Proposed Action	NOAA's National Marine Fisheries Service, Office of Protected Resources Coordination and Continued Operation of the Sea Turtle Stranding and Salvage Network
Type of Statement	Draft Environmental Assessment
Date	December 19, 2024
Lead Agency	U.S. Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service Office of Protected Resources
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Location	U.S. Atlantic, Gulf of Mexico, and U.S. Caribbean Territories

Abstract: NOAA's National Marine Fisheries Service (NMFS), Office of Protected Resources (OPR) leads the administration and coordination of the National Sea Turtle Stranding and Salvage Network (STSSN). The STSSN currently responds to, and documents, sick, injured, and dead sea turtles that are found in coastal and marine areas under U.S. jurisdiction along the Atlantic Ocean, Gulf of Mexico, and U.S. Caribbean territories. Although the STSSN has been in operation for several decades, the National Coordination role formally shifted to the OPR in 2022, which prompted an evaluation of STSSN operations and development of a formal STSSN Operating Procedures Handbook, which are subject to National Environmental Policy Act (NEPA) review. The Action under review is the Operation of the STSSN under the coordination of NMFS OPR, pursuant to the Draft 2024 STSSN Operating Procedures Handbook (Draft, January 2024).

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CHAPTER 1 INTRODUCTION AND PURPOSE AND NEED

This draft Environmental Assessment (EA) analyzes the continued operation of the Sea Turtle Stranding and Salvage Network (STSSN) under the coordination of the National Marine Fisheries Service (NMFS), Office of Protected Resources (OPR). NMFS has conducted an environmental review of NMFS OPR's coordination role related to the STSSN and the formalization of their program protocols and roles with a new Draft 2024 STSSN Operating Procedures Handbook, and determined an EA is appropriate for this action.

OPR began National Environmental Protection Act (NEPA) review of STSSN operations on June 29, 2022[1]. Although the STSSN has been in operation for several decades, the National Coordination role formally shifted to the OPR in January 2022, which prompted an evaluation of existing STSSN operations. Through that evaluation, OPR developed the Draft 2024 STSSN Operating Procedures Handbook to formalize the roles and responsibilities with state and other partner agencies. OPR is preparing this EA under NEPA to evaluate the environmental impacts of continuing operations of the STSSN program under the newly developed operating procedures.

NEPA, 42 U.S.C. 4321 et seq (2023) and National Oceanic and Atmospheric and Administration (NOAA) policy and procedures require all proposals for major federal actions to be reviewed with respect to environmental consequences on the human environment. NMFS determined that an EA was the appropriate level of NEPA analysis for this action.

This chapter presents a summary of NMFS's authority pursuant to the Endangered Species Act (ESA) to lead and coordinate the STSSN (Section 1.1), summary of the STSSN Activities (Section 1.2), and identifies NMFS's proposed action and purpose and need (Section 1.3). This chapter also explains the environmental review process (Section 1.4) and provides other information relevant to the analysis in this EA, such as the scope of the analysis (Section 1.5).

The remainder of this EA is organized as follows:

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[1] OPR submitted a "Report a Major Federal Action" form on the NOAA NEPA intranet on June 29, 2022, memorializing its determination that it needed to prepare an environmental assessment to evaluate the environmental effects of the operations of the STSSN. However, development of this EA did not begin until July 2023. A NEPA memo has been prepared extending the deadline for completion of the EA.

- Chapter 2 describes the STSSN activities and the alternatives carried forward for analysis as well as alternatives not carried forward for analysis;
- Chapter 3 describes the baseline conditions of the affected environment;
- Chapter 4 describes the direct, indirect, and cumulative impacts to the affected environment, specifically impacts to the 5 species of sea turtles associated with NMFS OPR's proposed action and alternatives;
- Chapter 5 lists document preparers and agencies consulted; and
- Chapter 6 lists references cited.

1.1 Overview of the Endangered Species Act and Relevant Authorities

The ESA establishes a national policy for conserving threatened and endangered species of fish, wildlife, plants and the habitat they depend on. An endangered species is a species in danger of extinction throughout all or a significant portion of its range, and a threatened species is one that is likely to become endangered within the near future throughout all or in a significant portion of its range. The U.S. Fish and Wildlife Service (USFWS) and NMFS jointly administer the ESA and are responsible for listing a species as either threatened or endangered, as well as designating critical habitat where applicable, developing recovery plans for these species, and undertaking other conservation actions pursuant to the ESA.

All species of sea turtle found in U.S. waters are listed as endangered or threatened under the ESA. Section 4(f) of the ESA (16 U.S.C. 1533(f)) provides for the creation of Recovery Plans for endangered and threatened species and provides NMFS and USFWS with authority "to procure the services of appropriate public and private agencies and institutions and other qualified persons" in order to implement those plans. To advance the conservation and recovery of listed sea turtles, each Recovery Plan[2] developed jointly by the NMFS and USFWS identifies and highlights the need to maintain an active stranding network.

[2] Sea Turtle Recovery Plans are available on the NMFS website at: https://www.fisheries.noaa.gov/resources/documents?title=&field_category_document_value%5Brecovery_plan%5D=recovery_plan&species%5B1000000045%5D=1000000045&field_species_vocab_target_id=&sort_by=created

1.2 Sea Turtle Stranding and Salvage Network Summary

The STSSN is a cooperative effort to reduce causes of morbidity and mortality in sea turtles by responding to and documenting sea turtles, found either dead or alive (but compromised), in a manner sufficient to inform conservation management and recovery. The STSSN accomplishes this through (1) collection of data in accordance with STSSN protocols; (2) improved understanding of causes of death and threats to sea turtles in the marine environment; (3) monitoring of stranding trends; (4) provision of initial aid to live stranded sea turtles; (5) provision of sea turtle samples/parts for conservation-relevant research; and (6) availability of timely data for conservation management purposes.

The STSSN, operating in the Gulf of Mexico and along the U.S. Atlantic coast (and later U.S. Caribbean territories), officially came into existence in the early 1980s, with the formal coordinating role assumed by NMFS at the Southeast Fisheries Science Center (SEFSC), Miami Laboratory. Prior to NMFS OPR taking on the national coordination role, sea turtle stranding data were collected and maintained by some of the southeastern states, and some of those data were maintained by the University of Miami (RSMAS). Today, the states along the Atlantic and Gulf coasts, Puerto Rico, and the U.S. Virgin Islands (USVI) comprise the STSSN in a formal network structure.
In accordance with the 2015 Memorandum of Understanding (MOU) between NMFS and USFWS (Appendix A), NMFS has lead responsibility for sea turtles in the marine environment and USFWS has lead responsibility on the nesting beaches (NMFS and USFWS 2015b[3]). Sea turtle stranding response and rehabilitation have traditionally operated with a shared jurisdictional responsibility between the two agencies. The MOU establishes NMFS as the lead for, and coordinator of, the STSSN to attend to stranded turtles in the marine environment or when washed ashore from the marine environment. Coordination by NMFS of the STSSN may include coordinating the placement of stranded turtles at approved rehabilitation facilities. USFWS authorizes stranding response and rehabilitation, and within its capacity, USFWS shall assist the STSSN, including within the National Wildlife Refuge system. NMFS shall share STSSN information with USFWS to promote the recovery and conservation of sea

[3] 2015 Memorandum of Understanding between NMFS and USFWS can be found in Appendix A or online for download at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://media.fisheries.noaa.gov/dam-migration/fws-nmfs_mou_2015.pdf

turtles. USFWS shall serve as the lead for and coordinator of authorized facilities holding sea turtles for rehabilitation or captive display. USFWS shall share information with NMFS on captive sea turtles and coordinate with NMFS on guidelines and standards for such facilities.

With most sea turtle strandings in the 1970s and 1980s occurring in the southeast U.S. , the role for national coordination of the network was undertaken by staff at NMFS SEFSC in the early 1980s. Since then SEFSC staff played an important role in establishing the network, maintaining the database, and providing STSSN summary data in response to data requests. In the early 2000s, NMFS OPR began providing overarching support to the network and established a Veterinary Medical Officer position for the national sea turtle program in 2012. After the Deepwater Horizon Oil Spill in 2010, which caused catastrophic impacts to sea turtles, OPR staff designed and are currently implementing the Deepwater Horizon Sea Turtle Early Restoration Project, which includes enhancements to the STSSN across the Gulf of Mexico. The STSSN is a national-level responsibility and aligns with OPR's national scope of work. On January 1, 2022, the responsibility for administering and coordinating the STSSN at the national-level was transferred from the SEFSC to OPR.

1.3 Proposed Action and Purpose and Need

NMFS's proposed action is the formalized continued operation of the STSSN under the coordination of NMFS OPR and the publication of the Draft 2024 STSSN Operations Procedures Handbook. The proposed activities considered in this draft EA are limited to the coordination role that OPR holds, activities NMFS OPR staff will conduct in the field related to stranding coordination, response, and mortality investigation, and direct takes of sea turtles while responding to stranding incidents that have occurred because of human activity or natural causes of illness, injury or mortality. Incidental takes are not authorized for the STSSN.

The purpose of NMFS's proposed action is to facilitate ongoing and improved stranding response and communication with the goal of reducing morbidity and mortality in order to achieve conservation and recovery of listed sea turtles. Additionally, this action will maintain NMFS compliance with the 2015 MOU with USFWS.

The need for NMFS's Proposed Action is to meet NMFS obligations under Section 4(f) of the ESA, which provides for the creation of Recovery Plans and provides NMFS and

USFWS with authority “to procure the services of appropriate public and private agencies and institutions and other qualified persons” in order to implement those plans. Each sea turtle species Recovery Plan identifies and highlights the need to maintain an active stranding network.

1.4 Environmental Review Process

Under NEPA, federal agencies are required to examine the environmental impacts of their proposed actions within the United States and its territories. An EA is a concise public document that provides an assessment of the potential effects a major federal action may have on the human environment. Major federal actions include activities that federal agencies fully or partially fund, regulate, conduct or approve. Since NMFS OPR is the lead for and coordinator of the STSSN pursuant to the 2015 MOU between NMFS and USFWS, NMFS considers the operation of the STSSN as a major federal action subject to NEPA; therefore, NMFS analyzes the environmental effects associated with the coordination and implementation of the STSSN and prepares the appropriate NEPA documentation. In addition, NMFS, to the fullest extent possible, integrates the requirements of NEPA with other regulatory processes required by law or by agency practice so that all procedures run concurrently, rather than consecutively. This includes coordination within the NOAA (e.g., the Office of the National Marine Sanctuaries) and with other regulatory agencies (e.g., the USFWS), as appropriate, during NEPA reviews prior to implementation of a proposed action to ensure that all applicable requirements are met.

1.4.1 Compliance with Other Laws

NMFS must comply with all applicable federal environmental laws, regulations and Executive Orders (as applicable) necessary to implement a proposed action. NMFS evaluation of and compliance with environmental laws and regulations is based on the nature and location of NMFS’ proposed action. Therefore, this section only summarizes environmental laws and consultations applicable to NMFS’s consideration of continuing to coordinate the STSSN.

Compliance with ESA: Section 4(f) of the ESA (16 USC 1533(f)) provides for the creation of Recovery Plans for endangered and threatened species and provides NMFS and USFWS with authority “to procure the services of appropriate public and private agencies and institutions and other qualified persons” in order to implement those plans. Both NMFS and USFWS have promulgated regulations that provide an exception to the

prohibitions on take and allow for response to stranded sea turtles in water and on land, based on their specific jurisdictional responsibility.
In 2005, NMFS published the final rule under 50 CFR 222.301: “Sea Turtle Conservation; Exceptions to Taking Prohibitions for Endangered Sea Turtles.” This rule is a programmatic permit by regulation pursuant to ESA section 10(a)(1)(A) to authorize any agent or employee of NMFS, USFWS, the U.S. Coast Guard, or any other federal land or water management agency, or any agent or employee of a state agency responsible for fish and wildlife who is designated by his or her agency for such purposes, when acting in the course of his or her official duties, to take endangered sea turtles if such taking is necessary to aid a sick, injured, entangled or stranded endangered sea turtle or dispose of such specimen or salvage such specimen which may be useful for scientific and educational purposes.

Additionally, 50 CFR 223.206(b) provides an exception to the prohibitions on take of threatened sea turtles. The regulation states that: “If any member of any threatened species of sea turtle is found injured, dead, or stranded, any agent or employee of the National Marine Fisheries Service, the Fish and Wildlife Service, the U.S. Coast Guard, or any other federal land or water management agency, or any agent or employee of a state agency responsible for fish and wildlife who is designated by his or her agency for such purposes, may, when acting in the course of his or her official duties, take such specimens without a permit if such taking is necessary to aid a sick, injured, or stranded specimen or dispose of a dead specimen or salvage a dead specimen which may be useful for scientific study.” The regulations authorize an unspecified annual take because there is no method for projecting or anticipating how many turtles may need to be responded to in any one area or region. The USFWS has codified regulations similar to NMFS. Specifically, sections 17.21(c)(3) and 17.31(b) provide exceptions to the prohibition on take of endangered and threatened species, including sea turtles identified in 17.42(b)). These regulations allow USFWS and NMFS personnel to respond to strandings on land.

On July 27, 2016, NMFS issued a biological opinion under the authority of Section 7(a)(2) of the ESA regarding the effects of NMFS Permit by Regulation, 50 CFR 222.301: “Sea Turtle Conservation; Exceptions to Taking Prohibitions for Endangered Sea Turtles,” which authorizes response to stranded endangered sea turtles in the marine environment. In this opinion, NMFS concludes that the operation of the STSSN, including actions to aid stranded turtles, and salvage and dispose of dead carcasses, is not likely to jeopardize the continued existence or recovery of green, hawksbill, Kemp's ridley, leatherback, loggerhead, or olive ridley sea turtles and is not likely to destroy or adversely modify designated critical habitat.

Compliance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA): Under section 305(b)(2) of the MSFCMA (16 USC 1855(b)(2)), Federal agencies are required to consult with the Secretary of Commerce with respect to any action authorized, funded, undertaken, or proposed to be authorized, funded or undertaken, by such agency which may adversely affect essential fish habitat (EFH) identified under the MSFCMA. NMFS OPR determined the ongoing operation of the STSSN and coordination of the STSSN by NMFS OPR will not adversely affect EFH for any species.

1.4.2 Public Involvement

The STSSN is inherently a public program. It is led by Federal and state partners, but involves local organizations and volunteer individuals to respond to stranded sea turtles. The Draft 2024 STSSN Operating Procedures Handbook was shared with appropriate Federal, state, and private partners directly associated with the STSSN.

Although agency procedures do not require publication of the draft EA prior to finalizing an EA, NMFS is substantially relying on the public involvement and coordination within the STSSN to develop and evaluate environmental information relevant to an analysis under NEPA. For this action, NMFS shall accept public comment during the 30-day period after the notice of availability for the draft EA is published. A detailed summary of the comments, and NMFS' responses to those comments, will be included in the final EA. The draft EA, and the corresponding public comment period are instrumental in providing the public with information on relevant environmental issues and offering the public a meaningful opportunity to provide comments for our consideration in both the ESA and NEPA processes.

1.5 Scope of the Environmental Assessment

This draft EA was prepared in accordance with NEPA (42 USC 4321, et seq.) and NOAA policy and procedures (NOAA Administrative Order [NAO] 216-6A and the Companion Manual for the NAO 216-6A). The analysis in this EA addresses potential direct, indirect, and cumulative impacts to loggerhead, green, Kemp's ridley, leatherback, and hawksbill sea turtles resulting from NMFS' proposed action to continue to coordinate and maintain the STSSN. The scope of this analysis is limited to the decision for which NMFS is responsible (*i.e.,* Continued Operation of the STSSN Under NMFS Coordination, Guided by the Draft 2024 STSSN Operating Procedures Handbook. This draft EA is intended to provide focused information on the primary issues and impacts of environmental concern.

The Action Area for this EA includes the coastal and marine areas of the U.S. Atlantic, Gulf of Mexico, and U.S. Caribbean Territories. All activities will occur in coastal and marine areas, or at existing NMFS facilities, which are defined in section **3.1 Physical Environment**. This EA does not provide a detailed evaluation of the effects to the elements of the human environment listed in **Table 1** below, as the environmental analysis demonstrated that there would be negligible impacts to the Human Environment from the proposed action.

The No Action Alternative is anticipated to result in long-term, minor-to-major adverse impacts if the STSSN ceases to exist or is modified in a way that response to strandings is no longer feasible.

Table 1: Elements of the human environment not further evaluated in this EA.

Biological	Physical	Socioeconomic/Cultural
• Benthic Communities • Coral Reef Systems • Fisheries Resources • Humans • Invertebrates • Invasive Species • Marine and Coastal Birds • Threatened and Endangered Fishes • Essential Fish Habitat	• Air Quality • Farmland Geography • Geology/Sediments • Land Use • Oceanography • State Marine Protected Areas • Federal Marine Protected Areas • National Estuarine Research Reserves • National Marine Sanctuaries • National Wildlife Refuge • Park Lands • Water Quality • Wetlands • Wild and Scenic Rivers	• Indigenous Cultural Resources • Low-Income Populations • Military Activities • Minority Populations • Other Marine Uses: Military activities, shipping marine transport, and boating • Recreational Fishing • Public Health and Safety

CHAPTER 2 ALTERNATIVES

As indicated in Chapter 1, NMFS's proposed action is the continuation of operation of the STSSN, under the coordination and direction of the NMFS OPR STSSN Coordination Team. In accordance with NEPA, NMFS is required to consider a reasonable range of alternatives to a Proposed Action as well as the No Action Alternative. Reasonable alternatives means a reasonable range of alternatives that are technically and economically feasible, and meet the purpose and need for the proposed action. The evaluation of alternatives under NEPA assists NMFS with assessing alternate ways to achieve the purpose and need for their proposed action that may result in less environmental harm. Reasonable alternatives are carried forward for detailed evaluation under NEPA, while alternatives considered but determined not to meet the purpose and need are not carried forward. For the purposes of this draft EA, an alternative will only meet the purpose and need if it satisfies the needs outlined in each sea turtle species Recovery Plan for maintaining an effective stranding network for achieving sea turtle conservation and recovery as described under the ESA. Therefore, NMFS applied the screening criteria and considerations outlined in Section 2.1 to the alternatives to identify which alternatives to carry forward for analysis. Accordingly, an alternative must meet these criteria to be considered “reasonable".

2.1 Considerations for Selecting Alternatives

Section 4(f) of the ESA (16 USC 1533(f)) provides for the creation of Recovery Plans for endangered and threatened species and provides NMFS and USFWS with authority “to procure the services of appropriate public and private agencies and institutions and other qualified persons” in order to implement those plans. To advance the conservation and recovery of ESA-listed sea turtles, each sea turtle Recovery Plan developed jointly by the NMFS and USFWS identifies and highlights the need to maintain an active stranding network. Each sea turtle ESA Recovery Plan identifies the need for a stranding network to achieve the conservation and recovery goals of the plan.

2.2 Description of Activities in the STSSN

The STSSN is a cooperative effort to reduce causes of morbidity and mortality in sea turtles by responding to and documenting sea turtles, found either dead or alive (but compromised), in a manner sufficient to inform conservation management and recovery. The STSSN accomplishes this through (1) collection of data in accordance with STSSN protocols; (2) improved understanding of causes of death and threats to sea turtles in the marine environment; (3) monitoring of stranding trends; (4) provision of initial aid to live stranded sea turtles; (5) provision of sea turtle samples/parts for conservation-relevant research; and (6) availability of timely data for conservation management purposes.

As mentioned above, the current STSSN operates along the U.S. Atlantic and Gulf of Mexico coastlines, and in the U.S. Caribbean Territories. The STSSN is organized through a structure of Regional and State Coordinators, State Liaisons, and responders.

The network consists of trained volunteers, municipal, state and federal employees and their designated agents who operate under the direction of the state and national coordinators. Although the STSSN has historically responded to entangled turtles in the marine environment, in response to the high number of leatherbacks found entangled in fishing gear (primarily pot gear) along the U.S. northeast Atlantic coast, NMFS established the Northeast Atlantic Coast Sea Turtle Disentanglement Network (STDN) in 2002. The STDN is a component of the larger STSSN program, and the NMFS Greater Atlantic Regional Office oversees and is responsible for collecting entanglement data under the STDN program.

The types of events that render turtles in need of aid in the marine environment are varied and include cold stunning; disease and health related issues; entanglement in and impingement on active or abandoned commercial and recreational fishing gear; ingestion of pollutants or marine debris; and traumatic injuries, including vessel strikes and shark attacks. Typically, these events are reported through a NMFS-dedicated phone line or through each state's STSSN phone line for reporting sick, injured, entangled or stranded wildlife. Alternately, STSSN responders may encounter turtles in the water when acting in the course of their official duties. On rare occasions, a member of the public reports a sick, injured or entangled sea turtle, and an immediate response is necessary to prevent further injury or death to the turtle. In these events, NMFS grants authority and gives specific instructions to the person at the scene to safely and properly aid the sea turtle.

When a sea turtle is encountered in the water, the STSSN responder determines whether the turtle is alive. The response protocol is based upon this first determination. Activities on live animals will be short in duration (maximum 10 minutes). Animals will be lifted into the boat manually or with small dip-nets. No large nets or gear (e.g., trawling gear) would be used. For live turtles, the treatment is based upon the circumstances surrounding the event. For example, when sea temperatures drop below a certain level, sea turtles become lethargic or comatose, a condition known as cold stunning. For these cold stun cases, the most immediate response is to remove the turtle from the water, apply a moisture emollient around its nostrils and eyes to prevent the membranes from drying out, provide a cover for the animal and transport it to a rehabilitation facility for veterinary care. For entanglement events, removal from the water is not always the best response and can result in further injury. The STSSN responder assesses the amount and type of gear that is involved and examines where and how the turtle is entangled in the gear.

The action reviewed in this EA is the continued coordination of the STSSN by NOAA/NMFS OPR and the review of program protocols and best practices, which have been consolidated and updated in the Draft 2024 STSSN Operating Procedures Handbook.

2.3 Alternatives

This EA evaluates two alternative actions. NOAA/NMFS considered several other alternative actions, but none were considered reasonable action alternatives. The alternatives considered, but determined to be not feasible include OPR continuing to manage and coordinate the STSSN, but without the new Operating Procedures Handbook. This alternative was not considered further, as the need for the Handbook has been continually raised by the STSSN participants, and is a necessary component to OPR's new role as it seeks to provide clarification on overarching authorizations for the STSSN, contact information, roles, responsibilities, procedures, and general protocols, forms, and expectations for stranding response, mortality investigation, and emergency events. Another potential alternative could be for the NMFS SEFSC to reinstate their coordination role over the STSSN. However, this was also determined to be not feasible, as the SEFSC has reallocated staff to other projects and does not currently have funding or capacity to serve that role. As such, the two alternatives considered are described below.

2.3.1 Alternative 1 - No Action

Under the No Action Alternative, NOAA/NMFS would absolve its role coordinating the STSSN. Under this alternative, the STSSN would continue to operate as prescribed in the species Recovery Plans, but only under existing state programs that are permitted through the USFWS permit authority, or through direct permits to stranding response organizations and rehabilitation facilities. Stranding response activities would be maintained, but without NOAA/NMFS involvement.

This alternative would remove OPR's role coordinating the STSSN and also discontinue OPR's role with mortality investigation (necropsy) and stranding response in several states. NMFS OPR currently serves as the State Coordinating entity for the STSSN in Louisiana, Mississippi, and Alabama, and this role would need to transfer to other entities, potentially the relevant state agencies or USFWS.

2.3.2 Alternative 2 - Proposed Action

Continued Operation of the STSSN Under NMFS Coordination, Guided by the Draft 2024 STSSN Operating Procedures Handbook

Under Alternative 2, NOAA/NMFS would continue to coordinate the STSSN and would finalize the 2024 STSSN Operating Procedures Handbook as a guide for the continued operation of the STSSN. The STSSN has been in operation for decades, and the Operating Procedures seeks to provide clarification on overarching authorizations for the STSSN, contact information, roles, responsibilities, procedures, and general protocols, forms, and expectations for stranding response, mortality investigation, and emergency events. The draft STSSN Operating Procedures Handbook is intended to formalize and summarize the inner workings of the STSSN, outline NOAA/NMFS roles and the collaborations and responsibilities of our partners. The draft 2024 STSSN Operating Procedures Handbook is summarized in the sections below.

2.3.2.1 Overview of STSSN Operating Procedures Handbook

The drafting of the 2024 STSSN Operating Procedures Handbook was initiated after OPR assumed a more formal coordination role over the STSSN in January 2022. The authority for NOAA/NMFS OPR to assume this role comes from Section 4(f) of the ESA (16 USC 1533 (f)), which provides for the creation of Recovery Plans for endangered and threatened species and provides NMFS and USFWS with authority “to procure the services of appropriate public and private agencies and institutions and other qualified persons” in order to implement those plans.

The purpose of the draft STSSN Operating Procedures is to: 1) provide the background and history of the STSSN, 2) outline the roles and responsibilities of all STSSN coordinators, liaisons, and participants, and 3) consolidate current STSSN operating procedures into one reference document to ensure program-wide consistency.
The document is organized into 8 chapters, and seeks to provide clarification on overarching authorizations for the STSSN, contact information, roles, responsibilities, procedures, and general protocols, forms, and expectations for stranding response, mortality investigation, and emergency events.
The chapters are as follows:

1) Introduction and Background
2) STSSN Contact Information

3) Process for Establishing a State Coordinator
4) Process for Selecting State Liaisons
5) Stranding Response
6) Data Management
7) Mortality Investigation
8) Emergency Events

The STSSN is a network of federal and state agencies, authorized non-governmental entities, and individual volunteers that respond to and document sea turtles found dead or stranded in coastal and marine areas under U.S. jurisdiction along the Atlantic Ocean, Gulf of Mexico, and the U.S. Caribbean territorial sea. NOAA/NMFS coordinates the Network. The stranding networks in Maine through Virginia are managed by a NMFS Regional Coordinator, who is located in the NMFS Greater Atlantic Regional Fisheries Office (GARFO). State, Territory, or federal marine resource agency staff serve as State Coordinators in North Carolina through Texas. Entities seeking to participate in sea turtle stranding response and/or rehabilitation should contact the appropriate regional or state coordinator to discuss their interest in participating in the STSSN.

The NMFS Regional Coordinator and/or the relevant State Coordinators coordinate with the USFWS to determine if there is a geographic, temporal, or capacity need for stranding response or rehabilitation in a specified area. When a need is identified and the interested entity meets state and/or federal requirements to conduct stranding response and/or rehabilitation activities, USFWS and/or the state natural resource agency will provide the necessary authorizations/permits. Authorized stranding responders and rehabilitation facilities must comply with all requirements specified in their federal and/or state authorizations. Additionally, sea turtle rehabilitation facilities must comply with the USFWS Standard Conditions for Care and Maintenance of Captive Sea Turtles.

2.3.2.2 Roles within the STSSN, as defined in the STSSN Operating Procedures

1) NMFS National Sea Turtle Coordinator:
    - Coordinate with USFWS on issues of joint jurisdiction and interagency coordination.
    - Facilitate national-level discussions within NMFS, and with partners, on issues related to the STSSN.

- Guide STSSN enhancements and program direction to ensure data collection efforts (and data collected) are meeting conservation and recovery needs.
- Identify/seek/support funding for priority STSSN activities.
- Participate in scheduled conference calls, meetings, or training events and communicate regularly with State Coordinators and the OPR STSSN Coordination Team to ensure effective STSSN implementation.

2) OPR STSSN Coordination Team:

- Provide protocols, including data collection methods, to ensure consistent data collection and reporting efforts throughout the STSSN.
- Regularly evaluate STSSN data access and summary needs for conservation management activities.
- Facilitate/coordinate response to mass/unusual stranding events.
- Assist the State Coordinators, Regional Coordinator, State Liaisons, and STSSN members, as needed.
- Participate in scheduled conference calls, meetings, and/or training events and communicate regularly with State Coordinators to ensure effective STSSN implementation.
- Ensure consistency in stranding documentation practices.
- Monitor strandings for unusual events/occurrences and alert/coordinate with relevant entities.

3) NMFS STSSN Database Coordinator

- Manage the NMFS STSSN Database and maintain user accounts for state data entry.
- Provide technical support to STSSN partners related to STSSN data management.
- Maintain technical documentation, instructional guidance, and training materials related to STSSN data management.
- Enter additional stranding data, not entered by states, into the STSSN Database.
- Respond to data requests and refer requests to states appropriately in a timely manner.
- Provide real-time updates and summaries across the STSSN.
- Ensure consistency in stranding documentation practices.

- Develop and maintain stranding data access and summary tools that are useful for conservation management needs.
- Monitor strandings for unusual events/occurrences and alert/coordinate with relevant entities.
- Validate data.

4) NMFS Sea Turtle Veterinary Medical Officer and Mortality Investigation Coordinator

- Facilitate/coordinate collection of clinical and necropsy data/samples necessary to identify causes of strandings.
- Provide stranding response and necropsy instruction and training to STSSN members, as needed.
- Provide veterinary assistance to USFWS and other agencies for any needs related to live stranded sea turtles, including animal welfare concerns and compliance with permit conditions to ensure effective investigation of any unusual or mass stranding/mortality events through direct involvement, coordination of participating individuals/groups, and/or documentation/reporting of findings.
- Ensure data collection efforts are appropriate to inform mortality and morbidity investigations.
- Provide overarching STSSN guidance on how to investigate mortality events.
- Participate in scheduled conference calls, meetings, and/or training events and communicate regularly with State Coordinators and the OPR STSSN Coordination Team to ensure effective STSSN implementation.
- Ensure all relevant new information is incorporated into STSSN mortality investigations.
- Monitor for unusual events in real time and conduct outreach as near real time as possible to ensure data are not lost and ensure monitoring is increased if necessary.

5) NMFS Greater Atlantic Region (GAR) Stranding Coordinator

- Facilitate communication within GAR STSSN, and between response and rehabilitation organizations and USFWS/NMFS, including running regular GAR STSSN meetings.

- Provide protocols and training (as needed) for stranding response and disentanglement.
- Assist with logistics during stranding events as needed, including organizing transports, working with municipal, state, and government partners, and responding to media.
- Provide funding and/or supplies as funds allow and need arises.
- Complete data entry and data validation.
- Assist with analyses/interpretation of data and provide expertise to ensure proper data context.
- Provide STSSN data in response to data requests from the public.
- Work with USFWS regarding permitting issues such as telemetry and rehabilitation.
- Investigate unusual stranding trends, including engaging the NMFS Veterinary Medical Officer and investigating human activities in the area.
- Immediately notify the OPR STSSN Coordination Team regarding unusual or mass-stranding events.
- Coordinate rehabilitation activities, including inspecting new facilities, receiving euthanasia notifications, working with facilities to find appropriate release locations, and finding placement for turtles.

2.3.2.3 *State Coordinators and State Liaisons*

The draft 2024 STSSN Operating Procedures Handbook details a process for establishing and selecting State Coordinators and State Liaisons. Through its role coordinating the STSSN, NMFS OPR has developed procedures related to the selection and replacement of State Coordinators who serve with the approval of their host agency.

Each STSSN State Coordinator serves in the role voluntarily. The State Coordinator host agency must be a federal natural resource agency or a state natural resource agency with an ESA Section 6 agreement and the designated State Coordinator must meet the following criteria:

1. A state or federal natural resource agency employee within an established state or federal sea turtle conservation program,
2. Understanding and willingness to follow all STSSN protocols and procedures,
3. Sea turtle stranding expertise, and
4. Experience with coordinating individuals and groups.

State Liaisons must meet the following criteria:

1. Understanding and willingness to follow all STSSN protocols and procedures,
2. Sea turtle stranding expertise, and
3. Experience coordinating individuals and groups.

2.3.2.4 STSSN Response, Data Management, Mortality Investigation, and Emergency Response

The draft 2024 STSSN Operating Procedures Handbook details the NOAA/NMFS role related to stranding response. As part of NMFS OPR's role in coordinating the STSSN, OPR develops and makes training materials available to the STSSN State Coordinators/Liaisons to facilitate standardized data collection across the network. NMFS OPR staff manage and direct the use of STSSN forms and management of the pursuant data.

As part of a Deepwater Horizon Sea Turtle Early Restoration Project task related to the enhancement of the STSSN in the Gulf of Mexico, OPR developed a new STSSN data application to improve data quality, data entry efficiency, and data access for management purposes. The new data application was implemented in the Gulf of Mexico in 2020, in the northeast states in 2021, and in the southeast states in 2022. OPR will ensure the new STSSN data application is supported and maintained for STSSN use into the future.

The NMFS OPR Veterinary Medical Officer oversees mortality investigation efforts nationwide. Within the STSSN, the appropriate State Coordinator or State Liaison manages the day-to-day necropsy and sampling of stranded turtles under periods of regular stranding activity (i.e., when the occurrence of sea turtle strandings and related observations are consistent with historical patterns and trends). The Veterinary Medical Officer may assume the primary coordination (in consultation with a State Coordinator or State Liaison) under the following circumstances: unusual or mass events; strandings suspected to be or attributed to commercial fisheries; strandings involving state or federal law enforcement; and any instance where coordination is requested by a STSSN coordinator, state, or federal agency.

Related to Emergency Response, the draft STSSN Operating Procedures Handbook details the major emergency response needs for the STSSN, cold stun response and oil spill response. For each of the event-types NMFS OPR can play a central role in the management of the event, or they may defer to other partners, such as the appropriate State Coordinator in the case of a cold stun event. During these emergency events, NOAA, USFWS, state agencies, STSSN State Coordinators and partners, and the public work together to rescue and recover stranded sea turtles, with the goal of maximizing the survival rate of live stranded sea turtles while ensuring human safety and animal welfare.

CHAPTER 3 AFFECTED ENVIRONMENT

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

3.1 Physical Environment

The affected environment is associated with the underlying activity, the operation of the STSSN along the Atlantic Coast, Gulf of Mexico, and U.S. Caribbean territories. All activities associated with the STSSN will occur in coastal and marine areas in the territorial and economic exclusive zone waters of the U.S. and its territories.

3.2 Biological Environment

3.2.1 Status of Affected Species

<u>Endangered</u>
Kemp's ridley sea turtle *(Lepidochelys kempii*)
Hawksbill sea turtle (*Eretmochelys imbricata*)
Leatherback sea turtle (*Dermochelys coriacea*)

<u>Threatened</u>
Green sea turtle (*Chelonia mydas*)

- North Atlantic DPS
- South Atlantic DPS

Loggerhead sea turtle (Caretta caretta)

- Northwest Atlantic Ocean DPS

The following subsections are synopses of the best available information on the status of the species that are likely to be affected by one or more components of the action. The biology and ecology of these species as well as their status and trends inform the impacts analysis for this document.

3.2.2 Sea turtles

All sea turtle species occurring in the Atlantic Ocean are listed as either endangered or threatened under the ESA. The alternatives discussed in this draft EA may affect five sea turtle species: leatherback, hawksbill, and Kemp's ridley sea turtles, which are listed as endangered, and the North and South Atlantic DPSs of green sea turtles and Northwest Atlantic Ocean DPS of loggerhead sea turtles, which are listed as threatened. The species summaries in this section will focus primarily on the Atlantic Ocean populations of these species, as these are the populations that may be affected by the proposed action. The following subsections are synopses of the best available information on the life history, distribution, population trends, current status, and threats of the five species of sea turtles that are likely to be affected by one or more components of the action. Thorough descriptions and assessments of the status of the species and DPSs of sea turtles found in U.S. Atlantic waters can be found in the most recent sea turtle Recovery Plans (NMFS and USFWS 1991, 1992, 1993, 1998a, 1998b, 2008; NMFS et al. 2011), 5-year reviews (NMFS and USFWS 2007a, 2007b, 2013a, 2013b, 2015b, 2023), and the loggerhead (Conant et al. 2009), green (Seminoff et al. 2015), and leatherback (NMFS and USFWS 2020) status reviews, which are incorporated herein by reference. A brief summary of the status of the species within U.S. Atlantic waters and in the action area is given below.

3.2.2.1 General threats to sea turtles

Sea turtles face numerous natural and man-made threats that shape their status and affect their ability to recover. Many of the threats are either the same or similar in nature for all listed sea turtle species including interactions with fisheries, construction and maintenance of navigation channels (dredging), coastal development, environmental contamination, climate change, and variety of other national and anthropogenic threats including predation, diseases, toxic blooms from algae and other microorganisms, and cold stunning. Additional detail about these threats is described in **Section 4.4 Cumulative Impacts** and information specific to a particular species or DPS is discussed in the corresponding status sections where appropriate.

3.2.2.2 Green sea turtle (North Atlantic and South Atlantic DPSs)

The green sea turtle was listed as threatened under the ESA on July 28, 1978, except for the Florida and Pacific coast of Mexico breeding populations, which were listed as endangered (43 FR 32800). On September 2, 1998, critical habitat for green sea turtles was designated in coastal waters surrounding Culebra Island, Puerto Rico (63 FR 46693). On April 6, 2016, NMFS and USFWS issued a final rule to list 11 DPSs of the green sea turtle. Three DPSs were listed as endangered and eight DPSs were listed as threatened (81 FR 20057). That rule superseded the 1978 final listing rule for green sea turtles and applied the existing protective regulations to the DPSs. For the purposes of this analysis, only the North Atlantic DPS (NA DPS) and South Atlantic DPS (SA DPS) will be considered, as they are the only two DPSs with individuals occurring in the mid-Atlantic waters of the U.S. (Figure 1).

Detailed information on the status of green sea turtles, including information on population structure, taxonomy and life history, distribution and abundance, and threats throughout their range, can be found in the Status Review (Seminoff et al. 2015) and the final rule listing DPSs (81 FR 20057).

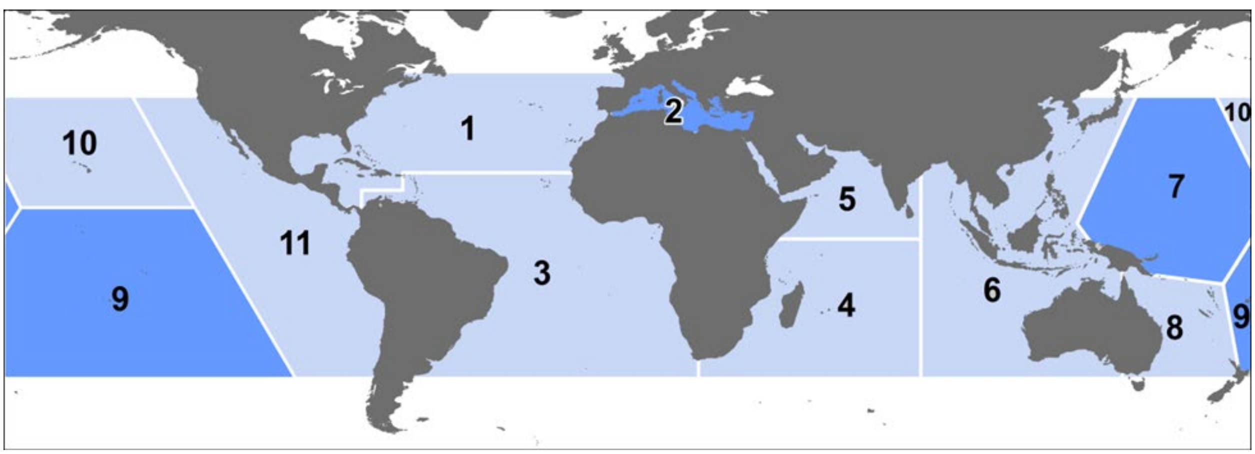

Figure 1. Threatened (light) and endangered (dark) green turtle DPSs: 1. North Atlantic, 2. Mediterranean, 3. South Atlantic, 4. Southwest Indian, 5. North Indian, 6. East Indian-

West Pacific, 7. Central West Pacific, 8. Southwest Pacific, 9. Central South Pacific, 10. Central North Pacific, and 11. East Pacific.

Species Description and Distribution

The green sea turtle is the largest of the hardshell marine turtles growing up to 1m in shell length. They have dark brown, gray, or olive colored shells (carapace) and a much lighter, yellow-to-white underside (plastron). The green sea turtle has a circumglobal distribution, occurring throughout nearshore tropical, subtropical and, to a lesser extent, temperate waters. Adult turtles exhibit site fidelity and migrate hundreds to thousands of kilometers from nesting beaches to foraging areas. With the exception of post-hatchlings, green turtles live in coastal foraging grounds including open coastline and protected bays and lagoons. Oceanic habitats are used by oceanic-stage juveniles (post-hatchlings), migrating adults, and in some cases foraging juveniles and adults. Post-hatchlings feed close to the surface on a variety of marine algae and other life associated with drift lines and debris. Juvenile and adult green turtles feed primarily on seagrasses and algae, although they also consume jellyfish, sponges, and other invertebrate prey. Green sea turtles nest on sandy beaches of mainland shores, barrier islands, coral islands, and volcanic islands in more than 80 countries worldwide (Hirth 1997).

- <u>North Atlantic DPS Distribution:</u> Green sea turtles from the NA DPS range from the boundary of South and Central America (7.5° N, 77° W) in the south, throughout the Caribbean, the Gulf of Mexico, and the U.S. Atlantic coast to New Brunswick, Canada (48° N, 77° W) in the north. The range of the DPS then extends due east along latitudes 48° N and 19° N to the western coasts of Europe and Africa (Figure 1). In U.S. Atlantic and Gulf of Mexico waters, green sea turtles are distributed in inshore and nearshore waters from Texas to Massachusetts.
- <u>South Atlantic DPS Distribution:</u> The range of the green sea turtle SA DPS begins at the border of Panama and Colombia at 7.5° N, 77° W, heads due north to 14° N, 77° W, then east to 14° N, 65.1° W, then north to 19° N, 65.1° W, and along 19° N latitude to Mauritania in Africa. The range extends along the coast of Africa to South Africa, with the southern border being 40° S latitude (Figure 1). The in-water range of the SA DPS is widespread and extends from the south Atlantic to north Atlantic Ocean.

Genetic Diversity

- North Atlantic DPS: The NA DPS has a globally unique haplotype[4], which was a factor in defining the discreteness of the population for the DPS. Evidence from mitochondrial DNA studies indicates that there are at least four independent nesting subpopulations in Florida, Cuba, Mexico, and Costa Rica (Seminoff et al. 2015). More recent genetic analysis indicates that designating a new western Gulf of Mexico management unit might be appropriate (Shamblin et al. 2015).
- South Atlantic DPS: Individuals from nesting sites in Brazil, Ascension Island, and western Africa have a shared haplotype found in high frequencies. Green turtles from rookeries in the eastern Caribbean however, are dominated by a different haplotype.

Within U.S. waters, individuals from both the NA and SA DPSs can be found on foraging grounds. Genetic analyses of juvenile green sea turtles captured in inshore pound nets in NC indicated that they are primarily from rookeries in the United States, Mexico, and Costa Rica, with 7 percent of individuals from rookeries in the southern Atlantic Ocean (SA DPS) (Bass et al. 2006). These models suggest that 93 percent of juveniles in NC inshore waters are from the NA DPS and 7 percent are from the SA DPS (Bass et al. 2006).

Life History Information

Estimates of age at first reproduction for female green sea turtles range widely depending on population from 15-50 years (Avens and Snover 2013, Seminoff et al. 2015). Females lay an average of three nests per season with an average of 100 eggs per nest and have a remigration interval of 2 to 5 years (Hirth 1997). Nesting occurs primarily on beaches with intact dune structure, native vegetation and appropriate incubation temperatures during summer months. After emerging from the nest, post-hatchlings begin an oceanic juvenile phase. Oceanic-stage juvenile green turtles originating from nesting beaches in the Northwest Atlantic appear to use oceanic developmental habitats and move with the predominant ocean gyres for several years before returning to their neritic foraging and nesting habitats (Musick and Limpus 1997, Bolten 2003). Most green turtles exhibit particularly slow growth rates, which has been described as a consequence of their largely herbivorous (*i.e.*, low net energy) diet (Bjorndal 1982). Growth rates of juveniles vary substantially among populations, ranging from less than 1 cm/year (Green 1993) to >5 cm/year (Eguchi et al. 2012).

[4] A set of closely linked genetic markers or DNA variations on a chromosome that tend to be inherited together.

Status and Population Dynamics

- North Atlantic DPS: Compared to other DPSs, the NA DPS exhibits the highest nester abundance, with approximately 167,424 females at 73 nesting sites, and available data indicate an increasing trend in nesting (NMFS 2022, Seminoff et al. 2015). The largest nesting site in the NA DPS is in Tortuguero, Costa Rica, which hosts 79 percent of nesting females for the DPS (Seminoff et al. 2015). There are no reliable estimates of population growth rate for the DPS as a whole, but estimates have been developed at a localized level. In the continental US, green sea turtle nesting occurs along the Atlantic coast, primarily along the central and southeast coast of Florida. Modeling by Chaloupka et al. (2008) using data sets of 25 years or more show the Florida nesting stock at the Archie Carr National Wildlife Refuge growing at an annual rate of 13.9 percent, and the Tortuguero, Costa Rica, population growing at 4.9 percent. According to data collected from Florida's index nesting beach survey from 1989-2021, green sea turtle nest counts across Florida have increased dramatically, from a low of 267 in the early 1990s to a high of 40,911 in 2019. Green sea turtle nesting is also documented annually on beaches of North Carolina, South Carolina, and Georgia, though nesting is found in low quantities (up to tens of nests) (nesting databases maintained on www.seaturtle.org).
- South Atlantic DPS: The South Atlantic DPS has 51 nesting sites, with an estimated nester abundance of 63,332. More than half of the 51 identified nesting sites (37) did not have sufficient data to estimate the number of nesters or trends (Seminoff et al. 2015). The largest nesting site is at Poilão, Guinea-Bissau, which hosts 46 percent of nesting females for the DPS (Seminoff et al. 2015). Of the nesting sites where data are available, such as Ascension Island, Suriname, Brazil, Venezuela, Equatorial Guinea, and Guinea-Bissau, there is some evidence that population abundance is stable or increasing. NMFS reported the population trend for the NA DPS to be mixed in the most recent report to Congress (NMFS 2022).

Status within the Action Area

The action area consists of coastal and marine areas of the U.S. Atlantic Ocean, Gulf of Mexico, and U.S. Caribbean territorial sea, which encompasses much of the range of the North and South Atlantic DPSs, and therefore the status within the Action Area is the same as described above.

Threats

The principal cause of past declines and extirpations of green sea turtles has been the overexploitation of the species for food and other products. Although intentional take of green sea turtles and their eggs is not extensive within the southeastern U.S., green sea turtles that nest and forage in the region may spend large portions of their life cycle outside the region and outside U.S. jurisdiction, where exploitation is still a threat in some areas. In addition to general threats to all sea turtles, green sea turtles are particularly susceptible to mortality from Fibropapillomatosis (FP) disease. FP results in the growth of tumors on soft external tissues (flippers, neck, tail, etc.), the carapace, the eyes, the mouth, and internal organs (gastrointestinal tract, heart, lungs, etc.) of turtles (Jacobson et al. 1989, Herbst 1994, Aguirre et al. 2002). Presently, FP is cosmopolitan, but has been found to affect large numbers of animals in specific areas, including Hawaii and Florida. Green sea turtles are also susceptible to cold-stunning. As temperatures fall below 8-10° C, turtles may lose their ability to swim and dive, often floating to the surface. The rate of cooling that precipitates cold-stunning appears to be the primary threat, rather than the water temperature itself (Milton and Lutz 2003). Sea turtles that overwinter in inshore waters, or are unable to leave these waters prior to temperature decreases, are most susceptible to cold-stunning because temperature changes are most rapid in shallow water (Witherington and Ehrhart 1989).

Critical Habitat

Critical habitat has not been designated for the North or South Atlantic DPSs, however in the interim, the existing critical habitat designation (*i.e.*, waters surrounding Culebra Island, Puerto Rico) remains in effect for the North Atlantic DPS. Additionally, NMFS has proposed critical habitat for six DPSs segments of green sea turtles (88 FR 46527; July 19, 2023). The proposed marine critical habitat includes nearshore waters (from the mean high water line to 20 m depth) off the coasts of Florida, North Carolina, Texas, Puerto Rico, U.S. Virgin Islands, California (which also includes nearshore areas from the mean high water line to 10 km offshore), Hawai‘i, American Samoa, Guam, and the Commonwealth of Northern Mariana Islands. Proposed marine critical habitat also includes *Sargassum* habitat (from 10 m depth to the outer boundary of the U.S. Exclusive Economic Zone) in the Gulf of Mexico and Atlantic Ocean.

3.2.2.3 Kemp’s ridley sea turtle

The Kemp’s ridley sea turtle was listed as endangered on December 2, 1970 (35 FR 18319), under the Endangered Species Conservation Act of 1969, a precursor to the ESA. When the ESA was signed into law in 1973, the Kemp’s ridley remained listed as endangered.

Additional detailed information on the status of Kemp’s ridley turtles, including information on population structuring, taxonomy and life history, distribution and abundance, and threats throughout their range, can be found in the Kemp’s ridley 5-year review (NMFS and USFWS 2015b), the Bi-National Recovery Plan for the Kemp’s Ridley Sea Turtle (NMFS et al. 2011).

Species Description and Distribution

The Kemp’s ridley sea turtle is the smallest of all sea turtles with adults generally weighing <45 kilogram (kg). Kemp’s ridleys have a nearly circular, grey-olive colored carapace and a pale yellowish plastron. Kemp’s ridleys range from the Gulf of Mexico to the northwest Atlantic Ocean, as far north as the Grand Banks (Márquez 2001, Watson et al. 2004) and Nova Scotia (Bleakney 1955). Kemp’s ridley habitat includes sandy and muddy areas in shallow, nearshore waters, although they can also be found in deeper offshore waters during early life stages and migration. These areas support their primary prey species, which consist of swimming crabs, but may also include fish, jellyfish, and an array of mollusks. Pelagic stage turtles rely on the array of prey items associated with floating *Sargassum* habitat. Kemp’s ridleys use relatively shallow corridors to migrate between these foraging areas to nesting beaches. Most nesting occurs in Tamaulipas, Mexico, however in the United States, Kemp’s ridleys are known to nest from Texas to NC.

Life History

Estimates of age to sexual maturity for Kemp’s ridley sea turtles ranges greatly from 5-18 years. NMFS et al. (2011) determined the best available point estimate of age to maturity for Kemp’s ridley sea turtles was 12 years. While some sea turtles nest annually, the weighted mean remigration rate for Kemp’s ridley sea turtles is approximately 2 years. Nesting generally occurs from April to July. Females lay approximately 2.5 nests per season with each nest containing 95-112 eggs. After hatching, pelagic post-hatchling and juveniles spend approximately 2 years in the ocean prior to recruiting to nearshore waters.

Status and Population Dynamics

Of all the sea turtle species in the world, the Kemp's ridley has declined to the lowest population level. When nesting aggregations at Rancho Nuevo were discovered in 1947, adult female populations were estimated to be in excess of 40,000 individuals (Hildebrand 1963). By the mid-1980s, however, nesting numbers from Rancho Nuevo and adjacent Mexican beaches were below 1,000, with a low of 702 nests in 1985. Nesting steadily increased through the 1990s, and then accelerated during the first decade of the twenty-first century. Following a significant, unexplained 1-year decline in 2010, Kemp's ridley nests in Mexico reached 21,797 in 2012 (Gladys Porter Zoo 2013). From 2013 through 2014, there was a second significant decline in Mexico. More recent data in Mexico indicate similar fluctuations in the number of nests with periods of low and high nesting. Nesting in Texas has paralleled the trends observed in Mexico, however over the long term, nesting has increased in Texas from one reported nest in 1985 to over 200 in 2020. At this time, it is unclear whether the increases and decreases in nesting seen over the past decade represents a population oscillating around an equilibrium point or if nesting will increase or decrease in the future. Given these uncertainties, NMFS reported the population trend for Kemp's ridley sea turtle as unknown in the most recent report to Congress (NMFS 2022).

Status within the Action Area

The action area consists of coastal and marine areas of the U.S. Atlantic Ocean, Gulf of Mexico, and U.S. Caribbean territorial sea, which encompasses much of the species range, and therefore the status within the Action Area is the same as described above.

Threats

The Kemp's ridley sea turtle was listed as endangered in response to a severe population decline, primarily the result of egg collection. Because the Kemp's ridley has one primary nesting beach, this species is particularly susceptible to habitat destruction by natural (e.g., hurricanes) and human caused events (NMFS and USFWS 2015). Human caused threats include the potential for oil spills, especially in the Gulf of Mexico since it is an area of high-density offshore oil exploration and extraction. Kemp's ridley populations were impacted by the Deepwater Horizon oil spill in which pelagic/oceanic juvenile Kemp's ridleys were the most common species encountered (Witherington et al. 2012). Bycatch of Kemp's ridleys in fisheries is a major threat to Kemp's ridleys. Kemp's ridleys are incidentally captured in fisheries using trawls, gill nets, and hook and line occur throughout the northwest Atlantic Ocean and Gulf of Mexico and were reported to have the highest interaction with fisheries operating in these fisheries of any species (Finkbeiner et al. 2011, Wallace et al. 2013).

Critical Habitat
No critical habitat has been designated for Kemp's ridley sea turtles.

3.2.2.4 Hawksbill sea turtle

The hawksbill sea turtle was listed as endangered throughout its entire range on June 2, 1970 (35 FR 8491) under the Endangered Species Conservation Act of 1969, a precursor to the ESA. When the ESA was signed into law in 1973, the hawksbill remained listed as endangered.

Additional detailed information on the status of hawksbill sea turtles, including information on population structuring, taxonomy and life history, distribution and abundance, and threats throughout their range, can be found in the hawksbill 5-year review (NMFS and USFWS 2013a) and the Hawksbill Recovery Plan (NMFS and USFWS 1998b).

Species Description and Distribution
Hawksbill sea turtles have a serrated carapace with a "tortoise-shell" coloring, ranging from dark to golden brown, with streaks of orange, red, and/or black. Their head is elongated and tapers to a point, with a beak-like mouth that gives the species its name. The shape of the mouth allows the hawksbill turtle to reach into holes and crevices of coral reefs to find sponges, their primary adult food source, and other invertebrates. They weigh on average 45-68 kg (Pritchard et al. 1983). Hawksbills have a circumglobal distribution throughout tropical and, to a lesser extent, subtropical waters of the Atlantic, Indian, and Pacific Oceans. In their oceanic phase, juvenile hawksbills can be found in *Sargassum* mats; post-oceanic hawksbills may occupy a range of habitats that include coral reefs or other hard bottom habitats, sea grass, algal beds, mangrove bays and creeks (Musick and Limpus 1997, Bjorndal and Bolten 2010). They are highly migratory and use a wide range of habitats during their lifetimes (Musick and Limpus 1997, Plotkin 2003). Hawksbills nest on sandy beaches throughout the tropics and subtropics and are capable of migrating long distances between nesting beaches and foraging areas (NMFS and USFWS 2013b). Satellite tagged turtles have shown significant variation in movement and migration patterns. Distance traveled between nesting and foraging

locations range from a few hundred to a few thousand kilometers (Miller et al. 1998, Horrocks et al. 2001).

Life History Information

Age to maturity for the species is also long, taking between 20 and 40 years, depending on the region (Chaloupka and Musick 1997, Limpus and Miller 2000). On average, female hawksbills return to the beaches where they were born (natal beaches) every 2-5 years (NMFS and USFWS 2013a), lay 3-5 nests per season (Mortimer and Bresson 1999, Richardson et al. 1999), and 130 eggs per nest (Witzell 1983). Hatchlings migrate to and remain in pelagic habitats until they reach approximately 22-25 cm in SCL and return to coastal foraging areas as juveniles.

Status and Population Dynamics

Very little long-term trend data exists for abundance of hawksbills at foraging sites, primarily because these data are logistically difficult and relatively expensive to obtain. Therefore, the primary information source for evaluating trends in global hawksbill populations is nesting beach data. Surveys at 88 nesting assemblages among 10 ocean regions worldwide indicate that 22,004-29,035 females nest annually (NMFS and USFWS 2013a). Among the 63 sites for which historic trends could be assessed, all 63 (100 percent) showed a decline during the long-term period of greater than 20 to 100 years. Among the 41 sites for which recent trend data are available 10 (24 percent) are increasing, 3 (7 percent) are stable, and 28 (68 percent) are decreasing (NMFS and USFWS 2013a). Although greatly depleted from historic levels, nesting populations in the Atlantic Ocean in general are doing better than in the Indo-Pacific, where despite greater overall abundance, a greater proportion of the nesting sites are declining.

Status within the Action Area

Along the east coast of the U.S., hawksbills are rarely observed north of Florida, however they have been observed as far north as Massachusetts. Nesting sites in the Atlantic Ocean basin occur in Florida, the insular Caribbean, Western Caribbean mainland, Southwestern Atlantic (Brazil), and Eastern Atlantic (NMFS and USFWS 2013a). Surveys at 33 nesting assemblages in the Atlantic Ocean indicate that 3,626-6,108 females nest annually (NMFS and USFWS 2013a). Of these sites, recent (less than 20 years) abundance data indicate 10 have increasing trends, 10 sites showing decreasing trends, and 13 sites lack enough information to assess trends.

Threats
The greatest threats to hawksbill sea turtles are overharvesting of turtles and eggs, degradation of nesting habitat, and fisheries interactions. Adult hawksbills are harvested for their meat and carapace, which is sold as tortoiseshell. Eggs are taken at high levels, especially in southeast Asia where collection approaches 100 percent in some areas. In addition, lights on or adjacent to nesting beaches are often fatal to emerging hatchlings and alters the behavior of nesting adults. Due to their preference to feed on sponges associated with coral reefs, hawksbills are particularly sensitive to losses of coral reef habitat. Coral reefs are vulnerable to destruction and degradation caused by human activities (*e.g.*, nutrient pollution, sedimentation, contaminant spills, vessel groundings and anchoring, recreational uses) and are also highly sensitive to the effects of climate change (*e.g.*, higher incidences of disease and coral bleaching) (Wilkinson 2004, Crabbe 2008). Because continued loss of coral reef communities (especially in the greater Caribbean region) is expected to impact hawksbill foraging, it represents a major threat to the recovery of the species.

Critical Habitat
On June 24, 1982, USFWS designated critical habitat for hawksbill sea turtles in the terrestrial environment and nearshore waters of Isla Mona, Culebra Island, Cayo Norte, and Island Culebrita, Puerto Rico (47 FR 27295). On September 2, 1998, NMFS designated critical habitat for hawksbill sea turtles in the coastal waters of Mona and Monito Islands, Puerto Rico (63 FR 46693).

3.2.2.5 Leatherback sea turtle

The leatherback sea turtle was listed as endangered throughout its entire range on June 2, 1970 (35 FR 8491) under the Endangered Species Conservation Act of 1969. When the ESA was signed into law in 1973, the leatherback remained listed as endangered. In 2020 NMFS and USFWS published a status review and identified seven discrete populations (separated from each other as a result of physical and behavioral factors). NMFS concluded that the 7 populations would meet the criteria for recognition as DPSs, however did not list them separately as DPSs as all would meet the definition of the endangered (85 FR 48332). For the purposes of this analysis, this document will primarily focus on the Northwest Atlantic Ocean population as only individuals from this population occur in the mid-Atlantic waters of the U.S.

Additional detailed information on the status of leatherback sea turtles, including information on population structuring, taxonomy and life history, distribution and abundance, and threats throughout their range, can be found in the status review (NMFS and USFWS 2020), 5-year review (NMFS and USFWS 2013b), and Recovery Plan (NMFS and USFWS 1998a).

Species Description and Distribution

The leatherback sea turtle is unique due to its large size and wide distribution (due to thermoregulatory adaptations and behavior), and lack of a hard, bony carapace. Leatherbacks are the largest living turtle, reaching lengths of six feet long (~1.83 m), and weighing up to one ton (0.91 metric tons). They have a black carapace with prominent dorsal ridges, long clawless flippers, and a pink spot on the top of their heads. Leatherbacks have pointed tooth-like cusps and sharp-edged jaws that are adapted for a diet of gelatinous prey such as jellyfish, tunicates, and ctenophores. Leatherback turtles spend the majority of their lives at sea, where they develop, forage, migrate, and mate. The leatherback turtle has the widest distribution of any reptile, with a global range extending from 71° N to 47° S and migrate between highly productive temperate foraging areas and tropical and subtropical sandy nesting beaches. The northwest Atlantic population includes leatherbacks originating from the northwest Atlantic Ocean, south of 71° N, east of the Americas, and west of Europe and northern Africa (the southern boundary is a diagonal line between 5.377° S, 35.321° W and 16.063° N, 16.51° W) (NMFS and USFWS 2020).

Life History Information

Based on mean estimates, leatherback turtles mature at approximately 20 years of age and approximately 130 cm CCL in size (Spotila et al. 1996, Avens et al. 2009, NMFS and USFWS 2020). Females lay an average of five to seven clutches per season, with an inter-nesting interval of 7 to 15 days (Eckert et al. 2012, Eckert et al. 2015). Females lay 20 to 100 eggs per nest (Eckert et al. 2012) and nesting occurs on average every 2 to 4 years (remigration interval, Eckert et al. 2015). The number of leatherback turtle hatchlings that make it out of the nest on to the beach (*i.e.*, emergent success) is approximately 50 percent worldwide (Eckert et al. 2012) and approximately 30 percent of the eggs may be infertile. Nesting females exhibit low site-fidelity to their natal beaches, returning to the same region, but not necessarily the same beach, to nest (Dutton et al. 1999, Dutton et al. 2007). This natal homing results in reproductive isolation between distant nesting beaches, which are separated by physical features, such as land masses, oceanographic features, and currents. This separation is supported by data showing significant genetic discontinuity among the seven populations: northwest Atlantic, southwest Atlantic, southeast Atlantic, southwest Indian, northeast Indian, west Pacific, east Pacific (as summarized in NMFS and USFWS 2020).

Status and Population Dynamics

The northwest Atlantic population nesting female abundance at 55 sites is estimated to be 20,659, with the largest nesting site, Grand Riviere in Trinidad accounting for 29 percent of this abundance. NMFS and USFWS (2020) estimated the index of nesting female abundance for 24 nesting sites in 10 nations within the northwest Atlantic population. Nesting in the northwest Atlantic population is characterized by many small nesting beaches. Large nesting aggregations are rare; only about 10 leatherback nesting beaches in the wider Caribbean region (about 2 percent of the population's total nesting sites) host more than 1,000 crawls annually (Piniak and Eckert 2011). At beaches with the greatest known nesting female abundance, the northwest Atlantic population is exhibiting a decreasing trend in nesting activity (NMFS and USFWS 2020). The Northwest Atlantic Leatherback Working Group completed a region-wide trend analysis that also showed an overall decline in the population, reporting a 9.32 percent decline in nesting annually from 2008-2017 (Northwest Atlantic Leatherback Working Group 2018). In-water abundance studies of leatherbacks are rare. However, the relative abundance of turtles at a foraging area off Nova Scotia, Canada, from 2002 to 2015 was recently assessed (Archibald and James 2016). This study evaluated opportunistic sightings per unit effort and found a mean density of 9.8 turtles per 100 km^2, representing the highest in-water density of leatherback turtles reported to date. Archibald and James (2016) concluded that the relative abundance of foraging leatherback turtles off Canada exhibited high inter-annual variability, but overall showed a stable trend from 2002 to 2015.

Status within the Action Area

The action area consists of coastal and marine areas of the U.S. Atlantic Ocean, Gulf of Mexico, and U.S. Caribbean territorial sea, which encompasses much of the range of the northwest Atlantic population,and therefore the status within the Action Area is the same as described above.

Threats

The primary threats to leatherback sea turtles include fisheries interactions (bycatch), harvest of nesting females, and egg harvesting. Because of these threats, once large rookeries are now functionally extinct, and there have been range-wide reductions in population abundance. Leatherbacks are also susceptible to marine debris ingestion than other sea turtle species due to their predominantly pelagic existence and the tendency of floating debris to concentrate in convergence zones that adults and juveniles use for feeding and migratory purposes (Shoop and Kenney 1992, Lutcavage et al. 1997). Ingestion of marine debris (plastic) is common in leatherback turtles and can block gastrointestinal tracts leading to death. Global climate change can be expected to have various impacts on all sea turtles, including leatherbacks. Climate change is likely to impact leatherbacks by altering nesting habitat, and changing the abundance and distribution of forage species, which will result in changes in leatherback foraging behavior and distribution and fitness and growth (NMFS and USFWS 2020).

Critical Habitat

On March 23, 1979, NMFS designated critical habitat for leatherback sea turtles in the waters adjacent to Sandy Point, St. Croix, U.S.V.I. from the 183 m isobath to mean high tide level between 17° 42'12" N and 65° 50'00" W (44 FR 17710). On January 26, 2012, NMFS revised the critical habitat designation for leatherback sea turtles to include coastal and open water areas along the U.S. west coast (77 FR 4170).

3.2.2.6 Loggerhead sea turtle (Northwest Atlantic Ocean DPS)

The loggerhead sea turtle was listed as a threatened species throughout its global range on July 28, 1978 (43 FR 32800). NMFS and USFWS published a Final Rule designating nine DPSs for loggerhead sea turtles (76 FR 58868, September 22, 2011; effective October 24, 2011): (1) Northwest Atlantic Ocean (NWA) (threatened), (2) Northeast Atlantic Ocean (endangered), (3) South Atlantic Ocean (threatened), (4) Mediterranean Sea (endangered), (5) North Pacific Ocean (endangered), (6) South Pacific Ocean (endangered), (7) North Indian Ocean (endangered), (8) Southeast Indo-Pacific Ocean (endangered), and (9) Southwest Indian Ocean (threatened). The NWA DPS is the only DPS that occurs within the action area and, therefore, it is the only one considered in this document.

Additional detailed information on the status of loggerhead sea turtles, including information on population structuring, taxonomy and life history, distribution and abundance, and threats throughout their range, can be found in the 5-year review (NMFS and USFWS 2023), and Recovery Plan (NMFS and USFWS 2008).

Species Description and Distribution
Loggerhead sea turtles are large, and adults in the southeast U.S. average 92 cm in carapace length and weigh approximately 116 kg (Ehrhart and Yoder 1978). Adult and subadult loggerhead sea turtles typically have a light yellow plastron and a reddish brown carapace and have large, strong jaws. Loggerhead turtles are circumglobal, and are found in continental shelf and estuarine environments throughout the temperate and tropical regions of the Atlantic, Indian, and Pacific Oceans. NWA DPS of loggerheads are found along eastern North America, Central America, and northern South America (Dodd Jr. 1988). Habitat use within these areas vary by life stage. Juveniles are omnivorous and forage on crabs, mollusks, jellyfish, and vegetation at or near the surface (Dodd Jr. 1988). Subadult and adult loggerheads are primarily found in coastal waters and eat benthic invertebrates such as mollusks and decapod crustaceans in hard bottom habitats. Nesting occurs on beaches within the southeast U.S. and the wider Caribbean region.

Within the NWA DPS, most loggerheads nest from NC to Florida and along the Gulf of Mexico coast of Florida. The Recovery Plan identified five recovery units. The Northern Recovery Unit (NRU) includes nesting areas from the Florida/Georgia border north through southern Virginia. The Recovery Plan concluded that all recovery units are essential to the recovery of the species.

Life History Information
Estimates of mean age of sexual maturity for female loggerheads sea turtles is 36 to 38 years (mean age predictions for minimum age are 22.5 to 25 years; Avens et al. 2015) with a 95 percent predictive interval of 29 to 49 years (Chasco et al. 2020). Mean age at sexual maturity for males is 37 to 42 years (mean age predictions for minimum age are 26 to 28 years; Avens et al. 2015). Females nest one to seven times in a season, and clutch sizes range from 95 to 130 eggs. Females nest every 1 to 7 years and exhibit relatively strong nest-site fidelity (Shamblin et al. 2017), with a mean remigration interval of 2.7 years (Shamblin et al. 2021). Young juvenile loggerheads inhabit oceanic waters spanning the width of the north Atlantic Ocean and Mediterranean Sea after which juveniles typically return to the neritic waters of the northwest Atlantic Ocean. Older

juveniles undergo an ontogenetic, oceanic-to-neritic habitat shift, however, this transition is not obligate, permanent (*i.e.*, some return to oceanic habitats; Mansfield and Putman 2013), nor fixed to a certain body size or age class (Winton et al. 2018).

Status and Population Dynamics

An overall estimate of nesting females for the NWA DPS is not available because of reproductive parameter uncertainty: remigration intervals and clutch frequencies vary spatially and temporally, and data are insufficient for some recovery units. Adequate data are available from the NRU (Florida/Georgia border north through southern Virginia), and the state of Florida, which represents 89 percent of nesting within the DPS (Ceriani and Meylan 2017). Ceriani et al. (2019) evaluated all known Florida nesting data from 1989 to 2018. Using the average annual number of loggerhead nests between 2014 and 2018, Ceriani et al. (2019) estimated the total number of adult females nesting in Florida to be 51,319 (95 percent confidence interval of 16,639-99,739 individuals). To avoid pitfalls of estimating nesting females based on estimates of emigration interval and clutch frequency, Shamblin et al. (2021) used genetic analyses to estimate female abundance for the NRU, estimating 8,074 total nesting females from 2010 to 2015 (Shamblin et al. 2021). The overall nesting trend of NWA DPS appears to be stable, neither increasing nor decreasing, for over two decades (NMFS and USFWS 2023). The NRU has demonstrated a positive, statistically significant growth rate (1.3 percent; $p = 0.04$) over the previous 37 years (NMFS and USFWS 2023).

In-water estimates of abundance include juvenile and adult life stages of both sexes but are difficult to perform on a wide scale. In the summer of 2010, NMFS' Northeast and Southeast Fisheries Science Centers estimated the abundance of juvenile and adult loggerhead sea turtles along the continental shelf between Cape Canaveral, Florida and the mouth of the Gulf of St. Lawrence, Canada. They provided a preliminary regional abundance estimate of 588,000 individuals (approximate inter-quartile range of 382,000-817,000) based on positively identified loggerhead sightings (NMFS 2011). A separate, smaller aerial survey, conducted in the southern portion of the Mid-Atlantic Bight and Chesapeake Bay in 2011 and 2012, demonstrated uncorrected loggerhead sea turtle abundance ranging from a spring high of 27,508 to a fall low of 3,005 loggerheads (Barco et al. 2018).

Status within the Action Area
The action area consists of coastal and marine areas of the U.S. Atlantic Ocean, Gulf of Mexico, and U.S. Caribbean territorial sea, which encompasses much of the NWA DPS range, and therefore the status within the Action Area is the same as described above.

Threats
Destruction and modification of terrestrial and marine habitats threaten the NWA DPS of loggerhead turtles. On beaches, threats that interfere with successful nesting, egg incubation, hatchling emergence, and transit to the sea include erosion, erosion control, coastal development, artificial lighting, beach use, and beach debris (NMFS and USFWS 2023). In the marine environment, threats that interfere with foraging and movement include marine debris, oil spills and other pollutants, harmful algal blooms, and noise pollution (NMFS and USFWS 2023). Domestic and international fisheries bycatch impacts juvenile and adult loggerheads in pelagic and coastal waters throughout the range of the DPS (Bolten et al. 2011, Finkbeiner et al. 2011). Harmful algal blooms (HABs), also called “red tides,” are a significant, nearly-annual threat to the DPS, especially to turtles inhabiting the waters off southwest Florida (Hart et al. 2018).

Critical Habitat
In 2014, NMFS and the USFWS designated critical habitat for the NWA DPS of loggerhead sea turtles along the U.S. Atlantic and Gulf of Mexico coasts, from NC to Mississippi (79 FR 39856). The final rule designated five different units of critical habitat, each supporting an essential biological function of loggerhead turtles. These units include nearshore reproductive habitat, winter area, *Sargassum*, breeding areas, and migratory corridors.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

This section presents the scientific and analytic basis for comparison of the direct, indirect, and cumulative effects of the alternatives. For the purpose of this analysis, NMFS considered the type of impact (direct, indirect, or cumulative), intensity (e.g., severity or magnitude) of the impact, and duration of the impact of the proposed action, as well as the context (significance of the action is analyzed in several contexts, e.g., the affected interests and the affected region). The magnitude or intensity of a known or potential impact is defined on a spectrum ranging from no impacts to major impacts. The potential impacts could be either beneficial or adverse. We will use the terms minor, moderate, and major and these are defined below. The duration of the potential impact takes into account the permanence of an impact; either short or long term impacts, which are also defined below.

Type of impact:

- **Direct Impact:** A known or potential impact caused by the proposed action or project that occurs at the time and place of the action.
- **Indirect Impact:** A known or potential impact caused or induced by the proposed action or project that occurs later than the action or is removed in distance from it, but is still reasonably expected to occur.
- **Cumulative Impact:** A known or potential impact resulting from the incremental effect of the proposed action added to other past, present, or reasonably foreseeable future actions.

Magnitude/Intensity:

- **Minor:** The action would have only a small impact on protected species. That impact, when adverse, may disturb a few individuals and alter their behavior temporarily, however it is not likely to "adversely affect" those individuals (per ESA definition). Population-level impacts (for example to migration, feeding and reproductive behavior) would not occur at a meaningful level. Changes to protected species' habitats (critical habitat) are minimal and do not appreciably differ from previous or natural conditions. Changes to habitat function are small and inconsequential.
- **Moderate:** The action has a more noticeable impact on protected species. That impact, when adverse, may widely and frequently disturb individuals, and the action may have the potential to "adversely affect" those individuals (per ESA definition). Population level impacts (for example to migration, feeding, and reproductive behavior) may occur. Changes to protected species’ habitats (critical habitat) would be apparent when compared to previous or natural conditions. Changes to habitat function are measurable.
- **Major:** The action has an obvious impact on protected species. That impact, when adverse, may result in harassment of individuals at sub-lethal or lethal levels, and the action may have the potential to "jeopardize” those populations and "adversely modify" critical habitat (per ESA definitions). Population level impacts (for example to migration, feeding and reproductive behavior) are likely to occur. Changes to protected species' habitats (critical habitat) would be

obvious when compared to previous or natural conditions. Changes to habitat function are obvious.

Duration of Potential Impacts:

- **Short-Term Impact:** A known or potential impact of limited duration, relative to the proposed activity and the environmental resource. For the purposes of this analysis, these impacts may be instantaneous or may last minutes, hours, days, or years.
- **Long-Term Impact:** A known or potential impact of extended duration, relative to the proposed activity and the environmental resource. For the purposes of this analysis, these improvements or disruptions to a given resource would last longer than 5 years.

4.1 Environmental Effects Common to All Alternatives

No alternative analyzed in this EA would result in the termination of the STSSN. Take coverage and authorizations under the ESA have already been issued by NMFS for the activities of the STSSN. All alternatives involve the continuation of the stranding network activities with the exception of the NOAA/NMFS coordination and management. As such the consequences in this section are expected to occur under each alternative.

4.1.1 Directed Take of Sea Turtles

The STSSN responds directly to sick, injured, and entangled sea turtles in the marine environment. The types of events that render turtles in need of aid in the marine environment are varied and include cold stunning; disease and health related issues; entanglement in and impingement on active or abandoned commercial and recreational fishing gear; ingestion of pollutants or marine debris; and vessel strikes and other traumatic injuries, including shark attacks. Typically, these events are reported through a NMFS-dedicated phone line or through the state’s STSSN phone line for reporting sick, injured, entangled or stranded wildlife. Alternately, STSSN responders may encounter turtles in the water when acting in the course of their official duties. On rare occasions, a member of the public reports a sick, injured or entangled sea turtle, and an immediate response is necessary to prevent further injury or death to the turtle. In these events, NMFS grants authority and gives specific instructions to the person at the scene to safely and properly aid the sea turtle.

When a turtle is encountered in the water, the STSSN responder determines whether the turtle is alive. The response protocol is based upon this first determination. Activities on live animals will be short in duration (maximum 10 minutes) and have minor and short-term impacts. Animals will be lifted into the boat manually or with small dip-nets. No large nets or gear (e.g., trawling gear) would be used. For live turtles, the treatment is based upon the circumstances surrounding the event. For example, when sea temperatures drop below a certain level, sea turtles become lethargic or comatose, a condition known as cold stunning. For these cold stun cases, the most immediate response is to remove the turtle from the water, apply a moisture emollient around its nostrils and eyes to prevent the membranes from drying out, provide a cover for the animal and transport it to a rehabilitation facility for veterinary care. For entanglement events, removal from the water is not always the best response and can result in further injury. The STSSN responder assesses the amount and type of gear that is involved and examines where and how the turtle is entangled in the gear.

The STSSN responder looks for injuries associated with the entanglement and observes the turtle's behavior (e.g., lethargic, energetic). Based on the examination and assessment, the STSSN responder attempts to remove any gear that can be removed without further injury to the turtle. If the animal can be brought on board a vessel without further injury, the STSSN responder attempts to remove all external gear and treat the turtle for any associated injuries. If injuries are severe, and it is logistically possible (due to their size and weight, leatherbacks present unique challenges), the turtle is transported to shore for transfer to a rehabilitation facility for veterinary care.

Although not a required element of the proposed action, for dead specimens found in the marine environment, STSSN responders may either document and mark the carcass and leave it where found or salvage the specimen for further examination or for scientific or educational purposes.[5]

[5] NMFS has determined that salvage activities for examination or for educational purposes will, at worst, have no effect on populations or species or, at best, will result in a beneficial benefit by increasing knowledge and public education about sea turtle biology. Salvage will also have no effect on the individual dead turtle. Thus, salvage activities are not analyzed in the Effects section of this biological opinion.

Individual response actions consist of direct, minor and short-term impacts to the individual sea turtle. Overall the action will have moderate and long-term beneficial impacts to both the individual and the species. Additionally, neither alternative is expected to impact any designated Critical Habitat for any sea turtle species.

4.1.2 Transporting

Turtles transported to a facility and held (e.g., for rehabilitation) must be maintained and cared for under the "Care and Maintenance Guidelines for Sea Turtles Held in Captivity" issued by the USFWS. During transport, the turtles are shaded and kept damp or moist but are not placed into a container holding water or placed in an area where the turtle may accidentally ingest material. For live turtles that are not injured but need resuscitation, procedures specified in 50 CFR 223.206(d)(1) are followed.

4.1.3 Photographing, Measuring, Weighing, and Tagging

Rescued animals are lifted into the boat manually or with small dip-nets. No large nets or gear (e.g. trawling gear) would be used. Depending on availability of equipment, some proportion of the animals will be measured, flipper and Passive Integrated Transponder (PIT) tagged, weighed, and photographed. Morphometric data will be collected using forestry calipers and a flexible tape. Measurements will include straight standard carapace length, straight minimum carapace length, straight maximum carapace width, straight midline plastron length, curved standard carapace length, and curved maximum carapace width and head width. Inconel tags will be applied to the trailing edge of each front flipper and a PIT tag will be subcutaneously applied to the right front flipper. Before insertion of any tags, all flippers will be scanned for the presence of any pre-existing PIT tags. Turtles may also be weighed and photographed.

4.1.4 Public Health and Safety

The proposed action and the No Action Alternative are not expected to have substantial adverse impacts on public health or safety because the action, continued operation of the National STSSN under OPR and through use of the draft 2024 STSSN Operating Procedures Handbook, would not change the current practices of STSSN responders. There is minimal potential for exposure to disease for human responders, if basic stranding protocols are followed. Responders will be trained accordingly in safety and proper response techniques to reduce safety concerns as much as possible when responding to sea turtles.

4.2 Effects of Alternative 1 - No Action Alternative

Under the No Action Alternative, NOAA/NMFS would absolve its role coordinating and participating in the STSSN. The STSSN would continue to operate, and stranding response would be maintained through the existing structure and under the direction of state agencies and the USFWS. Under this alternative, OPR would discontinue its role with mortality investigation and as the State Coordinator for the STSSN in LA, MS, and AL.

Changes to the NOAA/NMFS role in the STSSN, and discontinuation of the coordination and mortality investigation roles would have impacts on the STSSN. This action would result in a less-coordinated STSSN that would potentially operate with different protocols and expectations in each state. This alternative would also result in a significant gap in the Northern Gulf of Mexico states, until replacement coordinating entities could be found, and would limit the mortality investigation work conducted and data management.

The effects of the No Action Alternative would be a less-coordinated, state-managed STSSN, with individual data management systems. This would limit the benefits of the STSSN. In most places, stranding response would continue. Therefore, short-term benefits would be achieved to individual animals from response, rehabilitation, and release, but the benefits would be lower than those produced through Alternative 2.

4.3 Effects of Alternative 2 - Preferred Alternative

Continued Operation of the STSSN Under NMFS Coordination, Guided by the 2024 STSSN Operating Procedures Handbook

Under Alternative 2, NOAA/NMFS would continue to coordinate the STSSN and would finalize the draft 2024 STSSN Operating Procedures Handbook as a guide for the continued operation of the STSSN. The STSSN has been in operation for decades, and the STSSN Operating Procedures seeks to consolidate various guidance documents and clearly outline the roles and responsibilities of STSSN participants. Under this alternative, NOAA/NMFS would maintain its role with the STSSN, providing expertise and guidance to responders throughout the STSSN. NOAA/NMFS would continue to coordinate program-wide morality investigation to better understand in-water threats and causes of stranding. NOAA/NMFS would continue to maintain and expand the STSSN National Database and provide data management assistance. This will allow for the development of consolidated data summaries that can be used to analyze in-water threats and trends.

Alternative 2 would provide short-term benefits to individual turtles through response, rehabilitation, and release, as well as moderate and long-term benefits to populations and species through analysis of in-water threats and maintenance of the long-term data set to better inform future management actions.

4.4 Cumulative Impacts

A cumulative impact is the impact on the environment resulting from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions, regardless of the agency (federal or non-federal) or person undertaking such other actions. Significance from the proposed action cannot be avoided if it is reasonable to anticipate a significant cumulative impact on the environment. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time. Sea turtles face numerous natural and anthropogenic direct and indirect threats that shape their status and affect their ability to recover.

The purpose of the STSSN is to provide aid to sick, injured, and entangled sea turtles in the Atlantic and Gulf of Mexico coastal environments, and this action is inherently positive and beneficial to sea turtles. The proposed action, STSSN coordination by NMFS OPR, will respond to incidents that have occurred because of human activity or due to natural causes of illness, injury or mortality through rescue, rehabilitation and stranding response. These actions are wholly beneficial in nature and in turn would reduce impacts to sea turtles from past, present, and reasonably foreseeable future actions as described below. Thus, the impact on the environment resulting from the proposed action would be inherently positive and beneficial.

As discussed below, NMFS believes that the proposed action would not have a significant cumulative effect on either the physical or biological environments when combined with other past, present, and reasonably foreseeable future actions. The proposed action is directed at sea turtle recovery and would not have a significant cumulative effect on non-target species or the physical environment in the proposed study area when combined with other past, present, and reasonably foreseeable future actions.

4.4.1 Fisheries

Incidental bycatch in commercial fisheries is identified as a major contributor to past declines, and a threat to future recovery, for all of the sea turtle species (Lewison et al. 2013, NMFS and USFWS 2013a, 2013b, 2015b, 2020, 2023). Alteration of prey abundance and alteration of bottom habitats from bottom tending fishing gear (e.g., bottom trawlers) have also been identified as a threat to sea turtles.

Domestic fisheries often capture, injure, and kill sea turtles at various life stages. Sea turtles in the pelagic environment are exposed to U.S. Atlantic pelagic longline fisheries and similar fisheries in international waters and foreign nation waters. Sea turtles in the benthic environment in waters off the coastal United States are exposed to a suite of other fisheries in federal and state waters and similarly across their range in the waters of other countries. These fishing methods include trawls, gill nets, purse seines, hook-and-line gear (including bottom longlines and vertical lines (e.g., bandit gear, handlines, and rod-reel)), pound nets, and trap fisheries.

In addition to domestic fisheries, sea turtles are subject to direct as well as incidental capture in numerous foreign fisheries, further impeding the ability of sea turtles to survive and recover on a global scale. For example, pelagic stage sea turtles, especially loggerheads and leatherbacks, circumnavigating the Atlantic are susceptible to international longline fisheries (Lewison et al. 2013). Bottom longlines and gill net fishing is known to occur in many foreign waters, including (but not limited to) the northwest Atlantic, western Mediterranean, South America, west Africa, central America, and the Caribbean. Shrimp trawl fisheries are also occurring off the shores of numerous foreign countries and pose a significant threat to sea turtles similar to the impacts seen in U.S. waters. Many unreported takes or incomplete records by foreign fleets make it difficult to characterize the total impact that international fishing pressure is having on listed sea turtles. Nevertheless, international fisheries represent a continuing threat to sea turtle survival and recovery throughout their respective ranges.

4.4.2 Non-Fishery In-Water Activities

4.4.2.1 Dredging and disposal

The construction and maintenance of federal navigation channels have caused sea turtle mortalities. Hopper dredges can entrain and kill sea turtles. Dredging may also alter foraging habitat and relocation trawling associated with the project may injure or kill sea turtles and displace the turtles out of their preferred habitat. Whole sea turtles and sea turtle parts have been taken in hopper dredging operations from New York through Texas. Between 1980 and 2006, the last time a comprehensive report was prepared by the U.S. Army Corps of Engineers, 609 sea turtles were incidentally taken during dredging activities at 77 locations along the East Coast and Gulf of Mexico (Dickerson et al. 2007). Most sea turtle encounters with hopper dredges result in serious injuries or mortalities.

Due to beach erosion in some winters, dredged materials are commonly borrowed from offshore shoals to deposit onto beaches, generally for recreational purposes. Harbor and channel dredging can indirectly affect sea turtles by degrading habitat, such as altering benthic foraging areas, decreasing the number and abundance of prey species, and reducing water quality by increasing turbidity and releasing potential contaminants into the water column (Ramirez et al. 2017). Trailing suction hopper dredges and other support vessels may strike slow-moving sea turtles or entrain sea turtles in the draghead, as it moves across the seabed. Such direct impacts often result in severe injury and/or mortality. Nesting success can be reduced by inappropriate quality sand deposited onto nesting beaches, or nests can be directly injured by sand deposited over nests. Dredging and beach nourishment impacts to sea turtles are likely to continue into the foreseeable future.

4.4.2.2 Water cooling systems

Sea turtles entering coastal or inshore areas have also been affected by entrainment and/or impingement in the cooling-water intake systems (CWIS) of electrical generating plants. Impingement means physical contact with the intake screens during withdrawal of cooling water by sea turtles large enough to be retained by traveling screens. To keep condensers from clogging with solid materials and biota, many power plant CWIS use a combination of large-and finer-mesh screens. Typically, the large-mesh screens or bar racks are fixed in place while the finer-mesh screens can move to facilitate cleaning. These movable screens are called traveling screens. As the water passes through these screens, organisms larger than the mesh openings can be impinged against the screens. Because of their more limited swimming abilities, most fish impinged are less than 1 year old and sea turtles with an underlying condition leaving them susceptible to impingement. The survival rate for impinged species is species specific and varies with size, season, and depends on several other power plant-related factors, such as intake velocity, plant design, and operating conditions. There are several Power Generating Stations in the STSSN operating area that are known to affect sea turtles.

4.4.2.3 Vessel interactions

Vessel strikes represent a recognized threat to air breathing marine species including sea turtles and these injuries are commonly observed in stranded animals. Vessel strikes can lead to the injury, debilitation, harassment, and/or mortality of sea turtles (Dwyer et al. 2003). Vessel strikes are a poorly-studied threat, but have the potential to be an important source of mortality to sea turtle populations (Work et al. 2010). The magnitude of these interactions is not currently known. The Sea Turtle Stranding and Salvage Network's reports include evidence of vessel interactions (*e.g.*, carapace damage from propeller and skeg impact injuries) with sea turtles. It is not known how many of these injuries occur pre- or post-mortem. It is likely that the interactions with commercial and recreational vessels result in a higher level of sea turtle mortality than what is documented, since some carcasses would not reach the beach. Minor vessel collisions may cause injuries that weaken or otherwise affect sea turtles that can then become vulnerable to predation, disease, and other natural or anthropogenic hazards.

Vessels in the action area include federal, private, and commercial vessels. Federal vessels include those maintained by the U.S. Navy, U.S. Coast Guard, NOAA, and U.S. Army Corps of Engineers. Private and commercial vessels also have the potential to interact with sea turtles. Vessel activities may result in the lethal (*e.g.*, boat strike) and non-lethal (*e.g.*, harassment) impacts to ESA-listed species that could prevent or slow a species' recovery. However, fishing vessels represent only a portion of marine vessel activity. Due to reduction in vessel speed during fishing operations, collisions are more likely when vessels are in transit. As fishing vessels are smaller than large commercial tankers and container ships, and slower and less agile than recreational speed boats, collisions are less likely to result in mortality. Commercial fishing vessel activity is not likely to increase in the foreseeable future along the Atlantic coast. While allowable catch levels may increase as fish stocks are rebuilt, associated increases in catch rates may preclude the need to increase effort to obtain allowable catch. Conversely, recreational vessel activity may increase as human populations on the coast continue to grow and access to the ocean increases. Vessels (federal and private, commercial and recreational) will continue to operate in the area for the foreseeable future, and the impacts described above will likely persist.

4.4.3 Coastal Development and Erosion Control

Coastal development can result in the loss or degradation of sea turtle feeding habitat and deter or interfere with sea turtle nesting, affect nesting success, and degrade nesting habitats for sea turtles. Structural impacts to sea turtle nesting habitat include the construction of buildings and pilings, beach armoring and renourishment, and sand extraction (Lutcavage et al. 1997, Bouchard et al. 1998). These factors may decrease the amount of nesting area available to females and change the natural behaviors of both adults and hatchlings, directly or indirectly, through loss of beach habitat or changing thermal profiles and increasing erosion, respectively (Ackerman 1997, Witherington et al. 2003, Witherington et al. 2007). In-water erosion control structures such as breakwaters, groins, and jetties can impact nesting females and hatchlings as they approach and leave the surf zone or head out to sea by creating physical blockage, concentrating predators, creating longshore currents, and disrupting wave patterns. Nocturnal human activities along nesting beaches may also discourage sea turtles from nesting sites. In addition, coastal development is usually accompanied by artificial lighting which can alter the behavior of nesting adults (Witherington 1992) and is often fatal to emerging hatchlings that are drawn away from the water (Witherington and Bjorndal 1991). Coastal counties are presently adopting stringent protective measures to protect hatchling sea turtles from the disorienting effects of beach lighting. The negative effects of coastal development and erosion control activities to listed species are not expected to dissipate in the future.

4.4.4 Environmental Contamination

Environmental contaminants include atmospheric loading of pollutants, stormwater runoff from coastal development, groundwater discharges, and industrial development. Non-point sources from terrestrial activities have caused reductions in water quality leading to degradation of habitat for sea turtles. Chemical contamination may have effects on listed species’ reproduction and survival. Multiple municipal, industrial, and household sources, as well as atmospheric transport, introduce various pollutants such as pesticides, hydrocarbons, organochlorides (*e.g.*, DDT, PCBs, and PFCs), and others that may cause adverse health effects to sea turtles (Iwata et al. 1993, Grant and Ross 2002, Garrett 2004, Hartwell 2004). Acute exposure to hydrocarbons from petroleum products released into the environment via oil spills and other discharges may directly injure individuals through skin contact with oils (Geraci 1990), inhalation at the water's surface and ingesting compounds while feeding (Matkin and Saulitis 1997). Hydrocarbons also have the potential to impact prey populations, and therefore may affect listed species indirectly by reducing food availability in the action area. Excessive turbidity due to coastal development and/or construction sites may also influence sea turtle foraging ability.

Sea turtles may also be affected directly or indirectly by fuel oil spills. Fuel spills involving fishing vessels are common events. However, these spills are typically small amounts that are unlikely to affect listed species unless they occur adjacent to nesting beaches or in foraging habitats. Larger spills may result from accidents, although these events are rare and generally involve small areas. Fuel spills may impact nesting beaches, bottom habitat, and benthic resources, but it is unknown to what extent oil releases from recreational and commercial vessels or shoreline activities such as fueling facilities may affect sea turtles in migratory or foraging areas. Immediately after an oil release, direct contact with petroleum compounds or dispersants used to respond to spills may cause skin irritation, chemical burns, and infections (Lutcavage et al. 1995). Inhalation of volatile petroleum vapors can irritate lungs and dispersants have a surfactant effect that may further irritate or injure the respiratory tract, which may lead to inflammation or pneumonia (Shigenaka et al. 2010). Ingestion of petroleum compounds may remain in the turtle's digestive system for days (Van Vleet and Pauly 1987), which may affect the animals' ability to absorb or digest foods. Absorption of petroleum compounds or dispersants may damage liver, kidney, and brain function as well as causing anemia and immune suppression as seen in seabirds that have ingested and absorbed petroleum compounds (Shigenaka et al. 2010). Exposure to an oil release can cause long-term chronic effects such as decreased survival and lowered reproductive success may occur.

Persistent petrochemical products in the marine environment are frequently encountered by sea turtles. Tarballs are frequently observed sealing the mouths and nostrils of small sea turtles. Witherington (1994) found evidence of tar in the gastrointestinal tracts of over one-third of the post-hatchling sea turtles examined offshore of Florida in 1993 and evidence of tar ingestion was documented in 20 percent of neonate loggerhead sea turtles examined along the Gulf Stream (Witherington 2002). Van Vleet and Pauly (1987) concluded that the source of tar observed on stranded sea turtles in the Gulf of Mexico originated from crude oil tanker discharges and have a significant impact on marine turtles in the eastern Gulf of Mexico.

Threats of oil releases and discharges from vessels are greatest in port areas, shipping lanes, and areas of heavy recreational vessel use. Oil releases caused by oil and gas development and transportation activities, as well as oil releases from vessels or shoreline activities such as fueling facilities adjacent to nesting beaches, may directly affect sea turtles and nesting beaches. During the decade between 1992 and 2001, sea turtles were identified as resources at risk in 73 oil releases. Nine of these releases occurred along Florida's Atlantic coast (Milton et al. 2003). The continued exposure of sea turtles and other living marine resources due to vessel and land based oil releases is likely to continue into the future. There is no basis to conclude that the level of interaction represented by the various vessel activities that would occur under the preferred alternative would be detrimental to the existence of biological resources considered with the action.

The April 20, 2010, explosion of the Deepwater Horizon (DWH) oil rig affected sea turtles in the Gulf of Mexico. An assessment has been completed on the injury to Gulf of Mexico marine life, including sea turtles, resulting from the spill (DWH Trustees 2015). Following the spill, juvenile Kemp's ridley, green, and loggerhead sea turtles were found in *Sargassum* algae mats in the convergence zones, where currents meet and oil is collected. Sea turtles found in these areas were often coated in oil and/or had ingested oil. The spill resulted in the direct mortality of many sea turtles and may have had sub-lethal effects or caused environmental damage that will affect other sea turtles into the future.

4.4.4.1 Marine debris

Marine debris is a continuing problem for sea turtles. Sea turtles living in the pelagic environment commonly eat or become entangled in marine debris (*e.g.*, tar balls, plastic bags/pellets, balloons, and ghost fishing gear) as they feed along oceanographic fronts where debris and their natural food items converge. This is especially problematic for sea turtles that spend all or significant portions of their life cycle in the pelagic environment (*i.e.*, leatherbacks and oceanic stage juveniles of all species). Ingested debris can block the digestive tract, causing death or serious injury (Lutcavage et al. 1997, Laist et al. 1999). Plastic may be ingested out of curiosity or due to confusion with prey items. Marine debris consumption has been shown to depress growth rates in post-hatchling loggerhead sea turtles, increasing the time required to reach sexual maturity and increasing predation risk (McCauley and Bjorndal 1999). Sea turtles can also become entangled and die in marine debris, such as discarded nets and monofilament line (NRC 1990, Lutcavage et al. 1997, Laist et al. 1999). The effects of environmental contamination to listed species is not expected to change in the future.

4.4.5 Climate Change

There is a large and growing body of literature on past, present, and future impacts of global climate change, exacerbated and accelerated by human activities. Some of the likely effects commonly mentioned are sea level rise, increased frequency of severe weather events, and change in air and water temperatures. NOAA's climate information portal provides basic background information on these and other measured or anticipated effects (see http://www.climate.gov).

4.4.5.1 Climate change impacts

The Intergovernmental Panel on Climate Change (IPCC 2019) reports the following consequences of climate change on sea turtles with high confidence, which is an evaluation of the underlying evidence and agreement in the conclusion. Loss of sandy beaches, due to sea level rise and storm events, reduces available nesting habitat (Fish et al. 2005, Fuentes et al. 2010, Reece et al. 2013, Katselidis et al. 2014, Patino-Martinez et al. 2014, Pike et al. 2015, Marshall et al. 2017). Storms, waves, and sea level rise are likely to increase erosion and sediment loss. Changes in beach morphology, dune scarping, vegetation loss, and reduction in beach area are likely to reduce availability of sea turtle nesting sites, and potential for landward migration of the beach profile is limited due to human development. Temperature directly affects important sea turtle life history traits, including: hatchling size, sex, viability, and performance (Hays et al. 2003, Pike 2014, Dudley et al. 2016, Santos et al. 2017). One of the greatest concerns is the effect of temperature on hatchling emergence rates and sex ratios (Santidrián Tomillo et al. 2014, Patrício et al. 2017). Changes in ocean temperature indirectly impact sea turtles by altering the abundance and distribution of their prey (Polovina 2005, Doney et al. 2012, Sydeman et al. 2015, Briscoe et al. 2017).

Additionally, sea turtles require habitat associated with bathymetric and mesoscale features that aggregate their prey, and the persistence and location of these features are linked to variations in climate (Baez et al. 2013, Bjorndal et al. 2017, Santora et al. 2017). The IPCC (2019) states with high confidence that climate change is likely to alter foraging success, juvenile recruitment, breeding phenology, growth rates, and population stability.

Climate change is expected to continue and may impact ESA-listed species and their habitat in the action area. The likely rate of change associated with climate impacts is on a century scale, which makes the ability to discern changes in the abundance, distribution, or behavior of listed species as a result of climate change impacts challenging in the short term.

4.4.6 Other Threats

4.4.6.1 Diseases

The most common disease among sea turtles is FP, a tumor-causing disease that has been found present in some individuals in Florida, Hawaii, Texas and Puerto Rico. FP has been documented in all seven species of sea turtles, however it has been most prevalent within green sea turtles. The disease presents itself as cauliflower-like tumors throughout the exterior of the body and is closely associated with infection by a herpesvirus called Chelonid Herpesvirus 5. Development of the tumors is likely caused by a myriad of factors, not fully understood by researchers and veterinarians, however studies have suggested that there are links between FP and human effects on the environment, including various forms of pollution (Herbst 1994). Stranded turtles found with FP are treated at permitted rehabilitation facilities, where tumors are surgically removed and other treatments are provided. However, those treated in human care for the disease represent a small proportion of wild sea turtles who are infected with FP. The rate at which FP and other diseases are present in sea turtles, especially green sea turtles, is not expected to change especially as environmental conditions continue to evolve. At this time, there are still many unknowns about FP and there is no strategy to reduce or eliminate FP from sea turtle populations other than individual treatment options.

4.4.6.2 Red Tide

Harmful algae blooms (HAB) of *Karenia brevis,* commonly referred to as “red tide”, are a result of an increase of toxin-producing microorganisms (algae) in the marine environment. They are known to harm or kill many animals, including sea turtles, and mainly occur in the Gulf of Mexico and southeastern U.S. along the Atlantic coast. Brevetoxins, the toxin produced by red tides, primarily affect the nervous system of animals, which causes sea turtles specifically to become very weak, lethargic, unresponsible, or may exhibit other signs of abnormal neurological function. Sea turtles are exposed to these toxins through their diets as toxin levels are found to be high in marine invertebrates and seagrasses, which are significant portions of sea turtle diets. Sea turtles that are affected by red tides and are found alive may be treated by permitted sea turtle rehabilitation facilities and administered medications to help clear toxins from their bodies. Sea turtle deaths associated with red tide have been documented throughout the waters of Florida and Texas.

Human activity does not directly cause red tides, but it may prolong or intensify them due to nutrient runoff in coastal areas as the tide moves closer to shore. Satellite and water sampling information may be used to identify and track the movement of recent red tide events, however historic patterns and severity are not well known despite extensive historical records (Blake et al., 2022). Red tides eventually become less potent and eventually disappear but there is nothing humans can do to hasten this process. As sea surface temperatures continue to rise and human populations and urban development continue to increase in coastal areas, which in return increases stormwater, wastewater, and agricultural runoff to inland and coastal aquatic systems, the presence and severity of red tide along the east coast and Gulf of Mexico is expected to increase as well.

4.4.6.3 Cold Stuns

Sea turtles may become hypothermic cold stunned (cold stunned) as a result of prolonged exposure to cold water temperatures (below 50°F) causing debilitating lethargic conditions that often lead to death (Griffin et al. 2019). As cold-stunned turtles become lethargic, they eventually are unable to swim causing them to float at the surface making them susceptible to winds and/or tides that may wash them ashore. Sea turtles can recover quickly from brief exposure to colder water temperatures, which is often the case in cold-stun events in the southeastern U.S., however, as cold-stunned turtles become lethargic and float at the surface their exposure to cold air temperatures increases which may worsen their condition causing them to down or make them more susceptible to predation. These colder and more prolonged conditions are more often encountered in the northeastern U.S. This high level of cold exposure affects circulation, organ function, and the immune system, which can directly damage the skin, shell, and eyes and cause the individual to become more susceptible to bacterial and fungal infections.

Cold-stunning events have repeatedly occurred in various places along the east coast and Gulf of Mexico and often require intervention from humans to help individuals recover. This may include a short stay in a permitted rehabilitation facility until waters warm or transport to a warmer location is available. Cold-stunning events have been well documented since the late 1800s, with a noticeable increase in stranding numbers over the past two decades due to warming waters in the north influencing turtles to move northward and delaying their southern migration, and as a result of increased beach monitoring (Montello et al. 2022). Cold stun events cannot be prevented and are expected to continue into the future.

4.4.6.4 Predation

Predation by various land predators is a threat to developing nests and emerging hatchlings. The primary natural predators of sea turtle nests are mammals, including raccoons, dogs, pigs, skunks, and badgers. Emergent hatchlings are preyed upon by these mammals as well as ghost crabs, laughing gulls, and the exotic South American fire ant (*Solenopsis invicta*). In addition to natural predation, direct harvest of eggs and adults from beaches in foreign countries continues to be a problem for various sea turtle species in certain parts of their range (NMFS and USFWS 2008).

4.4.6.5 Offshore wind development

In recent years, plans for offshore wind energy within the ranges of sea turtles have emerged. Approximately 30 offshore wind energy projects have been proposed from Maine to North Carolina, and projects have already broken ground in several lease areas. In the Mid-Atlantic region, an offshore wind pilot project off of Virginia installed two turbines in 2020. Multiple call and lease areas throughout the rest of the Mid-Atlantic region are at various stages in the regulatory process. Four wind energy areas have been identified within the Gulf of Mexico, three of which are located off the coast of Texas and the last off the coast of Louisiana. Lease sales for these areas occurred in late 2023, however the regulatory process for permitting offshore wind farms in the Gulf of Mexico has not yet begun.

Currently, the impact of offshore wind energy on sea turtles is unknown, but likely to range from no impact to moderately adverse, depending on the number and locations of projects that occur, as well as the effects of mitigation efforts. Potential impacts may result from underwater noise, habitat alteration, and vessel traffic. Construction of offshore wind farms is expected to continue for the next decade along the east coast of the U.S. and operation of these wind farms will continue indefinitely.

4.4.7 Actions Taken to Reduce Threats

Actions have been taken to reduce human-caused impacts to sea turtles from various sources, particularly since the early 1990s. Some actions have resulted in significant steps towards reducing the recurring sources of mortality of sea turtles and improving the status of all sea turtle populations in the Atlantic and Gulf of Mexico. For example, the TED regulations such as those published on February 21, 2003 (68 FR 8456) and September 20, 2020 (85 FR 59198), and pelagic longline regulations implementing the use of specific hook and bait types significantly reduces the impacts of trawl and longline fisheries on sea turtles (NMFS SEFSC 2009). Other actions include lighting ordinances, in situ nest protection and predation control to help increase hatchling survival, as well as measures to reduce the mortality of pelagic immature, benthic immature, and mature age classes from various fisheries and other marine activities. The STSSN has been responding to sick and injured turtles as a result of disease and in-water threats to understand and minimize effects. Summaries of these actions to reduce threats to sea turtles can be found in the 5-year reviews and status reviews (NMFS and USFWS 2007a, 2013a, 2013b, 2015b, 2020, 2023, Conant et al. 2009).

4.5 Conclusion and Summary of Cumulative Impacts

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably expected to occur in the action area. Sea turtles in the action area die of various natural causes, including cold stunning, as well as human activities, such as incidental capture in state fisheries, ingestion of and/or entanglement in debris, ship strikes, and degradation of nesting habitat. Due to several factors, including decomposition, the cause of death for most sea turtles recovered by the STSSN is unknown.

The activities conducted by the STSSN provide a positive benefit to individual sea turtles by providing aid to injured, entangled, or sick turtles so that they may be released back into the environment. Mortality and serious injury are not anticipated due to the actions of the STSSN or the overarching coordination by NOAA/NMFS. Response to live stranded sea turtles has the potential to elicit short-term stresses on the individual turtle that are not likely to result in long-term effects on these individuals, populations or species. Therefore, NMFS does not expect the STSSN activities to result in more than short-term effects on individual animals. In addition, NMFS does not expect any delayed mortality of turtles following their release as a direct result of the proposed activities.

Additionally, the continued implementation of a coordinated STSSN has long-term beneficial effects for sea turtles that are rescued and rehabilitated, and returned to the environment, where they are able to reproduce. The actions are therefore not likely to appreciably reduce the numbers, distribution, or reproduction of green, hawksbill, Kemp's ridley, leatherback, loggerhead, or olive ridley sea turtles in the wild that would appreciably reduce the likelihood of survival and recovery of these species. Based on the analysis herein, impacts within the action area as a result of the proposed action are not expected to be significant. NMFS believes that the proposed action would not have a significant cumulative effect on either the physical or biological environments when combined with other past, present, and reasonably foreseeable future actions. The proposed action is directed at sea turtle recovery and would not have a significant cumulative effect on non-target species or the physical environment in the proposed study area when combined with other past, present, and reasonably foreseeable future actions.

CHAPTER 5 LIST OF PREPARERS AND AGENCIES CONSULTED

This document was prepared by the Marine Mammal and Sea Turtle Conservation Division (F/PR2) of NMFS' Office of Protected Resources in Silver Spring, Maryland.

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APPENDIX A. HANDBOOK: Sea Turtle Stranding and Salvage Network Operating Procedures Handbook (Draft, December 2024)

See separate Handbook and Appendices documents at:

https://www.fisheries.noaa.gov/national/marine-life-distress/sea-turtle-stranding-and-salvage-network