitat designation. For example, we assume that an informal consultation conducted on an Amendment to the Atlantic Snapper-Grouper Fishery Management Plan is likely to affect any critical habitat unit located in Atlantic Federal waters south of Virginia.[113] We then distribute the consultation evenly across all affected habitat units. Finally, we calculate an average annual formal and informal

[113] Activities conducted in state waters of many states potentially overlap with nearshore reproductive habitat as well as with areas that are not designated as proposed critical habitat. We conservatively assume that the costs of consultation are entirely incurred within the critical habitat units. Additionally, although *Sargassum* habitat does occasionally cross into state waters, the habitat feature itself occurs infrequently in shallow coastal waters, and is further not considered significantly threatened by fisheries activities. We therefore do not distribute the costs of consultations in state waters to this habitat type.

consultation rate for each individual critical habitat unit being considered for designation, and assume that rate of consultation will remain consistent for each of the next 10 years.

175. As described in Chapter 2, the presence of critical habitat contributes additional administrative effort to these future fisheries-related consultations.

176. Based on personal communications with NMFS staff, we do not anticipate that the designation of loggerhead critical habitat alone would trigger the re-initiation of existing consultations, nor would new consultations be anticipated specifically due to designation of loggerhead critical habitat. Fisheries activities across the critical habitat areas being considered for designation are already subject to section 7 consultation to consider potential adverse effects on the species. This analysis thus focuses on the incremental administrative costs incurred to address adverse modification in new consultations, or consultations on fishery management-related actions.[114]

177. The estimated costs-per-consultation employed within this analysis are those presented in Exhibit 2-1, with one exception. As described previously in this Chapter, fishing activities are not considered a significant threat to the PCEs of winter concentration and *Sargassum* habitats. As such, the costs of consultation are assumed to be less than they would be in habitats where fishing and related activities are considered a more substantial threat. For both formal and informal consultations conducted in the winter concentration and *Sargassum* critical habitat units we assume an effort level of eight hours, and cost of $660 per consultation, to consider the impacts of fishing activities to these habitat units.

Administrative Costs not Quantified in this Analysis

178. Following designation of loggerhead critical habitat, any future section 7 consultation undertaken for fishing activities occurring in that habitat must consider the impacts of the activity to loggerhead critical habitat, regardless of whether the loggerhead itself is a focus of the consultation. For consultations that do not consider the loggerhead itself, these costs are expected to be *de minimis*. We do not quantify them in this analysis.

4.5 RESULTS OF ANALYSIS

179. We estimate that approximately 29 formal and 314 informal consultations on fisheries issues are likely over the next ten years. Due to the widely-recognized presence of loggerhead turtles in the areas being considered for critical habitat designation, we assume that these consultations would have occurred absent critical habitat. Given our assumptions about costs per consultation, this would result in increased costs of consultations of approximately $260,000 over 10 years, or $29,000 annually, due to critical habitat designation.

[114] **Re-initiation** of existing consultations occurs when (1) the amount or extent of the taking specified in the incidental take statement is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat (when designated) in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

180. Exhibit 4-9 summarizes the total forecast administrative costs of these consultations over the ten-year period of analysis, from 2014 to 2023. Present value costs are discounted at a seven percent discount rate. Exhibit 4-10 summarizes key assumptions and limitations of the analysis of potential impacts of loggerhead sea turtle critical habitat on fisheries.

EXHIBIT 4-9. INCREMENTAL ADMINISTRATIVE COSTS OF FISHERIES CONSULTATIONS, 2014-2023 ($2013)

HABITAT TYPE	CH UNIT	TOTAL PRESENT VALUE	ANNUALIZED
Nearshore Reproductive Habitat	LOGG-N-03	$4,200	$480
Nearshore Reproductive Habitat	LOGG-N-04	$4,200	$480
Nearshore Reproductive Habitat	LOGG-N-05	$4,200	$480
Nearshore Reproductive Habitat	LOGG-N-06	$4,200	$480
Nearshore Reproductive Habitat	LOGG-N-07	$4,200	$480
Nearshore Reproductive Habitat	LOGG-N-08	$4,200	$480
Nearshore Reproductive Habitat	LOGG-N-09	$4,200	$480
Nearshore Reproductive Habitat	LOGG-N-10	$2,500	$290
Nearshore Reproductive Habitat	LOGG-N-11	$2,500	$290
Nearshore Reproductive Habitat	LOGG-N-12	$2,500	$290
Nearshore Reproductive Habitat	LOGG-N-13	$2,500	$290
Nearshore Reproductive Habitat	LOGG-N-14	$680	$77
Nearshore Reproductive Habitat	LOGG-N-15	$680	$77
Nearshore Reproductive Habitat	LOGG-N-16	$680	$77
Nearshore Reproductive Habitat	LOGG-N-17	$680	$77
Nearshore Reproductive Habitat	LOGG-N-18	$680	$77
Nearshore Reproductive Habitat	LOGG-N-19	$680	$77
Nearshore Reproductive Habitat	LOGG-N-20	$680	$77
Nearshore Reproductive Habitat	LOGG-N-21	$680	$77
Nearshore Reproductive Habitat	LOGG-N-22	$680	$77
Nearshore Reproductive Habitat	LOGG-N-23	$680	$77
Nearshore Reproductive Habitat	LOGG-N-24	$680	$77
Nearshore Reproductive Habitat	LOGG-N-25	$680	$77
Nearshore Reproductive Habitat	LOGG-N-26	$680	$77
Nearshore Reproductive Habitat	LOGG-N-27	$680	$77
Nearshore Reproductive Habitat	LOGG-N-28	$680	$77
Nearshore Reproductive Habitat	LOGG-N-29	$680	$77
Nearshore Reproductive Habitat	LOGG-N-30	$680	$77
Nearshore Reproductive Habitat	LOGG-N-31	$680	$77
Nearshore Reproductive Habitat	LOGG-N-32	$680	$77
Nearshore Reproductive Habitat	LOGG-N-33	$5,800	$650
Nearshore Reproductive Habitat	LOGG-N-34	$5,100	$580

HABITAT TYPE	CH UNIT	TOTAL PRESENT VALUE	ANNUALIZED
Nearshore Reproductive Habitat	LOGG-N-35	$5,100	$580
Nearshore Reproductive Habitat	LOGG-N-36	$5,100	$580
Winter Concentration Habitat	LOGG-N-01	$2,300	$260
Winter Concentration Habitat	LOGG-N-02	$2,300	$260
Concentrated Breeding Habitat	LOGG-N-17	$7,100	$810
Concentrated Breeding Habitat	LOGG-N-19	$7,100	$810
Constricted Migratory Corridor Habitat	LOGG-N-01	$15,000	$1,700
Constricted Migratory Corridor Habitat	LOGG-N-17	$7,100	$810
Constricted Migratory Corridor Habitat	LOGG-N-18	$7,100	$810
Constricted Migratory Corridor Habitat	LOGG-N-19	$7,100	$810
Sargassum Habitat	LOGG-S-01	$120,000	$14,000
Sargassum Habitat	LOGG-S-02	$3,100	$360
Total		**$260,000**	**$29,000**

4.6 ASSUMPTIONS AND LIMITATIONS

181. 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 4-10 presents they key assumptions made and the potential bias they introduce in the analysis.

EXHIBIT 4-10. ASSUMPTIONS AND LIMITATIONS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
Critical habitat designation is unlikely to change the efforts recommended to avoid adverse effects on the loggerhead and its habitat as part of future section 7 consultations.	May result in an **underestimate** of costs**.**	**Likely minor.** Given presently available information, NMFS anticipates that it is unlikely that critical habitat designation will generate additional or different recommendations for conservation efforts for the loggerhead and its habitat with respect to fishing activity. However, NMFS 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.

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
This analysis assumes that inclusion of an adverse modification analysis in future consultations, in addition to the jeopardy analysis, will always result in additional cost and effort, and that those costs are additive.	May result in an **overestimate** of costs.	**Likely minor.** While the effort required to link activity-related threats to adverse modification of habitat may be less than it would have been to link those threats to jeopardy, each consultation will still need to include both jeopardy and adverse modification analyses.
This analysis does not quantify administrative impacts associated with the need to consider loggerhead critical habitat in consultations where loggerheads are not a focal species.	May result in an **underestimate** of costs**.**	**Likely minor.** Costs associated with consideration of loggerhead habitat in future Section 7 consultations unrelated to the species itself are expected to be *di minimis.*
This analysis relies on patterns of historical consultation to forecast future rates of consultation activity. This analysis assumes that past consultations rates provide a good indication of future activity levels.	**Unknown.** May overestimate or underestimate incremental impacts.	**Likely minor.** Data are not available to determine whether fisheries management activities subject to consultation (e.g., Section 6 applications or development of FMPs) 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 makes assumptions regarding distribution of past consultations across habitat units, and relies on patterns of historical consultation to forecast future locations of consultation activity.	**Unknown.** May overestimate or underestimate incremental impacts in a given area.	**Likely minor.** Because fisheries activities are not confined to a specific geographic location, this analysis makes assumptions regarding the critical habitat units included in historical consultations, and how those costs are distributed across relevant units. Variations in the locations of future consultation from the past or in how past consultations are assigned to critical habitat units are unlikely to significantly change the overall findings of our analysis, but may over or underestimate the costs assigned to any given habitat unit.

CHAPTER 5 | OIL AND GAS ACTIVITIES

5.1 INTRODUCTION

182. This chapter evaluates the potential impacts of critical habitat designation for the Northwest Atlantic DPS of the loggerhead sea turtle on oil and gas activities (i.e., exploration, production, and decommissioning activities) in the study area. Significant oil and gas activity is planned within the area being considered for critical habitat designation in the Gulf of Mexico, and potential exists for future expansion into the South and Mid-Atlantic areas.

183. NMFS has identified oil and gas exploration and development activities as potential threats to loggerhead critical habitat in all five of the habitat types being considered for designation: nearshore reproductive, winter concentration, constricted migratory corridor, concentrated breeding, and *Sargassum* habitats.[115] Oil and gas activities have the potential to affect the physical and biological features of critical habitat for the loggerhead through disturbance of habitat use caused by oil spill and response activities, the decommissioning of old oil and gas platforms, construction of oil and gas platforms, oil and gas activity and transport, day to day operations of platforms, as well as interaction between platforms and *Sargassum* habitats.[116,117] Specific threats related to these activities include, but are not limited to, pollution of the loggerhead habitat from oil or gas spills or other discharges, light pollution during normal operations, and blasting that may occur during decommissioning activities. BOEM's *Gulf of Mexico OCS Oil and Gas Lease Sales: 2012-2017* identifies interactions between platforms and floating *Sargassum,* discharges of drilling and cutting muds near *Sargassum* habitats, and release of production waters as having potential effects on loggerhead habitat.[118]

184. This chapter contemplates the potential for loggerhead critical habitat designation to generate new or different conservation recommendations for oil and gas activities. We also quantify administrative costs of future consultations on oil and gas activities that will consider effects of these activities on the critical habitat over the next ten

[115] Although NMFS has identified oil and gas activities as a threat to all habitat types, this activity is not a practical threat to breeding habitat, as oil and gas activities are precluded from coastal Florida, as described later in this chapter.

[116] NMFS, 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtles, *Caretta caretta*, May.

[117] Bureau of Ocean Energy Management (BOEM), 2012a. Gulf of Mexico OCS Oil and Gas Lease Sales: 2012-2017. Final Environmental Impact Statement. Volume I: Chapters 1-4.

[118] *Ibid.*

years (2014-2023). This chapter first presents the key findings of our analysis. We then forecast the scope and scale of future oil and gas activities within the area being considered for critical habitat designation, describe the regulatory baseline for these activities, and quantify potential incremental impacts of the critical habitat rule.

KEY FINDINGS OF THE OIL AND GAS ANALYSIS

QUANTIFIED IMPACTS AND CONCLUSIONS:

- Total present value impacts of critical habitat designation on oil and gas activities are expected to be approximately $17,000 over the next ten years. These impacts reflect additional administrative effort as part of future section 7 consultations to consider the potential adverse effects of oil and gas projects on critical habitat for the loggerhead. Specifically, we forecast three programmatic consultations on oil and gas activities between 2014 and 2023.
- The extent of the regulatory baseline for oil and gas projects in addressing environmental impacts, including effects on listed species and their habitats, make it unlikely that critical habitat designation for the loggerhead sea turtle will generate additional conservation recommendations as part of future section 7 consultation on these activities. Specifically, regardless of critical habitat designation, NMFS regularly recommends and is supported by regulations and industry management practices that:
  - Set timing restrictions on decommissioning of platforms;
  - Require oil spill response plans;
  - Avoid sensitive habitats such as migratory or breeding areas;
  - Avoid pollution discharges during offshore oil and gas activities;
  - Avoid excessive noise when turtles are present;
  - Require turtle surveyors during all oil and gas activity operations; and,
  - Avoid pollution during normal operations and require extensive and immediate cleanup after spills or blowouts.

UNQUANTIFIED IMPACTS:

- We are unable to quantify impacts associated with the potential designation of critical habitat for the loggerhead on the consultations initiated due to infrequent or unplanned significant events, such as spills. Because these events do not have a regular schedule and are difficult to predict, our analysis does not quantify potential future costs of these section 7 consultations.
- Oil and gas industry stakeholders have expressed concern regarding the potential for the critical habitat designation to generate litigation and associated project delays. While we agree that potential exists for third party lawsuits to result from critical habitat designation, the likelihood, timing, and outcome of such lawsuits are uncertain and quantifying costs associated with hypothetical outcomes of the critical habitat designation would be speculative. This analysis accordingly identifies such indirect costs of the designation as a potential category of unquantified impacts to be considered along with the monetized costs presented in the report.

GEOGRAPHIC DISTRIBUTION OF IMPACTS:

- Oil and gas activities currently occur primarily in the Western and Central Gulf of Mexico Planning Areas with a minimal number of offshore oil and gas operations occurring in coastal state waters. Because we are unable to predict the level of future activity that will occur in the Mid- and South Atlantic Planning Areas, all quantified administrative costs will be incurred in the Gulf of Mexico marine region, specifically related to the *Sargassum* habitat.

KEY UNCERTAINTIES:

- While NMFS anticipates it is unlikely that critical habitat designation will affect the outcome of future consultations on oil and gas activities, NMFS will review each project as proposed to make the final determination.
- Mid- and South Atlantic Planning Area oil and gas activity is uncertain. While the area is subject to seismic testing in 2013, the results of the testing as well as the potential implications for future section 7 consultations related to oil and gas activity projects in the future are uncertain. As such, forecasting potential activity in these areas for the purposes of this analysis would be speculative.

5.2 SCOPE AND SCALE OF POTENTIAL OIL AND GAS ACTIVITIES

185. Offshore oil and gas activities currently occur in the Gulf of Mexico in both Federal and state waters. While the specific quantities 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). We use the best available information to forecast potential oil and gas activities anticipated to occur during the timeframe of this analysis. We do not identify particular projects within all critical habitat units being considered for designation; the projects we have identified overlap the critical habitat units identified in Exhibit 5-1. These current and potential future oil and gas activities are discussed in detail below.

EXHIBIT 5-1. SCOPE AND SCALE OF POTENTIAL OFFSHORE OIL AND GAS ACTIVITY IN AREAS BEING CONSIDERED FOR CRITICAL HABITAT DESIGNATION

CRITICAL HABITAT	UNIT	ACTIVITY
Nearshore Reproductive	LOGG-N-03	Currently no activity. Seismic testing for oil and gas reserves to begin in 2013; potential development for oil and gas exploration in 2017 and beyond.
	LOGG-N-04	
	LOGG-N-05	
	LOGG-N-06	
	LOGG-N-07	
	LOGG-N-08	
	LOGG-N-09	
Winter Concentration	LOGG-N-01	
	LOGG-N-02	
Constricted Migratory Corridor	LOGG-N-01	
Sargassum	LOGG-S-01	
	LOGG-S-02	Current active leases for oil and gas exploration and development in Western and Central Gulf of Mexico Planning Areas. Will likely continue in 2017 and beyond.

5.2.1 FEDERAL WATERS

186. As described in Chapter 1, the proposed critical habitat extends from the western Gulf of Mexico around the Florida Straits and up the eastern seaboard as far north as New Jersey. Federal waters are managed as separate planning areas by BOEM. The area being considered for critical habitat designation overlaps the Western Gulf of Mexico, Central Gulf of Mexico, Straits of Florida, South Atlantic, Mid-Atlantic, and North Atlantic planning areas (shown in Exhibit 5-2). Currently, Federal oil and gas exploration and production activities occur in the Western and 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.

187. BOEM plans offshore Federal oil and gas leases on a five-year cycle. 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 Environmental Impact Statement (EIS). The current cycle (2012 through 2017) considers the active leases in the Western and Central Planning Areas (shown in Exhibit 5-3). The majority of the Eastern Gulf of Mexico Planning Area is under Congressional Moratorium until 2022. According to BOEM, the Straits of Florida and North Atlantic are considered low resource potential areas or have low support for potential leasing capability, and thus are not likely to be considered for oil and gas development activities within the timeframe of our analysis. The South Atlantic and Mid-Atlantic Planning Areas are subject to seismic studies to test for reserves beginning in 2013, but leasing is not expected before 2017.[119] Thus forecasting the nature of future activities in the region for the purposes of this analysis would be speculative.

188. A large number of oil and gas development leases are considered within the current cycle in the Gulf of Mexico. Ten oil and gas lease sales are scheduled between 2012 and 2017 on the Gulf of Mexico Outer Continental Shelf (OCS). Five are planned for the Western Gulf of Mexico Planning Area and five in the Central Gulf of Mexico Planning Area. These two areas include more than 93.8 million acres of potential lease area sales over a five year period.[120] 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). 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.[121] 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 consultation. In addition, these projects are subject to annual reporting requirements to ensure they are carried out consistent with the programmatic consultation.[122]

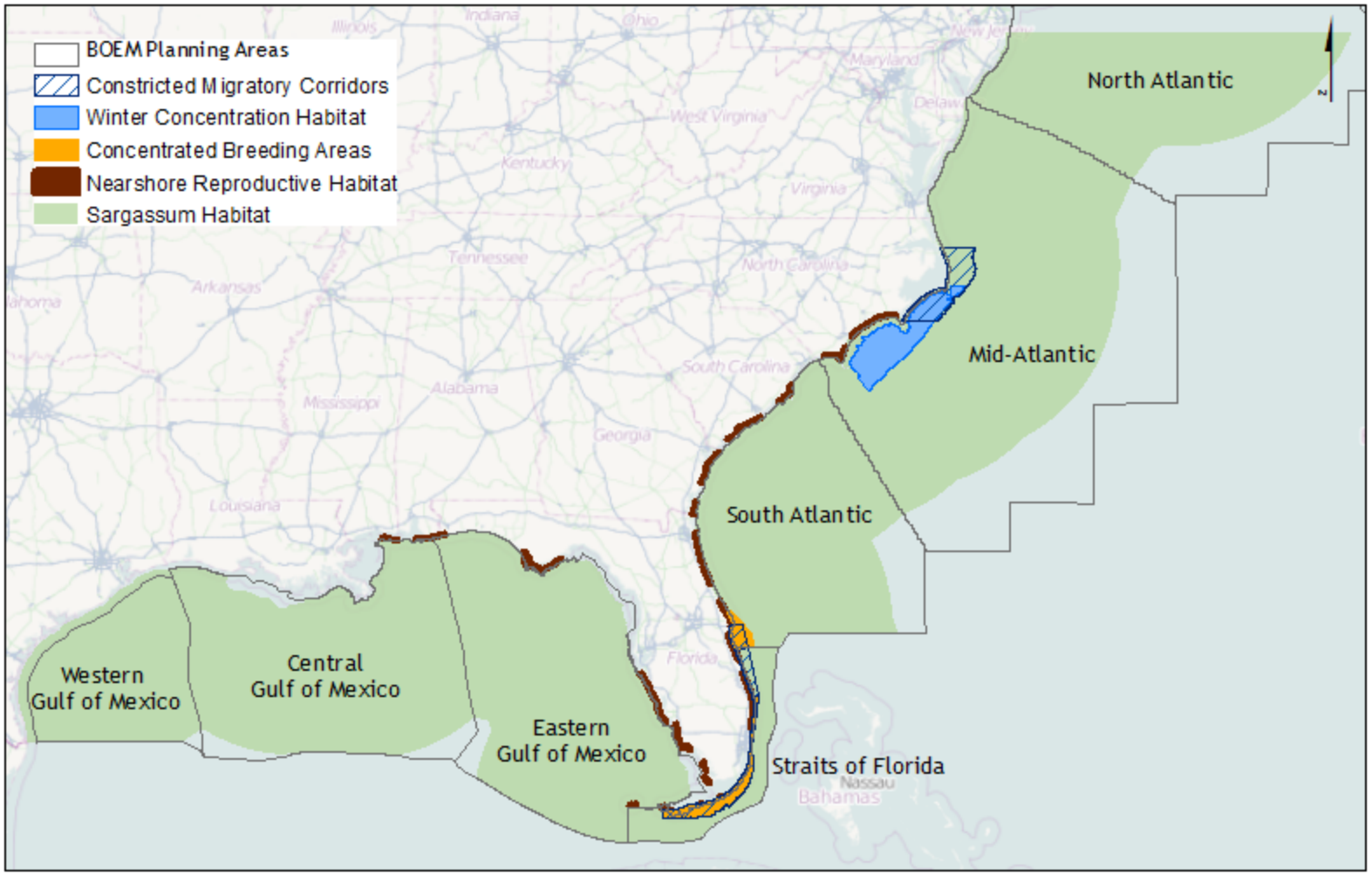
[119] Bureau of Ocean Energy Management (BOEM) 2012f. Atlantic OCS Proposed Geological and Geophysical Activities, Mid-Atlantic and South Atlantic Planning Areas. Draft Programmatic Environmental Impact Statement. March.

[120] Bureau of Ocean Energy Management (BOEM), 2012a. Gulf of Mexico OCS Oil and Gas Lease Sales: 2012-2017. Final Environmental Impact Statement. Volume I: Chapters 1-4.

[121] Personal communication with Kimberly Skrupsky, Marine Biologist, US Department of the Interior Bureau of Ocean Energy Management on January 17, 2013.

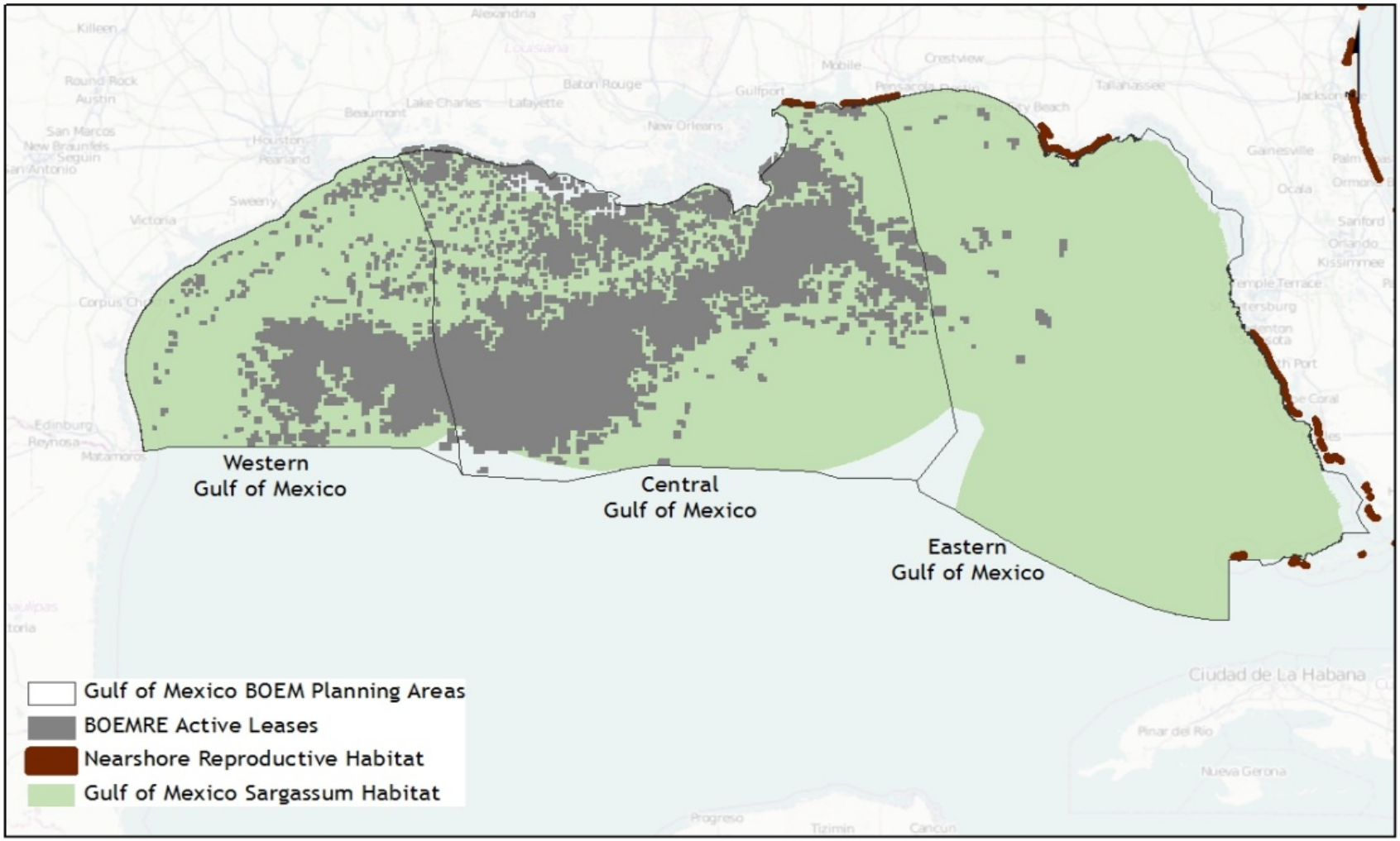
[122] Personal communication with NMFS, email to Industrial Economics, Inc. dated March 12, 2013.

EXHIBIT 5-2. MAP OF BOEM ATLANTIC AND GULF OF MEXICO PLANNING AREAS AND LOGGERHEAD MARINE HABITAT



Sources:
1. NMFS Critical Habitat Areas under consideration, June 18, 2013
2. Bureau of Ocean Energy Management, Planning Areas
3. OpenStreetMap, ESRI Online

EXHIBIT 5-3. MAP OF CURRENTLY ACTIVE OFFSHORE OIL AND GAS LEASES



Sources:
1. NMFS Proposed Critical Habitat areas, December 13,2012
2. Bureau of Ocean Energy Management, Planning Areas
3. OpenStreetMap, ESRI Online

5.2.2 STATE WATERS

189. Limited offshore oil and gas activities are occurring in state waters. Currently, Alabama, Louisiana, Mississippi, and Texas have active oil and gas activity off their coastal shores. These states require operators to lease offshore lands for oil and gas exploration and development activities, and permit projects individually.

- **Alabama:** Alabama's active oil production that intersects proposed critical habitat lies outside of Mobile Bay, south of Dauphin Island. According to e-mail exchanges with the Alabama Oil and Gas Board, current production is declining and operators are not yet proposing any new well locations and have not done so for many years. [123]
- **Louisiana**: Louisiana's active oil and gas activities are occurring in the southeast portion of the state, off the coasts of Blind Bay, West Bay, and Caminada Bay. Future offshore oil and gas exploration and development activity are not currently proposed or predicted for the near future. [124]
- **Mississippi**: Mississippi's active offshore oil and gas activities are minimal. Currently, there are no known offshore wells that intersect the proposed critical habitats. However, two previously active wells near Horn and Ship Islands come within 500 meters of both nearshore reproductive and *Sargassum* habitats being considered for designation.[125]
- **Texas:** Texas' active offshore oil and gas activities produced nearly 264,000 barrels of crude oil and 403,000 million cubic feet of gas between January and November 2012 from 39 active leases and nine active wellheads.[126] Texas underwent an informal section 7 consultation related to a biological evaluation of a proposed reissuance of the National Pollutant Discharge Elimination System (NPDES) permit for new and existing oil and gas extraction operations off the coast of Texas in 2011. However, it is unlikely that a significant change in offshore oil and gas production will occur in the time frame of this analysis that would necessitate additional section 7 consultations.[127]

[123] Email communication with Phillip Hinesley, Chief, Coastal Section of the State Lands Division, on January 18, 2013.

[124] Personal Communication with Amity Bass, Biologist, Natural Heritage Program, Louisiana Department of Wildlife, January 22, 2013.

[125] Mississippi State Oil and Gas Board. 2013. MSOGB Online Mapping Tool. http://gis.ogb.state.ms.us/MSOGBOnline/. Accessed January 22, 2013.

[126] Railroad Commission of Texas. 2012. State Offshore Crude Oil and Casinghead Gas Production for November 2012. http://www.rrc.state.tx.us/data/production/offshoreoil/2012/1112.pdf . Accessed January 28, 2013.

[127] Personal Communication with Jim Suydam, Texas General Land Office, January 2, 2013.

190. Exhibit 5-4 below presents a timeline of anticipated activity within each active planning area in Federal waters. As described in Section 5.4.2, we forecast programmatic consultations on oil and gas activities based on this timeline of events. Specifically, we anticipate three programmatic consultations within the timeframe of this analysis: (1) one in 2017 coincident with the next five year lease sale schedule for the Western and Central Gulf of Mexico Planning Areas; (2) one in 2022 when the moratorium is lifted on lease sales in the Eastern Gulf of Mexico Planning Area; and (3) another in 2022 coincident with the next five year lease sale schedule for the Western and Central Gulf of Mexico Planning Areas.

191. BOEM and NMFS will complete a consultation on the seismic testing activity in the Mid- and South Atlantic Planning Areas scheduled for 2013. However, this consultation falls outside of the timeframe of our analysis. As described above, we do not forecast consultation on potential oil and gas-related activities following the seismic testing due to the uncertainty regarding the potential nature of future activities.[128]

192. Exhibit 5-5 discusses current and proposed oil and gas developments in state waters and identifies which potential critical habitat unit may be affected by these activities. Exhibit 5-6 describes the basis for the lack of a consultation forecast with respect to areas being considered for critical habitat in Florida, Georgia, Virginia, Delaware, and New Jersey state waters.

[128] BOEM 2012f.

EXHIBIT 5-4. TIMELINE OF CURRENT AND PROPOSED OIL AND GAS DEVELOPMENTS OVERLAPPING AREAS BEING CONSIDERED FOR CRITICAL HABITAT DESIGNATION

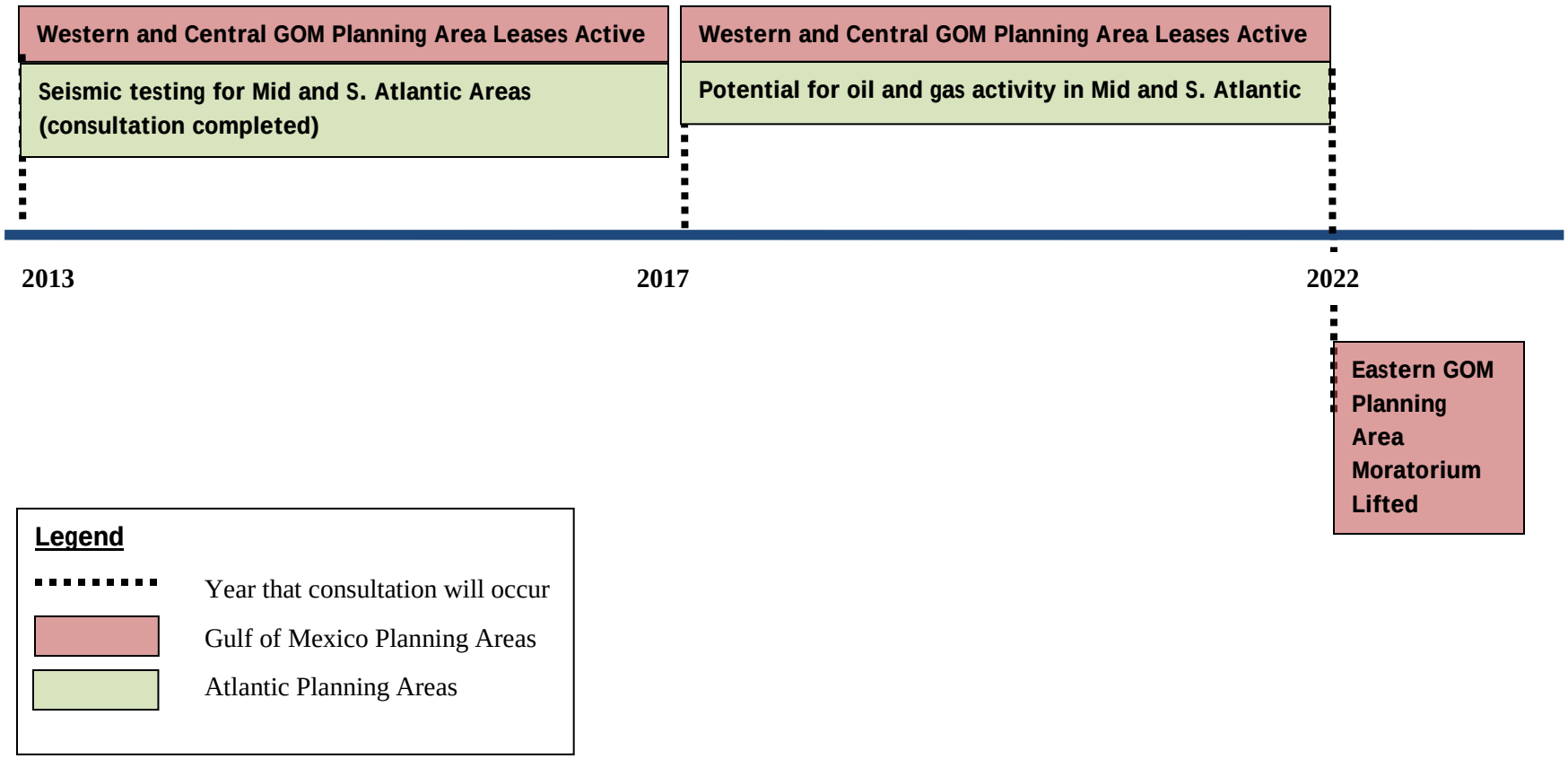


EXHIBIT 5-5. CURRENT AND PROPOSED OIL AND GAS ACTIVITIES IN STATE WATERS OVERLAPPING CRITICAL HABITAT BEING CONSIDERED FOR THE LOGGERHEAD SEA TURTLE

STATE	CURRENT LOCATION OF ACTIVITY	CRITICAL HABITAT OVERLAP	POTENTIAL FOR FUTURE ACTIVITY	CRITICAL HABITAT OVERLAP
Texas	Calhoun, Jefferson, Galveston, Brazoria, Sabine Pass, Chambers, Nueces, Kelberg, and Aransas counties	*Sargassum*	N/A	N/A
Louisiana	Blind Bay, West Bay, Outside of Barataria and Caminada Bay	*Sargassum*	N/A	N/A
Mississippi	Near Horn Island, and outside of Ship Island	*Sargassum*	N/A	N/A
Alabama	Outside Mobile Bay, near Dauphin Island	*Sargassum*	N/A	N/A
South Carolina	N/A	N/A	Potential after 2017	*Sargassum,* nearshore reproductive
North Carolina	N/A	N/A	Potential after 2017	*Sargassum,* nearshore reproductive, constricted migratory corridor, winter concentration.
Maryland	N/A	N/A	Potential after 2017	*Sargassum*

EXHIBIT 5-6. STATE WATERS NOT AFFECTED BY CRITICAL HABITAT DESIGNATION

STATE	REASON FOR EXCLUSION
Florida	No oil and gas activities allowed in state waters.[1] West Florida Coast under Congressional Moratorium until 2022; Florida Strait has little political or regional support for oil and gas exploration.[2]
Georgia	Geological composition of submerged lands unlikely to produce significant amounts of recoverable and marketable oil and gas.[3]
Virginia	No oil and gas activity in state waters. Development of oil and gas activity is unlikely.[4]
Delaware	No oil and gas activities proposed in state waters. Geological composition suggests low resource potential.[5]
New Jersey	No oil and gas activities proposed in state waters. Geological composition suggests low resource potential.[6]

Sources:
1. Personal communication with Dave Taylor, Geophysicist, Florida Department of Environmental Protection, Oil and Gas Section, on January 14, 2013.
2. Bureau of Ocean Energy Management (BOEM), 2012c. Department of the Interior Outer Continental Shelf Oil and Gas Strategy. http://www.doi.gov/news/pressreleases/upload/OCS_Lower_48_Strategy_20111129_V1.pdf. Accessed January 14, 2013.
3. Personal communication with Jim Kennedy, State Geologist, Georgia Environmental Protection Division, on January 17, 2013.
4. Personal communication with Mark Deering, Geologist, Virginia Department of Mines, Minerals, and Energy, on January 14, 2013.
5. Personal communication with Tricia Arndt, Environmental Scientist, Delaware Coastal Programs, on January 22, 2013.
6. BOEM, 2012c.

5.3 BASELINE REGULATION OF OIL AND GAS ACTIVITIES IN THE STUDY AREA

193. 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.

5.3.1 FEDERAL REGULATIONS

194. The U.S. EPA is responsible for carrying out the requirements of NEPA (40 CFR Part 6). 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 or an Environmental Assessment (EA) 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.

195. The ESA provides significant baseline protections to the loggerhead turtle and its habitat. Section 7 of the Act requires Federal agencies to consult with the NMFS to

ensure that actions authorized, funded, or carried out by that agency will not likely jeopardize the continued existence of any endangered or threatened species.

196. Though the listing of the Northwest Atlantic DPS of the loggerhead occurred in 2011, the species was listed as threatened worldwide in 1978.[129] Since that time, NMFS has consulted on offshore oil and gas activities that potentially threaten the loggerhead. These consultations have resulted in regulations and management practices that provide significant protection to the loggerhead and its habitat, including:

- Oil and Gas and Sulphur Operations in the Outer Continental Shelf-Decommissioning Activities (67 FR 66046, October 30, 2002);
- Seismic survey mitigation measures for marine mammals and sea turtles (BOEM NTL 2012-G02); and
- Avoidance of biologically-sensitive underwater features and areas (BOEM NTL 2009-G39).

197. Together, these regulations and policies minimize the impact of explosive removal of structures to turtles, and require or recommend avoidance of hard-bottomed habitats, and noise mitigation, providing baseline protections to the loggerhead and its habitat.

198. Additionally, BOEM requires oil and gas activity operators to consider and avoid turtles and sensitive turtle habitats, especially areas related to migration, nesting, and winter concentration areas.[130] BOEM suggests seasonal and temporal avoidance measures, as well as limits proximity of exploration and development activities, and use of lights, in sensitive habitats.[131] Additional requirements placed on operators mandate that the industry have Protected Species Observers onboard seismic survey vessels.[132] These requirements will also be in effect for any operations that begin in previously undeveloped planning areas should they be opened to leasing (e.g., Mid- and South Atlantic).[133]

199. BOEM also issues notices to lessees and operators (NTL), which outline requirements and clarifications to Federal regulations. These NTLs provide operators a better understanding of the scope and meaning of a regulation by explaining BOEM interpretations of a requirement. A number of these NTLs provide guidance for operators in avoiding and mitigating potentially adverse interactions with loggerhead sea turtles. 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 OCS, requiring

[129] 43 FR 32800, July 28, 1978

[130] Personal communication with Kim Skrupsky, Marine Biologist, BOEM on January 17, 2013.

[131] *Ibid.*

[132] *Public Comment from the Bureau of Ocean Energy Management on the July 2013 Draft Economic Analysis.*

[133] Personal communication with Kim Skrupsky, Marine Biologist, BOEM on January 17, 2013.

that these activities not take place when turtles are in the area. These NTLs provide extensive protections to loggerheads.

200. Oil and gas activities located in Federal waters are also subject to a number of laws, rules, and regulations that manage the oil and natural gas resources of the OCS, including:

- Title 30, Mineral Resources, Part 250 – Oil and Gas and Sulphur Operations in the Outer Continental Shelf (30 CFR Part 250); and,
- The Outer Continental Shelf Lands Act (OCSLA).

201. Additional protections to the loggerhead sea turtle may be provided by other laws such as the Coastal Zone Management Act. The baseline protections to loggerhead habitat provided by these laws and regulations are described below.

30 CFR Part 250

202. 30 CFR Part 250 outlines regulations related to oil, gas, and sulphur exploration, development, and production operations on the OCS, and provides some level of baseline protection to the loggerhead and its habitat. In particular, 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. Thus, these regulations offer habitat protection for the loggerhead regardless of critical habitat designation.

The Outer Continental Shelf Lands Act

203. The OCSLA is administered by the Secretary of the Interior and defines the outer continental shelf as all land submerged and lying seaward of state coastal waters (approximately beyond three miles offshore). Additionally, OCSLA delegates responsibility of the administration of mineral exploration and development of the OCS to the Secretary of the Interior, allowing the Secretary to provide guidelines in implementing OCS oil and gas exploration, development, and production.

204. Additionally, the 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.

Coastal Zone Management Act

205. The Coastal Zone Management Act is administered by National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management and requires that Federal actions that affect the natural resources of a state's coastal zone be consistent with the enforceable policies of a federally-approved state coastal zone management plan. As such, oil and gas developments will be required to obtain a Coastal Consistency Determination. The coastal zone management plan in Florida specifically considers effects and impacts on loggerhead sea turtles such as the impact of nature, timing and sequence of construction of permitted activities and names the turtle as a marine resource protected by the program's objectives and policies.[134] North Carolina's coastal management plan also enacts annual moratoria periods on construction-related activities for sea turtle nesting and migratory areas during peak nesting season.[135] These plans provide baseline protections to the loggerhead and its habitat.

5.3.2 STATE REGULATIONS

206. 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 Delaware, New Jersey, Maryland, Virginia, and Georgia. 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 the activities. However, they are both currently proposing administrative rules and regulations to be implemented in the next three to five years. [136] North Carolina will consider loggerhead and marine life effects and will maintain regulations closely linked to the Coastal Zone Management Act and will likely require permittees to obtain a Coastal Consistency Determination.[137]

207. All other states (Alabama, Louisiana, Mississippi, and Texas) 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 (ADEM) 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 (ADCNR) also provide

[134] Florida Law. Title XXVIII, Chapter 379, Section 2431 (1)(b)(2) and Section 2431 (1)(g).

[135] North Carolina Coastal Management. North Carolina Beach and Inlet Management Plan: Final Report. April 2011. http://www.nccoastalmanagement.net/BIMP/BIMP%20Section%20VIII%20-%20Region%201%20Formatted.pdf. Accessed February 13, 2013.

[136] Personal communication with Tracy Davis, Director, Division of Energy, Mineral, and Land Resources at NC Department of Natural Resources, on January 11, 2013.

[137] Personal Communication with Tracy Davis, Director, North Carolina Division of Land Resources, January 22, 2013.

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 (MOGB) 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.
- **Louisiana:** Louisiana's Department of Environmental Quality is responsible for regulating offshore oil and gas activities. Offshore oil and gas operators are required to apply for a Louisiana Pollution Discharge Elimination System (LPDES) Permit LAG260000 which requires testing of all releases to the marine environment. The permit prohibits oil and gas operators from discharging any drilling fluids or cuttings, any operation-produced waters into state or federal wildlife management areas or areas of ecological significance, or within 1,300 feet of an active sea grass bed.[138] These requirements provide protections to both the loggerhead and its habitat.
- **Texas**: The Railroad Commission of Texas Oil and Gas Division is responsible for regulating offshore oil and gas activities. Offshore oil and gas operators are broadly required to minimize pollution that may adversely affect wildlife, plants, or human life. Additional rules and regulations published in the Texas Administrative Code under the Parks and Wildlife Department and the General Land Office require all entities to minimize impact to wildlife, require unauthorized discharge plans, and take into consideration impacts on listed endangered and threatened species.[139]

5.4 METHODOLOGY FOR EVALUATING IMPACTS TO OIL AND GAS ACTIVITIES

5.4.1 QUANTIFYING THE IMPACTS OF ADDITIONAL CONSERVATION EFFORTS

208. Threats of concern to the loggerhead habitat due to oil and gas activity include pollution of the loggerhead habitat from oil or gas spills in addition to other discharges, light pollution during normal operations, and impacts from blasting activity related to decommissioning.[140] In general, the conservation efforts NMFS would most likely recommend to avoid potential jeopardy would also likely result in

[138] Louisiana Department of Environmental Quality. Water Discharge Permit: General Permit Number LAG260000. January 2010. P.6.

[139] Texas Administrative Code Title 31 Part 1 (19)(B) Rule 19.13 (c)(11); Title 31, Part 2, Chapter 65, (G), Rule 65.171 (b) (1)-(2).

[140] NMFS, 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtle, Caretta caretta. May.

the activities avoiding adverse modification of critical habitat. That is, the protections that would be sought under critical habitat designation are already included in the baseline protections as described in Section 5.3.1. We therefore do not anticipate that critical habitat designation will result in direct impacts on oil and gas activities beyond the potential for additional administrative effort as part of future consultations.

209. Critical habitat may generate indirect impacts on oil and gas activities to the extent that the designation results in changes in the management of oil and gas activities outside of section 7. For example, in the case that state or Federal agencies react to the designation by requiring additional habitat conservation efforts or otherwise limiting or restricting activities, associated economic impacts would be considered incremental indirect effects of the designation. Conversations with relevant state and Federal oil and gas management agency representatives did not reveal an indication that any state or Federal agency was likely to impose additional management measures as a result of critical habitat designation.[141,142] This conclusion is attributable to the significant baseline protection already accorded the habitat area and loggerhead DPS due to the regulations and oil and gas activity operator management practices described above.

5.4.2 QUANTIFYING THE ADMINISTRATIVE COSTS

210. During the period over which NMFS provided historical consultation data, no formal section 7 consultations occurred on activities related to oil and gas development. As stated in the 2012 -2017 Final Programmatic EIS, it is at the lease sale stage that BOEM begins section 7 consultations (which had not occurred at the time of publication of the PEIS or when consultation data were provided).[143] The last formal consultation related to oil and gas exploration and development activity occurred in 2007 during the sale of the first set of Gulf of Mexico Planning Area leases. As such, it is anticipated that a consultation will occur during the first lease sale's administration.

211. For the purposes of this analysis, we assume BOEM and NMFS will undertake a programmatic consultation in 2017 for the 2018-2022 five year lease for the Western and Central Gulf of Mexico Planning Areas, 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 Western and Central Gulf Planning Areas. 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. We note, however, that should any

[141] Personal communication with Kim Skrupsky, Marine Biologist, BOEM on January 17, 2013

[142] Personal communication with Will Brantley, Natural Resource Manager, Alabama Department of Conservation and Natural Resources on January 31, 2013

[143] Bureau of Ocean Energy Management, 2012b. Outer Continental Shelf Oil and Gas Leasing Program: 2012-2017. Final Programmatic Environmental Impact Statement, p. 1-18.

Atlantic leases be sold from 2018 onward, these will likely be at a project level and not a programmatic 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.

212. In addition, as described in Section 5.2.1, NMFS anticipates that all projects that are subject to the programmatic consultations will require an additional "second tier" project-level consultation to ensure that the project is consistent with the requirements of the programmatic consultation. NMFS expects that these project-level consultations involve a relatively minor level of effort and would be undertaken regardless of critical habitat designation.[144] 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 informal consultations.

213. Based on personal communications with NMFS personnel, we do not anticipate the designation of loggerhead critical habitat alone will require re-initiation of existing consultations or new additional consultations. Oil and gas activities across the proposed critical habitat area are already required to undertake section 7 consultation to consider potential effects on the DPS. This analysis accordingly focuses on the incremental administrative costs incurred to address adverse modification in new consultations.

5.4.3 UNQUANTIFIED COSTS

214. Following designation of loggerhead critical habitat, any future section 7 consultations on species other than loggerhead undertaken for oil and gas activities occurring in that habitat must consider the impacts of the activity to loggerhead critical habitat. For consultations that do not consider the loggerhead itself, these costs are expected to be *de minimis* and we do not quantify these costs in this analysis.

215. A review of the consultation history noted six informal section 7 consultations conducted for oil and gas activities involving loggerhead sea turtles in the Gulf of Mexico and Atlantic Planning Areas. Exhibit 5-7 describes the informal consultations between the period 2008 through 2012.

216. The oil and gas activities addressed in these consultations are sporadic and relate directly to incidents or specific proposals that do not occur regularly (e.g., Deepwater Horizon incident consultations). We are unable to predict these events or consultations into the future, but anticipate the additional costs associated with critical habitat on these consultations to be *de minimis.* As a result, we do not quantify these costs in this analysis.

[144] Personal communication with NMFS, email to Industrial Economics, Inc. dated March 12, 2013.

EXHIBIT 5-7. INFORMAL CONSULTATIONS RELATED TO OIL AND GAS ACTIVITIES

GENERAL ACTIVITY LOCATION	TITLE	RELEVANT CRITICAL HABITAT UNITS	YEAR
Gulf of Mexico	NPDES General Permit Reissuance for Oil and Gas Extraction in Offshore Federal Waters of the Gulf of Mexico	LOGG-S-02 (Gulf of Mexico *Sargassum)*	2010
Gulf of Mexico	Minerals Management Service (Bureau of Ocean Energy Management, Regulation, and Enforcement) Reinitiation - 5-Year Outer Continental Shelf Oil & Gas Leasing Program (2007-2012) in the Central & Western Planning Areas of the Gulf of Mexico - Deepwater Horizon (DWH)	LOGG-S-02 (Gulf of Mexico *Sargassum)*	2010
Gulf of Mexico	NOAA Ship PISCES mid-water trawling research cruise in Northern GOM to evaluate BP Deepwater Horizon oil spill effects on mid-water species: Dec 1-20, 2010	LOGG-S-02 (Gulf of Mexico *Sargassum)*	2010
Texas	Biological Evaluation - Permit No. TXG260000 - The Potential Effects of the Proposed Reissuance of the NPDES General Permit for New and Existing Sources in the Oil and Gas Extraction Point Source Category for the Territorial Seas Offshore of Texas	LOGG-S-02 (Gulf of Mexico *Sargassum)*	2011
Gulf of Mexico	Deepwater Horizon Oil Spill Draft Phase 1 Early Restoration Plan	LOGG-S-02 (Gulf of Mexico *Sargassum)*	2012

5.5 RESULTS OF OIL AND GAS DEVELOPMENT ANALYSIS

217. We estimate that approximately three programmatic consultations will likely occur over the next ten years. Because the loggerhead is widely present in the proposed areas, we assume that consultations would occur even absent critical habitat. Given our assumptions about costs per consultation, this would result in increased costs of consultations of approximately $17,000 or $1,900 annually due to critical habitat designation, all of which will be incurred in the Gulf of Mexico *Sargassum* habitat (LOGG-S-02).

218. Exhibit 5-8 summarizes the total forecast administrative costs of these consultations over the ten-year period of analysis (2014 through 2023). Present value costs are discounted at a seven percent discount rate. Exhibit 5-9 summarizes key assumptions and limitations of the analysis of potential impacts of loggerhead sea turtle critical habitat on oil and gas activities.

EXHIBIT 5-8. INCREMENTAL ADMINISTRATIVE COSTS OF OIL AND GAS ACTIVITY CONSULTATIONS, 2014 THROUGH 2023 (2013$)

HABITAT	UNIT	TOTAL	ANNUALIZED
Sargassum Habitat	LOGG-S-02	$17,000	$1,900
Total		**$17,000**	**$1,900**

Notes:
The level of effort per consultation (as described in Exhibit 2-1) 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.

5.6 ASSUMPTIONS AND LIMITATIONS

219. The economic impacts presented in this chapter are based on a number of assumptions that may affect the estimates. Exhibit 5-9 presents key assumptions, the extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation, and the significance with respect to the estimated impacts.

EXHIBIT 5-9. ASSUMPTIONS AND LIMITATIONS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
Critical habitat designation is unlikely to change the conservation efforts recommended to avoid adverse effects on the loggerhead and its habitat as part of future section 7 consultations.	May result in an **underestimate** of costs.	**Likely minor.** Given presently available information, NMFS anticipates that it is unlikely that critical habitat designation will generate additional or different recommendations for conservation efforts for the loggerhead and its habitat with respect to oil and gas activity. However, NMFS 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.
This analysis does not provide estimates of project-specific future section 7 consultations for activities that are covered under the programmatic consultations.	May result in an **underestimate** of costs.	**Likely minor.** 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 the programmatic consultation.
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.	May result in an **underestimate** of costs.	**Likely minor**. 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, NMFS 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.

CHAPTER 6 | ADDITIONAL ACTIVITIES

220. The economic activities analyzed in Chapters 3 through 5 represent the predominant economic activities occurring within the area being considered for designation. This chapter considers the potential effects of critical habitat for the loggerhead on additional activities that may occur within the proposed area, and which NMFS has described as a potential threat to loggerhead habitat. Specifically, this chapter considers potential impacts on offshore renewable energy projects, military activities, and aquaculture.

KEY FINDINGS OF THE ANALYSIS OF IMPACTS TO ADDITIONAL ACTIVITIES

OFFSHORE RENEWABLE ENERGY PROJECTS ANALYSIS:

- Total present value impacts of critical habitat designation on offshore renewable energy activities are expected to be approximately $34,000 over the next ten years (an annualized impact of $3,800). These impacts reflect additional administrative effort as part of future section 7 consultations. The designation is unlikely to generate additional conservation recommendations for loggerhead sea turtles with respect to these activities.
- The key uncertainties of the offshore renewable energy projects analysis are the potential future scope and scale of these activities within the proposed critical habitat area. Limited developments have been undertaken to date; however, there is growing interest in such projects in the future. Our activity forecast is based on currently planned projects or scoping efforts, although potential exists for this activity to increase in the future.

MILITARY ACTIVITIES:

- They key threat identified by NMFS associated with military activities is the presence of noise in constricted migratory corridor habitat. NMFS routinely consults on military activities that may affect loggerheads and would expect to recommend conservation to avoid adverse effects of habitat from noise even absent critical habitat designation.
- While a number of installations have Integrated Natural Resources Management Plans (INRMPs), these plans do not typically address marine habitat as the Department of Defense does not own the water. We therefore anticipate that it is unlikely that critical habitat designation will result in development of or modifications to INRMPS.

AQUACULTURE:

- We do not anticipate measurable economic impacts on the aquaculture industry due to designation of loggerhead critical habitat. Very few aquaculture projects currently exist or are proposed within the areas proposed for designation. Those that do overlap with proposed critical habitat are limited to bivalve propagation, which does not pose any of the identified threats to loggerhead habitat. It appears unlikely that significant new development of aquaculture facilities in the potential critical habitat areas will occur. In the case that future aquaculture operations are proposed within the proposed critical habitat area, we expect impacts would most likely be limited to relatively minor additional administrative costs as part of future section 7 consultations.

6.1 OFFSHORE RENEWABLE ENERGY PROJECTS

221. This section quantifies the potential impacts of the critical habitat designation on offshore renewable energy activities in the study area, including wind, hydrokinetic, and tidal energy exploration, siting, and production activities. The study area includes a small number of these proposed activities currently in the Gulf of Mexico and across the east coast.

222. NMFS has identified offshore renewable energy activities as a potential threat to loggerhead sea turtle critical habitat in four of the five habitat types being considered for designation (i.e., nearshore reproductive, breeding, winter, and constricted migratory habitats). Habitat threats related to renewable energy projects include disturbance of

habitat and use of the habitat associated with construction and placement of structures, and impeded passage through nearshore reproductive habitat and migratory corridors.[145]

6.1.1 SCOPE AND SCALE OF POTENTIAL OFFSHORE RENEWABLE ENERGY ACTIVITIES

223. Within the proposed critical habitat area, active and proposed offshore wind energy leases exist in Federal waters off the coasts of Delaware, New Jersey, Maryland, Virginia, and North Carolina. In addition, there is potential for additional future leases off the coast of Georgia and South Carolina.[146] A recent research lease is currently being negotiated by the Florida Atlantic University to test underwater current turbine energy generation in Federal waters off the Atlantic coast of Florida. In state waters, only Texas and New Jersey are currently considering proposals for offshore wind energy activity. We use best available information to forecast activities over the ten year period of analysis. We identify potential projects that intersect with Atlantic and Gulf of Mexico *Sargassum* units (LOGG-S-01 and LOGG-S-02, respectively) and the constricted migratory corridor off of North Carolina (LOGG-N-01). Conversations with state and Federal agencies did not identify proposed projects in nearshore reproductive, breeding, or winter concentration habitats.

Federal Waters

224. Offshore renewable energy projects in Federal waters in the proposed critical habitat are managed by the BOEM. In the past five years, BOEM has issued only one lease for projects overlapping the areas being considered for designation: a commercial wind farm lease in Federal waters off the shores of Delaware. Additionally, an experimental hydrokinetic research lease off the eastern shores of Fort Lauderdale, Florida is currently being negotiated. The project proponent for the Delaware project has since ceased development as of January 2013 and the lease holder is searching for a partner or a buyer.[147]

225. Additional wind energy applications have been submitted to BOEM for considerations and BOEM has subsequently granted calls for information and nomination for all wind energy areas (i.e., North Carolina, Maryland, New Jersey, and Virginia) (this process involves requesting comment from industry and the public regarding the feasibility, impacts, costs, and benefits of energy projects, as well as nominations for areas to explore with respect to energy development potential).[148,149] BOEM published a proposed sale

[145] NMFS. 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtles. NMFS and USFWS Pre-Decisional Draft. May.

[146] Comments provided by BOEM on Draft Environmental Analysis (DEA), dated September 19, 2013.

[147] Personal Communication with Tricia Arndt, Environmental Scientist, Delaware Coastal Programs, January 22, 2013; Comments provided by BOEM on Draft Environmental Analysis (DEA), dated September 19, 2013.

[148] 77 FR 74204, December 13, 2012.

[149] 77 FR 5552, February 3, 2012; Comments provided by BOEM on Draft Environmental Analysis (DEA), dated September 19, 2013.

notice for commercial wind power leasing off the coast of Virginia,[150] and is anticipating a proposed lease sale notice for New Jersey and Maryland. South Carolina currently does not have a specific proposal for offshore renewable energy projects, but is currently under grant from the U.S. Department of Energy to undertake an offshore wind transmission study, and a wind, wave, and current study to explore potential future development opportunities.[151,152] Additionally, BOEM established the South Carolina Renewable Energy Task Force in March 2012 to identify areas for inclusion in a future Federal Register Notice, like a Call for Information and Nominations.[153] The locations of the areas subject to consideration and study for potential energy development are mapped in Exhibit 6-1 and summarized in Exhibit 6-2.

State Waters

226. Texas and New Jersey state waters are the only state waters in which proposals for wind energy developments are currently being considered, although no construction has yet occurred.[154] All of the proposed and currently leased areas remain undeveloped due to a combination of the decrease in the price of natural gas, challenges in generating sufficient funding, and concerns voiced by local agencies.[155,156] An existing lease occurs off the coast of Galveston Island in Texas as well as off the coast of Atlantic City in New Jersey. The Texas General Land Office has received proposals for future activity off the coast of Jefferson County, Brazoria County, Corpus Christi, and Brownsville, but permits by the Corps have not yet been issued to begin the testing and siting of these projects. With the added uncertainty of offshore renewable energy prices, these projects' start dates are uncertain.[157]

6.1.2 BASELINE REGULATION OF OFFSHORE RENEWABLE ENERGY ACTIVITIES

227. Existing regulations, policies, best management practices, and guidelines implemented by the Federal and state governments provide a baseline level of protection to the loggerhead and its habitat absent designation of critical habitat. These regulations, management practices, and guidelines address: use of habitat, activity that may alter or destroy sensitive habitats (i.e., breeding and winter habitats), and activity that may impede migration in migratory corridors.

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[150] 77 FR 71621, December 3, 2012.

[151] South Carolina Energy Office. Regulatory Task Force for Coastal Clean Energy. Accessed at http://www.energy.sc.gov/index.aspx?m=6&t=85&h=904 on January 17, 2013.

[152] BOEM. 2013. Renewable Energy Programs: South Carolina. http://www.boem.gov/Renewable-Energy-Program/State-Activities/South-Carolina.aspx.

[153] Comments from BOEM on the DEA, dated September 19, 2013.

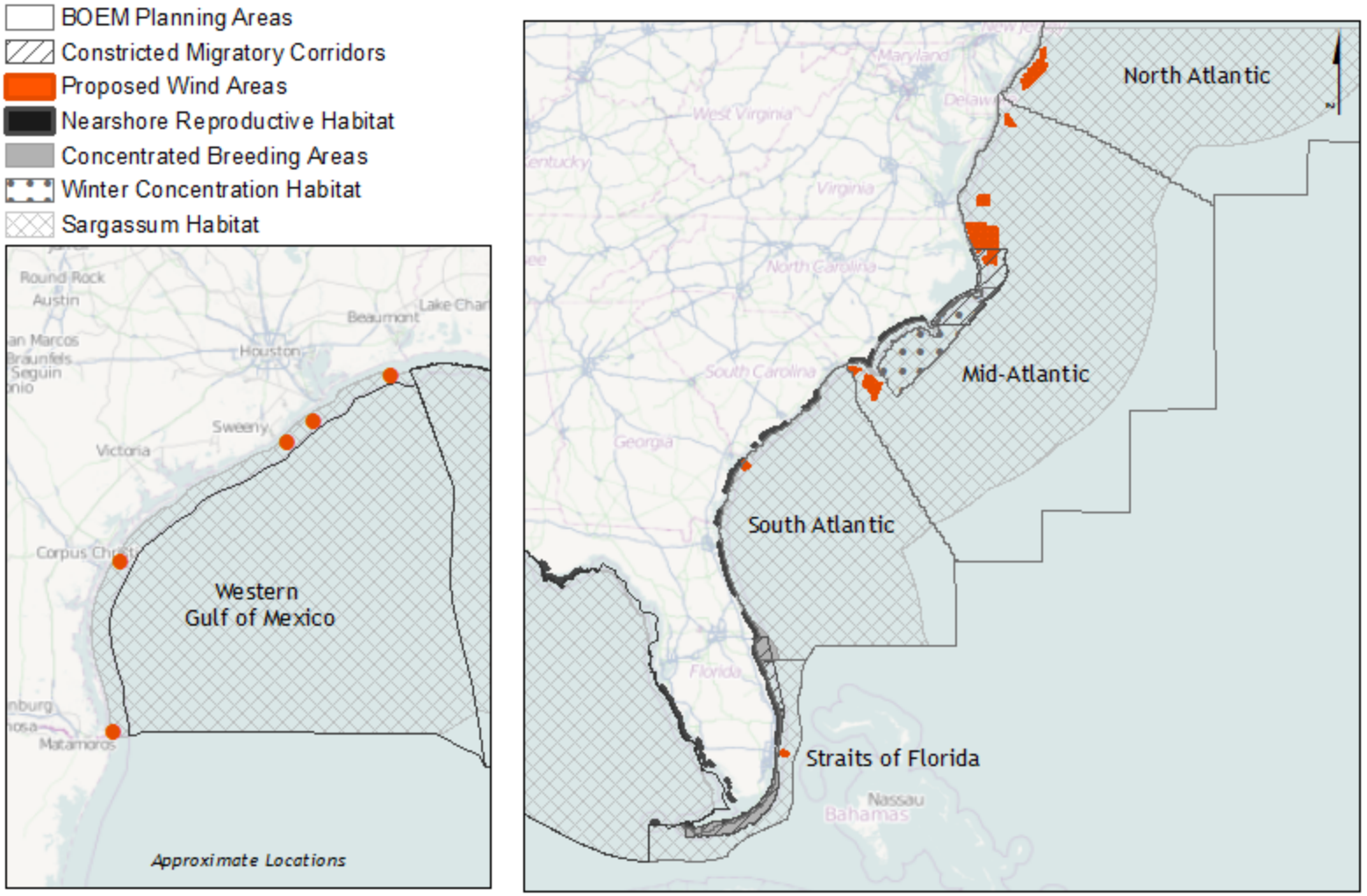
[154] Personal Communication with Jim Suydam, Texas General Land Office, January 2, 2013.

[155] Press releases. Fisherman's Energy Website. Accessed at http://www.fishermensenergy.com/press-releases.php on January 29, 2014.

[156] Personal Communication with Jim Suydam, Texas General Land Office, January 2, 2013.

[157] *Ibid.*

EXHIBIT 6-1. MAP OF CURRENT AND PROPOSED FUTURE OFFSHORE RENEWABLE ENERGY PROJECTS (FEDERAL AND STATE WATERS)



Sources:
1. NMFS Critical Habitat Areas under consideration, June 18, 2013
2. Bureau of Ocean Energy Management, Proposed Wind Areas
3. Texas General Land Office, Proposed Wind Areas
4. OpenStreetMap, ESRI Online

EXHIBIT 6-2. ONGOING AND PROPOSED OFFSHORE RENEWABLE ENERGY ACTIVITIES OVERLAPPING AREAS BEING CONSIDERED FOR CRITICAL HABITAT DESIGNATION

STATE	ACTIVITY TYPE AND STATUS	CURRENT LOCATION	CRITICAL HABITAT OVERLAP
FEDERAL WATERS			
Florida	Hydrokinetic, research lease pending – informal consultation ongoing	East of Fort Lauderdale	Atlantic *Sargassum*
Georgia	Wind, processing application for meteorological tower and buoy	Off the coast of Tybee Island	Atlantic *Sargassum*
North Carolina	Wind, call for information and nomination	Kitty Hawk, Wilmington West, Wilmington East	Atlantic *Sargassum* and constricted migratory corridor
Virginia	Wind, proposed sale notice published on December 3, 2012, informal consultation completed	East of Chesapeake Bay	Atlantic *Sargassum*
Maryland	Wind, Call for Information and Nomination, proposed sale notice pending, informal consultation completed	Approximately 10 miles east of Ocean City	Atlantic *Sargassum*
Delaware	Wind, commercial lease granted, activity on hold	Off southeast shore	Atlantic *Sargassum*
New Jersey	Wind, call for information completed, proposed sale notice to be published, informal consultation completed.	Off southeast coast	Atlantic *Sargassum*
STATE WATERS			
New Jersey	Wind, leased but not yet developed	Off southeast coast	Atlantic *Sargassum*
Texas	Wind, leased but not yet developed	Off coast of Galveston Island	Gulf of Mexico *Sargassum*
	Wind, proposed but not permitted	Off coast of Jefferson County, Brazoria County, Corpus Christi, and Brownsville	Gulf of Mexico *Sargassum*

Federal Regulations

228. As described in Chapters 3 and 5, 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 environmental assessment (EA) is prepared and made available for public comment for projects that the Federal agency views as having potentially significant environmental impacts. These assessments also determine whether an EIS is necessary. Offshore renewable energy activities have typically been subject to NEPA, and associated EAs for site assessment and site characterization have considered potential environmental impacts, including impacts on the loggerhead.

229. The EA developed for site assessment and site characterization activities for a commercial offshore wind energy development plan for New Jersey, Delaware, Maryland, and Virginia considered potential effects on the loggerhead. The EA concluded impacts of these activities on the DPS would be minimal ("negligible harassment"). As a result, BOEM administered a finding of no significant impact (FONSI).[158]

230. The listing of the DPS also provides significant baseline protections to the loggerhead turtle and its habitat with respect to offshore renewable energy developments. NMFS and BOEM participated in section 7 consultation on the issuance of commercial wind lease and site assessment activities on the Atlantic outer continental shelf. The consultation occurred concurrently with the NEPA EA for the activity. As part of that consultation and EA review, the following project design criteria were included to avoid adverse effects of the project on the loggerhead sea turtle:

- Limiting of acoustic levels to below the 160 dB threshold established by NMFS for marine mammals;
- Maintaining a vessel separation distance of 45m or greater from any sighted sea turtle; and
- Requiring a protected-species observer during all geological and geophysical survey requirements, including a 200-m exclusion zone which prohibits survey and construction activity when turtle sighting is made.[159]

231. BOEM additionally has statutory obligations under the Outer Continental Shelf Lands Act (43 USC 1337) to ensure that any activities it authorizes protect the environment and conserve natural resources. This includes the evaluation of impacts to marine mammals and sea turtles.

232. According to 30 CFR 585.610(a)(8) (SAP) and 30 CFR 585.626(b)(15) (COP) applicants for offshore renewable energy projects must submit to BOEM "proposed

[158] Bureau of Ocean Energy Management (BOEM) 2012d. Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia: Final Environmental Assessment. January.

[159] BOEM, 2012d.

measures for avoiding, minimizing, reducing, eliminating, and monitoring environmental impacts."[160] Under BOEM's regulations, plans must describe and consider protected resources, conditions, and activities that could be affected by proposed activities.[161] Any plan must also demonstrate that it is prepared to use best management practices (BMPs) in executing its plan.[162] BOEM has identified several BMPs for marine mammal and sea turtle surveys that are listed in Exhibit 6-3.

EXHIBIT 6-3. BOEM IDENTIFIED BEST MANAGEMENT PRACTICES FOR SEA TURTLES

PHASE	CONSIDERATION OF SEA TURTLES
Site Assessment	Applicants shall evaluate sea turtle use of the proposed project area and design the project to minimize and mitigate the potential for harassment or disturbance. The amount and extent of ecological baseline data required will be determined on a project-by-project basis.
Site Assessment, Construction, and Operation	Applicants shall minimize potential vessel impacts to sea turtles by requiring project-related vessels to follow the NMFS Regional Viewing Guidelines while in transit. Operators shall be required to undergo training on applicable vessel guidelines.
Construction	Applicants shall take efforts to minimize disruption and disturbance to marine life from sound emissions, such as pile driving, during construction activities.
	Applicants shall locate cable landfalls and onshore facilities so as to avoid impacts to beaches known to be seasonal sea turtle habitat.
Sources: Minerals Management Service (currently, BOEM). 2007. Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternative Use of Facilities on the Outer Continental Shelf: Final Environmental Impact Statement. October.	

233. According to the Energy Policy Act of 2005, the Federal Energy Regulatory Commission (FERC) licenses hydrokinetic projects and BOEM is responsible for leasing and decommissioning of the project. As a result, these projects are subject to the same NEPA regulations to determine the environmental impact of any project.[163]

234. Currently, BOEM is considering and reviewing a small number of offshore renewable energy development lease proposals. Section 7 consultations regarding the potential effects of these projects on the turtles and their habitat would occur prior to and during the site assessment phase. EISs for construction and operations will be completed on a project by project basis and will be completed prior to or in conjunction with the submission of a construction and operation permit request; thus far, the Cape Wind project off Massachusetts began construction and operations with

[160] 30 CFR 585.626(b)(15), 585.801 and 585.803

[161] See SAP- 30 CFR 585.610(b)(5), 585.611(a),(b)(3), (5) and (7); COP – 30 CFR 585.626(a)(3), 585.627(a)(3), (5), and (7); and GAP – 30 CFR 585.645(a)(5), 585.646(c), (e) and (g)

[162] 30 CFR 585.606(a)(6); 585.621(f); 585.641(4)

[163] Personal Communication with Brian Hooker, Marine Biologist, BOEM, January 29, 2013.

an EIS and several EAs. Past consultations have been completed informally and generally have resulted in a "not likely to adversely affect" finding for the turtles; however, recent consultations have authorized take of sea turtles.[164]

State Regulations

235. Texas issues leases and licenses for wind energy projects on a project-by-project basis. The state has promulgated regulations regarding in-water structures (i.e., including offshore renewable energy projects) that afford protection to the loggerhead sea turtle and its habitat. The Texas General Land Office is responsible for granting leases and regulating offshore wind energy developments. All structures placed offshore in state waters are subject to the 1899 Rivers and Harbors Act and must receive a permit from the U.S. Army Corps of Engineers. However, projects in Texas state waters do not require permits from FERC or BOEM.

236. Offshore operators are broadly required to minimize disturbances to ESA-listed species and are strictly required to minimize pollution that may affect marine wildlife. Published under the Texas Administrative Code, the General Land Office and Parks and Wildlife Departments require all entities to minimize impacts to wildlife, and take into consideration impacts of projects to listed species.[165]

6.1.3 POTENTIAL IMPACTS TO OFFSHORE RENEWABLE ENERGY ACTIVITIES

237. In general, the conservation recommendations NMFS would make to avoid potential adverse effects on critical habitat would also likely be recommended so that the activities avoid adverse effects on the DPS. That is, the protections that would be sought under critical habitat designation would most likely be recommended by NMFS in the baseline.

238. A portion of the proposed lease off the coast of North Carolina's Kitty Hawk Wind Energy Area overlaps the proposed constricted migratory corridor habitat for the loggerhead. BOEM staff indicated that current regulations and management practices for this project would most likely result in the project avoiding adverse effects of the project on the loggerhead habitat even absent critical habitat designation. As described in Chapter 1, depending on the design of such projects, the presence of critical habitat may simplify the consultation process as NMFS may be able to more readily draw the connection between the project and potential adverse effects on critical habitat than potential adverse effects on the DPS. It is, however, unlikely that the presence of critical habitat will change the ultimate outcome of consultations on such projects (e.g., the conservation recommendations NMFS makes are unlikely to be different with critical habitat).

239. BOEM generally requires that operators practice avoidance as a first step to avoid interaction with the loggerhead. The only potential effect of critical habitat on

[164] Comments provided by BOEM on DEA, dated September 19, 2013.

[165] Texas Administrative Code Title 31 Part 1 (19)(B) Rule 19.13 (c)(11); Title 31, Part 2, Chapter 65, (G), Rule 65.171 (b) (1)-(2).

projects that BOEM suggested was the potential need to implement time windows for construction activities.[166] NMFS generally recommends time windows for construction activities for the benefit of the loggerhead even absent critical habitat designation and does not anticipate that the designation of critical habitat would increase these time windows.

240. We additionally consider whether designation of critical habitat will affect state management agencies' management or regulation of energy developments. The only state for which we identified potential projects in state waters is Texas. The Texas General Land Office indicated that the state was not likely to change the management or regulation of offshore renewable energy developments as a result of critical habitat designation.[167]

241. Review of the consultation history regarding offshore renewable energy projects identifies one informal consultation in 2012 for site assessment and site characterization for potential wind energy developments off the New Jersey, Delaware, Maryland, and Virginia coasts. According to BOEM, an additional informal consultation is currently ongoing for the hydrokinetic research off the coast of Florida. Additionally, it is anticipated that a formal geological and geophysical (G&G) consultation will conclude in 2014 covering a significant portion of the Mid-Atlantic Federal waters.[168]

242. The level and timing of future offshore wind and other renewable energy developments in the proposed critical habitat area is uncertain. For the purposes of this analysis, we assume that BOEM and NMFS will undergo the following consultations over the time period of analysis (as described in Exhibit 6-2):

- A formal G&G consultation that will cover the New Jersey proposed lease sale (Atlantic *Sargassum* unit), and call and nominations in Maryland (Atlantic *Sargassum* unit) and North Carolina (Atlantic *Sargassum* and constricted migratory corridor units) in 2014;
- An informal consultation on a meteorological platform construction permit in Georgia in 2016 (Atlantic *Sargassum* unit); and,
- Up to six reinitiations of informal consultations that were previously completed prior to the proposed designation of critical habitat (Atlantic *Sargassum* unit) in 2014.

243. We do not forecast consultations for potential activities in Texas and New Jersey state waters. The Texas General Land Office indicated that these projects have been suspended indefinitely until more economic incentives are provided for

[166] Personal communication with Brian Hooker, Marine Biologist, BOEM, January 29, 2013.

[167] Personal Communication with Jim Suydam, Texas General Land Office, January 2, 2013.

[168] Comments provided by BOEM on DEA, dated September 19, 2013.

development.[169] Similarly, New Jersey currently is not actively developing their offshore projects.[170]

244. Exhibit 6-4 summarizes the total forecast administrative costs of these consultations over the ten-year period of analysis (2014 through 2023). Present value costs are discounted at a seven percent discount rate. Exhibit 6-5 summarizes key assumptions and limitations of the analysis of potential impacts of loggerhead sea turtle critical habitat on offshore renewable energy activities.

EXHIBIT 6-4. INCREMENTAL ADMINISTRATIVE COSTS OF RENEWABLE ENERGY PROJECT CONSULTATIONS, 2014 THROUGH 2023 (2013$)

HABITAT	UNIT	TOTAL	ANNUALIZED
Constricted Migratory Corridor Habitat	LOGG-N-01	$1,200	$130
Sargassum Habitat	LOGG-S-01	$33,000	$3,700
Total		$34,000	$3,800

Note:
The levels of effort per consultation (as described in Exhibit 2-1) 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.

[169] *Ibid.*

[170] See Press Releases July 2013. Fishermen's Energy Website. Accessed at www.fishermensenergy.com/press-releases.php on January 29, 2014.

EXHIBIT 6-5. ASSUMPTIONS AND LIMITATIONS OF THE OFFSHORE RENEWABLE ENERGY PROJECTS ANALYSIS

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
Critical habitat designation is unlikely to change the conservation efforts NMFS recommends as part of future section 7 consultations on offshore renewable energy projects.	May result in an **underestimate** of costs.	**Likely minor.** Offshore renewable energy projects are subject to significant scrutiny with respect to potential environmental impacts, including marine habitat. Given presently available information, NMFS anticipates that it is unlikely that critical habitat designation will generate additional or different recommendations for conservation efforts for the loggerhead and its habitat with respect to offshore renewable energy activity. However, NMFS 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.
This analysis assumes future projects in Texas and New Jersey state waters will not come online in the next ten years due to significant uncertainty in Texas and New Jersey energy markets and markedly low prices of other forms of energy.	May result in an **underestimate** of costs.	**Likely minor.** While it is uncertain when these projects will come online, should some or all of these projects complete within the next ten years, the only likely impacts of critical habitat designation on these projects are additional administrative effort as part of future section 7 consultations.

6.2 MILITARY ACTIVITIES

245. With respect to special management considerations associated with military activities, NMFS identifies the potential for noise pollution in constricted migratory corridors. Noise from some military activities can impede passage of loggerheads.[171] NMFS does not explicitly identify special management considerations for military activities in other habitat types. The 2008 version of the Recovery Plan for the Northwest Atlantic Population identifies military maneuvers involving explosives or low frequency sonar as a potential threat to the loggerhead.[172]

[171] NMFS, 2013. Draft Biological Report on Designation of Marine Critical Habitat for Loggerhead Sea Turtle, *Caretta caretta*. May.

[172] National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*): Second Revision. December.

6.2.1 SCOPE AND SCALE OF MILITARY ACTIVITIES

246. A number of military bases support sea turtle nesting beaches in North Carolina and Florida. NMFS is proposing nearshore breeding habitat off the coast of these bases. Military bases that include nesting beaches are:

- Camp Lejeune Marine Corps Base (North Carolina);[173]
- Naval Station Mayport (Florida);
- Cape Canaveral Air Force Station (Florida);
- Patrick Air Force Base (Florida);
- Tyndall Air Force Base (Florida); and
- Eglin Air Force Base (Florida).

247. While these bases occur on land, military activities, such as naval sonar and other training, explosive exercises, and dredging and construction, may occur offshore in the marine habitat. In addition to the bases that specifically include nesting beaches, military lands that may utilize marine habitat occur all along the Atlantic and Gulf of Mexico costs. Exhibit 6-6 highlights the presence of military lands within two miles of the coast, inland of the areas being considered for marine critical habitat designation.

6.2.2 BASELINE REGULATION OF MILITARY ACTIVITIES

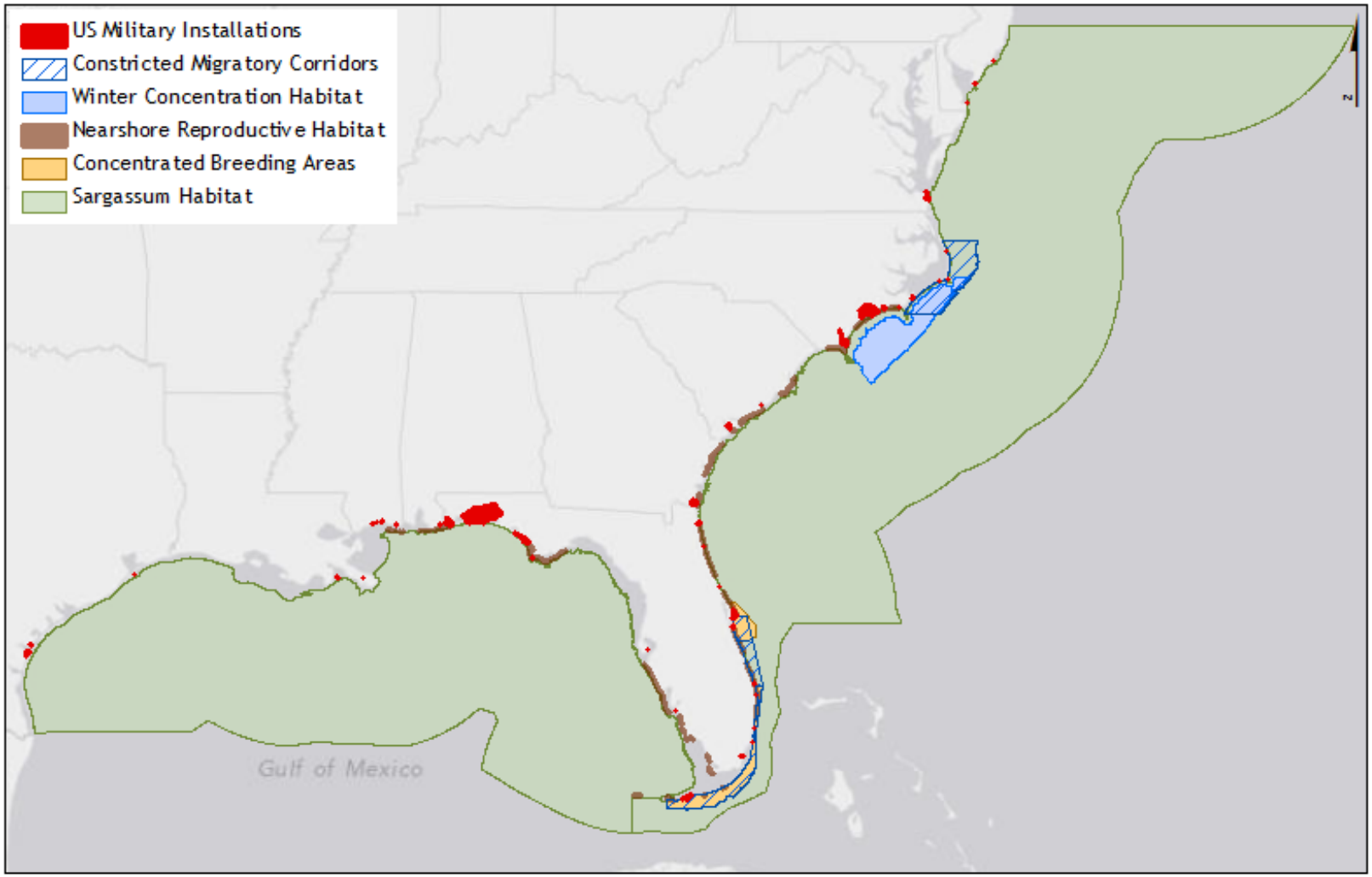
248. The Sikes Act Improvements Act of 1997 requires military installations to work with the U.S. Fish and Wildlife Service and state fish and wildlife agencies to prepare and implement an Integrated Natural Resources Management Plan (INRMP). The purpose of the INRMP is to provide for:

- Conservation and rehabilitation of natural resources on military installations;
- Sustainable multipurpose use of the resources, which shall include hunting, fishing, trapping, and nonconsumptive uses; and
- Subject to safety requirements and military security, public access to military installations to facilitate the use of the resources.[174]

[173] Of note, as of the writing of this analysis, NMFS was in discussion with the U.S. Marine Corps regarding the INRMP for Onslow Beach on Camp Lejeune and nearshore areas under their control and may revisit the proposed designation of these areas based on those discussions.

[174] 16 U.S.C. 670(a).

EXHIBIT 6-6. MILITARY INSTALLATIONS ADJACENT TO AREAS BEING CONSIDERED FOR MARINE CRITICAL HABITAT



249. Section 318 of the Fiscal Year 2004 Defense Authorization Act revised the Endangered Species Act provisions related to the DOD. Specifically, section 4(a)(3) of the Act includes the following:

> "(B)(i) The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is being proposed for designation.
>
> (ii) Nothing in this paragraph affects the requirement to consult under section 7(a)(2) with respect to an agency action (as that term is defined in that section).
>
> (iii) Nothing in this paragraph affects the obligation of the Department of Defense to comply with section 9, including the prohibition preventing extinction and taking of endangered species and threatened species."

250. Four of the six military bases that include loggerhead nesting beaches have INRMPs that consider the loggerhead: Camp Lejeune Marine Corps Base; Cape Canaveral Air Force Base; Patrick Air Force Base; and Eglin Air Force Base. In general, INRMPs that prescribe conservation efforts for the listed species do not explicitly consider marine habitat. For example, the Camp Lejeune Marine Corps Base INRMP specifies measures to protect loggerhead sea turtles within nesting beach habitat. Conservation efforts identified include: monitoring, surveying during training exercises; nest management; and recreational beach driving prohibitions.[175] Similarly, the Eglin Air Force Base INRMP identifies protective measures including: monitoring and protecting nests; limiting beach driving and activities; and nuisance and invasive species management.[176] We therefore do not assume the existing INRMPs that protect nesting habitat for the loggerhead sea turtles provide baseline protection for the loggerhead marine proposed critical habitat. We assume, however, that consultation on military activities that may affect loggerheads will occur regardless of critical habitat designation.

251. Of note, however, the Camp Lejeune INRMP specifies that Range Control Standard Operating Procedures provide guidance to marine operations to avoid impacts to protected species in general. The INRMP indicates that the Base will consult with

[175] United States Marine Corps, Marine Corps Base Camp Lejeune. 2006. Pre Final Integrated Natural Resources Management Plan. Accessed at http://www.lejeune.usmc.mil/emd/INRMP/INRMP.htm on January 17, 2013.

[176] Science Applications International Corporation. 2012. Final Environmental Impact Statement for the Integrated Natural Resources Management Plan Activities. Prepared for the Department of the Air Force, Englin Air Force Base, Florida.

NMFS on any activities that may affect marine habitat for listed species.[177] Coincident with the development of this economic analysis, NMFS was in discussion with the U.S. Marine Corps regarding the INRMP for Onslow Beach on Camp Lejeune and nearshore areas under their control. The U.S. Marine Corps intends to clarify in the INRMP the conservation efforts being undertaken for the loggerhead in its marine habitat. NMFS may revisit the proposed designation of these areas based on those discussions.

252. As described by NMFS, the primary habitat threat associated with military activities is noise in constricted migratory corridor habitat, which occurs off the coasts of North Carolina and Florida. As part of past consultations on particular military activities, NMFS has recommended conservation efforts addressing this threat, including monitoring and reporting on the potential effects of noise on loggerhead use of habitat.[178] While the presence of noise is considered a habitat threat, it is an issue that NMFS addresses as part of section 7 consultations even absent critical habitat designation due to the potential adverse effects on loggerheads.

6.2.3 POTENTIAL IMPACTS ON MILITARY ACTIVITIES

253. NMFS has consulted on multiple types of military activities, including sonar training, dredging and trawling activities, pier construction, research, development and testing, and training and military readiness activities. We expect NMFS will continue to participate in consultation with the Navy, Marine Corps, Air Force, and Coast Guard regardless of critical habitat designation. The additional consideration of critical habitat will likely add administrative effort to these consultations. It is unlikely, however, that the designation will affect the conservation efforts NMFS will recommend as part of those consultations. Absent information on particular project schedules for military activities that may require consultation with NMFS, we do not forecast the potential locations and rates of future consultations on military activities. We assume, however, that the additional administrative effort to consider potential adverse modification as part of future consultations would be relatively minor.

254. INRMPs generally do not typically address marine habitat as the Department of Defense does not own the water. We therefore do not anticipate that marine critical habitat designation for the loggerhead will require development of new INRMPs or modifications to existing INRMPs. In summary, the types of threats associated with particular military activities on marine critical habitat would also likely be threats to the individual loggerheads and, as such, it is most likely that NMFS will continue to work with the Department of Defense to address these threats as part of future consultations on military activities regardless of critical habitat designation.

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[177] United States Marine Corps, Marine Corps Base Camp Lejeune. 2006. Pre Final Integrated Natural Resources Management Plan. Accessed at http://www.lejeune.usmc.mil/emd/INRMP/INRMP.htm on January 17, 2013.

[178] Terms and Conditions from consultation on Navy use of surveillance towed array sensor system low frequency active sonar for the period August 16, 2011 through August 15, 2012, as summarized by National Marine Fisheries Service in Memorandum dated October 2012, "Incremental Effects Memorandum for the Proposed Rule to Designate Critical Habitat for the Loggerhead Sea Turtle" (NMFS 2012a)

6.3 AQUACULTURE

255. NMFS has identified aquaculture as a potential threat to loggerhead critical habitat in constricted migratory corridor and winter concentration habitats.[179] The presence of aquaculture structures, such as net pens and fixed structures, can impede passage and affect sufficient habitat availability. In addition, the presence of lighting can attract predators and disorient loggerheads. The presence of lighting, in general, is also identified by NMFS as threat in nearshore reproductive habitat areas.[180]

256. We do not anticipate measurable economic impacts on the aquaculture industry due to designation of loggerhead critical habitat for the reasons described below.

- Presently, no marine aquaculture operations are located in the Federal waters (i.e., outside of three nautical miles) of the U.S. Atlantic or Gulf of Mexico coasts.[181]
- Interest in future development of these types of offshore facilities is presently focused on the Gulf of Mexico, but is not anticipated in the near-term in those Federal areas being considered for critical habitat designation (constricted migratory and winter concentration habitats in the Atlantic).[182,183]
- The technologies presently being used in offshore-like environments (e.g., off Isle of Shoals in New Hampshire and Martha's Vineyard in Massachusetts), as would be found in Federal waters, are primarily limited to mussel longline cultures, which are not permanently fixed structures that might present a threat to habitat, and are not associated with lighting.[184,185] Thus, should new facilities be developed in these areas, we anticipate it is unlikely that they would introduce the habitat threats identified by NMFS.
- Marine aquaculture occurs in the state waters of several states where nearshore reproductive habitat, constricted migratory corridor habitat, and winter concentration habitat are proposed (Alabama, Florida, Georgia, South Carolina, North Carolina). These activities are almost entirely limited to

[179] NMFS. 2013. Draft Biological Report on the Designation of Marine Critical Habitat for the Loggerhead Sea Turtle, Caretta caretta. May.

[180] NMFS. 2012a.

[181] Email communication with Regional Aquaculture Coordinator, Southeast Region, National Marine Fisheries Service, January 14, 2013.

[182] *Ibid.*

[183] Constricted Migratory Corridor and Winter Concentration habitats are not identified in Federal waters of the Gulf of Mexico.

[184] Personal Communication with Regional Aquaculture Coordinator, Northeast Region, National Marine Fisheries Service, January 15, 2013.

[185] Offshore finfish cage technologies are being developed for use off of Hawaii, but that technology has not been proposed for use elsewhere in the U.S..

production of bivalves (primarily clams and oysters), which is taking place in bays, estuaries, and other protected waters and thus are outside of the proposed marine critical habitat areas.[186,187] Communication with regional aquaculture experts did not identify potential development of marine aquaculture outside of these protected areas in the near future.[188,189] Thus, we do not anticipate that designation of critical habitat would affect existing or near-term future aquaculture operations in state waters.

- Aquaculture projects that might pose the identified threats to loggerheads have not historically been subject to section 7 consultation considering the loggerhead within the proposed critical habitat area.[190] NMFS has, however, consulted on other activities that are associated with similar types of threats (presence of structures and lighting issues). For example, as discussed in Chapter 3, NMFS has consulted on in-water construction activities. Relative to these projects, NMFS has recommended a variety of terms and conditions to avoid potential adverse effects of the activities on the loggerhead, including limiting construction activity to daylight hours (thus eliminating the need for use of artificial lights), requiring the use of low-sodium lighting to limit nighttime illumination, and ensuring that structures limit the potential for interactions with turtles, to the extent possible. Thus, the types of habitat threats associated with aquaculture facilities are typically also considered potential threats to the DPS itself. NMFS has accordingly made recommendations to avoid these types of threats even absent critical habitat designation for the loggerhead. It is therefore unlikely that critical habitat designation would result in additional restrictions on this activity.

257. It is not possible to predict with certainty the extent to which interest in offshore marine aquaculture in the specified areas will develop over the next ten to twenty years. However, it appears unlikely that significant new development of aquaculture facilities in the potential critical habitat areas will occur. In the case that future aquaculture operations are proposed within the critical habitat area, we expect impacts would most likely be limited to relatively minor additional administrative costs as part of future section 7 consultations.

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[186] Email communication with Regional Aquaculture Coordinator, Southeast Region, National Marine Fisheries Service, January 14, 2013.

[187] Email communication with Paul Zajicek, Biological Administrator, Division of Aquaculture, Florida Department of Agriculture and Consumer Services, January 23, 2013.

[188] *Ibid.*

[189] Personal Communication with Doug Haymans, Coastal Resources Division, Georgia Department of Natural Resources, January 2, 2013

[190] Consultation history provided by NMFS.

CHAPTER 7 | POTENTIAL ECONOMIC BENEFITS

258. The previous chapters of this report evaluate the potential impacts that may be generated by the designation of marine 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 marine 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, for most part, critical habitat designation is not expected to 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 turtles from existing studies.

7.1 ESTIMATING CONSERVATION BENEFITS

259. The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species, such as the loggerhead sea turtle.[191] Thus, attempts to develop monetary estimates of the benefits of critical habitat designation would focus on the public's willingness to pay to achieve the conservation benefits to the DPS resulting from this designation.

[191] 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).

260. 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.

261. 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.

262. A major limitation with respect to distinguishing the incremental effect of the designation on the conservation and recovery of the DPS is the significant uncertainty regarding how NMFS may differently regulate particular activities to avoid adverse modification of critical habitat. As described in Chapters 1 through 6 of this analysis, in most cases, critical habitat is not expected to change how a project or activity is implemented. In some limited instances, however, NMFS may determine that a project or activity may adversely modify critical habitat and recommend additional conservation, above and beyond what would be recommended to avoid jeopardy or take of the species. For example, Chapter 3 describes the potential for additional conservation to be recommended with respect to the construction of large emergent structures in marine critical habitat, such as breakwaters.

263. Even in the case that enough information existed to determine the effect of critical habitat designation 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.

264. 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 MEASURE USE AND NON-USE VALUES OF SPECIES AND HABITAT CONSERVATION

265. 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).

266. 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).

267. 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. For example, in the case that critical habitat designation limits ocean disposal of dredged material, water quality conditions may improve in the area.

268. 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 developed that describes the application of this technique to the valuation of natural resource assets.

269. 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

270. Numerous published studies estimate individuals' willingness to pay to protect endangered species.[192] The economic values reported in these studies reflect various

[192] 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.

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.

271. 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 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.

272. 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.

273. 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

274. 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 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 described below 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.

275. 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).[193]

276. 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 other 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 researchers 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 across species from mean willingness-to-pay for recovery of $40.49 (for Puget Sound chinook salmon) to $71.62 (for North Atlantic right whale) U.S dollars (2011 dollars) per household every year for ten years. The mean willingness to pay for recovering the loggerhead was $43.72.[194]

277. 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 loggerhead populations 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

[193] Whitehead, John. 1993. Total Economic Values for Coastal and Marine Wildlife: Specification, Validity, and Valuation Issues. *Marine Resource Economics* 8:119-132.

[194] 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.

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.

278. 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 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.

279. 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."[195] A stated purpose of the model is to inform critical habitat designations for listed species. 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 nonuse values. Some of the studies, however, are solely focused on the nonuse component of the economic value. The species included in the study are primarily marine and riverine species (whales, dolphins, seals, otters, sea lions, sea turtles, 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.

280. 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.

[195] 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).

281. 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 a public willingness to pay for the public's WTP for the critical habitat rule.

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

282. 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 critical habitat designation, however.

283. The potential ecosystem service benefits of the rule are difficult to discern as NMFS has identified that, in most cases, critical habitat designation will not change the conservation efforts recommended in the marine habitat for the DPS. Accordingly, we are not able to determine environmental co-benefits of the rule.

284. 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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2 U.S.C. § 1531, *et seq.*

5 U.S.C. §§ 601 *et seq*.

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16 U.S.C. § 670(a)

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APPENDIX A | ADDITIONAL STATUTORY REQUIREMENTS

1. This appendix addresses the remaining analytical requirements under administrative law and executive order. Section A.1 presents a final regulatory flexibility analysis (FRFA) 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. And 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."

2. The analyses in this appendix rely on the estimated incremental impacts resulting from the areas being considered for 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 FINAL REGULATORY FLEXIBILITY ANALYSIS (FRFA)

3. This FRFA uses the best available information to identify the potential impacts of critical habitat on small entities. For a given activity, the analysis begins by identifying that portion of the annualized incremental cost of designation that we anticipate will be borne by a third party (i.e., the entity that is seeking to conduct the activity for which the consultation is being conducted)[1], and the total number of third parties potentially incurring those costs. The analysis then considers the extent to which those costs will be borne by a third party that could be identified as a small entity. Finally, we consider the relative burden of the costs incurred on the individual businesses that may be affected by the designation. This analysis focuses on providing the best available information regarding the potential magnitude of impacts to small entities in affected industries.

4. A number of uncertainties complicate quantification of these impacts, including the fact that participation of third parties in future section 7 consultations is not known. For activities related to nearshore and in-water construction and dredging, as well as alternative energy development, third parties may be involved. Absent information on which consultation may involve third parties, this analysis conservatively assumes that a third party is involved in all future consultations on these activities. For fisheries

[1] See Chapter 2, Exhibit 2-1 for an accounting of the costs incurred by third parties during section 7 consultations.

activities, however, consultations most frequently occur as intra-agency consultations within NMFS, without the participation of a third party. One exception to this general rule is applications for Exempted Fishing Permits (EFPs), which frequently do involve a third party. For the purpose of this analysis, we use the consultation history to determine the maximum number of EFP-related consultations that have occurred in a given year by region, and conservatively assume that rate of future consultations in each of the next ten years will continue (eight consultations per year), and will involve a unique third party on each occasion. Finally, in the case of oil and gas development activities, our analysis forecasts only programmatic consultations between NMFS and BOEM within the analytic timeframe, which do not typically involve third parties.

5. The manner in which the potential impacts to third parties will be allocated between large and small entities is similarly unknown. Absent detailed information on the nature and size of third parties participating in future section 7 consultations, this analysis conservatively assumes that all third party costs are borne by small entities. As a result of this assumption, this analysis may overestimate potential impacts on small entities.

A.1.1 SUMMARY OF FINDINGS

6. Estimated impacts to small entities are summarized by industry in Exhibit A-1. The quantified annualized impacts to small entities are estimated to be $18,000, or approximately 17 percent of the total quantified incremental impacts anticipated as a result of this rule.

7. Exhibit A-1 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.

8. Under Scenario 1, this analysis assumes that all third parties participating in future consultations are small, and that incremental impacts are distributed evenly across all of these entities. Scenario 1 accordingly reflects a high estimate of the number of potentially affected small entities and a low estimate of the potential effect in terms of percent of revenue. This scenario therefore overstates the number of small entities likely to be affected by the rule and potentially understates the potential revenue effect. Specifically, under Scenario 1, we estimate that approximately 49 small entities may bear costs associated with implementation of the rule. The 34 businesses associated with consultations on construction and dredging account for less than one percent of the total small businesses operating in the relevant sectors. The eight businesses potentially engaged in fisheries consultations represent less than two percent of total small entities engaged in fishing operations. Finally, the up to seven entities engaged in consultation on renewable energy projects represent less than five percent of the total small businesses engaged in relevant renewable energy projects.

EXHIBIT A-1. SUMMARY OF QUANTIFIED IMPACTS TO SMALL ENTITIES BY ACTIVITY TYPE

METRIC		NEARSHORE & IN-WATER CONSTRUCTION, AND DREDGING & DISPOSAL	FISHERIES	RENEWABLE ENERGY PROJECTS	OIL AND GAS DEVELOPMENT
[A]	Total Annualized Impacts to Small Entities	$15,000	$3,300	$470	n/a
[B]	Estimated Average Annual Revenues for Small Entities[1]	$7,700,000	$1,200,000	n/a	$7,300,000
[C]	Estimated number of small entities conducting activities in critical habitat areas being considered	6,612	583	150	6,699
SCENARIO 1: ASSUMES ALL AFFECTED SMALL ENTITIES WITHIN CRITICAL HABITAT SHARE INCREMENTAL COSTS EQUALLY					
[D]	Estimated maximum number of small entities subject to consultation (and thus incremental costs) annually	34	8	7	n/a
[E}	Percent of total small businesses in affected counties and industries potentially subject to incremental costs	0.5%	1.4%	4.7%	n/a
[F]	Estimated Impact per Small Entity ([A]/[D])	$430	$410	$67	n/a
[G]	Impact per Small Entity as Percentage of Revenues ([F]/[B])	0.006%	0.034%	n/a	n/a
SCENARIO 2: ASSUMES ONE ENTITY BEARS ALL THIRD PARTY COSTS					
[H]	Estimated Impact per Small Entity ([A]/1)	$15,000	$3,300	$470	n/a
[I]	Impact per Small Entity as Percentage of Revenues ([H]/[B])	0.19%	0.27%	n/a	n/a

1. Annual revenues are estimated using Risk Management Association (RMA), *Annual Statement Studies: Financial Ratio Benchmarks 2012 to 2013*, 2012. The following method was used to develop these estimates:

a) For each NAICS code, Matched affected economic activities to available NAICS codes in RMA data. The following codes are used for affected industries: for Nearshore and In-Water Construction, Dredging and Disposal, 237310 (Highway, Street, and Bridge Construction), 237990 (Other Heavy and Civil Engineering Construction); for Fisheries, 114111 (Finfish Fishing) and 114112 (Shellfish Fishing); for Renewable Energy Projects, 221119 (Other Electric Power Generation); and for Oil and Gas Exploration, 211111 (Crude Petroleum and Natural Gas Extraction). Where possible, these correspond to the NAICS codes noted in Exhibit A-2.

b) 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.

9. The estimated annualized impact ranges from approximately $430 per entity for entities involved in nearshore and in-water construction (less than 0.01% of annual revenues), to $67 per entity for those involved in alternative energy development. Although revenue information was not available for the alternative energy industry, in order for revenue impacts to exceed one percent, an entity's annual revenue would need to be less than $6,700. The potential impact per fishing-related small entity ($410 annually) represents less than 0.04% of estimated annual revenues.

10. Under Scenario 2, this analysis assumes costs associated with each consultation action are borne to 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 estimate of potentially affected entities and a high estimate of potential effects on revenue, assuming that quantified costs represent a complete accounting of the costs likely to be borne by private entities. Under this scenario, the costs incurred by an individual small business are $15,000 for a business in the nearshore and in-water construction industry, $3,300 for a fishing-related business, and to $470 for a business in the alternative energy industry. The costs may represent approximately 0.19 percent of annual revenues for small entities operating in nearshore and in-water construction and dredging industries, and 0.27 percent for fishing-related businesses. For small entities involved in the alternative energy business, in order for the estimated annual impact to exceed one percent of annual revenues, annual revenues for an entity would need to be less than approximately $47,000.

11. While these scenarios present a broad range of potentially affected entities and the associated revenue effects, we expect the actual number of small entities affected and revenue effects will be somewhere in the middle. Regardless, our analysis demonstrates that, even under the conservative assumption that all third party costs are borne by a single small entity, the potential revenue effect is still less than one percent.

A.1.2 FRFA REQUIREMENTS

12. First enacted in 1980, the RFA was designed to ensure that Federal agencies consider the potential for their regulations to unduly inhibit the ability of small entities to compete. The goals of the RFA include increasing the government's awareness of the impact of regulations on small entities and to encourage agencies to exercise flexibility in their rulemakings to provide regulatory relief to small entities.

13. 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).[2] For this rulemaking, this analysis takes the form of a FRFA. Under 5 U.S.C., Section 604(a) of the RFA, a FRFA is required to contain:

    i. "a statement of the need for, and objectives of, the rule;

[2] 5 U.S.C. 601 et seq.

ii. a statement of the significant issues raised by public comments in response to the initial regulatory flexibility analysis, a statement of assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments;

iii. the response of the agency to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration in response to the proposed rule, and a detailed statement of any change made to the proposed rule in the final rule as a result of the comments;

iv. a description of and an estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available;

v. a description of the projected reporting, recordkeeping and other compliance requirements of the rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record; and

vi. a description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected."

A.1.3 NEEDS AND OBJECTIVES OF THE RULE

Why Action by the Agency is Being Considered

14. In 1978, the loggerhead sea turtle was listed worldwide as a threatened species.[3] A Joint Memorandum of Agreement provided the USFWS jurisdiction over the species' terrestrial habitat and NMFS jurisdiction over the marine habitat. In 2011, NMFS and USFWS published a joint rulemaking revising the species' listing from a single, worldwide threatened species to nine DPSs. The two DPSs occurring in U.S. jurisdiction are the Northwest Atlantic Ocean DPS and the North Pacific Ocean DPS.[4] The 2011 revised listing rule precipitated the proposed critical habitat designation for the Atlantic Ocean DPS; NMFS and USFWS did not identify any critical habitat for the North Pacific Ocean DPS. This analysis is accordingly focused on the marine areas being considered for critical habitat designation for the Northwest Atlantic Ocean DPS.

Objectives of, and Legal Basis for, the Proposed Rule

15. The objective of the rule is to utilize the best scientific and commercial information available to designate critical habitat for the loggerhead sea turtle to best meet the

[3] National Marine Fisheries Service and U.S. Fish and Wildlife Service, Listing and Protecting Loggerhead Sea Turtles as "Threatened Species" and Populations of Green and Olive Ridley Sea Turtles as Threatened Species or "Endangered Species," 43 Federal Register 32800, July 28, 1978.

[4] National Marine Fisheries Service and U.S. Fish and Wildlife Service, Endangered and Threatened Species; Determination of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened, 76 Federal Register 58868, September 22, 2011.

conservation needs of the species in order to meet recovery goals. Section 4(b)(2) of the Act requires NMFS to designate critical habitat for threatened and endangered species "on the basis of the best scientific data available and after taking into consideration the economic impact, impact on national security, and any other relevant impact, of specifying any particular area as critical habitat." The Act defines critical habitat under Section 3(5)(A) 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."

A.1.4 SUMMARY OF SIGNIFICANT PUBLIC COMMENTS ON THE RULE AND ASSESSMENT OF ISSUES RAISED

16. NMFS received no public comments pertaining to the initial regulatory flexibility analysis (IRFA). NMFS received one peer review comment noting that the SBA size standard was updated in 2013 for many of the relevant economic activities discussed in the IRFA. In response to this comment, a note has been added to Exhibit A-2 of this FRFA to reflect the updated size standards and indicate how the change would affect the overall findings of this analysis.

A.1.5 DESCRIPTION AND ESTIMATE OF THE NUMBER OF SMALL ENTITIES TO WHICH THE RULE APPLIES

17. 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 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.

The courts have held that the RFA/SBREFA 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.[5]

18. Similarly, *American Trucking Associations, Inc. v. Environmental Protection Agency* (EPA) addressed a rulemaking in which EPA established a primary national ambient air quality standard for ozone and particulate matter.[6] The basis of EPA's RFA/SBREFA 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.

19. The SBA in its guidance on how to comply with the RFA recognizes that consideration of indirectly affected small entities is not required by the RFA, but encourages agencies to perform a regulatory flexibility analysis even when the impacts of its regulation are indirect.[7] "If an agency can accomplish its statutory mission in a more cost-effective manner, the Office of Advocacy [of the SBA] believes that it is good public policy to do so. The only way an agency can determine this is if it does not certify regulations that it knows will have a significant impact on small entities even if the small entities are regulated by a delegation of authority from the Federal agency to some other governing body."[8]

20. The regulatory mechanism through which critical habitat protections are enforced is section 7 of the Act, which directly regulates only those activities carried out, funded, or

[5] 773 F. 2d 327 (D.C. Cir. 1985).

[6] 175 F. 3d 1027, 1044 (D.C. Cir. 1999).

[7] Small Business Administration, Office of Advocacy. May 2003. A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act, pg. 20.

[8] *Ibid.*, pg. 21.

permitted by a Federal agency. By definition, Federal agencies are not considered small entities, although the activities they may fund or permit may be proposed or carried out by small entities. Given the SBA guidance described above, this analysis considers the extent to which this designation could potentially affect small entities, regardless of whether these entities would be directly regulated by the NMFS through the proposed rule or by a delegation of impact from the directly regulated entity.

Description of Economic Activities for Which Impacts Are Most Likely

21. This FRFA focuses on small entities that may bear the incremental impacts of this rulemaking quantified in Chapters 3 through 6 of this economic analysis on four categories of economic activity potentially requiring modification to avoid destruction or adverse modification of loggerhead sea turtle critical habitat. Small entities also may participate in section 7 consultation as a third party (the primary consulting parties being NMFS and the Federal action agency). It is therefore possible that the small entities may spend additional time considering critical habitat during section 7 consultation for the loggerhead sea turtle. Potentially affected activities include:

    Chapter 3: Nearshore and In-Water Construction, Dredging and Disposal.

    Chapter 4: Fisheries.

    Chapter 5: Oil and Gas Exploration and Development.

    Chapter 6: Alternative Energy Projects.

22. As described above and detailed in Chapters 3 through 6 of this report, incremental impacts associated with this rulemaking are expected to consist largely of administrative costs associated with section 7 consultations. In total, annualized incremental impacts are estimated at $110,000, of which approximately $18,000 in third party administrative costs may be borne by small entities. In addition to the quantified impacts, we also recognize that economic impacts that cannot be quantified are possible.

23. Of the activities analyzed, consultations on oil and gas exploration are not expected to affect third parties, as the programmatic consultations that will assess potential impacts from these activities will be between NMFS and BOEM. Although these consultations are not expected to affect small entities, this analysis presents information on the population of entities that may experience indirect impacts from the designation.

24. Exhibit A-2 describes potentially affected small businesses by NAICS code, highlighting the relevant small business thresholds. Although businesses affected indirectly are considered, this analysis considers only those entities for which impacts would not be measurably diluted. In other words, we focus on those entities that may bear some additional costs associated with participation in section 7 consultation, but do not consider broader regional economic implications on small entities of implementation of the rule.

- **Project Modifications.** Due to the significant baseline protections for the loggerhead and its habitat in areas being considered for designation, this analysis describes that it is unlikely that critical habitat designation will generate additional

conservation efforts or project modifications. The rationale for this finding is discussed in each activity chapter throughout the economic analysis.

- **Administrative Costs.** Based on the number of past consultations and information about potential future actions likely to take place within the areas being considered for critical habitat, this analysis forecasts the number of additional consultations that may take place as a result of critical habitat (see Chapters 3 through 6). Based on this forecast, annual incremental consultation costs that may be borne by third parties are forecast at $18,000 (discounted at seven percent), some portion of which may be borne by small entities.

25. Ideally this analysis would directly identify the number of small entities which may engage in consultation with NMFS regarding potential effects of projects and activities on loggerhead critical habitat. However, significant uncertainty exists regarding what future projects may involve which small entities. 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-2 in each county with marine coastline in the proposed designation. Exhibit A-3 presents the potentially affected small counties.

EXHIBIT A-2. MAJOR RELEVANT ACTIVITIES AND A DESCRIPTION OF THE INDUSTRY SECTORS ENGAGED IN THOSE ACTIVITIES

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
Nearshore & In-Water Construction and Dredging & Disposal	**County Governments**, to the extent that they undertake dredging, bridge-building, utility, or other construction activities.	NA	Population of 50,000
	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[1]	$20 million[2]
Fisheries	**Finfish Fishing** - This U.S. industry comprises establishments primarily engaged in the commercial catching or taking of finfish (e.g., bluefish, salmon, trout, tuna) from their natural habitat.	114111	$4 million[2]
	Shellfish Fishing - This U.S. industry comprises establishments primarily engaged in the commercial catching or taking of shellfish (e.g., clams, crabs, lobsters, mussels, oysters, sea urchins, shrimp) from their natural habitat.	114112	$4 million[2]
Energy Projects	**Other Electric Power Generation** - This U.S. industry comprises establishments primarily engaged in operating electric power generation facilities (except hydroelectric, fossil fuel, nuclear). These facilities convert other forms of energy, such as solar, wind, or tidal power, into electrical energy. The electric energy produced in these establishments is provided to electric power transmission systems or to electric power distribution systems.	221119	Electrical output for the preceding fiscal year did not exceed 4 million megawatt hours[2]
Oil and Gas Exploration and Development	**Crude Petroleum and Natural Gas Extraction.** This U.S. industry comprises establishments primarily engaged in (1) the exploration, development and/or the production of petroleum or natural gas from wells in which the hydrocarbons will initially flow or can be produced using normal pumping techniques or (2) the production of crude petroleum from surface shales or tar sands or from reservoirs in which the hydrocarbons are semisolids. Establishments in this industry operate oil and gas wells on their own account or for others on a contract or fee basis.	211111	500 employees

[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.

[2] The small business thresholds for these industries were changed in 2013 after the draft version of this analysis was developed. The revenue thresholds were increased to $25.5 million for dredging and surface cleanup, $19 million for fin fishing, and $5 million for shell fishing. The increases in these thresholds results in a greater number of businesses classified as small. For the purposes of this analysis we rely on the total number of small business in the study area to estimate the percent of small business potentially affected by the critical habitat rulemaking. Accordingly, relying on the 2013 thresholds in this analysis overestimates the percentage of small businesses in the study area that are potentially affected (i.e., the new thresholds increase the total small businesses denominator in this calculation).

Source: U.S. Small Business Administration, "Table of Small Business Size Standards Matched to North American Classification System Codes". 7 January 2013. Accessed at http://www.sba.gov/content/table-small-business-size-standards.

EXHIBIT A-3. POTENTIALLY AFFECTED COUNTIES THAT ARE SMALL (POPULATION LESS THAN 50,000) (66 TOTAL)

COUNTY NAME	POPULATION (2006)
FLORIDA (9)	
DIXIE	14,964
FRANKLIN	10,264
GULF	14,043
JEFFERSON	14,677
LEVY	39,076
LIBERTY	7,782
TAYLOR	19,842
WAKULLA	29,542
WASHINGTON	22,720
GEORGIA (3)	
BRYAN	29,648
CAMDEN	45,118
MCINTOSH	11,248
LOUSIANA (4)	
CAMERON	7,792
PLAQUEMINES	22,512
ST BERNARD	15,514
ST. JOHN THE BAPTIST PARISH	48,537
MARYLAND (6)	
DORCHESTER	31,631
KENT	19,983
QUEEN ANNES	46,241
SOMERSET	25,774
TALBOT	36,062
WORCESTER	48,866
MISSISSIPPI (1)	
HANCOCK	40,421
NORTH CAROLINA (16)	
BEAUFORT	46,355
BERTIE	19,094
CAMDEN	9,271
CHOWAN	14,695
CURRITUCK	23,770
DARE	33,935
GATES	11,527
HERTFORD	23,581
HYDE	5,341
JONES	10,204
PAMLICO	12,785
PASQUOTANK	39,591
PENDER	48,630
PERQUIMANS	12,337
TYRRELL	4,187
WASHINGTON	13,227
SOUTH CAROLINA (2)	
COLLETON	39,467
JASPER	21,809
TEXAS (8)	
ARANSAS	24,831
CALHOUN	20,705
CHAMBERS	28,779
JACKSON	14,249
KENEDY	402
KLEBERG	30,353
MATAGORDA	37,824
REFUGIO	7,596
WILLACY	20,645
VIRGINIA (16)	
ACCOMACK	39,345
CHARLES CITY	7,221
ESSEX	10,633
GLOUCESTER	38,293
ISLE OF WIGHT	34,723
KING GEORGE	21,780
LANCASTER	11,519
MATHEWS	9,184
MIDDLESEX	10,615
NORTHAMPTON	13,609
NORTHUMBERLAND	12,820
POQUOSON (CITY)	11,918
PRINCE GEORGE	36,184
RICHMOND	9,142
SURRY	7,119
WESTMORELAND	17,188

Source: U.S. Census 2007 Governments Integrated Database (GID), download of all County governments; ESRI ArcGIS Census 2004 shapefile of counties (includes large, incorporated cities outside county boundaries, e.g., Poquoson, VA).

A.1.6 DESCRIPTION OF REPORTING AND RECORDKEEPING EFFORTS

26. The critical habitat rule will require that Federal agencies insure their actions do not destroy or adversely modify critical habitat through a section 7 consultation. During formal section 7 consultation under the ESA, NMFS, the Action agency (Federal agency) and a third party participant applying for Federal funding or permitting, may communicate in efforts to minimize potential adverse impacts to the habitat and/or the essential features. Communication may include written letters, phone calls, and/or meetings. Project variables such as the type of consultation, the location, impacted essential features, and activity of concern, may in turn dictate the complexity of these interactions. Third party costs may include administrative work, such as cost of time and materials to prepare for letters, calls, or meetings. The cost of analyses related to the activity and associated reports may be included in these administrative costs. In addition, following the section 7 consultation process, entities may be required to monitor progress during the said activity to ensure that impacts to the habitat and features have been minimized. The rule does not directly mandate "reporting" or "record keeping" within the meaning of the Paperwork Reduction Act (PRA). The rule does not impose record keeping or reporting requirements on small entities.

A.1.7 A DESCRIPTION OF ALTERNATIVES TO THE PROPOSED RULE WHICH ACCOMPLISH THE OBJECTIVES AND WHICH MINIMIZE IMPACTS ON SMALL ENTITIES

27. In accordance with the requirements of the RFA (as amended by SBREFA, 1996) this analysis considers various alternatives to the proposed critical habitat designation for the loggerhead sea turtle. The alternative of not designating critical habitat for the loggerhead sea turtle was considered and rejected because such an approach does not meet the legal requirements of the ESA.

28. Section 4(b)(2) of the Act allows the NMFS to exclude areas proposed for designation based on economic impact and other relevant impacts. Therefore, an alternative to the proposed designation is the designation of a subset of these areas or portions of the various habitat types.

A.2 UNFUNDED MANDATES REFORM ACT (UMRA) ANALYSIS

29. Title II of UMRA requires agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector.[9] Under Section 202 of UMRA, NMFS 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 NMFS to identify and consider a reasonable number of regulatory alternatives. NMFS 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.

[9] 2 U.S.C. 1531 et seq.

The provisions of Section 205 do not apply when they are inconsistent with applicable law.

30. 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

31. Executive Order 13132, entitled "Federalism," requires NMFS 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."[10] "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."[11] Under Executive Order 13132, NMFS 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 NMFS consults with State and local officials early in the process of developing the regulation.

32. 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.

33. 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 the Executive Summary, 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

[10] 64 FR 43255, August 10, 1999.

[11] *Ibid*.

NMFS, Federal agencies and third parties of considering critical habitat as part of the forecast section 7 consultations. Therefore, the designation of the areas being considered for critical habitat is also not expected to have substantial indirect impacts on State or local governments.

A.4 POTENTIAL IMPACTS TO THE ENERGY INDUSTRY

34. 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."[12]

35. 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;
- 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.[13]

As discussed in Chapters 5 and 6, respectively, oil and gas exploration and alternative energy projects may affect the essential features of critical habitat for the loggerhead sea turtle.

36. Due to the extensive requirements of oil and gas development and renewable energy projects to consider environmental impacts, including impacts on marine life, even absent critical habitat designation for the loggerhead sea turtle, we anticipate it is unlikely that critical habitat will change conservation efforts recommended during section 7 consultation for these projects. Consequently, it is unlikely the identified activities and

[12] 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.

[13] *Ibid*.

projects will be affected by the designation beyond the quantified administrative impacts. Therefore, the critical habitat 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.

APPENDIX B | SENSITIVITY OF RESULTS TO DISCOUNT RATE

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

HABITAT UNIT	TOTAL PRESENT VALUE (2013 DOLLARS)	ANNUALIZED (2013 DOLLARS)	PERCENT OF TOTAL
NEARSHORE REPRODUCTIVE HABITAT			
LOGG-N-03	$14,000	$1,600	1%
LOGG-N-04	$5,900	$670	1%
LOGG-N-05	$5,900	$670	1%
LOGG-N-06	$5,900	$670	1%
LOGG-N-07	$5,900	$670	1%
LOGG-N-08	$5,900	$670	1%
LOGG-N-09	$5,900	$670	1%
LOGG-N-10	$3,900	$440	0%
LOGG-N-11	$3,900	$440	0%
LOGG-N-12	$3,900	$440	0%
LOGG-N-13	$12,000	$1,400	1%
LOGG-N-14	$5,700	$650	0%
LOGG-N-15	$10,000	$1,200	1%
LOGG-N-16	$1,600	$180	0%
LOGG-N-17	$7,300	$830	1%
LOGG-N-18	$14,000	$1,600	1%
LOGG-N-19	$21,000	$2,400	2%
LOGG-N-20	$5,900	$670	1%
LOGG-N-21	$1,800	$200	0%
LOGG-N-22	$1,800	$200	0%
LOGG-N-23	$1,800	$200	0%
LOGG-N-24	$1,800	$200	0%
LOGG-N-25	$1,800	$200	0%
LOGG-N-26	$5,900	$670	1%
LOGG-N-27	$5,900	$670	1%
LOGG-N-28	$5,900	$670	1%
LOGG-N-29	$1,800	$200	0%
LOGG-N-30	$10,000	$1,200	1%
LOGG-N-31	$10,000	$1,100	1%

HABITAT UNIT	TOTAL PRESENT VALUE (2013 DOLLARS)	ANNUALIZED (2013 DOLLARS)	PERCENT OF TOTAL
LOGG-N-32	$19,000	$2,100	2%
LOGG-N-33	$7,900	$900	1%
LOGG-N-34	$7,100	$810	1%
LOGG-N-35	$7,100	$810	1%
LOGG-N-36	$7,100	$810	1%
WINTER CONCENTRATION HABITAT			
LOGG-N-01	$3,600	$410	0%
LOGG-N-02	$3,600	$410	0%
CONCENTRATED BREEDING HABITAT			
LOGG-N-17	$31,000	$3,500	3%
LOGG-N-19	$110,000	$13,000	10%
CONSTRICTED MIGRATORY CORRIDOR HABITAT			
LOGG-N-01	$20,000	$2,300	2%
LOGG-N-17	$23,000	$2,600	2%
LOGG-N-18	$30,000	$3,400	3%
LOGG-N-19	$110,000	$13,000	10%
SARGASSUM HABITAT			
LOGG-S-01	$420,000	$48,000	37%
LOGG-S-02	$150,000	$17,000	13%
Total	**$1,100,000**	**$130,000**	**100%**

Note: 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.

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

ACTIVITY	TOTAL PRESENT VALUE (2013$)	ANNUALIZED (2013$)	PERCENT OF TOTAL
Nearshore and In-Water Construction, Dredging, and Disposal	$780,000	$88,000	68%
Fisheries	$310,000	$35,000	27%
Oil and Gas Exploration and Development	$22,000	$2,500	2%
Renewable Energy Projects	$35,000	$4,000	3%
Total	**$1,100,000**	**$130,000**	**100%**

Notes:
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. ANNUAL ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION BY SPECIFIC UNIT, UNDISCOUNTED, (2013$)

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
NEARSHORE REPRODUCTIVE HABITAT										
LOGG-N-03	$2,400	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600
LOGG-N-04	$1,400	$600	$600	$600	$600	$600	$600	$600	$600	$600
LOGG-N-05	$1,400	$600	$600	$600	$600	$600	$600	$600	$600	$600
LOGG-N-06	$1,400	$600	$600	$600	$600	$600	$600	$600	$600	$600
LOGG-N-07	$1,400	$600	$600	$600	$600	$600	$600	$600	$600	$600
LOGG-N-08	$1,400	$600	$600	$600	$600	$600	$600	$600	$600	$600
LOGG-N-09	$1,400	$600	$600	$600	$600	$600	$600	$600	$600	$600
LOGG-N-10	$1,200	$360	$360	$360	$360	$360	$360	$360	$360	$360
LOGG-N-11	$1,200	$360	$360	$360	$360	$360	$360	$360	$360	$360
LOGG-N-12	$1,200	$360	$360	$360	$360	$360	$360	$360	$360	$360
LOGG-N-13	$2,200	$1,400	$1,400	$1,400	$1,400	$1,400	$1,400	$1,400	$1,400	$1,400
LOGG-N-14	$2,100	$96	$96	$1,300	$96	$96	$1,300	$96	$96	$1,300
LOGG-N-15	$1,900	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100
LOGG-N-16	$890	$96	$96	$96	$96	$96	$96	$96	$96	$96
LOGG-N-17	$1,600	$760	$760	$760	$760	$760	$760	$760	$760	$760
LOGG-N-18	$2,400	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600
LOGG-N-19	$3,200	$2,400	$2,400	$2,400	$2,400	$2,400	$2,400	$2,400	$2,400	$2,400
LOGG-N-20	$1,500	$580	$580	$580	$580	$580	$580	$580	$580	$580
LOGG-N-21	$1,100	$96	$96	$96	$96	$96	$96	$96	$96	$96
LOGG-N-22	$1,100	$96	$96	$96	$96	$96	$96	$96	$96	$96
LOGG-N-23	$1,100	$96	$96	$96	$96	$96	$96	$96	$96	$96
LOGG-N-24	$1,100	$96	$96	$96	$96	$96	$96	$96	$96	$96
LOGG-N-25	$1,100	$96	$96	$96	$96	$96	$96	$96	$96	$96
LOGG-N-26	$1,500	$580	$580	$580	$580	$580	$580	$580	$580	$580

UNIT	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
LOGG-N-27	$1,500	$580	$580	$580	$580	$580	$580	$580	$580	$580
LOGG-N-28	$1,500	$580	$580	$580	$580	$580	$580	$580	$580	$580
LOGG-N-29	$1,100	$96	$96	$96	$96	$96	$96	$96	$96	$96
LOGG-N-30	$2,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100
LOGG-N-31	$2,000	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100	$1,100
LOGG-N-32	$3,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100
LOGG-N-33	$1,800	$820	$820	$820	$820	$820	$820	$820	$820	$820
LOGG-N-34	$1,700	$720	$720	$720	$720	$720	$720	$720	$720	$720
LOGG-N-35	$1,700	$720	$720	$720	$720	$720	$720	$720	$720	$720
LOGG-N-36	$1,700	$720	$720	$720	$720	$720	$720	$720	$720	$720
WINTER CONCENTRATION HABITAT										
LOGG-N-01	$1,100	$330	$330	$330	$330	$330	$330	$330	$330	$330
LOGG-N-02	$1,100	$330	$330	$330	$330	$330	$330	$330	$330	$330
CONCENTRATED BREEDING HABITAT										
LOGG-N-17	$4,300	$3,500	$3,500	$3,500	$3,500	$3,500	$3,500	$3,500	$3,500	$3,500
LOGG-N-19	$14,000	$14,000	$13,000	$13,000	$14,000	$13,000	$13,000	$14,000	$13,000	$13,000
CONSTRICTED MIGRATORY CORRIDOR HABITAT										
LOGG-N-01	$4,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100	$2,100
LOGG-N-17	$3,400	$2,600	$2,600	$2,600	$2,600	$2,600	$2,600	$2,600	$2,600	$2,600
LOGG-N-18	$4,000	$3,200	$4,400	$3,200	$3,200	$4,400	$3,200	$3,200	$3,200	$3,200
LOGG-N-19	$14,000	$14,000	$13,000	$13,000	$14,000	$13,000	$13,000	$14,000	$13,000	$13,000
SARGASSUM HABITAT										
LOGG-S-01	$110,000	$40,000	$41,000	$48,000	$33,000	$36,000	$60,000	$35,000	$42,000	$48,000
LOGG-S-02	$23,000	$12,000	$12,000	$26,000	$12,000	$12,000	$22,000	$12,000	$30,000	$17,000
Total	**$230,000**	**$120,000**	**$120,000**	**$140,000**	**$110,000**	**$110,000**	**$140,000**	**$110,000**	**$130,000**	**$130,000**

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

October 23, 2012

Memorandum

To: Angela Somma

From: Heather Coll

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

Introduction

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

Section 4(b)(2) of the Endangered Species Act (Act) requires NMFS to consider the economic, national security, and other impacts of designating critical habitat. NMFS 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, NMFS prepares an economic analysis for each proposed critical habitat designation, which describes and monetizes where possible, 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 (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 required to avoid jeopardy versus actions that may be required to avoid adverse modification. NMFS is working to update the regulatory definition of adverse modification since it was invalidated by a prior court ruling. NMFS does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 C.F.R. 402.02. Instead, we have relied upon the statutory provisions of the ESA to complete our analysis with respect to critical habitat. (Memorandum from William T. Hogarth to Regional Administrators, Office of Protected Resources, NMFS (Application of the "Destruction or Adverse Modification" Standard Under Section 7(a)(2) of the Endangered Species Act) (November 7, 2005). The information provided below is intended to identify all possible differences 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, NMFS has jurisdiction over sea turtles in the marine environment and USFWS has jurisdiction over sea turtles in the terrestrial environment. 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. Although American Samoa, an unincorporated territory of the United States, occurs within the South Pacific Ocean DPS, loggerheads are not known to occur there.

In total, XX marine habitat units encompassing XXXX.X miles (XXXX.X kilometers (km)) of Atlantic Ocean and Gulf of Mexico are being proposed for designation as critical habitat. All XX units are occupied by loggerhead sea turtles. The proposed marine critical habitat designation includes waters under Federal (XX%) and State (XX%) jurisdiction.

Baseline Analysis

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

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 marine habitat and are considered part of the baseline because these activities are occurring without critical habitat designation. If there is a specific plan addressed in the item, we include it within parentheses at the end of the paragraph.

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 NMFS and the U.S. FWS 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, Florida Department of Environmental Protection, 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 (NWR), National Park Service, 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. Virginia Polytechnic Institute (VPI) Conservation Plan. Virginia Polytechnic Institute conducts research activity consisting of annual horseshoe crab abundance monitoring surveys and associated studies to evaluate this survey methodology. These annual trawl surveys provide abundance, distribution and demographic information in support of the horseshoe crab Fishery Management Plan of the Atlantic States Marine Fisheries Commission and take place in the state and Federal waters of Cape Cod, Massachusetts to the Georgia-Florida border. VPI developed a conservation plan (CP) to minimize and mitigate the impacts of their trawling activities on sea turtles, including the loggerhead sea turtle, and received a section 10(a)(1)(B) incidental take permit from NMFS in 2005. The CP includes limiting sampling effort in areas and times where sea turtles are likely to be present; using minimal tow durations; avoiding areas of high fishing vessel activity which may attract foraging sea turtles and may increase the chance of multiple captures. All activities will be conducted under the direct supervision of scientific parties from Virginia Tech. Sampling is not conducted when sea turtles are observed in the area. If a sea turtle is captured, all efforts are made to release the turtle as quickly as possible with minimal trauma. If necessary, resuscitation is attempted as proscribed by 50 CFR 223.206. Scientific parties are familiarized with resuscitation techniques prior to surveys, and a copy of the resuscitation guidelines will be carried aboard the vessel during survey activities. In the event resuscitation is unsuccessful, the sea turtle is transferred to the sea turtle stranding network of the appropriate jurisdiction. Other monitoring or mitigation actions are undertaken as required by NMFS. The incidental take permit for this CP can be found at http://www.nmfs.noaa.gov/pr/pdfs/permits/permit1529.pdf.

3. North Carolina Division of Marine Fisheries (NCDMF) Conservation Plan. North Carolina Division of Marine Fisheries developed an CP to minimize and mitigate the impacts of their large and small mesh gillnet fishing in specified areas of southeastern Pamlico Sound on sea turtles and received a section 10(a)(1)(B) incidental take permit from NMFS in 2005. North Carolina has submitted a renewal application - currently

under review with NMFS - to renew and revise their CP. The goal of the conservation plan for these permits was for NCDMF to monitor sea turtle interactions in the fall large mesh gillnet fishery in the PSGNRA and to implement management measures to reduce sea turtle mortality by 50 percent from September 15- December 15, compared to the levels seen in the strandings of 1999. Corresponding limits were set on the levels of observed takes of sea turtles – both live and lethal takes – and documented strandings. NCDMF implemented registration and reporting requirements and yardage limitations for the large mesh gillnet fishery in southeastern Pamlico Sound. NCDMF has and will continue to monitor sea turtle interactions through reports from fishery observers, fishermen, and NCDMF Marine Patrol. Management measures identified in the Conservation Plan include tending requirements for small mesh gillnets; restrictions on the maximum net length per fishing operation; and prohibitions of large mesh gillnets in areas around the inlets. The incidental take permit for this CP can be found at http://www.nmfs.noaa.gov/pr/pdfs/permits/permit1528.pdf.

4. Gulf Specimen Marine Laboratories, Inc. (GSML) Conservation Plan. GSML developed a CP to minimize and mitigate the impacts of its use of trawls (under 500 sq. ft. (46.5 sq. m)) without turtle excluder devices (TEDs) to collect marine fish, invertebrates and algae in order to sell the marine organisms it catches to public aquariums, schools, research laboratories, and biomedical institutions. They received a section 10(a)(1)(B) incidental take permit from NMFS in 2003. These activities take place in the Florida state waters of Gulf, Franklin and Wakulla Counties. GSML utilizes the revenue to support its environmental education and sea turtle protection programs. Mitigation and minimization measures to offset unavoidable take include provisions to ensure that any captured sea turtles in need resuscitation are provided such care, per NMFS guidelines. Additionally, any animals needing medical attention or rehabilitation will be cared for by authorized persons and facilities. The conservation plan will mitigate the impacts of any incidental of ESA-listed sea turtles that are harmed due to interactions with other fisheries in the area. Specifically, GSML will remove, taking into account any human safety considerations, any turtles it encounters ensnared in fishing lines, nets, and trap ropes. If any of sea turtles require care, GSML will transport them to a rehabilitation facility. The incidental take permit for this CP can be found at http://www.nmfs.noaa.gov/pr/pdfs/permits/permit1417.pdf.

5. Sea Turtle Protective Regulations.
To reduce the incidental capture of sea turtles in U.S. commercial fisheries, NMFS has enacted regulations to restrict certain U.S. commercial fishing gears (gillnets, longlines, pound nets, and trawls) that have known and significant bycatch of sea turtles. In addition to restricting these gears, NMFS has put observer requirements in place to monitor sea turtle bycatch on U.S. commercial fishing vessels in certain fisheries.

These rules include:

- Revised turtle excluder device (TED) requirements on shrimp and summer flounder trawls to allow the use of new materials and to modify existing approved TED designs (77 FR 29905, May 21, 2012)

- Framework Adjustment 23 to the Atlantic Sea Scallop Fishery Management Plan (Framework 23) to minimize impacts on sea turtles through the requirement of a turtle deflector dredge (77 FR 20728, April 6, 2012)
- Sea Turtle Observer Requirement Annual Determination for 2011 (75 FR 81201, December 27, 2010)
- Sea Turtle Observer Requirement Annual Determination for 2010 (75 FR 27649, May 18, 2010)
- NMFS Implements Inspection Program in VA Pound Net Fishery (73 FR 68348, November 18, 2008)
- Final Rule Regarding a Modified Sea Scallop Dredge to Protect Sea Turtles (73 FR 18984, April 8, 2008)
- Final Rule on Observer Requirement for Fisheries to Monitor Sea Turtle Bycatch (72 FR 43176, August 3, 2007)
- Sea Scallop Dredge Gear Modification final rule (71 FR 50361, August 25, 2006)
- Correction of Sea Scallop Chain Mat Final Rule (71 FR 66466, November 15, 2006)
- Virginia Pound Net final rule (71 FR 36024, June 23, 2006)
- Atlantic Sea Scallop Fishery - Notice of decision on petition for emergency rulemaking (69 FR 63498, November 2, 2004)
- Atlantic Highly Migratory Species Pelagic Longline final rule (69 FR 40734, July 6, 2004)
- TED Double Cover Flap Modification final rule (69 FR 31035, June 2, 2004)
- Virginia Pound Net final rule (69 FR 24997, May 5, 2004)
- Western Pacific HMS Pelagic Longline final rule (69 FR 17329, April 2, 2004)
- California Pelagic Longline final rule (69 FR 11540, March 11, 2004)
- California/Oregon Drift Gillnet final rule (68 FR 69962, December 16, 2003)
- TED Opening final rule (68 FR 8456, February 21, 2003)
- Virginia/North Carolina Large Mesh Gillnet final rule (67 FR 71895, December 3, 2002)
- Pamlico Sound Gillnet final rule (67 FR 56931, September 6, 2002)

All of these rules can be found at http://www.nmfs.noaa.gov/pr/species/turtles/regulations.htm.

6. Florida Keys National Marine Sanctuary (Management Plan). The Florida Keys National Marine Sanctuary consists of 2,900 square nautical miles of coastal waters around Florida, including the 2001 addition of the Tortugas Ecological Reserve. The FKNMS has developed a revised management plan that can be found at:

    - FKNMS Management Plan – http://floridakeys.noaa.gov/mgmtplans/2007_man_plan.pdf

7. INRMPs will need to be added later if any are included by the CH team.

8. Sea Turtle Stranding and Salvage Network (STSSN).

NMFS is a partner in the STSSN. The STSSN was formally established in 1980 to collect information on and document strandings of marine turtles along the U.S. Gulf of Mexico and Atlantic coasts. The network, which includes federal, state and private partners, encompasses the coastal areas of the eighteen-state region from Maine to Texas, and includes portions of the U.S. Caribbean.

- STSSN can be found at http://www.sefsc.noaa.gov/species/turtles/strandings.htm

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

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

1. U.S. Army Corps of Engineers (state programmatic general permits, nationwide permit program, in water dredging activities related to beach sand placement, shoreline protection, groin construction, jetty construction, pier construction, coastal armoring; Clean Water Act permits, dock permitting, bulkhead installation, mooring basins, boat ramps, ports and expansion projects, power line installation, pier installation, maintenance of marine structures, dry dock boat storage, aquaculture, seawall installation, explosive removals and site clearance, marina construction, wave attenuators, outfall pipes and modifications, park improvement projects, island restorations, public use projects, fishing pier projects, ecosystem restoration and biological assessment, swim platform installation, marina construction, artificial reef placement, navigation channel projects, bridge construction/replacement, biological assessments);

2. U.S. Navy (military mission and training activities, Integrated Natural Resources Management Plan development, buoy installation);

3. U.S. Army (military mission and training activities, energy savings performance contracts);

4. U.S. Coast Guard (boat races, military mission and training activities, national ballast water standards, navigation aid placement);

5. U.S. Air Force (military mission and training activities, coastal base maintenance);

6. National Marine Fisheries Service (fishery management plans, bycatch characterization, or other rules; exempted fishing permits; issuance of section 6 grants; fishery observer program training; issuance of section 10 permits for directed research or for take incidental to otherwise lawful activities such as state fisheries or research directed at non-listed species; marine mammal incidental harassment authorizations; and Deepwater Horizon restoration of habitat);

7. NOAA's National Ocean Service (National Marine Sanctuaries management planning, marine debris removal);

8. National Park Service (park management planning, restoration planning);

9. U.S. Fish and Wildlife Service (coastal habitat restoration projects, research);

10. National Science Foundation (research cruises);

11. Minerals Management Service/Bureau of Ocean Energy Management (oil platform operations; oil and gas leasing; wind farm construction and operation; dredging of sand on the outer continental shelf for beach renourishment and shoreline restoration);

12. Environmental Protection Agency (biological evaluations, National Pollutant Discharge Elimination System permits (example, aquatic life criteria for cyanide), surface water quality standards, site monitoring plans, construction general permit, pesticide general permit);

13. Federal Energy Regulatory Commission (transmission pipelines and maintenance);

14. Federal Highways Administration (bridge replacement piers and removal);

15. U.S. Customs and Border Protection (pier improvements);

16. Federal Aviation Administration (airport improvement projects);

17. Federal Emergency Management Administration (hazard mitigation grant program);

18. National Resources Conservation Service (management activities related to watersheds);

19. U.S. Forest Service (land management planning);

20. Nuclear Regulatory Commission.

NMFS administrative effort for section 7 consultations without critical habitat.

Since the nine loggerhead DPSs were listed on September 22, 2011, through September 17, 2012, we have conducted 237 informal and 80 formal section 7 consultations in the NMFS Northeast, Southeast, and Headquarters Regions that address effects to the Northwest Atlantic DPS of the loggerhead sea turtle within the critical habitat area currently proposed. These numbers include section 7 consultations that required administrative time and effort, but did not receive a determination, either because they were later withdrawn or simple technical assistance was provided. Of our total section 7 workload, an average of 78% of total informal consultations and 75% of total formal consultations have addressed effects to the loggerhead sea turtle. See the table below for information by State. Note that multistate and programmatic consultations are not included in this table since they span multiple states and would therefore be counted more than once. In addition, many NMFS consultations occur in federal waters and would not be associated with any particular state.

State	**Total Informal Consultations that Addressed Effects to Loggerhead Sea Turtles**	**Total Formal Consultations that Addressed Effects to Loggerhead Sea Turtles**
NJ	8	2
DE	0	0
VA	2	4
MD	4	0
NC	8	0
SC	6	1
GA	4	1
FL	94	37
AL	1	0
MS	5	3
LA	8	3
TX	4	0

*Multistate, programmatic, and federal water consultations are not included in this table.

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

Consultations conducted by NMFS that have resulted in a finding of jeopardy to the loggerhead sea turtle have included the following reasonable and prudent alternatives (RPAs) and findings of no jeopardy have resulted in the following terms and conditions (T&Cs). In addition, 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

also listed below, depending on the proposed action. In addition, the Recovery Plan includes information and ideas in the Recovery Action Narrative under items 2, 5, and 6 for designing or conducting projects or activities to minimize impacts to loggerhead sea turtles in their marine habitat (neritic and oceanic) (NMFS and USFWS 2008, pages II-35–II-100).

Past Reasonable and Prudent Alternatives for Loggerheads:

A June 14, 2001 biological opinion concluded that the continued operation of the Atlantic pelagic longline fishery for swordfish, tuna, and shark, would jeopardize the continued existence of the loggerhead sea turtle (http://www.nmfs.noaa.gov/sfa/hms/HMS060801.pdf). Subsequent biological opinions for this fishery, however, have concluded that the Atlantic pelagic longline fishery would not jeopardize the continued existence of the loggerhead sea turtle. Currently, some of the RPAs put in place by the June 14, 2001 Biological Opinion are incorporated in the fishery management plan governing the current operation of the pelagic longline fishery. RPAs included in the 2001 biological opinion were as follows:

1. Close the North East Distant (NED) Area to U.S. Pelagic Longline Fishing
2. Gear Modifications outside the NED Area
    - A. Restrictions on hook attachment relative to floatlines on pelagic longline gear
    - B. Restriction on gangion length in shallow pelagic longline sets
    - C. Requirement to use corrodible hooks and crimps
3. Implementation of Additional Gear Modifications or Fishing Practices and Reopening of the NED Area
    - A. In order to achieve this goal, NMFS shall conduct experiments as necessary and appropriate to modify existing gear to (1) reduce the likelihood of interactions between fishing gear and sea turtles and (2) dramatically reduce immediate and delayed mortality rates of turtles captured in the fisheries (e.g., visual or acoustic cues, dyed bait, hook type). Upon completion of the aforementioned research and its final analysis, NMFS Highly Migratory Species Division must promptly conduct a rulemaking to require the adoption of complementary bycatch reduction measures that, in concert with the bycatch reduction measures required by this Opinion and the June 30, 2000, Opinion, have been shown to achieve overall sea turtle mortality reductions of at least 55%. This rulemaking must be completed before pelagic longline vessels are allowed to fish within the NED area, other than as participants in permitted scientific research.

A U.S. Army Corps of Engineers (USACE) Nationwide Permit Program to authorize activities in navigable and other waters of the United States reached a jeopardy conclusion on several species, including the loggerhead sea turtle (http://www.nmfs.noaa.gov/pr/pdfs/consultations/biop_acoe_permits2012.pdf). The RPAs for this biological opinion include:

1. The USACE must systematically collect the basic information that would be necessary to know or reliably estimate how many activities may affect endangered or threatened species under NMFS' jurisdiction or critical habitat that has been designated for those species, where and when the activities occurred, the impact of the activity, and whether a permittee complied with any general conditions of the Nationwide Permits that would apply to their activity (which can be used to verify compliance rates with those conditions and their effectiveness).

2. USACE Districts must formally consult with their counterparts in NMFS on procedures Districts impose to comply with the first element of this reasonable and prudent alternative and additional conditions those Districts might impose on Nationwide Permits and on measures to avoid or minimize the incremental, additive, and interactive impacts of activities that would be authorized by Nationwide Permits in those Districts on endangered and threatened species under NMFS jurisdiction and critical habitat that has been designated for such species.
3. The USACE must analyze the information they receive as a result of the first element to assemble a picture of the individual and cumulative impacts of those individual actions on waters of the United States in those watersheds that overlap with the distribution of endangered or threatened species under NMFS' jurisdiction (and critical habitat that has been designated for those species).
4. The fourth, fifth, and sixth elements set specific performance triggers for the Nationwide Permit program and requires the USACE to use its authorities to prevent waters of the United States from being degraded by activities that would be authorized by the Nationwide Permits.
5. The USACE must develop policy and guidance on assessing the cumulative impacts of Nationwide Permits for USACE project managers and directs the USACE to determine whether or to what degree project managers adhere to that policy and guidance.
6. The USACE must provide annual reports of the cumulative impact of the actions it authorizes using the Nationwide Permits that overlap with the distribution of endangered or threatened species under NMFS' jurisdiction and critical habitat that has been designated for those species.
7. The USACE must develop and publish policy and guidance so that prospective permit applicants provide better information when they submit pre-discharge notifications to the USACE.

<u>Past Terms and Conditions for Loggerheads:</u>

Most of the following NMFS Biological Opinions pertaining to loggerheads can be found on the headquarters, northeast, and southeast regional websites.
-Headquarters- http://www.nmfs.noaa.gov/pr/consultation/opinions.htm (for programmatic or nationwide consultations, controversial consultations, and consultations pertaining to ESA section 10 permits)
-Northeast- http://www.nero.noaa.gov/prot_res/section7/ (for consultations in Virginia upward)
-Southeast- http://sero.nmfs.noaa.gov/pr/Section7FisheryBiologicalOpinions.htm (for consultations from Texas up to North Carolina)

Federal Fisheries

Atlantic pelagic longline fishery:
-conduct workshops to provide gear handling techniques and protocols that deal with entanglements and protected species in general
-implement an observer program at current or higher levels and monitor incidental take
-record information on the condition of sea turtles when released, as well as describe in detail the interaction with the gear
-photographs must be taken to confirm species identity and release condition
-reporting requirements for each fishing season
-observers must report sea turtle takes or high densities of jellyfish immediately

-observers must take tissue samples for analysis
-NOAA Fisheries must analyze the possibility of requiring the use of VMS in all areas during all times for the Atlantic shark fishery
-NOAA Fisheries must continue to distribute appropriate sea turtle resuscitation and handling techniques found in 50 CFR part 223.206(d)(1-5), to all fishermen participating in this fishery

Southeast shrimp fishery:
-coordinate with the states to monitor shrimp fishing effort in major gear types and use this information to determine trends in shrimp fisheries and possible effects of these trends on sea turtles
-encourage states to revise their licensing or work on other alternatives as needed to include specific gear types used
-produce a report documenting total shrimp trawl effort by major gear type (i.e., otter trawl and "other") each year
-advance population estimates by including in-water monitoring of sea turtles to achieve more accurate status assessments for these species and to better assess the impacts of incidental take in fisheries
-investigate alternatives to observers that can be used to detect sea turtle interactions
-explore requiring new technologies in Southeast shrimp fisheries to better understand potential interaction of shrimp effort and stranding events
-conduct an analysis of sea turtle stranding data to document whether the size of sea turtles stranding has changed since implementation of the 2003 larger TED requirement
-require its observers to be trained during initial or refresher observer training sessions by NMFS gear specialists in identifying and inspecting TEDs and to record such information for any trip observed
-continue to monitor compliance with TED regulations
-coordinate to gather information on compliance with TED regulations in the shrimp fisheries.
-if capture rates based on compliance data are above 12% (the anticipated level in the Proposed Action section and ITS of this opinion) for any six month time period, NMFS must use a step wise approach to deal with low levels of TED compliance
-if unusual increases in strandings occur in an area, NMFS must analyze this information and take appropriate action.
-work to revise its stranding agreement and data use policy with the States to improve the sea turtle stranding and salvage network (STSSN) data and researcher's access and ability to use the data
-conduct or arrange for a review of the STSSN to evaluate consistency in data collection and to identify areas that have low or inconsistent sampling effort
-work with industry to develop new gear, especially TEDs that will be effective at releasing all sizes and all species of sea turtles while still retaining catch
-continue training Southeast fishermen and net shop owners on the proper installation and use of TEDs
- reporting requirements
- form a working group to develop procedural guidelines for and improve coordination during unusual sea turtle stranding and enforcement events and improve data and reporting quality

Reef Fish Fishing under the Gulf of Mexico (Gulf) Reef Fish Fishery Management Plan (RFFMP):
- develop and implement a comprehensive outreach plan to promote that takes be avoided to the extent practicable and that any sea turtle [and smalltooth sawfish] that are captured are handled in a way that minimize adverse effects from incidental take and reduces the likelihood of mortality.
- distribute information on the growing sea turtle vessel strike problem in the Gulf and any vessel strike avoidance measures to all reef fish fishermen.
-encourage fishermen to maintain daily communications with other local vessel captains regarding protected species interactions, with the goal of identifying and exchanging information relevant to avoiding protected species bycatch
-conduct or fund projects to (1) characterize the fishery to better understand the variations and similarities among the fleet in fishing gear and techniques, (2) characterize its interactions with sea turtles and smalltooth sawfish, and (3) explore potential fishing gear and fishing behavior modifications that reduce adverse impacts from this fishery.
-update its careful release protocols and modify release gears as new information becomes available.
- increase in minimum take coverage to help to prevent a "false positive" indicating that take was exceeded over the three-year ITS and allow for a more precise take estimate if take levels exceed the rarity threshold
- provide a minimum of 105 sea days per year of observer coverage for this component of the fishery, which will substantially increase coverage over historical levels (a total of 237 sea days over the past 6 years
-observers must record information as specified on the southeast fisheries science center (SEFSC) sea turtle life history form for any sea turtle captured; photographs must be taken to confirm species identity and release condition; if feasible, observers should tag any sea turtles [or smalltooth sawfish] caught
-observers must also collect tissue samples from sea turtles for genetic analysis.
- require observers to report the number of hooks fished and the number of hooks onboard
- observers to notify SEFSC observer program staff when takes occur
-periodic review of VMS data from bottom longline vessels must be conducted by NMFS to ensure compliance with time/area closures
-bycatch estimates need to be combined with quantitative stock assessments to provide improved understanding of how listed species are adversely affected by estimated bycatch levels
- develop specialized surveys for estimating recreational sea turtle takes
- ensure that STSNN participants collect any fishing gear found associated with sea turtle strandings and submit it
- continue to coordinate with the STSSN and states to monitor strandings
-prepare an annual bycatch report

Spiny Lobster in the South Atlantic and Gulf of Mexico:
-update careful release protocols and modify release gears as new information becomes available
-distribute information to permitted spiny lobster trap tag holders specifying handling and/or resuscitation requirements fishers must undertake for any sea turtles taken, as stated in 50 CFR 223.206(d)(1-3)

-inform all permitted spiny lobster trap tag holders that disentanglement of sea turtles from trap gear takes priority over transferring catch from traps to vessels
- promote the removal of spiny lobster trap marine debris during the spiny lobster closed (April 1-August 5)
-explore allowing the public or other entities to remove trap line, buoys, and make unfishable, any spiny lobster trap gear found in the environment when the fishery is closed and all traps must be out of the water (April 1-August 5)
- remind spiny lobster trap fishers that a good-faith effort should be made to remove all traps from the water, or move them to a location that minimizes the likelihood of mobilization, 48 hours before a forecasted storm arrives
-work or fund other projects exploring potential spiny lobster trap gear modifications that reduce adverse impacts from spiny lobster traps
-continue to coordinate with the STSSN and states to monitor strandings
-work with the Gulf of Mexico and South Atlantic Fishery Management Councils, and the State of Florida, to implement measures requiring that all spiny lobster trap rope be a specific color or have easily identifiable patterns/markings, not currently in use in other fisheries, along its entire
-develop a module for STSSN volunteers to provide training on identifying spiny lobster trap gear
-ensure, to the greatest extent practicable, that the Florida STSSN remains operational at least at its current level of monitoring
-submit STSSN stranding reports, including the information below, that show evidence of trap entanglements by May 1 of each year.

Stone Crab Fishery of the Gulf of Mexico:
-distribute information to permitted stone crab trap tag holders specifying handling and/or resuscitation requirements fishers must undertake for any sea turtles taken, as stated in 50 CFR 223.206(d)(1-3)
- inform all stone crab tag holders that disentanglement of sea turtles from trap gear takes priority over transferring catch from traps to vessels
- work with the Gulf of Mexico Fishery Management Council and the State of Florida, to implement measures requiring that all stone crab trap rope be a specific color or contain easily identifiable patterns or markings along their entire lengths that are not currently in use in other fisheries
-easily identifiable ropes must be phased into the federal fishery no later than five years after the finalization of this biological opinion
-develop a module for STSSN volunteers to provide training on identifying stone crab trap gear and marking buoys
-submit STSSN stranding reports that show evidence of trap entanglements each year
-monitor the number of stone crab traps issued annually by the State of Florida

Atlantic commercial bottom longline shark fisheries:
-as new information becomes available, NMFS must update sea turtle careful release protocols
-distribute the sea turtle resuscitation and handling techniques
-include a representative or seek comment when developing the research objectives for the shark research fishery

- research how the use of circle hooks in the HMS Atlantic shark bottom longline fishery influences mortality of sharks, sea turtles, and smalltooth sawfish
- research the influence hook type (J-hook or circle hook) and soak time variations have on catch per unit effort and mortality of sharks, sea turtles, and smalltooth sawfish
- propose additional action to minimize the impacts of take on sea turtles if it is found that circle hooks reduce impacts to sea turtles
-develop a standardized protocol for determining the target species and effort of Atlantic shark fishing gears for use in future take analyses
- require observers to record information on the condition of incidentally taken sea turtles
- collect tissue samples from sea turtles caught in the shark fisheries and ensure that these tissue samples are analyzed to determine the genetic identity of individual sea turtles caught in the fishery
-submit observer reports for each fishing season

Coastal Migratory Pelagic Resources (CMPR) in the Atlantic and Gulf of Mexico (CMPR FMP):
-distribute information to permit holders specifying handling and or resuscitation requirements fishers must undertake for sea turtles
-distribute educational and outreach materials regarding the specific information to be reported and sea turtle identification to gillnet vessels selected to participate in this program prior to each reporting period
-continue observer program; observers must record information as specified on the SEFSC sea turtle life history form for any sea turtle captured
- collaborate with SEFSC to monitor stranding data for records showing signs of being attributed to the CMPR fishery
- work with the U.S. Coast Guard and to ensure at-sea enforcement of regulations

American Lobster Fishery:
- distribute information to federal American lobster permit holders specifying handling or resuscitation requirements fishermen must undertake for any sea turtles taken
-distribute Disentanglement Guidelines to federal American lobster permit holders
-develop and distribute training materials for commercial fishermen in the use of any sea turtle release equipment and/or sea turtle handling protocols and guidelines
- continue to use entanglement reports, observer reports, and any other information available to monitor the incidental take of sea turtles in the federal American lobster fishery
- require that disentanglement responders collect detailed information on the gear involved in entanglements, and submit all information on the gear to NMFS
-bycatch estimates must be combined with quantitative stock assessments to provide improved understanding of how listed species are adversely affected by estimated bycatch levels
-continue to investigate modifications of trap/pot gear and its effects on sea turtles through research and development, as resources allow
-continue to review all data available on the observed/documented take of sea turtles in trap/pot fisheries and other suitable information
-continue to monitor levels of sea turtle bycatch in the American lobster fishery

Atlantic Sea scallop Fishery:

-continue to monitor dredge hours in the Mid-Atlantic scallop dredge fishery during the months of May through November when sea turtle interactions are most likely to occur
-continue to investigate modifications to scallop dredge and trawl gear to further minimize adverse effects on sea turtles due to collisions with and/or entrainment in the gear
-continue to review all available data on the incidental take of sea turtles in the scallop fishery (observable plus unobservable, quantifiable) and other suitable information (*e.g.*, data on observed sea turtle interactions with other trawl fisheries, sea turtle distribution information, or fishery surveys in the area where the scallop fishery operates) to assess whether correlations with environmental conditions (*e.g.*, depth, SST, salinity) or other drivers of incidental take (*e.g.*, gear configuration) can be made for some or all portions of the action area
-continue to use available and appropriate technologies to quantify the extent to which chain mats and TDDs reduce the number of serious injuries/deaths of sea turtles that interact with scallop dredge gear
-continue to use available and appropriate technologies to better determine where (on the bottom or in the water column) and how sea turtle interactions with scallop dredge gear are occurring
-ensure that all Federal permit holders in the scallop fishery possess handling and resuscitation guidelines for sea turtles
- continue to develop and distribute training materials for commercial fishermen regarding the use of recommended sea turtle and Atlantic sturgeon release equipment and protocols
-continue to place observers onboard scallop dredge and trawl vessels to document and estimate incidental bycatch of sea turtles
-continue to reconvene the Sea Turtle Injury Working Group in order to better assess and evaluate injuries sustained by sea turtles in scallop dredge and trawl gear, and their potential impact on sea turtle populations
-distribute information to scallop permit holders specifying the chain mat and TDD regulations and be prepared to provide them assistance to resolve issues that may cause chain mats or any components of the TDD to be rigged improperly or malfunction

Atlantic Bluefish Fishery:
-distribute information to Federal bluefish permit holders specifying handling or resuscitation requirements fishermen must undertake for any sea turtles taken
- develop and implement an outreach program to train commercial fishermen in the use of any sea turtle release equipment and/or sea turtle handling protocols and guidelines implemented
- continue to ensure that there is adequate observer coverage in Mid-Atlantic dredge, trawl, and gillnet fisheries to document and estimate incidental bycatch of loggerhead sea turtles
- observers must continue to tag and take tissue samples from incidentally captured sea turtles
- continue to develop and implement sea turtle serious injury criteria for fisheries in the Northeast Region in order to better assess and evaluate injuries sustained by sea turtles in fishing gear, and their potential impact on sea turtle populations
- improve quantitative stock assessment of incidentally caught species
- require that disentanglement responders collect detailed information on the gear involved in entanglements, and submit all information on the gear to NMFS
- continue to investigate modifications of trawl and gillnet gear and its effects on sea turtles through research and development, as resources allow
- continue to review all data available on the observed/documented take of sea turtles in Mid-Atlantic dredge, trawl, and gillnet fisheries and other suitable information (i.e., data on observed

sea turtle interactions for other fisheries, vertical line density information, sea turtle distribution information, or fishery surveys in the area where the bluefish fishery operates) to assess whether there is sufficient information to undertake any additional analysis to attempt to identify correlations with environmental conditions or other drivers of incidental take within some or all of the action area

Spiny Dogfish Fishery:
- distribute information to spiny dogfish permit holders specifying handling or resuscitation requirements fishermen must undertake for any sea turtles taken
- develop and implement an outreach program to train commercial fishermen in the use of any sea turtle release equipment and/or sea turtle handling protocols and guidelines implemented
-continue to ensure that there is adequate observer coverage in the Mid-Atlantic trawl, dredge, and gillnet fisheries to document and estimate incidental bycatch of sea turtles
-monthly summaries and an annual report of sea turtle takes in New England and Mid-Atlantic fisheries, including trips where spiny dogfish are targeted, should continue to be provided
- observers must continue to tag and take tissue samples from incidentally captured sea turtles as stipulated under their ESA Section 10 permit
- continue to develop and implement sea turtle serious injury criteria for fisheries in the Northeast Region in order to better assess and evaluate injuries sustained by the sea turtles in fishing gear and their potential impact on sea turtle populations
-bycatch estimates need to be combined with quantitative stock assessments to provide improved understanding of how listed species are adversely affected by estimated bycatch levels and reports on this must be submitted annually
- require that disentanglement responders collect detailed information on the gear involved in entanglements, and submit all information on the gear to NMFS
- continue to investigate modifications of trawl and gillnet gear and its effects on sea turtles through research and development, as resources allow
- continue to review all data available on the observed/documented take of sea turtles in trawl and gillnet fisheries and other suitable information to assess whether there is sufficient information to undertake any additional analysis to attempt to identify correlations with environmental conditions or other drivers of incidental take within some or all of the action area

Monkfish Fishery:
- distribute information to monkfish permit holders specifying handling or resuscitation requirements fishermen must undertake for any sea turtles taken
- develop and implement an outreach program to train commercial fishermen in the use of any sea turtle release equipment and/or sea turtle handling protocols and guidelines implemented
- continue to ensure that there is adequate observer coverage in Mid-Atlantic trawl, dredge and gillnet fisheries to document and estimate incidental bycatch of loggerhead sea turtles and submit report summaries
- observers must continue to tag and take tissue samples from incidentally captured sea turtles as stipulated under their ESA Section 10 permit
- to develop and implement sea turtle serious injury criteria for fisheries in the NE Region in order to better assess and evaluate injuries sustained by sea turtles in fishing gear, and their potential impact on sea turtle population

-bycatch estimates need to be combined with quantitative stock assessments to provide improved understanding of how listed species are adversely affected by estimated bycatch levels
- require that disentanglement responders collect detailed information on the gear involved in entanglements, and submit all information on the gear to NMFS
- continue to investigate modifications of trawl and gillnet fisheries and effects on sea turtles through research and development, as resources allow
- continue to review all data available on the observed/documented take of sea turtles in trawl and gillnet fisheries and other suitable information to assess whether there is sufficient information to undertake any additional analysis to attempt to identify correlations with environmental conditions or other drivers of incidental take within some or all of the action area

State or other Research Trawls

Virginia Institute of Marine Science, Northeast Area Monitoring and Assessment Program (NEAMAP) Near Shore Trawl Program
- VIMS must have copies of the sea turtle handling and resuscitation requirements found at 50 CFR 223.206(d)(1) and as reproduced in Attachment A to the vessel operator prior to the commencement of any on water activity
- ensure that VIMS carries out these handling and resuscitation procedures as appropriate
- that VIMS has at least one crew member who is experienced in the identification of western North Atlantic sea turtles and sturgeon on the vessel(s) at all times that the on-water survey work is conducted
-all sea turtles [and sturgeon] must be weighed, measured and photographed; the condition of each animal must be recorded and any injuries documented
- ensure that VIMS notifies NMFS within 24 hours of any interaction with a listed species
- ensure that VIMS provides a written report to NMFS within 30 days on any interaction between an ESA-listed sea turtle and the gear and/or vessel used during the survey
- must ensure that VIMS provide a written report to NMFS within 60 days of completion of the on-water work, indicating either that no interactions with ESA-listed species occurred, or providing the total number of interactions that occurred with ESA-listed species

U.S. Army Corps of Engineers (ACOE)

Reinitiation of consultation on maintenance dredging in the Cape Henry Channel, York Spit Channel, York River Entrance Channel, and Rappahannock Shoal Channel, Virginia
-when possible, dredging must not be completed from April 1 to November 30, which is the time when sea turtle abundance is highest in Virginia waters; if dredging does occur during this time period, specifications for dredging are given
-if dredging occurs between April 1 and November 30, hopper dredges must be equipped with the rigid deflector draghead as designed by the ACOE Engineering Research and Development Center, or if that is unavailable, a rigid sea turtle deflector attached to the draghead
-if dredging occurs between April 1 and November 30, the ACOE must adhere to the "Monitoring Specifications for Hopper Dredges" with trained NOAA Fisheries-approved sea turtle observers; observers must be on hopper dredges once surface waters reach or exceed 11^0C
-observer coverage must be sufficient for 100% monitoring of hopper dredging operations; all biological material found in the intake screens must be documented by the observer

-if a decomposed turtle or turtle part is taken in dredging operations, an incident report must be filed and parts must be handled according to guidelines
-ACOE must ensure that all contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles
-procedures for handling live sea turtles are specified in the sea turtle handling techniques
-a sea turtle trawling and relocation survey must be initiated following the take of two turtles of any species in a 24 hour time period or four turtles within a two month period, or in other circumstances that NOAA Fisheries deems appropriate
-the results of each turtle take from the trawling survey must be recorded on a Sea Turtle Tagging Data Report
-a final report summarizing the results of the dredging and any takes of listed species must be submitted to NOAA Fisheries within 30 working days of completion of each cycle of the project
-if sea turtles are present during dredging or material transport, vessels transiting the area must post a bridge watch, avoid intentional approaches closer than 100 yards when in transit, and reduce speeds to below 4 knots
-if the take of loggerheads approaches ½ of the anticipated incidental take level during any project cycle, the ACOE must immediately contact NOAA Fisheries and provide all relevant information

Consultation on dredging in the Thimble Shoal Federal Navigation Channel and Atlantic Ocean Channel
--when possible, dredging must not be completed from April 1 to November 30, which is the time when sea turtle abundance is highest in Virginia waters; if dredging does occur during this time period, specifications for dredging are given
-if dredging occurs between April 1 and November 30, hopper dredges must be equipped with the rigid deflector draghead as designed by the ACOE Engineering Research and Development Center, or if that is unavailable, a rigid sea turtle deflector attached to the draghead
-if a decomposed turtle or turtle part is taken in operations, an incident report must be completed and the specimen must be photographed
-ACOE must ensure that all contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles
-procedures for handling live sea turtles are specified in the sea turtle handling techniques
-a sea turtle trawling and relocation survey must be initiated following the take of two turtles of any species in a 24 hour time period or four turtles within a two month period, or in other circumstances that NOAA Fisheries deems appropriate
-the results of each turtle take from the trawling survey must be recorded on a Sea Turtle Tagging Data Report
-a final report summarizing the results of the dredging and any takes of listed species must be submitted to the ACOE and NMFS within 30 days of the completion of the project
-vessels must comply with the ESA 500-yard approach regulations for right whales
-if listed species are present during dredging or material transport, vessels transiting the area must post a watch, avoid intentional approaches closer than 100 yards when in transit, and reduce speeds to below 4 knots
-if the take of loggerheads approaches ½ of the anticipated incidental take level during any project cycle, the ACOE must immediately contact NOAA Fisheries and provide all relevant information

Regional Biological Opinion on Hopper Dredging along the South Atlantic Coast:
-the ACOE's draghead deflector engineer that assistant in this design should inspect the rigid draghead deflector annually to ensure that the deflector has been tailored appropriately to each draghead. Additionally, the inspector should assess whether the dredge operator appears to be familiar with the operation of the draghead deflector and provide necessary training where appropriate.

-if the rigid draghead deflector appears to be ineffective *in* Wilmington Harbor and slows the dredging project such that the amount of time the hopper dredge will be deployed is increased, the deflector should be removed from the draghead for that channel.
-the ACOE should develop an educational/training program for dredge operators to increase their understanding of how the draghead deflector works and why it is necessary.

Atlantic Coast of Maryland Shoreline dredging of new borrow areas:
- hopper dredges must be equipped with the rigid deflector draghead as designed by the ACOE and operated and overseen according to specifications
- if dredging occurs during the period of April 1 through November 30, the ACOE must adhere to specified "Monitoring Specifications for Hopper Dredges" with trained NMFS-approved sea turtle observers
- observer coverage must be sufficient for 100% monitoring of hopper dredging operations
-ensure that all contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles
- if sea turtles are present during dredging or material transport, vessels transiting the area must post a bridge watch, avoid intentional approaches closer than 100 yards when in transit, and reduce speeds to below 4 knots if bridge watch identifies a listed species in the immediate vicinity of the dredge
- procedures for handling live sea turtles must be followed in the unlikely event that a sea turtle survives entrainment in the dredge
- inform NMFS of the commencement of operations 3 days prior to the actual start date and of the completion date within 3 days after the actual end of operations
- if a dead sea turtle or sea turtle part is taken in dredging or relocation trawling operations, a genetic sample must be taken
- if a sea turtle or sea turtle parts are taken in dredging operations, the take must be documented on a form
- if a decomposed turtle or turtle part is taken in dredging operations, an incident report must be completed and the specimen must be photographed
- a final report summarizing the results of the dredging and any takes of listed species must be submitted to NMFS within 30 working days of completion of each cycle of the project
- if the take of loggerhead sea turtles approaches ½ of the anticipated incidental take level during any project cycle, the ACOE must immediately contact NMFS

Delaware River Main Channel Deepening:
- the ACOE must contact NMFS within 3 days of the commencement of each dredging cycle (initial construction and maintenance) and again within 3 days of the completion of dredging activity
- hopper dredges operating in Reaches D or E from May 1 – November 15, must be equipped with the rigid deflector draghead as designed by the ACOE and operated and overseen according to specifications
- observer coverage on hopper dredges operating in the river (reaches AA – C) must be sufficient for 100% monitoring of hopper dredging operations
- observer coverage is required on all hopper dredges operating in the Bay (reaches D and E) during the period of May 1 - November 15

- require of the dredge operator that, when the observer is off watch, the cage shall not be opened unless it is clogged; if it is necessary to clean the cage when the observer is off watch, any aquatic biological material is left in the cage for the observer to document and clear out when they return on duty
- if sea turtles are present during dredging or material transport, vessels transiting the area must post a bridge watch, avoid intentional approaches closer than 100 yards when in transit, and reduce speeds to below 4 knots if bridge watch identifies a listed species in the immediate vicinity of the dredge
- ensure that all contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles
- the procedures for handling live sea turtles must be followed in the unlikely event that a sea turtle survives entrainment in the dredge (Appendix B)
- for mechanical dredging following blasting operations, the ACOE must require that observer coverage is sufficient for 100% monitoring of dredging operations
- in the event of any lethal takes of sea turtles, any dead specimens or body parts must be photographed, measured, and preserved (refrigerate or freeze) until disposal procedures are discussed with NMFS
- if a decomposed turtle or turtle part is entrained during dredging operations, an incident report must be completed and the specimen must be photographed
- contact NMFS within 24 hours of any interactions with sturgeon or sea turtles, including non-lethal and lethal takes
- photograph and measure any sturgeon or sea turtles observed during project operations (including whole sturgeon or sea turtles or body parts observed at the disposal location or on board the dredge, hopper or scow) and the corresponding form must be completed and submitted to NMFS within 24 hours
- any time a take occurs ACOE must immediately contact NMFS to review the situation
- submit a final report summarizing the results of dredging and any takes of listed species to NMFS within 30 working days of the completion of each dredging contract

ACOE issuance of a permit to the City of Biloxi to reconstruct the Old Highway 90 Fishing Pier in Biloxi, Harrison County, Mississippi:
- ACOE and/or the City of Biloxi must coordinate and facilitate their responses to sea turtle interactions, and to strandings of sea turtles in the vicinity of the fishing pier, with the Sea Turtle Stranding and Salvage Network (STSSN), and when necessary, the nearest sea turtle rehabilitation facility
-ACOE or the City of Biloxi must provide NMFS with reports regarding all fishing pier interactions with protected species
- City of Biloxi must reduce the likelihood of injury or mortality resulting from hook and-line capture or entanglement by activities at the pier
- City of Biloxi must display adequate educational signage at the Old Highway 90 Fishing Pier regarding sea turtles and the possibility of their capture by hook-and-line, and what to do in the event of a sea turtle hooking, entanglement, or stranding at the pier
- City of Biloxi shall ensure that sea turtles that are hooked, entangled, and/or stranded at or near the Old Highway 90 Fishing Pier are transported to appropriate sea turtle rescue and rehabilitation facilities for treatment, rehabilitation, and eventual release where feasible, at the City's expense

-to reduce the risk of turtle entanglement in or ingestion of marine debris at Old Highway 90 Fishing Pier, the City of Biloxi will provide multiple monofilament recycling bins for used fishing line, spaced along each side of the pier every 500 ft. Signs will be posted at the pier that encourage fishermen to “Help Keep Our Gulf Clean” by dropping used fishing line in the bins provided
- City of Biloxi shall ensure that the underwater portions of the Old Highway 90 Fishing Pier and nearby environs (within at least 50 yards) are kept as free as possible from discarded fishing lines, hooks, etc., that may pose a threat to foraging sea turtles

U.S. Army Corps of Engineers, Mobile District's (COE) permit for the construction of an extension to, and the continued operation of, the Clermont Harbor community fishing pier, Hancock County, Mississippi:
- Mississippi DMR Office of Marine Fisheries must coordinate and facilitate their responses to sea turtle interactions, and to strandings of sea turtles in the vicinity of the fishing pier, with the sea turtle stranding and salvage network (STSSN)
- Mississippi DMR Office of Marine Fisheries must provide NMFS with annual reports regarding fishing interactions with protected species at the extended Clermont Harbor Pier
- Hancock County Board of Supervisors must reduce the likelihood of injury or mortality resulting from hook-and-line capture or entanglement by activities at the pier
- at the extended Clermont Harbor Pier, the Mississippi DMR Office of Marine Fisheries must promptly notify (within 24 hours) NMFS regarding all take of sea turtles resulting from fishing pier activities
-the Hancock County Board of Supervisors must post educational signage at the extended Clermont Harbor Pier that provides the contact information for the Mississippi DMR Office of Marine Fisheries in the event of a sea turtle hooking, entanglement, or stranding at the pier
-to reduce marine debris at the extended Clermont Harbor Pier, the Mississippi DMR will provide a monofilament recycling bin for used fishing line. Signs will be posted at the pier that encourage fishermen to “Help Keep Our Gulf Clean” by dropping used fishing line in the bins provided
-the Hancock County Board of Supervisors authorities shall ensure that annual remnant-fishing-gear-debris cleanup events are conducted by snorkelers and/or SCUBA divers to keep the underwater portions of the pier and nearby environs (within at least 50 yards) as free as possible from discarded fishing lines, hooks, etc., that may pose a threat to foraging sea turtles

Hopper Dredging Associated with Sand Mining for the Pelican Island Segment of the Barataria Shoreline Restoration Project:
- reporting: observer requirements and dredged material screening requirements
- deflector draghead requirements
- relocation trawling requirements
- the contactor shall arrange for NMFS-approved protected species observers to be aboard the hopper dredges to monitor the hopper bin, screening, and dragheads for sea turtles and their remains
- screening: 100 percent inflow screening of dredged material is required and 100 percent overflow screening is recommended

- dredging Pumps: Standard operating procedure shall be that dredging pumps shall be disengaged by the operator when the dragheads are not firmly on the bottom, to prevent impingement or entrainment of sea turtles within the water column
- Sea Turtle Deflecting Draghead: A state-of-the-art rigid deflector draghead must be used on all hopper dredges at all times
- Dredge Take Reporting and Final Report: Observer reports of incidental take by hopper dredges must be faxed to NMFS within 24 hours of any sea turtle or other listed species take observed
-a final report summarizing the results of the hopper dredging and any documented sea turtle or other listed species takes must be submitted to NMFS within 30 working days of completion of the dredging project
- Sea Turtle Strandings: The HCD Project Manager or designated representative shall notify the Sea Turtle Stranding and Salvage Network (STSSN) state representative of the start-up and completion of hopper dredging operations and bed-leveler dredging operations and ask to be notified of any sea turtle strandings in the project area that, in the estimation of STSSN personnel, bear signs of potential draghead impingement or entrainment, or interaction with a bed-leveling type dredge
- Reporting – Strandings: The HCD shall provide NMFS' Southeast Regional Office with a report detailing incidents, with photographs when available, of stranded sea turtles that bear indications of draghead impingement or entrainment
- Relocation Trawler Requirements: Relocation trawling shall be conducted in the Sandy Point borrow areas
-Additional Relocation Trawler Requirements : This opinion authorizes the non-injurious take of 40 sea turtles (34 loggerhead, 5 Kemp's ridley, and 1 green sea turtle based on frequency data in COE 2009) by NMFS-approved observers in association with all relocation trawling conducted by or contracted by the HCD to assess and reduce the abundance of these listed species during a hopper dredging project in order to reduce the possibility of lethal hopper dredge interactions is subject to these conditions: must be PIT scanned and tagged; observers don't have to handle fibropapillomatose turtles
-all live or dead sea turtles captured by relocation trawling and hopper dredging shall be tissue-sampled prior to release
- Training - Personnel on Hopper Dredges: The HCD must ensure that all contracted personnel involved in operating hopper dredges (whether privately-funded or federally-funded projects) receive thorough training on measures of dredge operation that will minimize takes of sea turtles

ACOE permit for Lockheed Martin Corporation to renovate an existing docking facility in Riviera Beach, Palm Beach County, Florida:
- Lockheed Martin must coordinate and facilitate their responses to sea turtle interactions, and to strandings of sea turtles in the vicinity of the fishing pier, with the sea turtle stranding and salvage network (STSSN)
- Lockheed Martin must provide NMFS with annual reports regarding fishing interactions with protected species at the public fishing pier
- Lockheed Martin must reduce the likelihood of injury or mortality resulting from hook and-line capture or entanglement by activities at the pier
-Lockheed Martin must promptly notify (within 24 hours) NMFS regarding all take of sea turtles resulting from fishing pier activities at their facility

- Lockheed Martin must maintain tools for releasing hooked or entangled sea turtles at the public fishing pier that comply with the gear specifications contained in NMFS' December 2008 "Careful Release Protocols for Sea Turtle Release with Minimal Injury"
- Lockheed Martin must post educational signage at the public fishing pier that provides the 24-hour phone numbers for the STSSN and nearest sea turtle rehabilitation facility in the event of a sea turtle hooking, entanglement, or stranding at the pier
-to reduce marine debris at the public fishing pier, Lockheed Martin will provide a monofilament recycling bin for used fishing line
-signs will be posted at the pier that encourage fishermen to "Help Keep Our Gulf Clean" by dropping used fishing line in the bins provided
- Lockheed Martin shall ensure that annual remnant-fishing-gear-debris cleanup events are conducted by snorkelers and/or SCUBA divers to keep the underwater portions of the pier and nearby environs (within at least 50 yards) as free as possible from discarded fishing lines, hooks, etc., that may pose a threat to foraging sea turtles

ACOE explosive removal of decommissioned state lease oil production platforms in the coastal waters of Texas, permit Nos. SWG-2006-1353, SWG-2008-876, SWG-2003-953, SWG-2003-319, and SWG-2003-1146:
- Comply with all the measures specified in the mitigation program for explosive severance as implemented by NMFS Platform Removal Observer Program
-use available means after blasts to locate injured or killed sea turtles
-implement measures to minimize stress or harm of sea turtles during site clearance trawling
-submit sea turtle monitoring reports to NMFS for each removal
-ACOE must ensure explosive-severance contractors or operators comply with all of the measures in the appropriate mitigation scenario. The mitigation scenarios shall be followed as follows:
• Observers to be used for the pre-detonation and post-detonation surveys must have completed NMFS-approved training.
• NMFS understands all decisions on explosive composition, configuration, and usage need to be made by the qualified explosive contractors in accordance with the applicable explosive-related laws and regulations. However, if the qualified explosive contractors find options in the amount and type of materials used, the option that would result in smaller impact areas shall be chosen. However, in no case shall the individual bulk charges detonated exceed 200 lb per charge, nor shall the requirement for a minimum 9- millisecond delay between consecutive detonations be violated, nor shall structures be severed explosively any shallower than 15 feet below the mudline.
• Detonations must only occur during daylight and during a time that would allow for post detonation surveys.
• Scare charges shall not be used to clear impact zones of sea turtles.
• Surface monitoring surveys shall be conducted from the highest vantage point(s) and/or other location(s) that provide the best, clear view of the entire impact zone. These vantage points may be on the structure being removed or proximal surface vessels such as crewboats and derrick barges.
• Flight patterns during pre-detonation and post-detonation surveys shall follow the procedures listed. At any time during the survey period, the flight path may be altered to investigate sightings and confirm their location in reference to the impact zone.

• Unless other methods are available, observations during the post-detonation survey are to start at the removal site and proceed leeward and outward of wind and current movement. A 7 x 7-nrni grid centered near the removal site will be surveyed. This grid includes eight, parallel transect lines each measuring 7 mi long and spaced approximately 1 mi apart. Any injured or dead sea turtle must be recorded in the survey report and NMFS SERO must be notified and take report sent by e-mail to takereport.nmfsser@noaa.gov within 24 hours of capture. The take report must reference the present opinion. NMFS may request that the carcass be tracked and collected if possible.
• If sea turtle(s) appear to remain within the impact zone of a structure to be removed using explosives, the on-site NMFS observer shall exercise discretion to modify the mitigation program procedures that could serve to more effectively avoid or minimize impacts to sea turtle(s); however, blasting shall not proceed until the observer is reasonably certain that the turtle is no longer in the impact zone.
• The ACOE shall allow an option for trained diver(s) to attempt capture of sea turtles known to be present around a structure slated for removal by explosive severance. NMFS shall be notified prior to any capture attempts and the capture, handling, holding, and release of sea turtles shall be under the guidance and supervision of NMFS observers.
• Allow, when feasible, site clearance trawling to be conducted as soon as possible following detonation, to (1) maximize the possibility of recovering and resuscitating blast-stunned or comatose turtles that may be present on (or have sunk to) the bottom; and (2) to maximize the possibility of recovering and counting dead sea turtles that sank after being killed by a blast. After severance charge detonation, the NMFS observers will conduct a 30-minute aerial survey of the impact zone to detect impacted sea turtles. If a sea turtle or other protected species is observed shocked, injured, or killed, the operations will cease, attempts will be made to collect/resuscitate the animal, and NMFS will be contacted as per the take event procedures previously described.
-ACOE shall require the following measures and shall also require immediate notification if a sea turtle is captured:
• Trawl nets shall have a minimum stretched mesh size of 4 inches at the cod end and 2 inches elsewhere. Trawl nets shall have a maximum stretched mesh size of 6 inches.
• Abide by maximum trawl times of 30 minutes (doors-in to doors-out).
• Resuscitate (if necessary) and release any captured sea turtles as per NMFS guidelines described in ESA regulations at 50 CFR Part 223.206(d)(1), which will minimize any unintentional drowning of turtles.
• Include a description and/or identification of any sea turtles captured in the net, resuscitated, or released. The description should include the animal's condition. Turtles that have more than "minor injuries" (defined as minor scrapes, cuts, contusions, or abrasions caused by contact with the trawl net or net-trapped debris, and are not life threatening nor present a reasonable chance of infection if left untreated) shall be taken without unnecessary delay to the nearest sea turtle rehabilitation facility for assessment and treatment. The expense of this transportation and treatment and release shall be borne by the applicant. Minor injuries to turtles can be treated in-situ by observers, and the turtle released. The NMFS observer shall be the final authority in deciding whether an injured sea turtle needs to be transported to a treatment facility for assessment/treatment, or can be released in situ. Reports of trawl-caught turtles must be

sent to NMFS within 24 hours of capture. The take report must reference the present opinion
- ACOE shall require the following monitoring report requirements:
• The observers shall prepare monitoring reports (also referred to as the trip report) for each removal. The ACOE shall prepare a monitoring report for each removal operation within 30 days of completion of the severance activities. NMFS observers will complete the reports and send them directly to
• In the event that a listed species is injured or killed during the severance operations, the detonations will cease and the NMFS observer consulted to determine if any additional harm avoidance measures are needed, and a search for the animal conducted before the removal continues. If an impacted animal does not revive, effort should be made to recover the animal in consultation with the appropriate stranding network. For sea turtles, contact the NOAA Fisheries Galveston Laboratory

ACOE issuance of COE permit to Palm Beach County to construct a segmented, submerged breakwater system:
-A copy of the NMFS sea turtle and smalltooth sawfish construction conditions must be included as a requirement for the construction permit and any construction personnel must be made aware of the construction conditions and must adhere to them.
- ACOE must specify as a permit condition that construction will take place only in daylight hours and no equipment will be left in the project area overnight.
-Palm Beach County must promptly notify NMFS Southeast Regional Office regarding the lethal take or injury of sea turtles resulting from construction activities.
-Palm Beach County must adhere to monitoring and reporting plans.

ACOE permit to Sarasota County Capital Management Services to construct and improve facilities of Blackburn Point Park, Sarasota County, Florida:
- ACOE and/or Sarasota County Capital Management Services must coordinate and facilitate their responses to sea turtle interactions, and to strandings of sea turtles in the vicinity of the fishing pier, with the sea turtle stranding and salvage network (STSSN), and when necessary, the nearest sea turtle rehabilitation facility
- Sarasota County Capital Management Services must provide NMFS with reports regarding all fishing pier interactions with protected species, including an annual summary report which includes results of any underwater cleanup efforts
- Sarasota County Capital Management Services must reduce the likelihood of injury or mortality resulting from hook-and-line capture or entanglement by activities at the pier
-the pier must also display prominent educational signage regarding sea turtles the possibility of their capture by hook-and-line, and what to do in the event of a capture.
- Sarasota County Capital Management Services must display adequate educational signage at the Blackburn Point Park fishing piers regarding sea turtles, the possibility of their capture by hook-and-line, and what to do in the event of a sea turtle hooking, entanglement, or stranding at the pier
- Sarasota County Capital Management Services must display adequate educational signage (http://www.flmrth.ufl.edu/fishleducation/sawfishsign.pdf) at the Blackburn Point Park fishing piers regarding smalltooth sawfish, the possibility of their capture by hook and-line, and what to do in the event of a hooking or entanglement at the pier

- Sarasota County Capital Management Services shall ensure that sea turtles that are hooked, entangled, and/or stranded at or near Blackburn Point Park fishing piers are transported to appropriate sea turtle rescue and rehabilitation facilities for treatment, rehabilitation, and eventual release where feasible
-to reduce the risk of turtle entanglement in or ingestion of marine debris at Blackburn Point Park fishing piers, Sarasota County Capital Management Services will provide several monofilament recycling bins for used fishing line
- Sarasota County Capital Management Services shall ensure that the underwater portions of Blackburn Point Park fishing piers and nearby environs (within at least 50 yards) are kept as free as possible from discarded fishing lines, hooks, etc., that may pose a threat to foraging sea turtles

ACOE permit for the demolition, re-construction, and operation of the City of Sunny Isles Beach, Newport Fishing Pier, in Miami-Dade County, Florida:
- ACOE shall ensure that the City of Sunny Isles Beach coordinates and facilitates its responses to sea turtle interactions, and to strandings of sea turtles in the vicinity of the fishing pier, with the sea turtle stranding and salvage network (STSSN), and when necessary, the nearest sea turtle rehabilitation facility
- ACOE or the City of Sunny Isles Beach must provide NMFS with reports regarding all fishing pier interactions with protected species, including an annual summary report which includes results of any underwater cleanup efforts
-ACOE or the City of Sunny Isles Beach must reduce the likelihood of injury or mortality resulting from hook-and-line capture or entanglement by activities at the pier
-pier must also display prominent educational signage regarding sea turtles, the possibility of their capture by hook-and-line, and what to do in the event of a capture
- City of Sunny Isles Beach must display adequate educational signage at the Newport Fishing Pier regarding sea turtles, the possibility of their capture by hook-and-line, and what to do in the event of a sea turtle hooking, entanglement, or stranding at the pier
- City of Sunny Isles Beach's Newport Fishing Pier must be equipped with (and the pier attendant familiar with its location and use) at least one hoisting net capable of lifting small, hooked sea turtles weighing up to 25 pounds safely to the deck for de-hooking and release
- City of Sunny Isles Beach's Newport Fishing Pier must be equipped with (and the pier attendant familiar with its location and use) at least one long handled line cutter such as the NOAA/Arceneaux Line Clipper
- City of Sunny Isles Beach shall ensure that sea turtles that are hooked, entangled, and/or stranded at or near the Newport Fishing Pier are transported to appropriate sea turtle rescue and rehabilitation facilities for treatment, rehabilitation, and eventual release where feasible
-to reduce the risk of turtle or sawfish entanglement in or ingestion of marine debris at Newport Fishing Pier, the City of Sunny Isles Beach will provide several monofilament recycling bins for used fishing line
- City of Sunny Isles Beach shall ensure that the underwater portions of the Newport Fishing Pier and nearby environs (within at least 50 yards) are kept as free as possible from discarded fishing lines, hooks, etc., that may pose a threat to foraging sea turtles

ACOE permit SAJ-2011-877 to the Palm Beach County Board of County Commissioners' Engineering and Public Works Department to construct a new 3,092-square-foot concrete fishing pier:
- educational signage regarding sea turtles must be clearly displayed at the Lantana Fishing Pier explaining the possibility of their capture by hook-and-line, and what to do in the event of a hooking or entanglement at the pier
- if a turtle is captured by hook-and-line at the Lantana Fishing Pier, the pier attendant (or Palm Beach County designee) must immediately be notified and respond to assist the angler in retrieving or releasing the turtle
- Palm Beach County Board of Commissioners must pre-arrange a plan to handle hooked, entangled, and stranded turtles found at or within 500 meters of the Lantana Fishing Pier; the plan must include pre-determined protocols for transporting the turtle to the appropriate sea turtle rescue and rehabilitation facility for treatment, rehabilitation, and eventual release; this includes turtles that cannot be unhooked safely or are too injured to release
-monofilament recycling bins must be provided by the Palm Beach County Board of Commissioners to reduce the risk of turtle or sawfish entanglement in or ingestion of marine debris at the Lantana Fishing Pier
-Palm Beach County Board of Commissioners shall ensure that the underwater portions of the Lantana Fishing Pier and nearby environs (within at least 50 yards) are kept as free as possible from discarded fishing lines, hooks, etc., that may pose a threat to foraging sea turtles
- Lantana Fishing Pier will use low-pressure sodium lighting to cut down night time illumination to prevent attracting sea turtles and prohibition of lights during the sea turtle nesting months of May through October
-reports must be sent to NMFS

Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by ACOE Galveston, New Orleans, Mobile, and Jacksonville Districts and Revision 2 to the National Marine Fisheries Service (NMFS) November 19, 2003, Gulf of Mexico Regional Biological Opinion (GRBO) to the U.S. Army Corps of Engineers (COE) In Hopper Dredging of Navigation Channels and Borrow Areas in the U.S. Gulf of Mexico:
-Hopper dredging requirements
-Non-hopper type dredging requirements
-Annual reporting requirements
-Observers to monitor for turtles
-Screening requirements
-Dredging pump requirements
-Sea turtle deflecting draghead requirements
-Dredge take reporting requirements
-Sea turtle strandings procedures
-Reporting - Strandings
-District annual relocation trawling report
-Conditions requiring relocation trawling
-Relocation trawling waiver
-Relocation trawling pertaining to annual take limits
-Trawl time
-Handling during trawling

-Captured turtle holding conditions
-Weight and size measurements required for all turtles
-Take and release time during trawling
-Tagging: Flipper tagging and PIT-Tag Scanning
-Cooperative Marine Turtle Tagging Program (CMTTP) participation
-Tissue sampling
-Cost sharing of genetic analysis
-Other sampling procedures
-Handling Fibropapillomatose Turtles
-Hardground buffer zone requirements
-Training - Personnel on Hopper Dredges
-Dredge lighting requirements

U.S. Coast Guard (USCG)

USCG vessel and aircraft operations along the Atlantic coast:
-Must submit an annual report documenting sea turtle incidental takes.

USCG National Ballast Water Management Program and Initial Numerical Standard:
- Provide report summarizing national patterns of ballast water delivery and management.
- Provide results of the practicability review.
- Provide results of any periodic programmatic reviews which may be undertaken as mandated under the National Invasive Species Act of 1996/ Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990.
- Provide an annual report detailing the number of ships entering US waters, the number of inspections, ballast water violations found, and corrective actions taken to fix the violation.

Minerals Management Service (MMS)/Bureau of Ocean Energy Management (BOEM)

BOEM issuance of an offshore sand lease to the Town of Longboat Key, includes relocation trawling:
-To temporarily reduce the abundance of listed species in the path of the hopper dredge and in order to reduce the possibility of lethal hopper dredge interactions, relocation trawling shall be conducted according to the following conditions:
a. *Trawl Time*: Trawl tow-time duration shall not exceed 42 minutes (doors in - doors out) and trawl speeds shall not exceed 3.5 knots.
b. *Handling During Trawling*: Sea turtles captured pursuant to relocation trawling shall be handled in a manner designed to ensure their safety and viability, and shall be released over the side of the vessel, away from the propeller, and only after ensuring that the vessel's propeller is in the neutral, or disengaged, position (i.e., not rotating).
c. *Captured Turtle Holding Conditions*: Captured turtles shall be kept moist, and shaded whenever possible, until they are released.
d. *Weight and Size Measurements*: All turtles shall be measured (standard carapace measurements including body depth) and tagged, and weighed when safely possible,

prior to release.
e. *Take and Release Time During Trawling - Turtles*: Turtles shall be kept no longer than 12 hours prior to release and shall be released not less than 3 nautical miles (nmi) from the dredge site
f. *Injuries and Incidental Take Quota*: Any protected species injured or killed during or as a consequence of relocation trawling shall count toward the incidental take quota.
g. *Flipper Tagging*: All sea turtles captured by relocation trawling shall be flipper tagged prior to release with external tags which shall be obtained prior to the project from the University of Florida's Archie Carr Center for Sea Turtle Research
h. *PIT-Tag Scanning*: All sea turtles captured by relocation trawling or dredges shall be thoroughly scanned for the presence of PIT tags prior to release using a scanner powerful enough to read dual frequencies (125 and 134 kHz) and read tags deeply embedded deep in muscle tissue
i. *CMTTP:* External flipper tag and PIT tag data generated and collected by relocation trawlers shall also be submitted to the Cooperative Marine Turtle Tagging Program (CMTTP), on the appropriate CMTTP form, at the University of Florida's Archie Carr Center for Sea Turtle Research.
j. *Tissue Sampling*: All live or dead sea turtles captured by relocation trawling or dredging shall be tissue-sampled prior to release, according to protocols
- *Hopper Dredging*: Hopper dredging activities in Gulf of Mexico waters from the Mexico-Texas border to Key West, Florida up to one mile into rivers shall be completed, whenever possible, between December 1 and March 31, when sea turtle abundance is lowest throughout Gulf coastal waters
- *Non-hopper Type Dredging*: Pipeline or hydraulic dredges, because they are not known to take turtles, must be used whenever possible between April 1 and November 30 in Gulf of Mexico waters up to one mile into rivers
- *Annual Reports*: The annual summary report must give a complete explanation of why alternative dredges (dredges other than hopper dredges) were not used for maintenance dredging of channels between April and November
- *Observers*: The ACOE shall arrange for NOAA Fisheries-approved observers to be aboard the hopper dredges to monitor the hopper spoil, screening, and dragheads for sea turtles and Gulf sturgeon and their remains.
- *Operational Procedures*: During periods in which hopper dredges are operating and NOAA Fisheries-approved observers are *not* required, the appropriate ACOE District must:
a. Advise inspectors, operators and vessel captains about the prohibitions on taking, harming, or harassing sea turtles
b. Instruct the captain of the hopper dredge to avoid any turtles and whales encountered while traveling between the dredge site and offshore disposal area, and to immediately contact the COE if
sea turtles or whales are seen in the vicinity.
c. Notify NOAA Fisheries if sea turtles are observed in the dredging area, to coordinate further precautions to avoid impacts to turtles.
d. Notify NOAA Fisheries immediately by phone (727/570-5312) or fax (727/570-5517) if a sea turtle or Gulf sturgeon is taken by the dredge.
- *Screening*: When sea turtle observers are required on hopper dredges, 100% inflow screening of dredged material is required and 100% overflow screening is recommended

- *Dredging Pumps*: Standard operating procedure shall be that dredging pumps shall be disengaged by the operator when the dragheads are not firmly on the bottom, to prevent impingement or entrainment of sea turtles within the water column
- *Sea Turtle Deflecting Draghead*: A state-of-the-art rigid deflector draghead must be used on all hopper dredges in all Gulf of Mexico channels and sand mining sites at all times of the year except that the rigid deflector draghead is not required in MR-SWP at any time of the year
- *Dredge Take Reporting*: Observer reports of incidental take by hopper dredges must be faxed to NOAA Fisheries by onboard endangered species observers within 24 hours of any sea turtle take observed.
-*Sea Turtle Strandings*: The ACOE Project Manager or designated representative shall notify the Sea Turtle Stranding and Salvage Network (STSSN) state representative of the start-up and completion of hopper dredging operations and bed-leveler dredging operations and ask to be notified of any sea turtle/sturgeon strandings in the project area that, in the estimation of STSSN personnel, bear signs of potential draghead impingement or entrainment, or interaction with a bed-leveling type dredge
- *Reporting - Strandings*: Each COE District shall provide NOAA Fisheries with an annual report detailing incidents, with photographs when available, of stranded sea turtles and Gulf sturgeon that bear indications of draghead impingement or entrainment
- *District Annual Relocation Trawling Report*: Each ACOE District shall provide NOAA Fisheries with end-of-project reports within 30 days of completion of relocation trawling projects, and an annual report summarizing relocation trawling efforts and results within their District
- *Conditions Requiring Relocation Trawling*: Handling of sea turtles captured during relocation trawling in association with hopper dredging projects in Gulf of Mexico navigation channels and sand mining areas shall be conducted by NOAA Fisheries-approved endangered species observers. PIT tags shall be used or scanned for.
- *Hardground Buffer Zones*: All dredging in sand mining areas will be designed to ensure that dredging will not occur within a minimum of 400 feet from any significant hardground areas or bottom structures that serve as attractants to sea turtles for foraging or shelter
- *Training - Personnel on Hopper Dredges*: The respective ACOE Districts must ensure that all contracted personnel involved in operating hopper dredges (whether privately-funded or federally-funded projects) receive thorough training on measures of dredge operation that will minimize takes of sea turtles. It shall be the goal of each hopper dredging operation to establish operating procedures that are consistent with those that have been used successfully during hopper dredging in other regions of the coastal United States, and which have proven effective in reducing turtle/dredge interactions
- *Dredge Lighting*: From May 1 through October 31, sea turtle nesting and emergence season, all lighting aboard hopper dredges and hopper dredge pumpout barges operating within three nmi of sea turtle nesting beaches shall be limited to the minimal lighting necessary to comply with U.S. Coast Guard and/or OSHA requirements

U.S. Navy

Navy Shoreline Protection System Repairs, Naval Air Station Oceana, Dam Neck Annex, Virginia Beach, Virginia:

- contact NMFS and communicate the cessation of dredging activities, to give NMFS an opportunity to provide the Navy with any updated contact information or reporting forms, and to provide NMFS with information of any incidences with listed species
- hopper dredges must be equipped with the rigid deflector draghead and operated and managed accordingly
- observer coverage on hopper dredges operating in Sandbridge Shoal/Atlantic Ocean must be sufficient for 100% monitoring of hopper dredging operations
- Navy shall require of the dredge operator that, when the observer is off watch, the cage shall not be opened unless it is clogged
- if sea turtles are present during dredging or material transport, vessels transiting the area must post a bridge watch/observer, avoid intentional approaches closer than 100 yards when in transit, and reduce speeds to below 4 knots if the bridge watch/observer identifies a listed species in the immediate vicinity of the dredge
- Navy must ensure that all contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles.
- procedures for handling live sea turtles must be followed in the unlikely event that a sea turtle survives entrainment in the dredge
- in the event of any lethal takes of sea turtles, any dead specimens or body parts must be photographed, measured, and preserved (refrigerate or freeze) until disposal procedures are discussed with NMFS
- if a decomposed turtle or turtle part is entrained during any dredging operations, an incident report must be completed and the specimen must be photographed
- Navy must contact NMFS within 24 hours of any interactions with sea turtles, including non-lethal and lethal takes
-Navy must photograph and measure any sea turtles observed during project operations (including whole sturgeon or sea turtles or body parts observed at the disposal location or on board the dredge, hopper or scow) and a corresponding form must be completed and submitted to NMFS within 24 hours

Navy use of the Surveillance Towed Array Sensor System Low Frequency Active Sonar for the period August 16.20 11, through August 15, 2012:
- Navy shall collect specific data on any apparent avoidance reactions of threatened or endangered species in response to exposure to LFA sonar transmissions, including the distance from the LFA sonar transmission, conditions of the exposure (location coordinates, depth of the species, time of day, ocean conditions, the animal's behavior before and after the exposure, and estimates of the received levels that elicited the response)
-if the Navy's monitoring programs identify any threatened or endangered species that demonstrate acute effects in response to exposure to LFA sonar transmissions, such as injury or death, the Navy shall immediately initiate the source shut-down procedure for the sonar system

Navy Atlantic Fleet's conduct of active sonar training along the Atlantic Coast:
of the United States and in the Gulf of Mexico from January 2012 to January 2014:
-take of sea turtles due to encounters with parachutes or other expended materials, particularly materials associated with sonobuoys
-in relation to sea turtles, includes notification to NMFS of any activities and reporting requirements

U.S. Navy activities in the Northeast Operating Areas from June 2011 to June 2012:
- Navy shall submit reports that identify the general location, timing, number of hours, and other aspects of the training activities the U.S. Navy plans to conduct along the Atlantic Coast of the United States over the next twelve months
- Annual Virginia Capes Range Complex, Cherry Point Range Complex and Jacksonville Range Complex Monitoring Plan Reports - The Navy shall submit a report (or a multi-Range Complex Annual Monitoring Plan Report, if that is how the Navy chooses to submit the information) annually on March 1
- Annual Virginia Capes Range Complex, Cherry Point Range Complex and Jacksonville Range Complex Exercise Reports - The Navy shall provide the information described below for all of their explosive exercises; until the Navy is able to report in full the information below, they shall provide an annual update on the Navy's explosive tracking methods, including improvements from the previous year
(i) Total annual number of each type of explosive exercise (of those identified as part of the "specified activity" in the Letters of Authorization) conducted in the Virginia Range Complex, Cherry Point Range Complex and Jacksonville Range Complexes.
(ii) Total annual expended/detonated rounds (missiles, bombs, etc.) for each explosive type.

The U.S. Navy research, development, test, and evaluation (RDT&E) activities at the U.S. Naval Surface Warfare Center, Panama City, Florida, from January 2011 to January 2012:
- Navy shall implement a monitoring program that allows the Navy and NMFS to evaluate the assumptions contained in this Opinion and that underlie this incidental take statement
- Navy shall submit reports that identify the general locations, timing, number of sonar hours, and other aspects of the RDT&E activities they conduct in the PCD Study Area from January 2011 through January 2012

U.S. Navy military readiness activities on the Virginia Capes, Cherry Point, and Jacksonville Range Complexes from June 2010 to June 2011:
- Navy shall submit reports that identify the general location, timing, number of hours and other aspects of the training activities the U.S. Navy plans to conduct along the Atlantic Coast of the United States over the next twelve months

National Aeronautics and Space Administration (NASA)

NASA Wallops Island shoreline restoration and infrastructure protection program:
- hopper dredges must be equipped with the rigid deflector draghead as designed by the ACOE and operated and managed accordingly
if dredging occurs during the period of April 1 through November 30, NASA must ensure that the ACOE and any dredge contractor adhere to "Monitoring Specifications for Hopper Dredges" with trained NMFS-approved sea turtle observers, in accordance with the attached "Observer Protocol" and "Observer Criteria"
- observer coverage must be sufficient for 100% monitoring of hopper dredging operations; all

- NASA must ensure that all contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles
- if sea turtles are present during dredging or material transport, vessels transiting the area must post a bridge watch, avoid intentional approaches closer than 100 yards when in transit, and reduce speeds to below 4 knots if bridge watch identifies a listed species in the immediate vicinity of the dredge
- the procedures for handling live sea turtles must be followed in the unlikely event that a sea turtle survives entrainment in the dredge
- NASA must inform NMFS of the commencement of operations 3 days prior to the actual start date and of the completion date within 3 days after the actual end of operations
- if a dead sea turtle or sea turtle part is taken in dredging or relocation trawling operations, a genetic sample must be taken
- if a sea turtle or sea turtle parts are taken in dredging operations, the take must be documented on the form included
- if a decomposed turtle or turtle part is taken in dredging operations, an incident report must be completed and the specimen must be photographed
- NASA must submit a final report summarizing the results of the dredging and any takes of listed species to NMFS within 30 working days of completion of each cycle of the project
- if a sea turtle is taken during dredging operations NASA must immediately contact NMFS

Nuclear Regulatory Commission (NRC)

NRC Oyster Creek Nuclear Generating Station, including entrainment:
- CWS and DWS intake trash bars must be cleaned daily from June 1 to October 31
- inspection of CWS and DWS cooling water intake trash bars (and immediate area upstream) must continue to be conducted at least once every 4 hours (three times per 12-hour shift) from June 1 through October 31
- lighting must be maintained at the intake bays to enable inspection personnel to see the surface of each intake bay and to facilitate safe handling of turtles which are discovered at night
- dip nets, baskets, and other equipment must be available at both the CWS and the DWS and must be used to remove smaller sea turtles from the intake structures to reduce trauma caused by the existing cleaning mechanism
- an attempt to resuscitate comatose sea turtles must be made according to NMFS procedures
- personnel must observe the canal area for sea turtles where and when possible (i.e., during the daylight hours)
- if any live or dead sea turtles are taken at the plant personnel must notify NMFS within 24 hours of the take
- an annual report of incidental takes must be submitted to NMFS by January 1 of each year
- personnel or NRC must notify NMFS when the OCNGS reaches 50% of the incidental take level for any species of sea turtle
- all dead sea turtles must be necropsied by qualified personnel

U.S. Fish and Wildlife Service (USFWS)

USFWS Dingell-Johnson Sport Fish Restoration Funding to the State of New Jersey ocean trawl surveys:

-USFWS must ensure that NJ has copies of the sea turtle handling and resuscitation requirements found at 50 CFR223.206(d)(1) prior to the commencement of any on-water activity
-USFWS must ensure that NJ staff give priority to handling and processing any sea turtles that are captured in the sampling gear; handling times must be minimized for these species
-USFWS must ensure that NJ has at least one crew member who is experienced in the identification of western North Atlantic sea turtles and sturgeon on the vessel(s) used for the ocean trawl survey
-all sea turtles must be weighed, measured and photographed; the condition of each animal must be recorded and any injuries documented
-USFWS must ensure that NJ notifies NMFS within 24 hours of any interaction with a listed species
-USFWS must ensure that NJ provides a written report to NMFS NERO within 30 days of any interaction between an ESA-listed sea turtle and the gear and/or vessel used during the survey
-USFWS must ensure that NJ provide a written report to NMFS within 60 days of completion of the on-water work, indicating either that no interactions with ESA-listed species occurred, or providing the total number of interactions that occurred with ESA-listed species

USFWS Sport Fish Restoration Act funding (via Grant No. NC F-92-R) of the North Carolina Department of Environment and Natural Resources' (NCDENR) "Assessment and Development of North Carolina's Estuarine Reef and Oyster Sanctuary.":
- If a sea turtle is caught, it must be handled, and resuscitation measures must be implemented according to NMFS' procedures
- USFWS/NCDENR must promptly notify NMFS by telephone or e-mail regarding all lethal take of sea turtles resulting from the sampling activities conducted with the grant award evaluated
- USFWS/NCDENR must provide NMFS with reports regarding the sampling results, including notice of takes or interactions with protected species
- USFWS/NCDENR must have measures in place to reduce the numbers of sea turtles captured as a result of the sampling to be conducted under the proposed funding
- USFWS must add the following condition to the grant award document: "NCDENR must keep a copy of the Sea Turtle Handling and Resuscitation Guidelines onboard their vessels during sampling work and direct all sampling participants of the requirement to follow these procedures in the event of a sea turtle capture."
- USFWS shall ensure that NCDENR's field staff will be trained to identify, measure, tag, and resuscitate sea turtles and are required to check for and record external flipper tags and internal passive integrated transponder (PIT) tags
- USFWS must add the following condition to the grant award document: "Should a lethal take occur, USFWS/NCDENR must notify the NMFS Southeast Regional Office at takereport.nmfssernoaa.gov immediately if practicable, but no later than 24 hours of discovery of the lethal take."
- USFWS shall send a report detailing any take of sea turtles to NMFS within 14 days of the incident
- USFWS must add the following condition to the grant award document: "NCDENR must notify the NMFS. Upon receipt of this information, NMFS may request that the USFWS impose additional requirements for protection of listed species on the use of this grant."

- USFWS/NCDENR must also send a final written report summarizing its sampling results, including any encounters or observations of threatened or endangered sea turtles, to NMFS
- if persistent lethal interactions with sea turtles occur, USFWS shall require that NCDENR modify the times and locations of sampling sets to avoid areas and times where interactions with sea turtles are likely to occur

USFWS grant increase of the authorized take level of Endangered Species Act-listed sea turtles captured incidental to North Carolina Department of Environment and Natural Resources' (NCDENR) ongoing "Pamlico Sound Independent Gillnet Survey.":
-if a sea turtle is caught, it must be handled, and resuscitation measures must be implemented according to NMFS' procedures
- USFWS/NCDENR must promptly notify NMFS regarding all lethal take of sea turtles resulting from the sampling activities conducted with the grant award evaluated in this opinion
- USFWS/NCDENR must provide NMFS with reports regarding the sampling results, including notice of takes or interactions with protected species
- USFWS/NCDENR must have measures in place to reduce the numbers of sea turtles captured as a result of the sampling to be conducted under the proposed funding
- USFWS must add the following condition to the grant award document: "NCDENR must keep a copy of the Sea Turtle Handling and Resuscitation Guidelines onboard their vessels during sampling work and direct all sampling participants of the requirement to follow these procedures in the event of a sea turtle capture."
- USFWS shall ensure that NCDENR's field staff will be trained to identify, measure, and resuscitate sea turtles and that they also check for and record external flipper tags and Passive Integrated Transponder (PIT) tags
-USFWS shall ensure that NCDENR staff will record the date, time, location, species, sex, straight and curved carapace measurements, condition, and final disposition of any turtle taken as a result of this activity
- USFWS must add the following condition to the grant award document: "Should a lethal take occur, USFWS/NCDENR must notify NMFS immediately if practicable, but no later than 24 hours of discovery of the lethal take."
- USFWS shall send a report detailing any take of sea turtles to NMFS within 14 days of the incident
- USFWS must add the following condition to the grant award document: "NCDENR must notify NMFS within 24 hours of exceeding any of the take limits specified"
- USFWS/NCDENR must also send a final written report summarizing its sampling results, including any encounters or observations of threatened or endangered sea turtles, to NMFS
- NCDENR must prepare and submit a report to USFWS and NMFS at the end of each sampling year, documenting and analyzing all sea turtle interactions, and any survey changes that have been implemented during that sampling period, including changes made in response to levels or patterns of sea turtle entanglements
- NCDENR must conduct biannual review of sea turtle interactions and evaluate, in coordination with NMFS and USFWS, whether or not new patterns of sea turtle interactions are emerging and if modifications to the sampling design can be incorporated without jeopardizing the integrity of the study

USFWS ongoing 5-year funding (2008-2012) of the Texas Parks and Wildlife Department's (TPWD) fishery-independent sampling program funded through USFWS Sport Fish Restoration and State Wildlife Grant programs:
-if a sea turtle is caught, it must be handled and resuscitation measures implemented according to NMFS' procedures
- USFWS/TPWD must promptly notify NMFS regarding all lethal take of sea turtles resulting from the sampling activities conducted with the grant award evaluated in this opinion
- USFWS/TPWD must provide NMFS with reports regarding the sampling results, including notice of takes or interactions with protected species
- USFWS must add the following condition to the grant award document: "TPWD must keep a copy of the Sea Turtle Handling and Resuscitation Guidelines onboard their vessels during sampling work and direct all sampling participants of the requirement to follow these procedures in the event of a sea turtle capture."
- USFWS must add the following condition to the grant award document: "Should a lethal take occur, USFWS/TPWD must notify NMFS."
- USFWS must add the following condition to the grant award document: "TPWD must notify NMFS within 24 hours of exceeding any of the take limits specified."

Federal Emergency Management Agency (FEMA)

FEMA (Region IV) is the funding authority under their Hazard Mitigation Grant Program - strengthening (against future potential storm damage), necessary repairs, and operation of the Flagler Beach Pier, in Flagler Beach, Florida:
-FEMA must ensure that the city of Flagler Beach coordinates and facilitates its responses to sea turtle interactions, and to strandings of sea turtles in the vicinity of the fishing pier, with the sea turtle stranding and salvage network (STSSN), and when necessary, the nearest sea turtle rehabilitation facility
-FEMA must ensure that the city of Flagler Beach provides NMFS with reports regarding all fishing pier interactions with protected species, including an annual summary report
-FEMA must ensure that the city of Flagler Beach will reduce the likelihood of injury or mortality resulting from hook-and-line capture or entanglement by activities at the pier; the pier must also display prominent educational signage regarding sea turtles and the possibility of their capture by hook-and-line, and what to do in the event of a capture
-if a turtle is captured by hook-and-line at the Flagler Beach Pier, the pier attendant must immediately be notified and respond to assist the angler in retrieving or releasing the turtle
-the city of Flagler Beach must pre-arrange a plan to handle hooked, entangled, and stranded turtles found at or within 500 meters of the Flagler Beach Pier
-educational signage regarding sea turtles must be clearly displayed at the Flagler Beach Pier explaining the possibility of sea turtle capture by hook-and-line and what to do in the event of a hooking, entanglement, or stranding at the pier
- monofilament recycling bins must be provided by the city of Flagler Beach to reduce the risk of turtle or sawfish entanglement in or ingestion of marine debris at the Flagler Beach Pier
-the city of Flagler Beach must ensure that the underwater portions of the Flagler Beach Pier and nearby environs (within at least 50 yards) are kept as free as possible from discarded fishing lines, hooks, etc., that may pose a threat to foraging sea turtles

- the Flagler Beach Pier is equipped with and will continue to use low-pressure sodium lighting to cut down night time illumination to prevent attracting sea turtles and prohibition of lights during the sea turtle nesting months of May through October
- submit annual reports of turtle interactions on pier

U.S. Air Force (USAF)

USAF Continuance of its Combat Search and Rescue (CSAR) training operations within the Gulf of Mexico Water Training Area (WTA), Apalachee Bay, off Franklin, Wakulla, Jefferson, and Taylor Counties, Florida:
- USAF shall continue to develop and improve their program aimed at helping to understand the dynamics and effects of marine debris ingestion by sea turtles and to decrease the interactions between sea turtles and marine debris
-to the maximum extent practicable, the USAF shall decrease the amount of debris discarded due to the proposed action and monitor the effects of marine debris associated with the action
-USAF shall monitor the effects of the project on sea turtles
- USAF shall update their study reviewing the current knowledge of marine debris ingestion and its effects on sea turtles, identifying sources and movements of debris throughout the Gulf of Mexico, estimating the amount of debris introduced annually to the Gulf of Mexico, and estimating the annual mortality of sea turtles due to debris ingestion
- USAF shall update their awareness program describing the dangers to sea life from marine debris
- USAF shall collect as many lightsticks, sea dye packs, and flares as possible after completion of an exercise; all plastic wrappings associated with the training materials will be disposed of properly so as not to become marine debris
- USAF shall use the minimum amount of training materials necessary to complete operations
-based on the data obtained during the previous 10-year CSAR training operations, the USAF shall determine the “pre-action” 10-year average percentage of total stranded sea turtles necropsied that had ingested plastic versus the total number necropsied
- USAF shall provide an example of the lightsticks and sea dye packs used for training operations, as well as the contact information for the Natural Resources Manager for Moody AFB, to the Florida STSSN coordinator prior to the start of the proposed action
-due to potential safety concerns and the unlikelihood that sea turtles will ingest flares, examples of the flares will not be provided to the Florida STSSN coordinator
- USAF shall provide an annual report to the NMFS Assistant Regional Administrator for Protected Resources

USAF placing between 310,000 and 350,000 cubic yards of sand along the shoreline at Patrick Air Force Base, located in Brevard County, Florida:
- Air Force and ACOE shall have measures in place to monitor and report all interactions with any protected species
-reports shall be sent to NMFS
- Air Force and COB (in the ACOE permit) will require NMFS-approved observers to monitor dredged material inflow and overflow screening baskets on the hopper dredge

- Air Force and COB (in the COB permit) will require relocation trawling prior to the start of dredging and will implement relocation trawling during dredging should a take(s) occur
- Air Force and COB (in the COB permit) will require the hopper dredge's draghead deflector to be inspected
-Air Force and ACOE (in the COB permit) will ensure that important sea turtle foraging habitat (e.g., hard bottom hard ground) is not adversely impacted by the proposed action
- Air Force will continue to monitor the effects of beach renourishment projects carried out at PAFB to ensure that these activities are not adversely impacting sea turtle foraging habitat
-a project report summarizing the results of the dredging and the sea turtle take (if any) must be submitted to the ACOE and NMFS within 30 working days of completion
- Air Force project manager shall notify the Sea Turtle Stranding and Salvage Network (STSSN) state representative of the start-up and completion of hopper dredging operations and ask to be notified of any sea turtle strandings in the project area that, in the estimation of the STSSN personnel, bear signs of potential draghead impingement or entrainment
- Air Force shall arrange for NMFS-approved protected species observers to be aboard the hopper dredge to monitor the hopper bin, screening, and dragheads for sea turtles and their remains; for the proposed action, 100 percent observer monitoring is required year round
-beach observers cannot be used in place of shipboard observers for hopper dredging of borrow areas
- pre-dredge relocation trawling shall commence not earlier than 72 hours prior to the start of dredging
-relocation trawling shall also be implemented simultaneous with hopper dredging if two or more turtles are taken in a 24-hour period during dredging
-relocation trawl tow-time duration shall not exceed 42 minutes (doors in — doors out) and trawl speeds shall not exceed 3.5 knots
-sea turtles captured during relocation trawling shall be handled in a manner designed to ensure their safety and viability, and shall be released over the side of the vessel, away from the propeller, and only after ensuring that the vessel's propeller is in the neutral, or disengaged, position (i.e., not rotating)
-injured sea turtles shall be immediately transported to the nearest sea turtle rehabilitation facility; the Air Force is responsible for funding and arranging transportation and care of threatened or endangered species injured during the course of dredging or relocation trawling.
- Flipper Tagging: All sea turtles captured by relocation trawling shall be flipper tagged prior to release with external tags which shall be obtained prior to the project from the University of Florida's Archie Carr Center for Sea Turtle Research
- PIT-Tag Scanning: All sea turtles captured by relocation trawling (or dredges) shall be thoroughly scanned for the presence of PIT tags prior to release using a multifrequency scanner powerful enough to read multiple frequencies (including 125-, 128-, 134-, and 400-kHz tags) and read tags deeply embedded in muscle tissue
- Tissue Sampling: All live or dead sea turtles captured by relocation trawling or dredging shall be tissue-sampled prior to release, according to the protocols
- PIT Tagging: PIT tagging is authorized but shall not be conducted by Endangered Species Observers (ESO) who do not have prior training or experience in said activity
- Handling Fibropapillomatose Turtles: NMFS-approved ESOs are not required to handle or sample viral fibropapilloma tumors if they believe there is a health hazard to themselves and choose not to

-for the proposed action, 100 percent shipboard observer monitoring is required year round
- Training Personnel on Hopper Dredges: The Air Force and COE must ensure that all contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles
-the sea turtle deflecting draghead is required for all hopper dredging, unless a waiver is granted by the COE South Atlantic District, in consultation with NMFS
-to prevent impingement or entrainment of sea turtles within the water column, standard operating procedure shall be that dredging pumps shall be disengaged by the operator when the dragheads are not firmly on the bottom
- Dredge Lighting: From March 1 through October 31, sea turtle nesting and emergence season, all lighting aboard hopper dredges and hopper dredge pump out barges operating within three miles of sea turtle nesting beaches shall be limited to the minimal lighting necessary to comply with U.S. Coast Guard and/or OSHA requirements
- Hardground Buffer Zones: All dredging in borrow areas will be designed to ensure that dredging will not occur within a minimum of 400 feet from any significant hardground areas or bottom structures that serve as attractants to sea turtles for foraging or shelter

Likely Possible Future Recommendations on Project Modifications to Avoid Jeopardy:

NMFS anticipates that all past Reasonable and Prudent Alternatives and Terms and Conditions are likely to be used in the future to avoid jeopardy.

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 Endangered Species Act also requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat. The key factor related to the 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 Endangered Species 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 with designation of critical habitat? What kinds of additional activities are likely to undergo consultation with critical habitat?

Ongoing actions would need to be reinitiated to address critical habitat. Beyond that, occupied critical habitat units their Physical and Biological Features (PBFs) and associated PCEs reflect the needs of the species and are clearly defined in the Biological Report. Modifications to the

PBFs are closely tied to adverse effects to the species; therefore, activities that would require consultation for critical habitat are primarily the same as activities that currently require consultation for the species.

It is uncertain what the threshold would be for when an impact is enough to require formal consultation in areas such as loggerhead migratory corridors. If the rule does not make clear that only large-scale blockages of the corridor are being considered as potential sources of adverse modification, NMFS could end up having to do a lot of formal consultations for activities in those corridors that are currently being dealt with informally.

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

1. U.S. Army Corps of Engineers – for permits that have not been completed; ongoing dredging projects, channel deepenings, sand mining, explosive removal of decommissioned oil platforms conducted by the ACOE
2. U.S. Fish and Wildlife Service funding of state or other research trawls
3. National Marine Fisheries Service - in season federal fisheries that have an ongoing Fishery Management Plan in place, bycatch characterization, or other rules; exempted fishing permits; issuance of section 6 grants; fishery observer program training; issuance of section 10 permits for directed research or for take incidental to otherwise lawful activities such as state fisheries or research directed at non-listed species; marine mammal incidental harassment authorizations; and Deepwater Horizon restoration of habitat
4. U.S. Coast Guard ballast water management program, training and readiness activities
5. Bureau of Ocean Energy Management – for leases or offshore wind energy project authorizations that have not been completed
6. U.S. Navy shoreline protection repairs; sonar and military readiness activities; research, development, test, and evaluation activities
7. National Aeronautics and Space Administration shoreline restoration, balloon or sonde launches
8. Nuclear Regulatory Commission generation station operations
9. U.S. Air Force search and rescue training operations and sand placement projects
10. NOAA's National Ocean Service - National Marine Sanctuaries management planning, marine debris removal
11. U.S. Fish and Wildlife Service coastal habitat restoration projects, research
12. National Science Foundation research cruises
13. Environmental Protection Agency - biological evaluations, National Pollutant Discharge Elimination System permits (example, aquatic life criteria for cyanide), surface water quality standards, site monitoring plans, construction general permit
14. Federal Energy Regulatory Commission transmission pipelines and maintenance
15. Federal Highways Administration bridge replacement piers and removal
16. U.S. Customs and Border Protection pier improvements
17. Federal Aviation Administration airport improvement projects
18. Federal Emergency Management Administration hazard mitigation grant program

19. National Resources Conservation Service management activities related to watersheds
20. U.S. Forest Service land management planning

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, NMFS will likely have to complete reinitiations for all of the formal consultations identified in the previous section. In addition, because all critical habitat units are currently occupied, increased administrative costs would come from doing an adverse modification analysis if the proposed project was to occur within one or more of the occupied units. In addition and assuming that the historical section 7 workload outlined previously will continue, we project that 75% of formal and 78% of informal consultations conducted annually in NJ, DE, VA, MD, NC, SC, GA, FL, AL, MS, LA, TX, multistate, programmatic, and federal waters will address effects to the loggerhead sea turtle and its critical habitat. Compared to baseline, the difference is not a significant change. However, as discussed in the previous section, this is hard to predict with certainty, given that we cannot say with certainty at this point how the thresholds for formal versus informal consultations would change with critical habitat designation. It is possible that, if the threshold is lowered, there could be a significant difference.

What project proponents are likely to pursue CPs 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 ESA it is for incidental take of the species only. The internal NMFS section 7 consultation on the issuance of the CP/incidental take permit addresses the potential for adverse modification of critical habitat within the CP area. Thus, the designation of critical habitat does not provide a trigger for a non-federal entity to pursue a CP.

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?

For the most part, project modifications for jeopardy and adverse modification would continue to be the same or similar. However, there are several instances in which NMFS might make project modifications during a section 7 consultation to avoid destruction or adverse modification of critical habitat that are different than those for avoiding jeopardy. When consulting under the jeopardy analysis portion, a section 7 biologist may need to make tenuous arguments that link a given action to "take" because current research is not well justified in terms of "take" to individuals for particular actions. With the designation of critical habitat, the section 7 biologist may not need to make these tenuous arguments, but could instead link his or her analysis more directly to a PCE or physical and biological feature of the critical habitat. Therefore, project modifications may be created that more directly or appropriately address threats to the species by way of affecting a named physical and biological feature or PCE, rather than having to modify a project to address a tenuous string of events that the section 7 biologist thinks would lead to

"take" of an individual. Having designated critical habitat actually saves the section 7 biologist the time of having to establish important habitat features in a jeopardy analysis, or, might help the section 7 biologist recognize important habitat that would not have otherwise been considered in the jeopardy analysis.

In order to foresee what differences might be made to project modifications to avoid destruction or adverse modification, it is prudent to examine the proposed PBFs and PCEs, and anticipate what a section 7 biologist might recommend beyond what they would have recommended in a jeopardy analysis. The proposed physical and biological features at the time of this memo fall into the following categories: nearshore reproductive habitat, concentrated foraging habitat, winter concentration habitat, concentrated breeding habitat, constricted migratory corridor habitat, and Sargassum habitat.

Nearshore reproductive habitat is described as "the nearshore waters adjacent to nesting beaches that are used by hatchlings to egress to the open-water environment as well as by nesting females to transit between beach and open water during the nesting season." PCEs are proposed as: 1) nearshore waters directly off the highest density nesting beaches (critical habitat nesting beaches, and those initially identified as critical habitat nesting beaches but exempted due to the existence of an adequate Integrated Natural Resources Management Plan (INRMP)) to 1 mile offshore; 2) waters sufficiently free of obstructions or artificial lighting to allow transit through the surf zone and outward toward open water; and 3) waters with minimal manmade structures that could promote predators (nearshore predator concentration caused by submerged and emergent offshore structures), disrupt wave patterns necessary for orientation, and/or create excessive longshore currents. Many consultations have addressed these PCEs for nearshore reproductive habitat without them having been named as such. However, with the naming of these PCEs, depending on the section 7 biologist's interpretation of "sufficiently free of obstructions or artificial lighting" and "minimal manmade structures," the threshold for restrictions on actions that affect these PCEs might be lowered for an adverse mod analysis. For example, in a jeopardy analysis, a section 7 biologist might examine the ACOE installation of a jetty in terms of take and come to the conclusion that the excessive current caused by the jetty wouldn't significantly reduce or change the directional swimming effort of a nesting female and they might still be able to get to the beach. However, when that section 7 biologist examines named PCEs, they might come to the conclusion that the jetty would create excessive currents, period, and recommend different material to be used in the construction of the jetty, or move the proposed jetty location entirely. Furthermore, more stringent modifications might be made to projects installing any sort of in-water structure, even artificial reefs that might attract or concentrate predators.

Winter concentration habitat areas of particular temperature and depth (PCEs) are proposed. Any activity occurring in one of these overwintering areas during the winter months could be examined more stringently by a section 7 biologist since it is directly named. The biologist would not have to search the literature and come up with this overwintering conclusion on his/her own. With the critical habitat designation, this is a specific named area he/she can focus on. Therefore, we anticipate that any action in these areas during the winter months could have more project modifications with the designation of critical habitat such as additional temporal and/or avoidance or relocation requirements.

Concentrated breeding areas ("core" breeding areas) and constricted migratory corridors (North Carolina and Southeastern Florida) identify specific areas of known concentrated breeding or migration. As such, these habitat areas would be similar to overwintering habitat in terms of the modifications that would need to be made to avoid or to keep these specified areas unimpeded and allow free transit. Again, a section 7 biologist might not have deemed these designated critical habitat areas as breeding areas to avoid in their jeopardy analysis. Projects might have additional temporal and/or avoidance or relocation requirements.

Sargassum habitat PCEs include: 1) convergence zones and surface-water downwelling areas where there are components of the *Sargassum* community in water temperatures suitable for the optimal growth of *Sargassum* and inhabitance of loggerheads; 2) *sargassum* in concentrations that support adequate prey abundance and cover; and 3) available prey and other material associated with *Sargassum* habitat, such as, but not limited to plants and cyanobacteria and animals endemic to the *Sargassum* community such as hydroids and copepods. This particular physical and biological feature is a dynamic feature. As such, there would be a requirement to track where the *Sargassum* community is in a given action area during a certain federal action. A section 7 biologist may require the action agency to do additional tracking of the community during the scope of a project and avoid affecting it as much as practicable. In addition actions that directly affect *Sargassum*, such as a directed fisheries for *Sargassum* and oil spills could likely be found to adversely modify critical habitat and would likely require extensive monitoring of the *Sargassum.*

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 to moderate. NMFS and federal action agencies have a long history of completing loggerhead sea turtle consultations without critical habitat. Thus, we anticipate the following incremental effects: (1) an increased workload for action agencies and NMFS to reinitiate consultation for ongoing actions, and (2) a minor increased workload for action agencies NMFS to conduct consultations for a few new actions.