Gulf County Recreation Projects: Gulf County Windmark Beach Fishing Pier Draft Biological Assessment

Draft: March 25, 2014

Action Agency: NOAA Restoration Center

Activity: Construct a new 1,200 foot long recreational fishing pier at Windmark Beach Park in Port St. Joe, Florida

Consulting Agency: National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources

Contents

Executive Summary 3
List of Project Sponsors and Partners 5
Project Summary 5
Species Considered in Biological Assessment 5
Consultation History 5
Project Description 5
Proposed Actions 6
Description of Species and Habitats 8
Gulf Sturgeon 8
Sea Turtles 13
Green Sea Turtle 13
Loggerhead Sea Turtle 14
Hawksbill Sea Turtle 17
Leatherback Sea Turtle 19
Kemp's Ridley Sea Turtle 21
Smalltooth Sawfish 22
Environmental Baseline 25
Other Consultations in Action Area to Date 26
Effect of the Proposed Action 26
Gulf Sturgeon 26
Sea Turtles 27
Smalltooth Sawfish 29
Conservation Measures 29
Determination of Effect 29
References 30
Appendix A 39
Appendix B 41
Appendix C 42
Appendix D 43

Executive Summary

The proposed Gulf County Windmark Beach Fishing Pier Improvements project would construct a new 1,200 foot long recreational fishing pier, with appropriate access facilities, at Windmark Beach Park in the city of Port St. Joe in Gulf County, Florida. The total estimated cost of the project is $1,177,000.

Gulf Sturgeon
The proposed project action area may be used by the endangered Gulf sturgeon and occurs within Gulf sturgeon Critical Habitat Unit 11 (Florida Nearshore). Gulf sturgeon mortality may occur from certain in-water activities including boat traffic. However, Gulf sturgeon are mobile and will likely avoid the area during construction activity due to project activity and noise. Potential impacts may be avoided by imposing work restrictions during sensitive time periods (i.e., spawning, migration, staging, feeding) when sturgeon are most vulnerable to mortalities from dredging activity and implementing in-water construction guidelines (e.g., FWC, 2011; NOAA, 2006). Therefore, activity associated with this project may affect, but are not likely to adversely affect and will not jeopardize the continued existence of the species.

Within Gulf sturgeon Critical Habitat Unit 11 up to 15 square yards of sandy bottom habitat will be converted with placement of the pilings that will be used to construct the pier. This will represent a small loss of potential foraging habitat. However, the pier's construction will not alter the ecological function of Unit 9, including providing migration pathways and foraging habitat, so the unit will retain the ability to support Gulf sturgeon conservation.

Sea Turtles
The proposed action was evaluated for impacts to 5 threatened or endangered sea turtles (Green, Loggerhead, Hawksbill, Leatherback, and Kemp's Ridley). The proposed project action area does intersect with proposed critical habitat for Loggerhead turtles, unit LOGG-N-32 (NOAA, 2013). This unit is designated for Nearshore Reproductive Habitat. As a result of the construction of the fishing pier and appropriate access facilities (e.g., a dune walkover from old US highway 98 to the beach) there will be an area of potential nesting beach habitat that will now have impeded access as a result of the pilings and the construction of the pier.

In addition, there is the potential for in-water impacts, including mortality, to sea turtles using the proposed action area during the construction period. However, sea turtles are mobile and will likely avoid the area due to project activity and noise. Potential impacts from construction activities will be mitigated by requiring compliance during all in-water activities with the *Sea turtle and Smalltooth Sawfish Construction Guidelines* (NOAA, 2006, See Appendix B), the *Standard Manatee Conditions for In-water Work* (FWC, 2011), and the *Vessel Strike Avoidance Measures and Reporting for Mariners* (NOAA, 2008 – See Appendix D).

Finally, there will be some increased risk to sea turtles as a result of the anticipated increase in overall fishing at the Windmark Beach Park with the pier's construction and its projection of fishing effort more directly offshore. Potential impacts to sea turtles from this increased effort will be mitigated with the incorporation of signage and information on the pier that provides guidance on the steps to take should a sea turtle become hooked. Specifically, fixed signs with instructions on what to do in the event of hooking a listed species (i.e., sea turtle) would be placed at the entrance of the proposed pier and strategically at fixed intervals along its length. The proposed project also will include the construction of an informational kiosk at the pier's access that will provide information on best management practices (BMPs) information to users on catch and release as well as other fishing practices to limit potential adverse impacts to marine wildlife and habitat..

As a result of these mitigation measures, the construction and future use of the pier may affect, but is not likely to adversely affect and will not jeopardize the continued existence of these sea turtle species.

Smalltooth Sawfish

The 2009 recovery plan for Smalltooth sawfish (NMFS, 2009a) notes "Currently, smalltooth sawfish can only be found with any regularity in south Florida between the Caloosahatchee River and the Florida Keys". However, there have been infrequent (i.e., less than one per year) reported sightings of Smalltooth sawfish in Florida Panhandle with the most reports coming from Apalachicola Bay (6 from 2001-2008). As a result, of the low probability of exposure during construction of the fishing pier, the mobility of Smalltooth sawfish and the unlikely nature of any subsequent impacts combined with the project's adherence to the with *Sea turtle and Smalltooth Sawfish Construction Conditions* (NOAA, 2006 – See Appendix B) we conclude impacts to Smalltooth sawfish are likely to be insignificant and not likely to adversely affect or jeopardize the continued existence of Smalltooth sawfish.

List of Project Sponsors and Partners

Florida Department of Environmental Protection (FDEP)

Project Summary

The Trustees propose to construct a large fishing pier at Windmark Beach Park in Gulf County to enhance and/or increase the public's use and/or enjoyment of the natural resources by constructing a large fishing pier into the Gulf of Mexico. The total estimated cost of the project is $1,177,000.

Species Considered in Biological Assessment

Gulf Sturgeon, *Acipenser oxyrinchus desotoi*, Threatened
Green Sea Turtle, *Chelonia mydas*, Endangered
Loggerhead Sea Turtle, *Caretta caretta*, Threatened
Hawksbill Sea Turtle, *Eretmochelys imbricate*, Endangered
Leatherback Sea Turtle, *Dermochelys coriacea*, Endangered
Kemp's Ridley Sea Turtle, *Lepidochelys kempii*, Endangered
Smalltooth Sawfish, *Pristis pectinata*, Endangered

Consultation History

- September 4, 2013: FDEP developed and submitted an initial project description for early coordination with PRD.
- September 25, 2013: FDEP prepared and submitted the initial "NMFS Endangered Species Act Section 7 Checklist for Federal Action Agencies" to the PRD. A preliminary evaluation of "Not Likely to Adversely Affect" was made for five species of turtle and Gulf sturgeon. The PRD requires that a Biological Assessment (BA) is prepared for any determination other than "no effect" for major construction activities; therefore, a request for a BA was confirmed in discussions on October 28, 2013.
- October 1, 2013: FDEP prepared an initial version of the "Southeast Region Intra-Service Section 7 Biological Evaluation Form" and submitted the form to U.S. Fish and Wildlife Service for review.

Project Description

Location

The proposed project would be located in St. Joseph Bay, a natural sound separated from the Gulf of Mexico by St. Joseph Peninsula in the Florida panhandle region. The specific project site would be located immediately south of St. Joe Beach at Windmark Beach Park, West U.S. Highway in Port St. Joe, Gulf County, Florida. Figure 1 provides the approximate project location, size, and orientation of the proposed fishing pier. The approximate center of activity for this project is located at Latitude 29.88663 N and Longitude 85.35983 W.

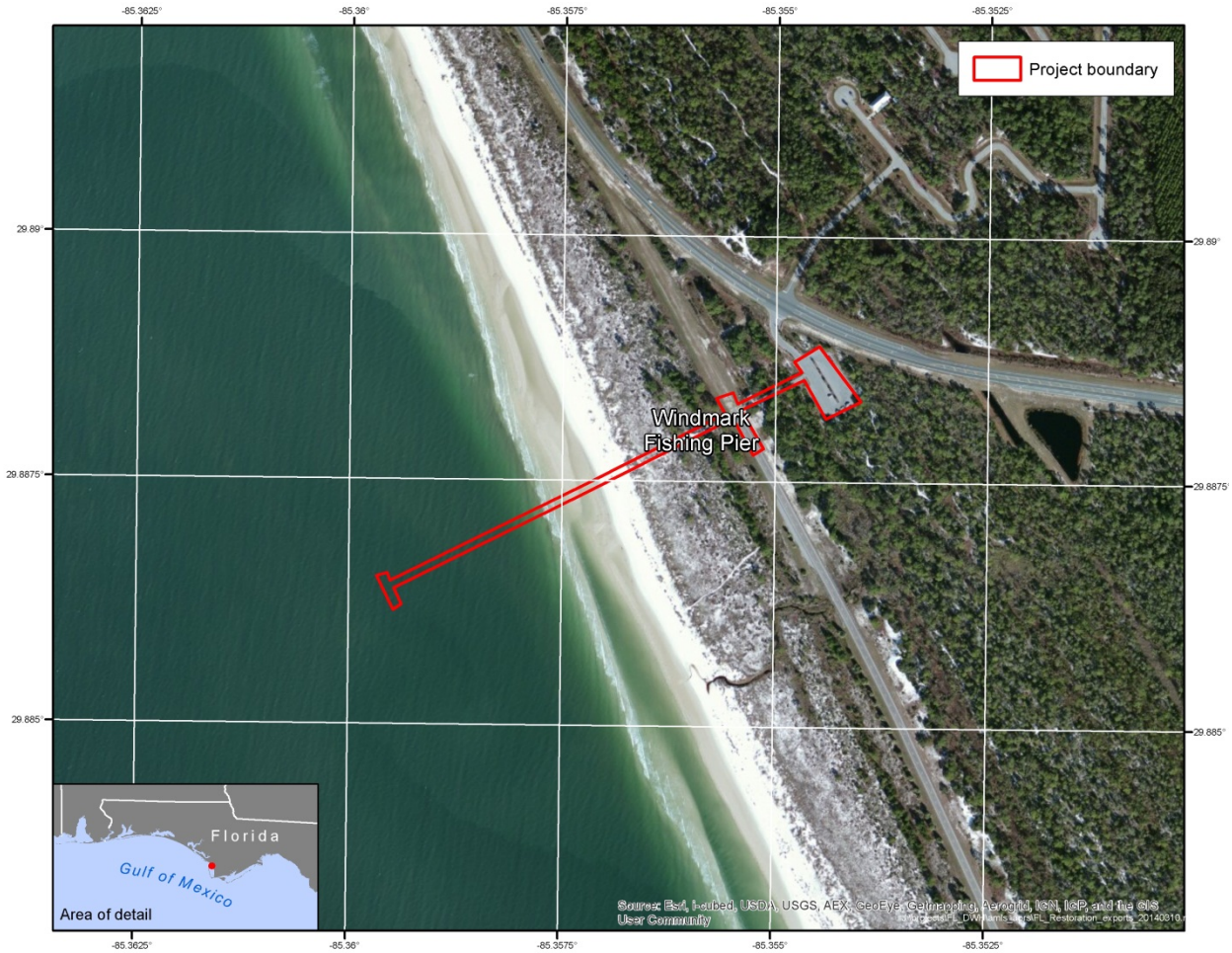

Figure 1. General location and area of potential effect for envisioned Windmark Beach Fishing Pier Improvements Project.

Proposed Actions

Final plans the proposed fishing pier have not been completed. However, considering conditions at the proposed site and plans for similar proposed and existing piers, the proposed fishing pier could be up to 1,200 feet long and 16 feet wide extending generally southwest from beach into the waters of St. Joseph Bay as indicated in Figure 1. At the end of the pier a small section would be oriented perpendicular to the rest of the pier and have dimensions of approximately 60 feet long by 16 feet wide. Based on these dimensions the pier would have an overall total area of 20,160 square feet.

Access to the pier will begin from the existing parking areas at Windmark Beach Park with the construction of dune walkovers. The dune crossover would be constructed using following current best practice guidelines (e.g., USFWS, 2013) in accordance with the engineering requirements of the final project design to provide a clear means for visitors to access the pier without having to walk directly through the dunes between the parking area and beach at the project site. As a result of this controlled access the project would help minimize contact and potential adverse impacts to identified critical habitat for the St. Andrews Beach Mouse.

The final orientation of the pier will also be evaluated as part of the effort to develop final plans. As part of this assessment, a survey of submerged aquatic vegetation (SAV) in the area would be completed. Should the site assessment for the project identify SAV in the proposed project area, the conditions in the *Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat* (U.S. Army Corps of Engineers/National Marine Fisheries Service, 2001 – See Appendix A) would be implemented. Among other elements this would require placing pilings for the dock expansion a minimum of 10 feet apart. Orientation options for the fishing pier will also consider site specific features such as sand bars off the point and the bathymetry of the area.

Based on conceptual plans for similar fishing piers, it is assumed that the pier will be constructed using 8" diameter fiberglass pilings that are pre-filled with concrete. Based on the length and shape of the pier, up to 400 pilings may be required. These pilings will be placed using water-jetting to set the piles to within 5 feet of their desired final depth. Following the water jetting, a vibratory hammer will be used to lower the pilings the remaining 5 feet to their final depth. Final construction plans will also consider and account for options would minimize disruption to the aquatic environment including available BMPs (e.g., use of bubble curtains). All decking, cross members, and railings for the pier will be made of timber. Following placement of the pilings, the timber cross members will be placed from the water and then the rest of the pier will be built out from shore. In total, the in-water work associated with this project is expected to last no more than 6 months.

During all in-water construction activity, the conditions and guidelines of the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NOAA, 2006 – see Attachment B) would be implemented and adhered to. Among the significant aspects of these provisions is the requirement to stop operation of any equipment if sea turtles or smalltooth sawfish come within 50 feet of the equipment until the time when animals leave the project area of their own volition. This provision would also apply to marine mammals such as dolphins.

During construction BMPs for erosion control would also be implemented and maintained at all times during upland activity to prevent siltation and turbid discharges into surface waters. Methods could include, but are not limited to, the use of staked hay bales, staked filter cloth, sodding, seeding, and mulching; staged construction; and installation of turbidity screens around the immediate project site. The direct goal of these actions is to limit sediment discharges into the water that would adversely affect turbidity. Staging of most construction materials would occur in the existing parking area although some materials may be delivered by barge.

Finally, prior to the opening of the pier to the public, fixed signs that are consistent with National Oceanic and Atmospheric Administration (NOAA) and State of Florida guidelines with instructions on what to do in the event of hooking a listed species (e.g., sea turtle) would be placed at the entrance to the fishing pier and strategically at fixed intervals along its length. Additionally, a kiosk/booth would be placed at the entrance to the pier with additional information for best practices on catch and release and other fishing practices (e.g., placing cut line and hooks for disposal in trash cans, not feeding dolphins) designed to limit potential adverse impacts to species. The signage in this kiosk would include the NMFS "Dolphin Friendly Fishing and Viewing Tips" sign with NMFS' "Protect Dolphin" signs along the pier. Monofilament recycling bins will be installed at regular intervals along the pier. These would be emptied regularly by city/county staff as part of the project maintenance activities, and fishing line recycled. Further, any lighting installed on the pier or addressed as part of the project will be wildlife friendly and comply with the guidance provided in the current edition of the FWC's *Lighting Technical Manual*. Finally, no fish cleaning stations will be included in the design and construction of these piers to help mitigate/avoid issues of species attraction to the pier.

Total construction time is estimated to take approximately 12 months. The Florida Fish and Wildlife Commission (FWC) and Department of Environmental Protection (DEP) recognize that conducting the in-water construction elements of this project from May to September could reduce risk of adverse impacts to Gulf sturgeon as they are generally in freshwater riverine habitats during this period. However, the FWC and DEP currently face considerable uncertainty regarding project implementation timing as a result of multiple sequential factors including: the need to finalize the draft ERP/PEIS, reach agreements on project stipulations with BP, receive initial funding from BP, develop bid and procurement documents and select contractors. As a result of these and other factors, such as the additional cost that would be associated with shutting down projects and timing issues with other species, FWC and DEP are unable to commit to conducting in-water activities during the period from May to September. However, as previously noted, in order to mitigate any increased risk arising from conducting in-water work outside of the May to September period, FWC and DEP will ensure the conditions included in NOAA's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NOAA, 2006 – See Appendix B) and *Vessel Strike Avoidance Measures and Reporting for Mariners* (NOAA, 2008 – See Appendix D) are implemented and adhered to during periods of in-water project-related activity.

Description of Species and Habitats

Gulf Sturgeon

Status of the Species and Critical Habitat

Historically, the Gulf sturgeon occurred from the Mississippi River east to Tampa Bay. Its present range extends from Lake Pontchartrain and the Pearl River system of Louisiana and Mississippi, east to the Suwannee River in Florida (Wooley and Crateau 1985), with infrequent sightings occurring west of the Mississippi River. In the late 19th century and early 20th century, the Gulf sturgeon supported an important commercial fishery, providing eggs for caviar, flesh for smoked fish, and swim bladders for isinglass, a gelatin used in food products and glues (Huff 1975; Carr 1983). Gulf sturgeon numbers declined due to over fishing throughout most of the 20th century. After 1950, the decline was exacerbated by habitat loss associated with the construction of water control structures, such as dams and sills (submerged ridges or vertical walls of relatively shallow depth separating two bodies of water). In several rivers throughout the species' range, dams have severely restricted sturgeon access to historic migration routes and spawning areas (Boschung 1976; Wooley and Crateau 1985). Gulf sturgeon exhibit a high degree of fidelity, with over 99 percent returning to spawn in the same river system in which they were hatched (USACE 2006).

Continuing and new or potential threats to the Gulf sturgeon include: construction of dams, modifications to habitat associated with dredging, dredged material disposal, de-snagging (removal of trees and their roots) and other navigation maintenance activities; incidental take by commercial fishermen; poor water quality associated with contamination by pesticides, heavy metals, and industrial contaminants; hurricanes, red tides, boat collisions, climate change, aquaculture and incidental or accidental introductions of non-native species; and the Gulf sturgeon's long maturation and limited ability to recolonize areas from which it is extirpated (USFWS 1991; USFWS and NMFS 2009).

These threats persist to varying degrees in different portions of the species range. In recent years, dredging for channel maintenance and beach nourishment has resulted in death and injury of a few Gulf sturgeon in the marine environment. Trawling has also resulted in the capture of several Gulf sturgeon. Collisions with boats traveling at high speeds have occurred on numerous occasions in the Suwannee and Choctawhatchee rivers. A sturgeon colliding with a boat can occur when the fish leaps out of the water towards the boat or when the sturgeon is physically struck by the boat propellers. Shallow waters will

increase the likelihood of a ship strike due to the lack of buffer space between boat and fish (USFWS and NMFS 2009).

U.S. FWS and NMFS designated critical habitat essential to the conservation of the Gulf sturgeon. In accordance with regulations, critical habitat determinations were based on the best scientific data available for those physical and biological features (Primary Constituent Elements) essential to the conservation of the species. Nearshore waters within one nautical mile of the mainland from Pensacola Pass to Apalachicola Bay and the Perdido Key area and the area north of Santa Rosa Island were designated as critical habitat, as they are believed to be important migratory pathways between Pensacola Bay and the Gulf of Mexico for winter feeding and genetic exchange (DOI and DOC 2003). The proposed project area is located in critical habitat Unit 11 (Florida Nearshore), which provides juvenile, subadult, and adult feeding, resting, and passage habitat for Gulf sturgeon.

Life History

The Gulf sturgeon is an anadromous fish; adults spawn in freshwater then migrate to feed and grow in estuarine/marine habitats (Table 1). After spawning in the upper river reaches, both adult and subadult Gulf sturgeon migrate from the estuaries, bays, and the Gulf of Mexico to the coastal rivers in early spring (i.e., March through May) when river water temperatures range from 16 to 23°C (Huff 1975, Carr 1983, Wooley and Crateau 1985, Odenkirk 1989, Clugston et al. 1995, Foster and Clugston 1997, Sulak and Clugston, 1999, Fox et al. 2000). Downstream migration from the river into the estuary/Gulf of Mexico begins in September (at water temperatures around 23°C) and continues through November (Huff 1975, Wooley and Crateau 1985, Foster and Clugston 1997). Most subadult and adult Gulf sturgeon spend cool months (October or November through March or April) in estuarine areas, bays, or in the Gulf of Mexico (Odenkirk 1989, Foster 1993, Clugston et al. 1995, and Fox et al. 2002).

Research indicates that in the estuary/marine environment both subadult and adult Gulf sturgeon show a preference for sandy shoreline habitats with water depths less than 3.5 meters (m) (approximately 12 feet) and salinity less than 6.3 parts per thousand (Fox and Hightower 2002). The majority of tagged fish have been located in areas lacking seagrass (Fox et al. 2002), in shallow shoals 1.5 to 2.1m and deep holes near passes (Craft et al. 2001), and in unvegetated, fine to medium-grain sand habitats, such as sandbars, and intertidal and subtidal energy zones (Abele and Kim 1986). These shifting, predominantly sandy, areas support a variety of potential prey items including estuarine crustaceans, small bivalve mollusks, ghost shrimp, small crabs, various polychaete worms, and lancelets (Abele and Kim 1986).

Generally, Gulf sturgeon prey are burrowing species (e.g., annelids: polychaetes and oligochaetes, amphipods, isopods, and lancelets) that feed on detritus and/or suspended particles, and inhabit sandy substrate. Their guts generally contain benthic marine invertebrates including amphipods, lancelets, polychaetes, gastropods, shrimp, isopods, mollusks, and crustaceans (Huff 1975, Mason and Clugston 1993, Carr et al. 1996, Fox et al. 2000, Fox et al. 2002). During the early fall and winter, immediately following downstream migration, Gulf sturgeon are most often located and presumed to be foraging in marine or estuarine areas that have depths less than 20 feet and contain sandy substrates that support burrowing macroinvertebrates (Craft et al. 2001, Ross et al. 2001, Fox et al. 2002, Parauka et al. 2001, Ross et al. 2009).

Gulf sturgeon are long-lived, with some individuals reaching at least 42 years in age (Huff 1975). Age at sexual maturity for females ranges from 8 to 17 years, and for males from 7 to 21 years (Huff 1975). Chapman et al. (1993) estimated that mature female Gulf sturgeon weighing between 29 and 51 kg produce an average of400, 000 eggs. Based on the fact that male Gulf sturgeon are capable of annual spawning, and females require more than one year between spawning events (Huff 1975, Fox et al. 2000), it is assumed that the Gulf sturgeon are similar to Atlantic sturgeon (*A. o. oxyrhinchus*); that is, they exhibit a long inter-spawning period, with females spawning at intervals ranging from every 3 to 5 years,

and males every 1 to 5 years (DOI and DOC 2003). Spawning occurs in the upper river reaches in the spring when water temperature is around 15° to 20°Celcius (approximately 60° to 70° Fahrenheit). Fertilization is external; females deposit their eggs on the river bottom and males fertilize them. Gulf sturgeon eggs are demersal (they sink to the bottom), adhesive, and vary in color from gray to brown to black (Huff 1975, Parauka et al. 1991).

Genetic studies conclude that Gulf sturgeon exhibit river-specific fidelity. Five regional or river-specific stocks (from west to east) have been identified: (1) Lake Pontchartrain and Pearl River, (2) Pascagoula River, (3) Escambia and Yellow Rivers, (4) Choctawhatchee River, and (5) Apalachicola, Ochlockonee, and Suwannee Rivers (Stabile et al. 1996).

Table 1: General Life Stage Movements of Gulf sturgeon

Life Stage	Where	When
All ages except YOY	Lower, middle, upper reaches of main part of rivers	Spring-Fall
Spawning adults	Upper river reaches	March-April
Eggs and larvae	Upper river reaches	March-April
Juveniles 1-6 yrs	Close to river mouth, nearshore, or within estuary	Winter
Large juveniles >6 yrs	Gulf of Mexico both near and offshore of bays and estuaries	Winter
Spring stage (migrating upstream)	Lower, tidally influenced river reaches	Early March
Fall stage (migrating downstream)	Transitioning from marine to freshwater conditions	October-November

Population Dynamics

There is limited information about the abundance of Gulf sturgeon, especially in Pensacola Bay. The FWS Panama City Field Office has annually monitored one or more of the four Florida Panhandle rivers (Escambia, Yellow, Choctawhatchee, and Apalachicola) since 2003 (fiscal year annual reports USFWS 2003-2008). USGS researchers completed the first assessment of the Yellow River population in 2007 (Berg 2004, Berg et al. 2007).

Most subadult and adult Gulf sturgeon spend cool months (October or November through March or April) in estuarine areas, bays, or in the Gulf of Mexico near unvegetated sandy shorelines, shallow shoals, and other areas containing mostly sand with benthic prey items (such as barrier islands) at depths ranging from 1.5 m to 6 m deep (Odenkirk 1989; Foster 1993; Clugston et al. 1995; Parauka et al. 2001; Ross et al. 2001a; Fox et al. 2002; Harris et al. 2005; Craft et al. 2001; Rogillio et al. 2001). Gulf sturgeon will migrate along barrier islands and are often found in passes between islands or in deep holes near the passes (Ross et al. 2001a; Rogillio et al. 2001). Studies of subadult Gulf sturgeon (ages 4 to 7) in Choctawhatchee Bay found that 78 percent of tagged fish remained in the bay the entire winter, while 13 percent ventured into a connecting bay. Possibly the remaining 9 percent overwintered in the Gulf of Mexico; while, adult Gulf sturgeon were more likely to overwinter or spend extended periods of time in the Gulf of Mexico (DOI and DOC 2003, Fox and Hightower 1998; Fox et al. 2002). Subadults from the Suwannee River subpopulation remain in the mouth of the Suwannee River over winter while adults are

known to migrate into the nearshore waters, where they remain for up to two months and then depart to unknown feeding locations in the open Gulf of Mexico (Carr et al. 1996; Edwards et al. 2003). Sonic-tracking evidence suggests that Gulf sturgeon target and share certain wintering grounds. A summary of Gulf sturgeon wintering habitat is presented in Table 3.

Table 2. Estimated size of known reproducing subpopulations of Gulf sturgeon

River System	States	Estimated Subpopulation Size* (95% Confidence Interval)	Source
Pascagoula	MS	216 (124-429)	Ross et al. 2001b
Pearl	LA, MS	430 (323-605)	Rogillio et al. 2001
Escambia	AL, FL	451 (338-656)	USFWS 2007
Yellow	AL, FL	1,036 (724-1348)	Herrington and Kaeser 2013
Choctawhatchee	AL, FL	3,314**	Herrington and Kaeser 2013
Apalachicola	FL	1,292 (525-1,968)	Herrington and Kaeser 2013
Suwannee	FL	14,000**	Sulak et al. 2009

Estimates refer to numbers of individuals greater than a certain size, which varies between sources depending on sampling gear, and in some cases, to numbers of individuals that use a particular portion of the river (e.g., a summer holding area or one migratory pathway among several). Estimates are not necessarily comparable between researchers due to key differences in methods and assumptions. ** Confidence interval not reported.

Table 3. Summary of known Gulf sturgeon wintering areas

Subpopulation	Wintering sites	Source
Pascagoula	Barrier Islands, Mississippi Sound, Pascagoula Estuary	Ross et al. (2009)
Pearl	The Rigolets, Barrier Islands, Mississippi Sound	Ross et al. (2009)
Choctawhatchee	Choctawhatchee Bay, Escambia Bay, nearshore Gulf of Mexico, Santa Rosa Sound, Pensacola Bay	Fox et al. (2002); Duncan et al. (2011)
Escambia	Pensacola Bay, Santa Rosa Sound, nearshore Gulf of Mexico	Parauka et al. (2011); Duncan et al. (2011)
Yellow	Pensacola Bay, Santa Rosa Sound, nearshore Gulf of Mexico	Parauka et al. (2011); Duncan et al. (2011)
Apalachicola	Apalachicola Bay, nearshore Gulf of Mexico, Saint Vincent Sound	Parauka et al. (2011); Sulak et al. (2009)
Suwannee	Suwannee Sound, nearshore Gulf of Mexico	Sulak et al. (2009)

Species Occurrence in Action Area

The proposed action occurs in Gulf sturgeon Critical Habitat Unit 11 (Figure 2) consists of nearshore waters from Pensacola Bay to St. Josephs Bay in the Gulf of Mexico. The western boundary is the line of longitude 87º20.0'W from its intersection with the shore to the intersection with the southern boundary, which is 1 nm (1.9 km) offshore of the northern boundary. The northern boundary is the MHW of the mainland shoreline and the 72 COLREGS line at passes defined at 30 CFR 80.810 (a-g). The eastern boundary is 85 º 17.0'W from its intersection with the shore to its intersection with the southern boundary.

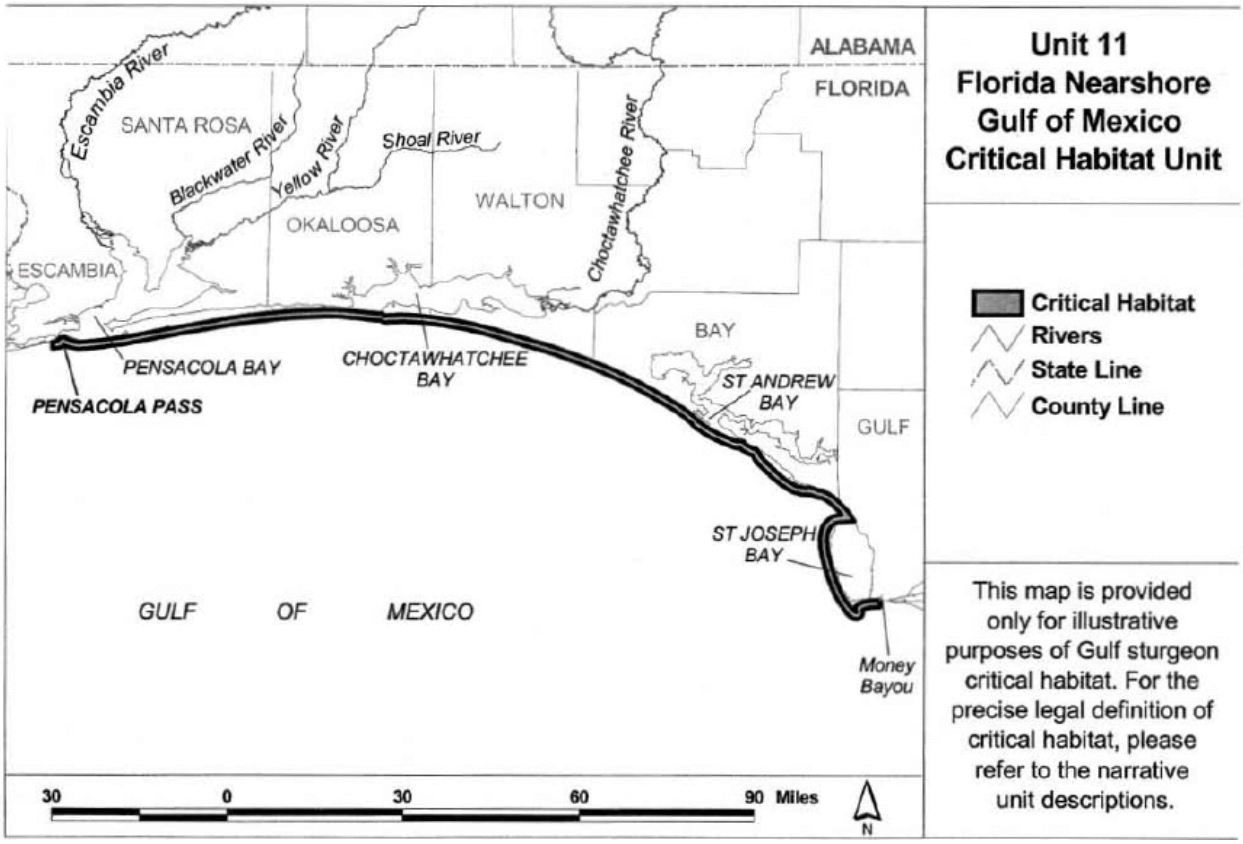

Figure 2. Gulf Sturgeon Critical Habitat Unit 11.

Three rivers that support genetically distinct subpopulations of Gulf Sturgeon flow into Pensacola Bay (Escambia, Yellow, and Choctawhatchee). The Pensacola Bay system provides winter feeding and migration habitat for Gulf sturgeon from the Escambia River and Yellow River subpopulations. However, the likely migratory pathway into the Choctawhatchee River is not within Pensacola Bay, but through the Choctawhatchee Bay. Gulf sturgeon are known to use Pensacola Bay as migratory path to these rivers from March to May and from these rivers to Gulf waters from September to November (DOI and DOC 2003).

Studies have identified specific areas where Gulf sturgeon collect or migrate through Pensacola Bay to the Escambia and Yellow Rivers. Researchers found that Gulf sturgeon showed a preference Redfish Point, Fort Dickens, and Escribano Point, near Catfish Basin (USFWS, 1998; and Craft et al., 2001). Habitats preferred at this sites were sandy shoal areas located along the south and east side of Garcon Point, south shore of East Bay (Redfish Point area) and near Fair Point, especially in the fall and early spring. During midwinter, sturgeon are commonly found in deep holes located north of the barrier island at Ft. Pickens, south of the Pensacola Naval Air Station, and at the entrance of Pensacola Pass. The depth in these areas ranges from 6 to 12.1 m (20 to 40 ft). Other areas where tagged fish were frequently located include Escribano Point, near Catfish Basin, and the mouth of the Yellow River. These areas are outside the proposed project action area and would not be affected by the proposed activities. Although it is important to note that incidental captures of Gulf sturgeon have been recorded in other areas such as Pensacola Bay, Big Lagoon, and Bayou Grande (Reynolds, 1993; and Lorio, 2000).

Sea Turtles

There are five species of sea turtles that are found within the Gulf of Mexico: green sea turtle, hawksbill sea turtle, loggerhead sea turtle, Kemp's ridley sea turtle, and leatherback sea turtle. All five species of sea turtles found in the Gulf of Mexico are listed under the ESA. The Gulf populations of green (breeding populations in Florida), hawksbill, Kemp's ridley, and leatherback sea turtles are listed as endangered. Loggerhead (northwest Atlantic distinct population segment) and green (except the Florida breeding population) sea turtles are listed as threatened.

Green Sea Turtle

Status of the Species and Critical Habitat

The green sea turtle was federally listed on July 28, 1978 (43 FR 32800). Breeding populations of the green turtle in Florida and along the Pacific Coast of Mexico are listed as endangered and all other populations are listed as threatened. The green sea turtle has a worldwide distribution in tropical and subtropical waters. Within the U.S., green turtles nest in small numbers in the U.S. Virgin Islands and Puerto Rico, and in larger numbers along the east coast of Florida, particularly in Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties (NMFS and USFWS 1991). Nesting has also been documented by the Florida Sea Turtle Nesting Beach Monitoring Program in Lee, Charlotte, Sarasota, Manatee, Franklin, Walton, and Escambia counties on Florida's west coast (FWC 2013a).

Critical habitat for the green sea turtle has been designated for the waters surrounding Culebra Island, Puerto Rico, and its outlying keys.

Life History

The green sea turtle grows to a maximum size of about three feet and a weight of 350 pounds. It has a heart-shaped shell, small head, and single-clawed flippers. The carapace is smooth and colored gray, green, brown and black. Hatchlings are black on top and white on the bottom (NMFS and FWS 1991). Hatchling green turtles eat a variety of plants and animals, but adults feed almost exclusively on seagrasses and marine algae. Green sea turtles are generally found in fairly shallow waters inside reefs, bays, and inlets except when they are migrating. The green turtle is attracted to lagoons and shoals with an abundance of marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting. Green turtle nesting in Florida occurs from June through late September. Every two or three years, a female will return to the same nesting. Green sea turtles deposit from one to nine clutches within a nesting season, but the overall average is about 3.3 nests. The interval between nesting events within a season varies around a mean of about 13 days (Hirth 1997). Mean clutch size varies widely among populations. Only occasionally do females produce clutches in successive years. Usually two or more years intervene between breeding seasons (NMFS and FWS 1991). Age at sexual maturity is believed to be 20 to 50 years (Hirth 1997).

Population Dynamics

The green sea turtle is a circum-global species found in tropical and sub-tropical waters. The worldwide distribution of green turtles has been described by Groombridge (1982). In the U.S., green turtles are found around the U.S. Virgin Islands and Puerto Rico, and in the continental U.S. from Texas to Massachusetts. Adult females migrate from foraging areas to mainland or island nesting beaches and may travel hundreds or thousands of kilometers each way. After emerging from the nest, hatchlings swim to offshore areas, where they are believed to live for several years, feeding close to the surface on a variety of pelagic plants and animals. Once the juveniles reach a certain age/size range, they leave the pelagic habitat and travel to nearshore foraging grounds. Once they move to these nearshore benthic habitats, adult green turtles are almost exclusively herbivores, feeding on sea grasses and algae. Areas that are

known as important feeding areas for green turtles in Florida include: Indian River Lagoon, the Florida Keys, Florida Bay, Homosassa River, Crystal River and Cedar Key.

Species Occurrence in Action Area

Although nesting activity has been recorded in almost every coastal county in Florida, most green turtle nesting is concentrated along the southeast coast of Florida. Florida nest counts show that Green turtle nests have increased approximately one hundredfold since counts began in 1989, with 2013 counts more than twice the count from the next highest year. This increase was not observed in Gulf county with no nests observed in 2009 or 2012, 9 nests observed in 2008, 7 nests observed in 2010, and 1 nest observed in 2011 (FWC 2013b).

Adult Green sea turtles are herbivorous, feeing primarily on seagrasses and algae (NMFS and FWS 1991). Preferred foraging habitat and food availability in the action area of St. Joseph Bay and the Gulf of Mexico is limited. The unvegetated bay bottom in the action area does not provide the appropriate food source for green sea turtles; therefore, the use of the action area by green sea turtles would be rare. Green sea turtle nests are not present in the project area and have only rarely been observed in Gulf County (FWC 2013d; Figure 3)

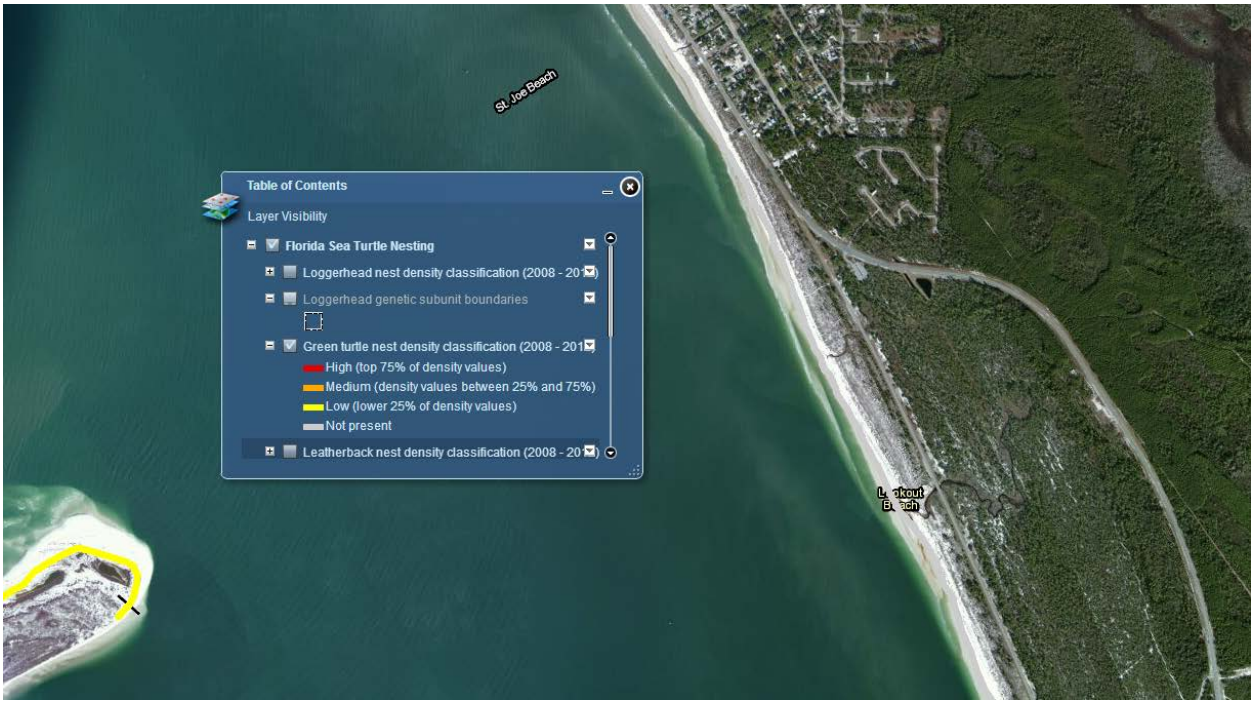

Figure 3. Map illustrating the observed nest density of Green Sea turtles at the Gulf County – Windmark Fishing Pier restoration project location (FWC 2013d).

Loggerhead Sea Turtle

Status of the Species and Critical Habitat

The loggerhead sea turtle was federally listed as a threatened species on July 28, 1978 (43 Federal Register [FR] 32800). On September 22, 2011, the listing was revised from a single global threatened species to a listing of nine Distinct Population Segments (DPS); four listed as threatened (Northwest Atlantic Ocean, South Atlantic Ocean, Southwest Indian Ocean, Southeast Indo-Pacific Ocean, and South Atlantic Ocean DPSs) and five listed as endangered (Northeast Atlantic Ocean, Mediterranean Sea, North

Pacific Ocean, South Pacific Ocean, and North Indian Ocean DPSs). Five recovery units have been identified in the Northwest Atlantic Ocean DPS based on genetic differences and a combination of geographic distribution of nesting densities, geographic separation, and geopolitical boundaries. Recovery units are individually necessary to conserve genetic robustness, demographic robustness, important life history stages, or some other feature necessary for long-term sustainability of the species.

The proposed project area is within the Northern Gulf of Mexico Recovery Unit, defined as loggerheads originating from nesting beaches from Franklin County on the northwest Gulf coast of Florida through Texas. Annual nest totals for this recovery unit averaged 906 nests from 1995-2007. Evaluation of long-term nesting trends for the Northern Gulf of Mexico Recovery Unit is difficult because of changed and expanded beach coverage in survey efforts. However, there are 12 years of Florida index nesting beach survey data for the Northern Gulf of Mexico Recovery Unit. A log-linear regression showed a significant declining trend of 4.7% annually (NMFS and USFWS 2008).

Estuarine waters such as large open sounds and the numerous embayments fringing the Gulf of Mexico comprise important inshore habitat (NMFS 2008). In addition to providing critically important habitat for juveniles, the neritic zone provides crucial foraging habitat, inter-nesting habitat, and migratory habitat for adult loggerheads in the western North Atlantic. However, habitat preferences of non-nesting adult loggerheads in the neritic zone differ from the juvenile stage during which they less frequently use enclosed, shallow water estuarine habitats with limited ocean access (NMFS 2013a).

In July 2013, the NMFS proposed (78 FR 43005) designation of 36 marine areas within the Northwest Atlantic Ocean DPS as critical habitat. Public comments on the proposed critical habitat areas are requested through November 2013. In addition, the U.S. Fish and Wildlife Service (USFWS) proposed terrestrial critical habitat (nesting beaches) in a separate rulemaking on March 25, 2013 (78 FR 18000). The Northern Gulf Recovery Unit in Florida includes proposed critical habitat units on Perdido Key in Escambia County and several areas in Gulf and Franklin Counties. Specifically, the proposed pier would intersect with the proposed loggerhead critical habitat unit LOGG-N-32 (*Mexico Beach and St. Joe Beach, Bay and Gulf Counties, Florida)*. This unit contains nearshore reproductive habitat only. The boundaries of the unit are from the eastern boundary of Tyndall Air Force Base to Gulf County Canal in St. Joseph Bay from the MHW line seaward 1.6 km (NOAA, 2013).

Life History

The loggerhead occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. The loggerhead sea turtle grows to an average weight of about 200 pounds and is characterized by a large head with blunt jaws. Adults and subadults have a reddish-brown carapace. Scales on the top of the head and top of the flippers are also reddish-brown with yellow on the borders. Hatchlings are brown to dark gray in color. The loggerhead feeds on mollusks, crustaceans, fish, and other marine animals. The loggerhead may be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. Coral reefs, rocky places, and ship wrecks are often used as feeding areas (NMFS 2013a).

Females nest during the night and normally lay approximately 110 eggs per nest. Eggs take approximately 50 to 65 days to hatch depending on the incubation temperature in the nest. The gender of hatchlings is determined by the incubation temperature in the nest. Hatchlings emerge, proceed to the surf, and continue swimming away from land for approximately 20 to 30 hours. As post-hatchlings, loggerheads are pelagic and are best known from neritic waters along the continental shelf. This neritic posthatchling stage is weeks or months long (Witherington 2002) and may be a transition to the oceanic stage that loggerheads enter as they grow and are carried within ocean currents (Bolten 2003). During pelagic existence, loggerhead turtles are often associated with floating sargassum rafts or debris, which collect in areas where surface waters converge (Magnuson et al. 1990).

Somewhere between 7-12 years old, oceanic juveniles migrate to nearshore coastal areas (neritic zone) and continue maturing until adulthood. Growth rates vary widely, and age to maturity in the wild has been estimated to vary from 12 to 30 years. During spring, adults migrate from foraging to breeding and nesting areas where mating often occurs. Females mate and then nest multiple times (one to seven times per season; average approximately four nests per season) at approximately 14-day intervals (Magnuson et al. 1990, Ernst et al. 1994). Typically, females will nest every other, or every third year. Within the Northwest Atlantic, the majority of nesting activity occurs from April through September, with a peak in June and July (Williams-Walls et al. 1983, Dodd 1988, Weishampel et al. 2006). Nesting occurs within the Northwest Atlantic along the coasts of North America, Central America, northern South America, the Antilles, Bahamas, and Bermuda, but is concentrated in the southeastern U.S. and the Yucatán Peninsula in Mexico on open beaches or along narrow bays having suitable sand (Sternberg 1981, Ehrhart 1989, Ehrhart et al. 2003, NMFS and FWS 2008).

Population Dynamics

The loggerhead is commonly found throughout the North Atlantic including the Gulf of Mexico, the northern Caribbean, the Bahamas archipelago, and eastward to West Africa, the western Mediterranean, and the west coast of Europe. Florida beaches are of worldwide importance to loggerhead sea turtles. Approximately 80 percent of the global loggerhead population nests either on Florida beaches or in Oman, a country on the Arabian Peninsula.

Florida accounts for more than 90 percent of U.S. loggerhead nesting. However, loggerheads nest from Texas to Virginia, with total estimated nesting in the U.S. fluctuating between 47,000 and 90,000 nests per year over the past decade (NMFS and FWS 2008). About 80 percent of loggerhead nesting in the southeast U.S. occurs in six Florida counties (Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties) ((NMFS and FWS 2008)). Adult loggerheads are known to make considerable migrations between foraging areas and nesting beaches (Schroeder et al. 2003, Foley et al. 2009). During non-nesting years, adult females from U.S. beaches are distributed in waters off the eastern U.S. and throughout the Gulf of Mexico, Bahamas, Greater Antilles, and Yucatán (NMFS and FWS 2008).

Species Occurrence in Action Area

Nesting near the project area occurs on beaches near the inlet to St. Joe Beach at medium density and at high density along the Gulf of Mexico-facing beach of St. Joseph Peninsula (Figure 4; FWC 2013d). The number of loggerhead turtle nests surveyed from 2008 to 2012 in Gulf County Florida ranged from a low of 187 nests in 2010 to a high of 561 nests in 2012 (FWC 2013c). Loggerhead turtle nesting habitat, sandy beach, is present in the project action area.

The proposed project action includes building a fishing pier that, with associated access facilities, extends from the landward of the dune area, across the beach, and into the Gulf of Mexico. Construction of the pier may cause temporary in-water disturbance and the presence of pilings and the pier will disrupt a small area of beach where loggerhead sea turtles may nest. Completing the project will likely create a situation where there is potentially reduced foot traffic in the beach nesting habitat in the area of the pier but some of the habitat is lost to construction of the pier and the placement of the ass.

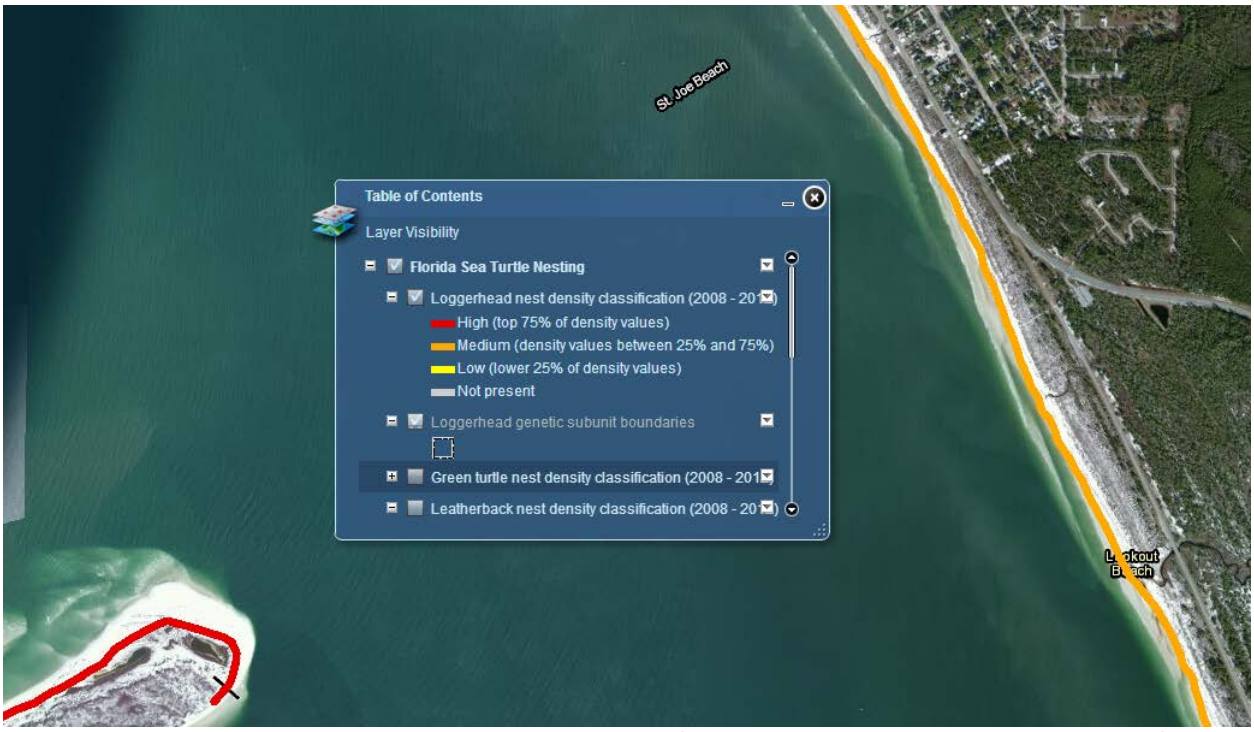

Figure 4. Map illustrating the observed nest density of Loggerhead Sea Turtles in the area of the proposed Gulf County – Windmark Fishing Pier restoration project location (FWC 2013d)

Hawksbill Sea Turtle

Status of the Species and Critical Habitat

The hawksbill sea turtle was federally listed as an endangered species on June 2, 1970 (35 FR 8491). The hawksbill is found in tropical and subtropical seas of the Atlantic, Pacific, and Indian Oceans. The species is widely distributed in the Caribbean Sea and western Atlantic Ocean. On average, adult Hawksbill turtles weigh 100-150 pounds, but can grow as large as 200 pounds, and are between 25-35 inches in length The top scutes are often patterned with streaks of orange, red, or black. The head is elongated and tapers sharply to a point with a beak-like mouth (NMFS 2013b).

Within the continental U.S., hawksbill sea turtle nesting is rare and is restricted to the southeastern coast of Florida (Volusia through Miami-Dade Counties) and the Florida Keys (Monroe County) (Meylan 1992, Meylan et al. 1995); however, in sand, hawksbill tracks are difficult to differentiate from those of loggerheads and may not be recognized by surveyors. Therefore, surveys in Florida likely underestimate actual hawksbill nesting numbers (Meylan et al. 1995). In the U.S. Caribbean, hawksbill nesting occurs on beaches throughout Puerto Rico and the U.S. Virgin Islands (NMFS and FWS 1993). In Florida waters, hawksbills are observed on the reefs off Palm Beach, Broward, Miami-Dade, and Monroe Counties. Most sightings involve post-hatchlings and juveniles. These small turtles are believed to originate from nesting beaches in Mexico.

Critical habitat for the hawksbill sea turtle has been designated for selected beaches and/or waters of Mona, Monito, Culebrita, and Culebra Islands, Puerto Rico.

Life History

Hawksbills generally inhabit coastal reefs, bays, rocky areas, passes, estuaries and lagoons, in water depths of less than 70 feet. Similar to green sea turtles, hatchlings are believed to occupy the pelagic environment, taking shelter in Sargassum, floating algal mats, and drift lines of flotsam and jetsam. When

they reach a carapace length of approximately 20 to 25 centimeters, hawksbill juveniles reenter coastal waters (NMFS 2013b). Coral reefs are widely recognized as the resident foraging habitat of juveniles, sub-adults, and adults. This habitat association is likely related to their diet of sponges, which need solid substrate for attachment. Hawksbills are omnivorous and prefer invertebrates, especially encrusting organisms, and will feed on plant material such as algae, seagrasses and mangroves (Carr 1952; Rebel 1974; Pritchard 1977; Musick 1979; Mortimer 1982). Hawksbills also occur around rocky outcrops and high energy shoals, which are also optimum sites for sponge growth (NMFS and USFWS 1993).

Hawksbills nest on average about 4.5 times per season at intervals of approximately 14 days (Corliss et al. 1989). In Florida and the U.S. Caribbean, clutch size is approximately 140 eggs, although several records exist of over 200 eggs per nest (NMFS and FWS 1993). On the basis of limited information, nesting migration intervals of two to three years appear to predominate. Hawksbills are recruited into the reef environment at about 14 inches in length and are believed to begin breeding about 30 years later. However, the time required to reach 14 inches in length is unknown and growth rates vary geographically. As a result, actual age at sexual maturity is unknown.

Population Dynamics

There has been a global population decline of over 80% during the last three generations (105 years) (Meylan and Donnelly 1999). In the Western Atlantic, the largest hawksbill nesting population occurs in the Yucatan Peninsula of Mexico, where several thousand nests are recorded annually in the states of Campeche, Yucatan, and Quintana Roo (Garduño-Andrade et al. 1999). Important, but significantly smaller nesting aggregations, are documented elsewhere in the region in Puerto Rico, the U.S. Virgin Islands, Antigua, Barbados, Costa Rica, Cuba, and Jamaica (Meylan 1999). Estimates of the annual number of nests for each of these areas are on the order of hundreds to a few thousand. Nesting within the southeastern U.S. and U.S. Caribbean is restricted to Puerto Rico, the U.S. Virgin Islands, and, rarely, Florida (Eckert 1995, Meylan 1999). At the two principal nesting beaches in the U.S. Caribbean where long-term monitoring has been carried out, populations appear to be increasing (Mona Island, Puerto Rico) or stable (Buck Island Reef National Monument, St. Croix, USVI) (Meylan 1999).

Species Occurrence in Action Area

From 2008 to 2012, the Florida Sea Turtle Nesting Beach Monitoring Program did not find Hawksbill present at surveyed beach sites in the Florida panhandle (FWC 2013d; Figure 5). Given that Hawksbill sea turtles are primarily associated with reef environments, they are not likely to occur in the waters of northwest Florida and therefore the project action area.

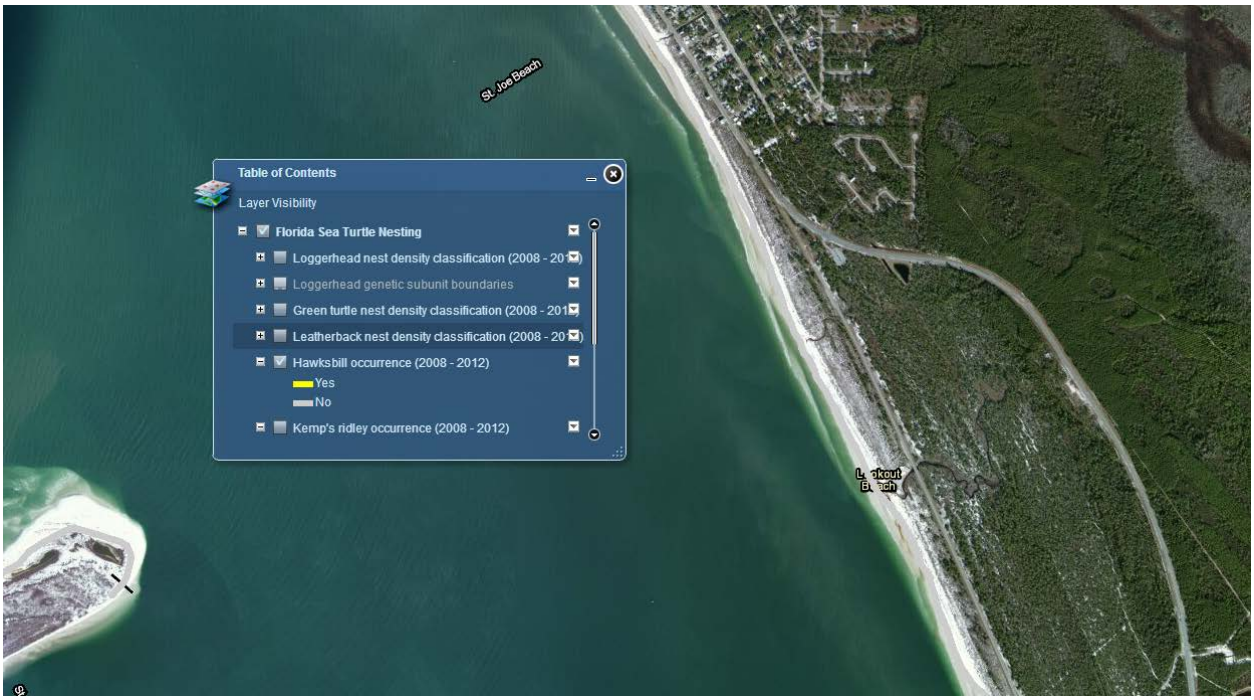

Figure 5. Map illustrating the observed nesting occurrence of Hawksbill Sea Turtles at the Gulf County Recreation – Windmark Fishing Pier restoration project location (FWC 2013d).

Leatherback Sea Turtle

Status of the Species and Critical Habitat

The leatherback sea turtle was federally listed as an endangered species on June 2, 1970 (35 FR 8491). Leatherbacks have the widest distribution of the sea turtles with nonbreeding animals having been recorded as far north as the British Isles and the Maritime Provinces of Canada and as far south as Argentina and the Cape of Good Hope (Pritchard 1992). Excursions of foraging leatherbacks have been documented into higher-latitude, subpolar waters. They have evolved physiological and anatomical adaptations (Frair et al. 1972, Greer et al. 1973) that allow them to exploit waters far colder than any other sea turtle species.

Leatherbacks are the largest and deepest diving of all sea turtle species. Most adult leatherbacks average 6 feet in length and weigh from 500 to 1,500 pounds, but can reach up to 2,000 pounds. The carapace is distinguished by a leathery, oil-saturated connective tissue overlaying interlocking dermal bones. Hatchlings are dorsally mostly black and are covered with tiny scales. Jellyfish are the main staple of the leatherback diet, but they are also known to feed on other soft-bodied animals (NMFS 2013c).

Critical habitat has been designated for the Leatherback sea turtle in the U.S. Virgin Islands, Puerto Rico, and the U.S. West Coast (NMFS 2013c).

Life History

Leatherbacks nest an average of five to seven times within a nesting season, with an observed maximum of 11 nests (NMFS and FWS 1992). The interval between nesting events within a season is about nine to 10 days. Clutch size averages 80 to 85 yolked eggs, with the addition of usually a few dozen smaller, yolkless eggs, mostly laid toward the end of the clutch (Pritchard 1992). Nesting migration intervals of two to three years were observed in leatherbacks nesting on the Sandy Point National Wildlife Refuge, St.

Croix, U.S. Virgin Islands (McDonald et al. 1991). Leatherbacks are believed to reach sexual maturity in six to 10 years (Zug and Parham 1996).

Adult females require sandy nesting beaches backed with vegetation and sloped sufficiently so the distance to dry sand is limited. Their preferred beaches have proximity to deep water and generally rough seas. Leatherback turtle nesting grounds are distributed worldwide in the Atlantic, Pacific, and Indian Oceans on beaches in the tropics and sub-tropics. The Pacific Coast of Mexico historically supported the world's largest known concentration of nesting leatherbacks. The leatherback turtle regularly nests in the U.S. Caribbean in Puerto Rico and the U.S. Virgin Islands. With the exception of a few nests on the west coast, leatherbacks nest almost exclusively on the east coast of Florida. In fact, about 50 percent of leatherback nesting occurs in Palm Beach County. Leatherback nesting in Florida occurs from April through July (FWC 2013e).

Population Dynamics

Leatherbacks have the widest range of any sea turtle, and possibly any reptile (Ernst et al. 1994). They can be found worldwide in tropical and temperate waters of the Atlantic, Pacific, and Indian Oceans. They appear to be one of the most migratory sea turtles and are well adapted for open ocean existence. Small numbers of leatherbacks travel as far north as British Columbia and Newfoundland, and as far south as the Cape of Good Hope, Tasmania, and Argentina. Leatherbacks can also be found along the Atlantic and Pacific Coasts of the continental U.S., and occur throughout the Gulf of Mexico. The most recent population size estimate for the North Atlantic alone is a range of 34,000 to 94,000 adult leatherbacks (TEWG 2007).

Species Occurrence in Action Area

From 2008 to 2012, the Florida Sea Turtle Nesting Beach Monitoring Program did not find Leatherback sea turtle nests at surveyed beach sites in Gulf county (FWC 2013e). However, another FWC survey (FWC 2013d; Figure 6) found low density nesting in the project area.

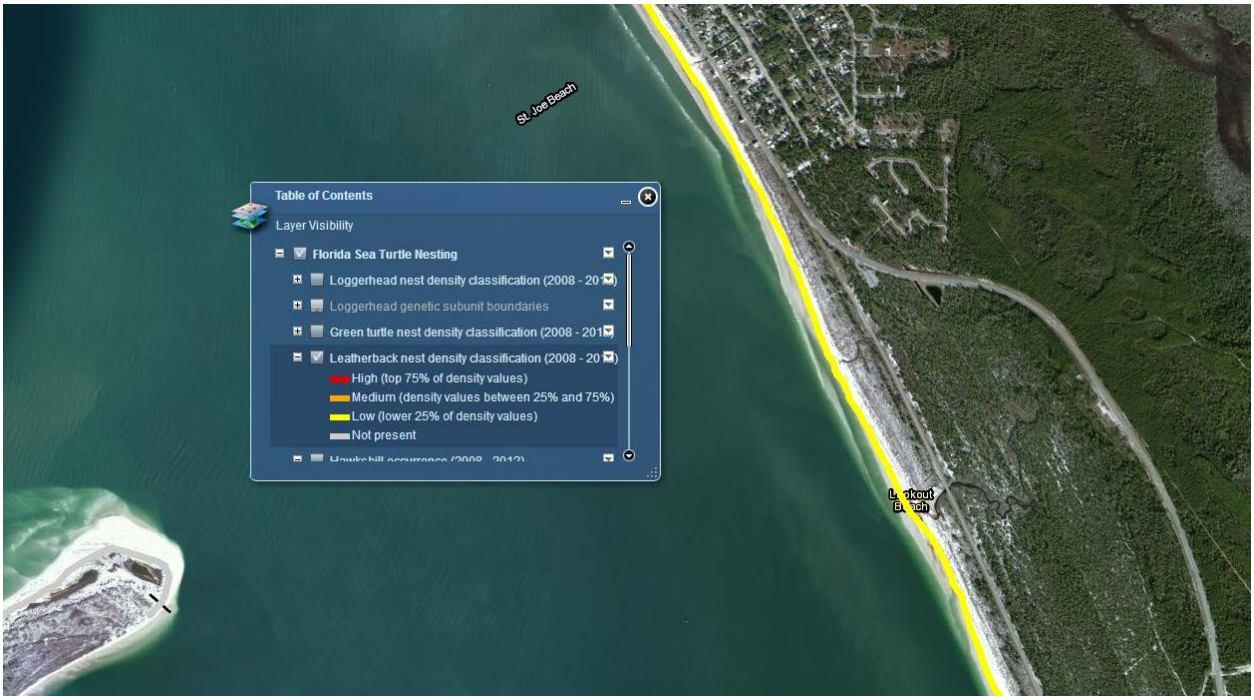

Figure 6. Map illustrating the observed nest density of Leatherback Sea Turtles at the Gulf County Recreation – Windmark Fishing Pier restoration project location (FWC 2013d).

Kemp's Ridley Sea Turtle

Status of the Species and Critical Habitat

The Kemp's ridley sea turtle was federally listed as endangered on December 2, 1970 (35 FR 18320). The Kemp's ridley has the most geographically restricted distribution of any sea turtle species. The range of the Kemp's ridley includes the Gulf coasts of Mexico and the U.S. and the Atlantic coast of North America as far north as Nova Scotia and Newfoundland. Adult Kemp's ridleys, considered the smallest sea turtle in the world, weigh an average of 100 pounds with a carapace measuring between 24-28 inches in length. The almost circular carapace has a grayish green color while the plastron is pale yellowish to cream in color. The carapace is often as wide as it is long. Their diet consists mainly of swimming crabs, but may also include fish, jellyfish, and an array of mollusks.

The majority of nesting for the entire species occurs on the primary nesting beach at Rancho Nuevo, Mexico (Marquez-Millan 1994). Hatchlings, after leaving the nesting beach, are believed to become entrained in eddies within the Gulf of Mexico, where they are dispersed within the Gulf and Atlantic by oceanic surface currents until they reach about 7.9 inches in length, at which size they enter coastal shallow water habitats (Ogren 1989). Adult Kemp's ridleys are believed to spend most of their time in the Gulf of Mexico, while juveniles and subadults also regularly occur along the eastern seaboard of the U.S. (USFWS and NMFS 1992). There have been rare instances when immature ridleys have been documented making transatlantic movements (USFWS and NMFS 1992).

No critical habitat has been designated for the Kemp's ridley sea turtle.

Life History

Nesting occurs from April into July during which time the turtles appear off the Tamaulipas and Veracruz coasts of Mexico. Precipitated by strong winds, the females swarm to mass nesting emergences, known as "arribadas or arribazones," to nest during daylight hours. The period between Kemp's ridley arribadas averages approximately 25 days (Rostal et al. 1997), but the precise timing of the arribadas is highly variable and unpredictable (Bernardo and Plotkin 2007. Some females breed annually and nest an average of one to four times in a season at intervals of 10 to 28 days. Analysis by Rostal (2007) suggested that ridley females lay approximately 3.1 nests per nesting season. Interannual remigration rate for female ridleys is estimated to be approximately 1.8 (Rostal 2007) to 2.0 years (Marquez-Millan et al. 1989). Age at sexual maturity is believed to be between 10 to 17 years (Snover et al. 2007).

Adult Kemp's primarily occupy "neritic" habitats. Neritic zones typically contain muddy or sandy bottoms where prey can be found. Their diet consists mainly of swimming crabs, but may also include fish, jellyfish, and an array of mollusks. Depending on their breeding strategy, male Kemp's ridleys appear to occupy many different areas within the Gulf of Mexico. Some males migrate annually between feeding and breeding grounds, yet others may not migrate at all, mating with females opportunistically encountered. Female Kemp's have been tracked migrating to and from nesting beaches in Mexico. Females leave breeding and nesting areas and continue on to foraging zones ranging from the Yucatán Peninsula to southern Florida. Some females take up residence in specific foraging grounds for months at a time (NMFS 2013d).

Population Dynamics

Most Kemp's ridleys nest on the coastal beaches of the Mexican states of Tamaulipas and Veracruz, although a small number of Kemp's ridleys nest consistently along the Texas coast (TEWG 1998). In addition, rare nesting events have been reported in Alabama, Florida, Georgia, South Carolina, and North Carolina. Historical information indicates that tens of thousands of ridleys nested near Rancho Nuevo, Mexico, during the late 1940s. The Kemp's ridley population experienced a devastating decline between the late 1940s and the mid-1980s.

The total number of nests per nesting season at Rancho Nuevo remained below 1,000 throughout the 1980s, but gradually began to increase in the 1990s. In 2009, 16,273 nests were documented along the 18.6 miles of coastline patrolled at Rancho Nuevo, and the total number of nests documented for all the monitored beaches in Mexico was 21,144 (USFWS 2009). In 2010, a total of 13,302 nests were documented in Mexico (USFWS 2010). In addition, 207 and 153 nests were recorded during 2009 and 2010, respectively, in the U.S., primarily in Texas.

Species Occurrence in Action Area

Kemp's ridley nests were not found to be present along surveyed beaches near the proposed project areas from 2008 to 2012 by the Florida Sea Turtle Nesting Beach Monitoring Program (FWC 2013d; Figure 7). The species has been found predominately in southern Florida.

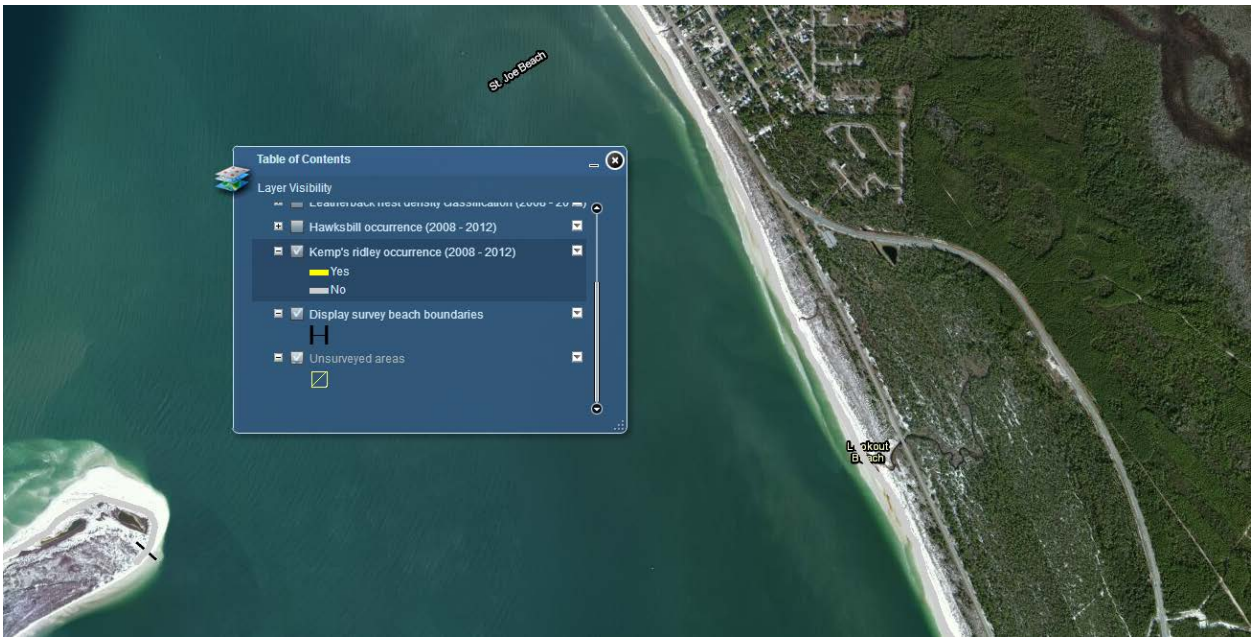

Figure 7. Map illustrating the observed nesting occurrence of Kemp's Ridley Sea Turtles at the Gulf County Recreation – Windmark Fishing Pier restoration project location (FWC 2013d).

Smalltooth Sawfish

Status of the Species and Critical Habitat

NMFS listed the U.S. distinct population segment (DPS) of Smalltooth sawfish as endangered on April 1, 2003 (68 FR 15674). Although once abundant, their world-wide decline resulted in the World Conservation Union (IUCN) adding all sawfish species as "Critically Endangered" on the IUCN Red List criteria and the U.S. government, in 1997, to propose protecting all sawfish species under the Convention on the International Trade in Endangered Species (CITES). The serious depletion of the U.S. population of Smalltooth sawfish was the basis for The Ocean Conservancy's 1999 petition to list the species as endangered under the ESA, and NMFS' decision to do so on April 1, 2003 (NMFS 2009b). In addition, the Smalltooth sawfish has been protected from harvest in Florida since 1992 (FWC 2014). The National Sawfish Encounter Database (NSED) was created during the listing process of the Smalltooth sawfish and since then has been collecting public sawfish encounter reports.

NMFS designated approximately 840,472 acres in two units of critical habitat occupied by the U.S. Distinct Population Segment (DPS) of Smalltooth sawfish at the time of its listing. The two units determined for critical habitat designations are: the Charlotte Harbor Estuary Unit, which comprises approximately 221,459 acres of habitat; and the Ten Thousand Islands/Everglades Unit, which comprises approximately 619,013 acres of habitat. The two units are located along the southwestern coast of Florida between Charlotte Harbor and Florida Bay. The units encompass portions of Charlotte, Lee, Collier, Monroe, and Miami-Dade Counties. These specific areas contain red mangroves and shallow euryhaline habitats characterized by water depths between the Mean High Water line and 3 ft (0.9 m) measured at Mean Lower Low Water line. These physical and biological features were found to be essential to the conservation of this species and may require special management considerations or protection (NMFS 2009b). No unoccupied areas are included in the final designation of critical habitat (NMFS 2009b).

Section 4(f) of the ESA directs NMFS and FWS to develop and implement recovery plans that promote conservation for species under their jurisdiction. NMFS determined that a recovery plan would promote conservation of the Smalltooth sawfish and assembled the Smalltooth Sawfish Recovery Team, consisting of scientists and management experts, to develop a recovery plan. The final recovery plan was published in 2009 (NMFS, 2009a) and designated fourteen recovery regions throughout the historic range to ensure that conservation efforts would be geographically dispersed. The recovery regions took into account biogeographic boundaries and information about the historic and current distribution of Smalltooth sawfish. Both the east and west coast of peninsular Florida have been historic cores of abundance and contained the most important juvenile habitat for the Smalltooth sawfish; therefore, there are eight of the 14 recovery regions, along the Gulf and Atlantic coasts of Florida.

Life History

The Smalltooth sawfish is one of seven sawfish species. Adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths. Adults are believed to feed on a variety of fish species and crustaceans (NMFS 2009a). Reports of sawfish feeding habits suggest they subsist chiefly on small schooling fish, such as mullets and clupeids. They are also reported to feed on crustaceans and other bottom-dwelling organisms. Observations of sawfish feeding behavior indicate that they attack fish by slashing sideways through schools, and often impale the fish on their rostral (saw) teeth (Breder 1952). The fish are subsequently scraped off the teeth by rubbing them on the bottom and then ingested whole (NMFS 2009b).

Sawfish are related to sharks and share similar life history characteristics. They are long-lived, slow growing, slow to mature, and bear few young (NMFS 2009a). These traits make all sawfish extremely vulnerable to overfishing and slow to recover from depletion (NMFS 2009a). Smalltooth sawfish can grow very large, up to 18 feet (5.5 meters) long and 700 pounds (315 kilograms) (FWC 2014). Simpfendorfer (2000) estimated age at maturity between 10 and 20 years and a maximum age of 30 to 60 years. Unpublished data from Mote Marine Laboratory (MML) and NMFS indicate male Smalltooth sawfish do not reach maturity until they reach 133 in (340 cm).

Juvenile Smalltooth sawfish generally inhabit the shallow coastal waters of bays, banks, estuaries, and river mouths, particularly shallow mud banks and mangrove habitats. Most encounters of both very small and small juveniles have been within 1,641 ft (500 m) of shore (Simpfendorfer, 2006). Simpfendorfer (2001) concludes that shallow coastal waters represent key habitat for the species and in particular that waters less than 3.3 ft (1 m) may be very important as nursery areas. Juveniles will also travel many miles up rivers if freshwater inflow is reduced. Sawfish use some portions of their nurseries, called hotspots, for months at a time, and researchers have observed movement between hotspots when environmental conditions such as changes in river flow cause them to relocate within the nursery. Larger animals [males > 106in (>270 cm) and females > 142 in (>330 cm)] can be found in the same habitat, but are also found offshore at depths up to at least 122 meters (NMFS 2009a). The encounter data suggest that adult sawfish

occur from shallow coastal waters to deeper shelf waters. Poulakis and Seitz (2004) observed that nearly half of the encounters with adult-sized sawfish in Florida Bay and the Florida Keys occurred in depths from 200 to 400 ft (70 to 122 m) (NMFS 2009b).

Biologists know little about the species' reproductive cycle, but preliminary data indicates that females reproduce every other year and return to the same nurseries to give birth. Smalltooth sawfish have internal fertilization, and embryos grow inside the mother until they are born alive. Biologists don't know the length of the Smalltooth sawfish's gestation period, but the Largetooth sawfish (*Pristis pristis*) has a gestation period of approximately five months. Smalltooth sawfish in Florida waters give birth primarily in April and May. Females can give birth to up to 20 young measuring 2 to 2.7 feet (0.6 to 0.8 meters) long. Prior to birth, the calcified teeth on the rostrum (saw) are covered in tissue to prevent injury to the mother. The tissue covering the teeth completely disappears about two weeks after birth so the young sawfish can feed effectively and defend themselves (FWC 2014).

Population Dynamics

The Smalltooth sawfish has been reported from Brazil through the Caribbean and Central America, the Gulf of Mexico, the Atlantic coast of the U.S. and Bermuda (Bigelow and Schroeder 1953). Smalltooth sawfish were once prevalent throughout Florida and commonly encountered from Texas to North Carolina. Currently, Smalltooth sawfish can only be found with any regularity in south Florida between the Caloosahatchee River and the Florida Keys. Based on the contraction in range and anecdotal data, it is likely that the population is currently at a level less than 5% of its size at the time of European settlement (NMFS 2009a).

The U.S. region that has always harbored the largest numbers of Smalltooth sawfish lies in south and southwest Florida from Charlotte Harbor through the Dry Tortugas. Smalltooth sawfish also occur on the west coast of Florida north of Charlotte Harbor, but historically appear to never have been as common in this region as in the east coast lagoons and south Florida. Records of Smalltooth sawfish in the Florida Panhandle exhibit a seasonal pattern of occurrence with more than two-thirds of the records from April through August (NMFS 2009b). This pattern is consistent with research that indicates that water temperatures no lower than 16-18 °C and the availability of appropriate coastal habitat serve as the major environmental constraints limiting the northern movements of Smalltooth sawfish in the western North Atlantic. Most specimens captured along the Atlantic coast north of Florida have also been large (> 9 ft or 3 m) adults and likely represent seasonal migrators, wanderers, or colonizers from a core population(s) to the south rather than being members of a continuous, even-density population (Bigelow and Schroeder 1953, NMFS 2009a).

The primary reason for the decline of the Smalltooth sawfish population has been bycatch in various commercial and recreational fisheries, with habitat loss and degradation a secondary reason for the decline. Other threats to the species include entanglement in marine debris, injury from saw removal, pollution, and disturbance of natural behavior by divers and other marine activities. Life history characteristics are a limiting factor for the species' ability to recover. Smalltooth sawfish habitat has been degraded or modified throughout the southeastern U.S. from agriculture, urban development, commercial activities, channel dredging, boating activities, and the diversion of freshwater runoff. While the degradation and modification of habitat is not likely the primary reason for the decline of smalltooth sawfish abundance and their contracted distribution, it has likely been a contributing factor and almost certainly hampers the species' recovery (NMFS 2010). Sawfish are slow growing, late maturing, and produce small numbers of young; hence, recovery will take decades, even if all threats are effectively eliminated.

Species Occurrence in Action Area

Encounter data and research efforts indicate a resident, reproducing population of Smalltooth sawfish exists only in southwest Florida (Simpfendorfer and Wiley, 2005). Most specimens captured in other areas of the Florida coast were large adults (greater than 10 ft or 3 m) captured in spring and summer. These captures are thought to represent migrants, wanderers, or colonizers from a core or resident population(s) to the south rather than being resident members of a continuous, even-density population (Bigelow and Schroeder, 1953).

The spatial distribution of Smalltooth sawfish encounters within Florida has varied annually. Encounter data indicates that there have been three distribution groups of juvenile Smalltooth sawfish in Florida; the first group consisted of scattered individual encounters with no indication of repeat or multiple use of an area. This group was found in areas north of Charlotte Harbor, in the panhandle of Florida, and along the east coast of Florida (Norton et al. 2012). The northernmost encounter on the west coast occurred in 2005 near Pensacola (30.3° N). Most encounters reported from the Panhandle between 2001 and 2006 were associated with sandy beaches or in deeper water (NMFS 2009a). These types of areas are not consistent with the characteristics of the proposed project location.

Environmental Baseline

St. Joseph Bay/Gulf of Mexico Environmental Baseline

Geology and Substrates
The proposed project site would be located on relic Younger Pleistocene – Holocene Beach Ridges of northeast Port St. Joe (Florida Department of Natural Resources 1991). St. Joseph Bay is a non-estuarine lagoon formed between St. Joseph Spit and the mainland of Gulf County. In addition, part of St. Joseph Bay is designated as a Florida Aquatic Preserve, meaning that the intent of the State of Florida is to preserve the bay in its natural state. The proposed project would be located in the northern portion of the mainland side of the bay, outside of the Aquatic Preserve. Water depths within St. Joseph Bay range from less than 5 feet at the southern, enclosed end to approximately 30 feet near the northern tip of the spit. Bottom sediments are predominantly sand, with localized areas of clayey silt, silty sand, and clay sand and gravel-sand mixtures.

Hydrology and Water Quality
The proposed project area is located in Class III waters of the State, approximately 2 miles east-northeast of the St. Joseph Bay Aquatic Preserve as designated by the State of Florida. Nonetheless, the proposed project area has good ambient water quality conditions to promote public welfare and safety to those who use the waterbody for recreational purposes and to maintain natural resource enhancement. St. Joseph Bay is not markedly influenced by the inflow of freshwater, with salinity levels similar to those of the Gulf of Mexico.

Water depths, depending on tidal phases, within the project vicinity range from 5 to 30 feet deep. However, specific soundings within the immediate project area have not been collected to date. MHW and mean low water (MLW) depth soundings would be collected during the design phase of the project to determine whether water depths were adequate for barge access to the project area to prevent prop dredging of the submerged lands. In addition, water depths will be needed to design the pier walkway and terminus orientation and dimensions.

Other Consultations in Action Area to Date

At this time, no information on additional consultations in the project area has been identified.

Effect of the Proposed Action

Gulf Sturgeon

The proposed action was evaluated for impacts to Gulf sturgeon and their critical habitat. Gulf sturgeon mortality may occur from certain in-water activities including boat traffic. Mortality due to boat collisions is rare, but can occur especially in shallow waters. Potential impacts from construction activities may be avoided by imposing work restrictions during sensitive time periods (i.e., spawning, migration, staging, feeding) when sturgeon are most vulnerable to mortalities from dredging activity. To avoid potential impacts to migrating Gulf sturgeon, the proposed construction activities will, to the extent possible, be scheduled to avoid the months of the years in which Gulf sturgeon are more likely to use estuarine areas. However, activities will not be restricted to these months as previously discussed. As a result of the limited expected potential for project activity interaction with Gulf sturgeon and incorporation of the guidelines for in-water work, impacts to Gulf sturgeon are not likely be detectable or measurable so would be insignificant.

Critical Habitat

Within Critical Habitat Unit 11, the following critical habitat features are present and may be affected by the proposed action: (1) water quality; (2) migratory pathways; (3) abundant prey items necessary for normal behavior, growth, and viability of all life stages.

Water Quality

The project is not expected to adversely impact water quality. For a short duration during the pier construction there will be some re-suspension of the in-situ sediments, but they are expected to settle out naturally. Turbidity reduction devices will be evaluated in the context of the final design and construction methods and employed if a potential water quality benefit is anticipated with their use. In the longer term, the proposed activity and pier use will not affect water quality and thus not affect sturgeon activities that depend on the maintenance of a certain quality of water.

Migratory Pathways

The proposed activity will not hinder Gulf sturgeon migration patterns given the relatively small area of the nearshore habitat where the pier would be placed and openings between pilings that would allow for transit beneath and around the pier. As a result, the proposed activity will not affect migration behavior of the gulf sturgeon.

Prey items

The project site is not located within a riverine area and will not alter or negatively affect foraging opportunities.

As a result, we believe the development of the fishing pier will result in impacts that, cumulatively, are not likely to be detectable or measurable, so are insignificant to Gulf sturgeon critical habitat.

Sea Turtles

In-water impacts to sea turtles as a result of the project construction and future angling from the pier could occur. Based on nesting surveys and preferred in-water habitat conditions (e.g. water depth, SAV), it is unlikely that Hawksbill, Kemp's ridley, or Green sea turtles will occur within the project action area (see discussion above). Nesting surveys indicate a low level or use near the project area for the Leatherback sea turtles; therefore, their occurrence within the project action area is likely to be rare. Loggerhead sea turtles are a more frequent nester in Gulf County and have a broader range of marine habitat preferences. Therefore the occurrence of Loggerhead sea turtles in the project action area may be considered more likely than for the other species of sea turtles.

During construction, the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NOAA, 2006 – Appendix B) will be implemented and adhered to will be utilized to minimize impacts to sea turtles. Among other elements, this will mean that if any sea turtles are found to be present in the immediate project area in-water work would be halted until the animals move away from project area. The *Sea Turtle and Smalltooth Sawfish Construction Conditions* also include guidance on construction personnel education, use of "no wake/idle" speeds in proper locations, adhering to protection guidelines when a sea turtle is within 100 yards or activities, and reporting turtle injuries. At the same time, sea turtles are mobile and will likely avoid the area due to project activity and noise.

In the longer term, potential impacts to sea turtles associated with the use of the pier by anglers would be mitigated by the posting of educational information and details for turtle-specific contacts in the event a sea turtle is engaged during angling at the entrance to the pier and along its length.

As a result, of these factors we believe impacts to sea turtles during the fishing pier construction and eventual use are not likely to be measurable or detectable so are insignificant with respect to sea turtles.

Critical Habitat

The proposed project intersects currently proposed nearshore reproductive habitat in Florida for the Northwest Atlantic Distinct Population Segment of the loggerhead sea turtles (area LOGG-N-32, see NOAA, 2013). Primary Constituent Elements (PCEs) for proposed loggerhead critical habitat include (Department of the Interior, 2013).

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

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

3) Suitable nesting beach habitat with sufficient darkness to ensure that nesting turtles are not deterred from emerging onto the beach and hatchlings and post-nesting females orient to the sea.

The primary impact of the proposed project on these PCEs would be the loss of a relatively small area of potential nesting habitat with the construction of the pier over this area and a partially impeded access to the shore in in the area of the pier (i.e, PCE 1 above). PCEs 2 and 3 would not be affected as sand characteristics would not be altered and all lighting associated with the project will be wildlife friendly

and comply with the guidance provided in the current edition of the FWC's *Lighting Technical Manual*. Considering the area associated with this critical habitat unit and the nearby critical habitat unit LOGG-N-31 (see Figure 8), the project would not have a detectable or measurable adverse impact on the identified PCEs so the impacts of this project are insignificant to the proposed loggerhead nearshore reproductive critical habitat unit.

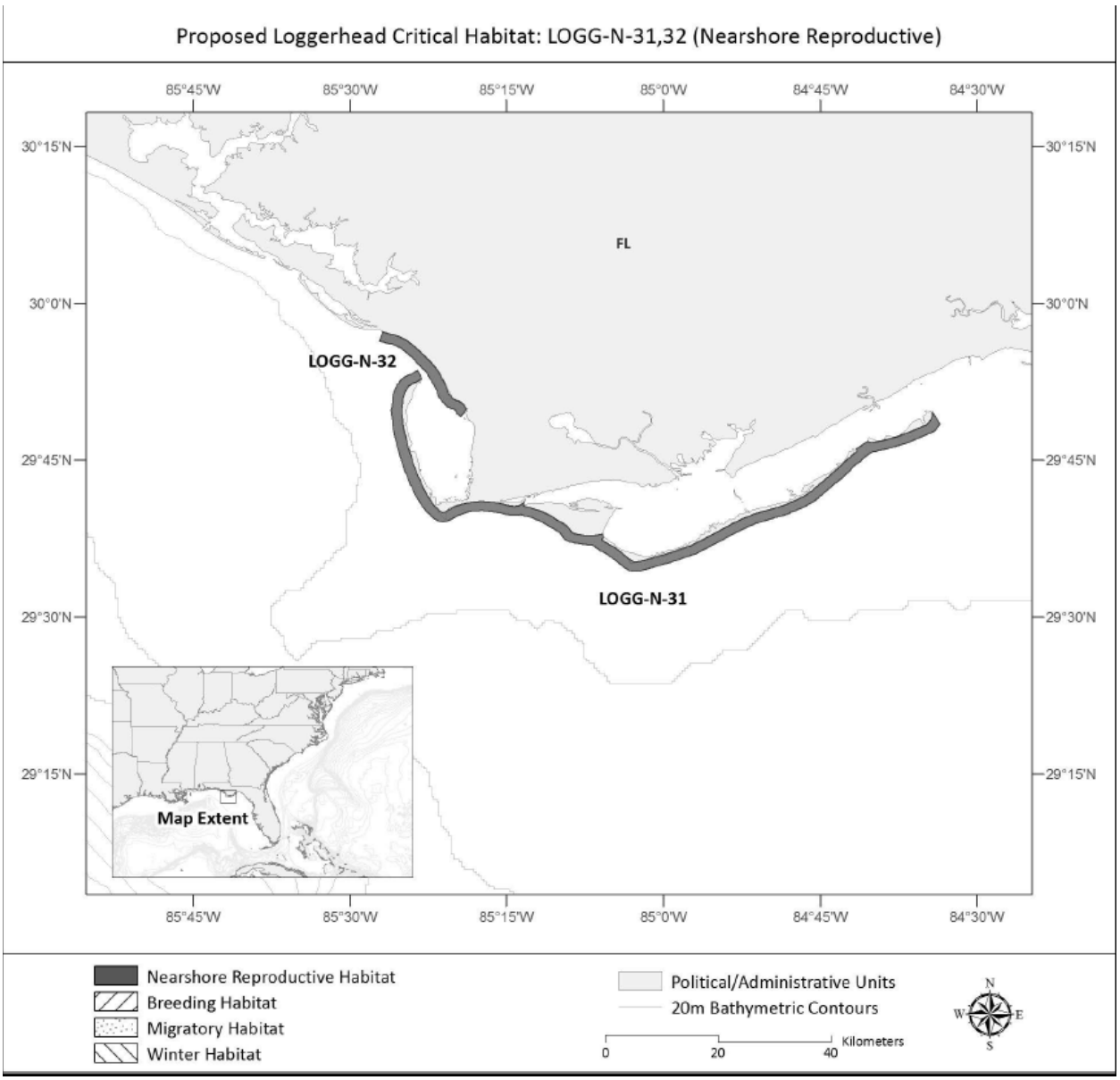

Figure 8. Map illustrating the extent of the habitat in the loggerhead critical habitat unit intersecting the proposed project, LOGG-N-32, and nearby, LOGG-N-31. (NOAA, 2013)

Critical habitat for the green sea turtle has been designated for the waters surrounding Culebra Island, Puerto Rico, and its outlying keys (63 FR 46693). Marine and terrestrial critical habitat for the leatherback sea turtle has been designated at Sandy Point on the western end of the island of St. Croix, U.S. Virgin Islands (44 FR 17710) and critical habitat will be reassessed during the future planned status review (76 FR 47133). Critical habitat for the hawksbill sea turtle has been designated for selected

beaches and/or waters of Mona, Monito, Culebrita, and Culebra Islands, Puerto Rico (63 FR 46693). Therefore, no designated critical habitat for the green, leatherback, or hawksbill sea turtles occurs within the action area. No critical habitat has been designated for the Kemp's ridley sea turtle; therefore, none will be adversely affected or modified.

Smalltooth Sawfish

Encounter data indicate a resident population of Smalltooth sawfish exists only in southwest Florida (Simpfendorfer and Wiley, 2005). Only scattered individual encounters of species have occurred in areas north of Charlotte Harbor (Norton et al. 2012). In addition, most of the encounters reported from the Panhandle between 2001 and 2006 were associated with sandy beaches or in deeper water (NMFS 2009). Due to the lack of suitable habitat at the proposed location and extremely rare occurrence of Smalltooth sawfish in the project area, exposure to the proposed project is unlikely. In addition, adverse effects due to the proposed project are not likely to be detectable or measurable due to the proposed implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NOAA, 2006). In addition, Smalltooth sawfish are mobile and will likely avoid any in-water project work area as a result of noise and activity. Therefore, effects to Smalltooth sawfish due to the proposed project would be insignificant.

Conservation Measures

During construction the *Sea turtle and Smalltooth Sawfish Construction Guidelines* (NOAA, 2006) (Appendix B), *Standard Manatee Conditions for In-water Work* (FWC, 2011) (Appendix C), and *Vessel Strike Avoidance Measures and Reporting for Mariners* (Appendix D) will be implemented to minimize impacts to these species. Further, educational and informational signage will be posted at the entrance to and along the length of the pier to help avoid/minimize adverse angler interactions with these species.

Determination of Effect

Based upon the findings of this BA, the proposed action "may affect, but is not likely to adversely affect" the following species under the purview of the NOAA Fisheries:

- Gulf Sturgeon - The restoration operations associated with this project may affect, but not likely to adversely affect and will not jeopardize the continued existence of the species.
- Gulf Sturgeon Critical Habitat – The project footprint falls within Gulf sturgeon critical habitat (Critical Habitat Unit 11 – Florida Nearshore); however, it has been determined that the construction activities associated with this project will not adversely modify designated Gulf sturgeon critical habitat.
- Green Sea Turtle - The restoration operations associated with this project may affect, but not likely to adversely affect and will not jeopardize the continued existence of the species.
- Loggerhead Sea Turtle - The restoration operations associated with this project may affect, but not likely to adversely affect and will not jeopardize the continued existence of the species.
- Loggerhead Sea Turtle Critical Habitat - The project footprint intersects loggerhead critical habitat unit LOGG-N-32. A small area of potential nesting habitat may be lost but other PCEs associated with this nearshore reproductive habitat unit will not be adversely affected by the project. Considering the overall area of the critical habitat unit the project is not likely to adversely affect the critical habitat for loggerhead sea turtles.
- Hawksbill Sea Turtle - The restoration operations associated with this project may affect, but not likely to adversely affect and will not jeopardize the continued existence of the species.

- Leatherback Sea Turtle - The restoration operations associated with this project may affect, but not likely to adversely affect and will not jeopardize the continued existence of the species.
- Kemp's Ridley Sea Turtle - The restoration operations associated with this project may affect, but not likely to adversely affect and will not jeopardize the continued existence of the species.
- Smalltooth Sawfish – The restoration operations associated with this project may affect, but not likely to adversely affect and will not jeopardize the continued existence of the species.

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Appendix A
CONSTRUCTION GUIDELINES FOR MINOR PILING SUPPORTED STRUCTURES

Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat
U.S. Army Corps of Engineers/National Marine Fisheries Service
August 2001

Submerged Aquatic Vegetation:

1. Avoidance. The piling-supported structure shall be aligned so as to minimize the size of the footprint over SAV beds.

2. The height of piling-supported structure shall be a minimum of 5 feet above MHW/OHW as measured from the top surface of the decking.

3. The width of the piling-supported structure is limited to a maximum of 4 feet. A turnaround area is allowed for piling-supported structures greater than 200 feet in length. The turnaround is limited to a section of the piling-supported structure no more than 10 feet in length and no more than 6 feet in width. The turnaround shall be located at the midpoint of the piling-supported structure.

4. Over-SAV bed portions of the piling-supported structure shall be oriented in a north-south orientation to the maximum extent that is practicable.

5. a. If possible, terminal platforms shall be placed in deep water, waterward of SAV beds or in an area devoid of SAV beds.

b. If a terminal platform is placed over SAV areas and constructed of grated decking, the total size of the platform shall be limited to 160 square feet. The grated deck material shall conform to the specifications stipulated below. The configuration of the platform shall be a maximum of 8 feet by 20 feet. A minimum of 5 feet by 20 feet shall conform to the 5-foot height requirement; a 3 feet by 20 feet section may be placed 3 feet above MHW to facilitate boat access. The long axis of the platform should be aligned in a north-south direction to the maximum extent that is practicable.

c. If the terminal platform is placed over SAV areas and constructed of planks, the total size of the platform shall be limited to 120 square feet. The configuration of the platform shall be a maximum of 6 feet by 20 feet of which a minimum 4-foot wide by 20-foot long section shall conform to the 5-foot height requirement. A section may be placed 3 feet above MHW to facilitate boat access. The 3 feet above MHW section shall be cantilevered. The long axis of the platform should be aligned in a north-south direction to the maximum extent that is practicable. If the 3feet above MHW section is constructed with grating material, it may be 3 feet wide.

6. One uncovered boat lift area is allowed. A narrow catwalk (2 feet wide if planks are used, 3 feet wide if grating is used) may be added to facilitate boat maintenance along the outboard side of the boat lift and a 4-foot wide walkway may be added along the stern end of the boat lift, provided all such walkways are elevated 5 feet above MHW. The catwalk shall be cantilevered from the outboard mooring pilings (spaced no closer than 10 feet apart).

7. Pilings shall be installed in a manner which will not result in the formation of sedimentary deposits("donuts" or "halos") around the newly installed pilings. Pile driving is the preferred method of installation, but jetting with a low pressure pump may be used.

8. The spacing of pilings through SAV beds shall be a minimum of 10 feet on center.

9. The gaps between deckboards shall be a minimum of ½ inch.

Marsh:

Grid Specifications and Suppliers Section modified in October 2002 to add an additional vendor of materials.
February 2003 – Manufacturer name changed from ChemGrate to FiberGrate
May 2003 - The terms dock and pier were removed and replaced by the term piling-supported structure, to clarify our intent.
March 2008 – Added requirement for 43% open space in grids; added additional manufacturer of grating. -

1. The piling-supported structure shall be aligned so as to have the smallest over-marsh footprint as practicable.

2. The over-marsh portion of the piling-supported shall be elevated to at least 4 feet above the marsh floor.

3. The width of the piling-supported is limited to a maximum of 4 feet. Any exceptions to the width must be accompanied by an equal increase in height requirement.

Mangroves.

1. The width of the piling-supported structure is limited to a maximum of 4 feet.

2. Mangrove clearing is restricted to the width of the piling-supported structure.

3. The location and alignment of the piling-supported structure should be through the narrowest area of the mangrove fringe.

Grid Specifications and Suppliers

The following information does not constitute a U.S. Army Corps of Engineers endorsement or advertisement for any particular provider and is provided only as an example for those interested in obtaining these materials for piling-supported structure construction. Light-transmitting materials are made of various materials shaped in the form of grids, grates, lattices, etc., to allow the passage of light through the open spaces. **All light-transmitting materials used in construction for minor piling-supported structures shall have a minimum of forty-three (43) percent open space.**

A type of fiberglass grate panel is manufactured by SeaSafe (Lafayette, LA; phone: 1-800-326-8842) and FiberGrate (1-800-527-4043). A type of plastic grating is manufactured by ThruFlow Interlocking Panels (1-888-478-3569). Plastic grate panels are also distributed by Southern Pine Lumber Company (Stuart, FL; 772-692-2300). Panels are available in a variety of sizes and thicknesses. For safety, the grate should contain an anti-slip texture which is integrally molded into the top surface. The manufacturer or local distributor should be consulted to ensure that the load-bearing capacity of the selected product is sufficient to support the intended purpose. Contact the manufacturer(s) for product specifications and a list of regional distributors.

Appendix B

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.

b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.

f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006
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Appendix C
STANDARD MANATEE CONSTRUCTION CONDITIONS FOR IN WATER WORK

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK
2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or in Vero Beach (1-772-562-3909) for south Florida, and emailed to FWC at ImperiledSpecies@myFWC.com.

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8½ " by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at http://www.myfwc.com/WILDLIFEHABITATS/manatee_sign_vendors.htm. Questions concerning these signs can be forwarded to the email address listed above.

Appendix D
VESSEL STRIKE AVOIDANCE MEASURES AND REPORTING FOR MARINERS

Vessel Strike Avoidance Measures
and Reporting for Mariners
NOAA Fisheries Service, Southeast Region

Background
The National Marine Fisheries Service (NMFS) has determined that collisions with vessels can injure or kill protected species (e.g., endangered and threatened species, and marine mammals). The following standard measures should be implemented to reduce the risk associated with vessel strikes or disturbance of these protected species to discountable levels. NMFS should be contacted to identify any additional conservation and recovery issues of concern, and to assist in the development of measures that may be necessary.

Protected Species Identification Training
Vessel crews should use an Atlantic and Gulf of Mexico reference guide that helps identify protected species that might be encountered in U.S. waters of the Atlantic Ocean, including the Caribbean Sea, and Gulf of Mexico. Additional training should be provided regarding information and resources available regarding federal laws and regulations for protected species, ship strike information, critical habitat, migratory routes and seasonal abundance, and recent sightings of protected species.

Vessel Strike Avoidance
In order to avoid causing injury or death to marine mammals and sea turtles the following measures should be taken when consistent with safe navigation:

1. Vessel operators and crews shall maintain a vigilant watch for marine mammals and sea turtles to avoid striking sighted protected species.

2. When whales are sighted, maintain a distance of 100 yards or greater between the whale and the vessel.

3. When sea turtles or small cetaceans are sighted, attempt to maintain a distance of 50 yards or greater between the animal and the vessel whenever possible.

4. When small cetaceans are sighted while a vessel is underway (e.g., bow-riding), attempt to remain parallel to the animal's course. Avoid excessive speed or abrupt changes in direction until the cetacean has left the area.

5. Reduce vessel speed to 10 knots or less when mother/calf pairs, groups, or large assemblages of cetaceans are observed near an underway vessel, when safety permits. A single cetacean at the surface may indicate the presence of submerged animals in the vicinity; therefore, prudent precautionary measures should always be exercised. The vessel shall attempt to route around the animals, maintaining a minimum distance of 100 yards whenever possible.

NMFS Southeast Region Vessel Strike Avoidance Measures and Reporting for Mariners; revised February 2008.

6. Whales may surface in unpredictable locations or approach slowly moving vessels. When an animal is sighted in the vessel's path or in close proximity to a moving vessel and when safety permits, reduce speed and shift the engine to neutral. Do not engage the engines until the animals are clear of the area.

Additional Requirements for the North Atlantic Right Whale

1. If a sighted whale is believed to be a North Atlantic right whale, federal regulation requires a minimum distance of 500 yards be maintained from the animal (50 CFR 224.103 (c)).

2. Vessels entering North Atlantic right whale critical habitat are required to report into the Mandatory Ship Reporting System.

3. Mariners shall check with various communication media for general information regarding avoiding ship strikes and specific information regarding North Atlantic right whale sighting locations. These include NOAA weather radio, U.S. Coast Guard NAVTEX broadcasts, and Notices to Mariners. Commercial mariners calling on United States ports should view the most recent version of the NOAA/USCG produced training CD entitled "A Prudent Mariner's Guide to Right Whale Protection" (contact the NMFS Southeast Region, Protected Resources Division for more information regarding the CD).

4. Injured, dead, or entangled right whales should be immediately reported to the U.S. Coast Guard via VHF Channel 16.

Injured or Dead Protected Species Reporting

Vessel crews shall report sightings of any injured or dead protected species immediately, regardless of whether the injury or death is caused by your vessel.

Report marine mammals to the Southeast U.S. Stranding Hotline: 877-433-8299
Report sea turtles to the NMFS Southeast Regional Office: 727-824-5312

If the injury or death of a marine mammal was caused by a collision with your vessel, responsible parties shall remain available to assist the respective salvage and stranding network as needed. NMFS' Southeast Regional Office shall be immediately notified of the strike by email (takereport.nmfsser@noaa.gov) using the attached vessel strike reporting form.

For additional information, please contact the Protected Resources Division at:

NOAA Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701
Tel: (727) 824-5312
Visit us on the web at http://sero.nmfs.noaa.gov

NMFS Southeast Region Vessel Strike Avoidance Measures and Reporting for Mariners; revised February 2008.