

FOLLY RIVER NAVIGATION PROJECT
OPERATION & MAINTENANCE DREDGING
CHARLESTON COUNTY, SOUTH CAROLINA

Supplemental Environmental Assessment

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT



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°F	degrees Fahrenheit
APE	Area of Potential Effects
BCM	South Carolina Department of Environmental Services, Bureau of Coastal Management
BO	Biological Opinion
BOW	South Carolina Department of Environmental Services, Bureau of Water
BU	Beneficial Use
CAA	Clean Air Act
CBIA	Coastal Barrier Improvement Act
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resource System
CDF	Confined Disposal Facility
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CMP	Coastal Migratory Pelagic
CSRM	Coastal Storm Risk Management
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
EP	Engineer Pamphlet
EPA	U.S. Environmental Protection Agency
ER	Engineer Regulation
ERDC	U.S. Army Engineer Research and Development Center
ESA	Endangered Species Act
ETL	Engineer Technical Letter
FEMA	U.S. Department of Homeland Security, Federal Emergency Management Agency
FMC	Fishery Management Councils
FMP	Fisheries Management Plan
ft	Foot or feet
FONSI	Finding of No Significant Impact
FR	Federal Register
FRNP	Folly River Navigation Project
FWCA	Fish and Wildlife Coordination Act
HAPC	Habitat Areas of Particular Concern

HMS	Highly Migratory Species
HUC	Hydrologic Unit Code
in	inch(es)
MAFMC	Mid-Atlantic Fishery Management Council
MALAA	May Affect, Likely to Adversely Affect
MANLAA	May Affect, Not Likely to Adversely Affect
MBTA	Migratory Bird Treaty Act
MLLW	Mean Lower Low Water
mm	millimeter
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSL	Mean Sea Level
N/A	Not applicable
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NE	No Effect
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NM	Nautical Miles
NMFS	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NOAA	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NRU	Northern Recovery Unit
NTU	Nephelometric Turbidity Units
O&M	Operations and Maintenance
OCRM	South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management
ODMDS	Ocean Dredged Material Disposal Site
PA	Programmatic Agreement
PDC	Project Design Criteria
PL	Public Law
ppt	parts per thousand
PRD	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Protected Resources Division
SAFMC	South Atlantic Fishery Management Council
SARBO	South Atlantic Regional Biological Opinion
SCCZMP	South Carolina Coastal Zone Management Program
SCDHEC	South Carolina Department of Health and Environmental Control
SCDES	South Carolina Department of Environmental Services
SCDNR	South Carolina Department of Natural Resources

SCIAA	South Carolina Institute of Archeology and Anthropology
SHPO	South Carolina State Historic Preservation Office
SLC	Sea Level Change
T&C	Terms & Conditions
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Department of the Army, Army Corps of Engineers
USFWS	U.S. Department of the Interior, Fish and Wildlife Services
WQC	Water Quality Certification
WRDA	Water Resources Development Act
yd ³	cubic yard(s)

1 INTRODUCTION

1.1 DESCRIPTION OF DOCUMENT

This Supplemental Environmental Assessment (EA) has been prepared by the U.S. Army Corps of Engineers (USACE), Charleston District, pursuant to the National Environmental Policy Act (NEPA), 42 United States Code (U.S.C.) §§ 4321 – 4370f, and its implementing regulations, 40 Code of Federal Regulation [CFR] §§ 1500 – 1508 and 33 CFR Part 230, in coordination with Federal and state resource agencies, to evaluate newly considered alternatives to actions previously analyzed in *Environmental Assessment & Findings of No Significant Impact for Folly River Navigation Project* (USACE 1997). Previous analyses concerning the Folly River Navigation Project (FRNP) also included an EA appended to the *Folly River Navigation Study* (USACE 1977), which provided evaluation of impacts from original construction and projected operations and maintenance (O&M). Based on the analysis of information herein, the impacts are considered insignificant, and the proposed action does not represent either a substantial change to the FRNP relevant to environmental concerns, or present significant new circumstances or information relevant to environmental concerns. Therefore, a Finding of No Significant Impact (FONSI) has been issued.

1.2 PROJECT AUTHORIZATION / PROJECT AREA

The FRNP was originally authorized on December 23, 1977, under Section 107 of the River and Harbor Act of 1960, as amended. Project construction was completed in September 1979. The FRNP is located in Charleston County along the southern side of Folly Island about six miles south of the entrance to Charleston Harbor (Figure 1) and consists of three channels, the entrance channel, Folly River channel, and Folly Creek channel (Figure 2).

O&M of the FRNP is authorized as stated above, while other authorities below provide for options concerning how products of O&M are managed. Section 107(e) of the River and Harbor Act of 1960 (Public Law [PL] 86-645) states as follows:

“[E]ach project for which money is allotted under this section shall be complete in itself and not commit the United States to any additional improvement to insure its successful operation, other than routine maintenance, and except as may result from the normal procedure applying to projects authorized after submission of survey reports, and projects constructed under the authority of this section shall be considered as authorized projects.”

Section 2037 of the Water Resources Development Act (WRDA) 2007 (PL 110-114, 121 Stat. 1096), provided an amendment to Section 204 of WRDA 1992, wherein Section 204(a)(3), as amended, states as follows:

“[t]he purposes of using sediment for the construction, repair, modification, or rehabilitation of Federal water resource projects are—(A) to reduce storm damage to property; (B) to protect, restore, and create aquatic and ecologically related habitats, including wetlands; and (C) to transport and place suitable sediment”.

Section 204(d)(1), as amended, also states:

“...the Secretary may select, with the consent of the non-Federal interest, a disposal method that is not the least cost option if the Secretary determines that the incremental costs of the disposal method are reasonable in relation to the environmental benefits, including the benefits to the aquatic environment to be derived from the creation of wetlands and control of shoreline erosion.”

In making a determination of the Federal standard (see more discussion in section 2), 33 U.S.C. § 2326g requires that the economic benefits and efficiencies from the beneficial use (BU) of dredged material must be taken into account.

The last cycles of maintenance dredging performed on the FRNP were conducted in 2006 and 2021 in the Folly River channel and entrance channel. In 2006, approximately 40,000 cubic yards (yd³) of material was dredged from the entrance channel using a sidecast dredge and 84,354 yd³ from inside shoals of the Folly River channel using a cutterhead dredge. Most recently in 2021, approximately 60,000 yd³ of material was dredged from the entrance channel using a modified hopper dredge as part of a pilot project (USACE 2020). Notably, there is also considerable overlap of dredged areas between the FRNP and Folly Beach Coastal Storm Risk Management (CSRM) Project (formerly referred to as the “Folly Beach Shore Protection Project”) within the areas of the Folly River channel and Folly River borrow area, respectively (USACE 2017).

This EA updates previous NEPA analysis for the continued O&M of the FRNP, and evaluates impacts associated with alternative methods to increase beneficial use (BU) of dredged sediment and provide environmental and economic benefits.

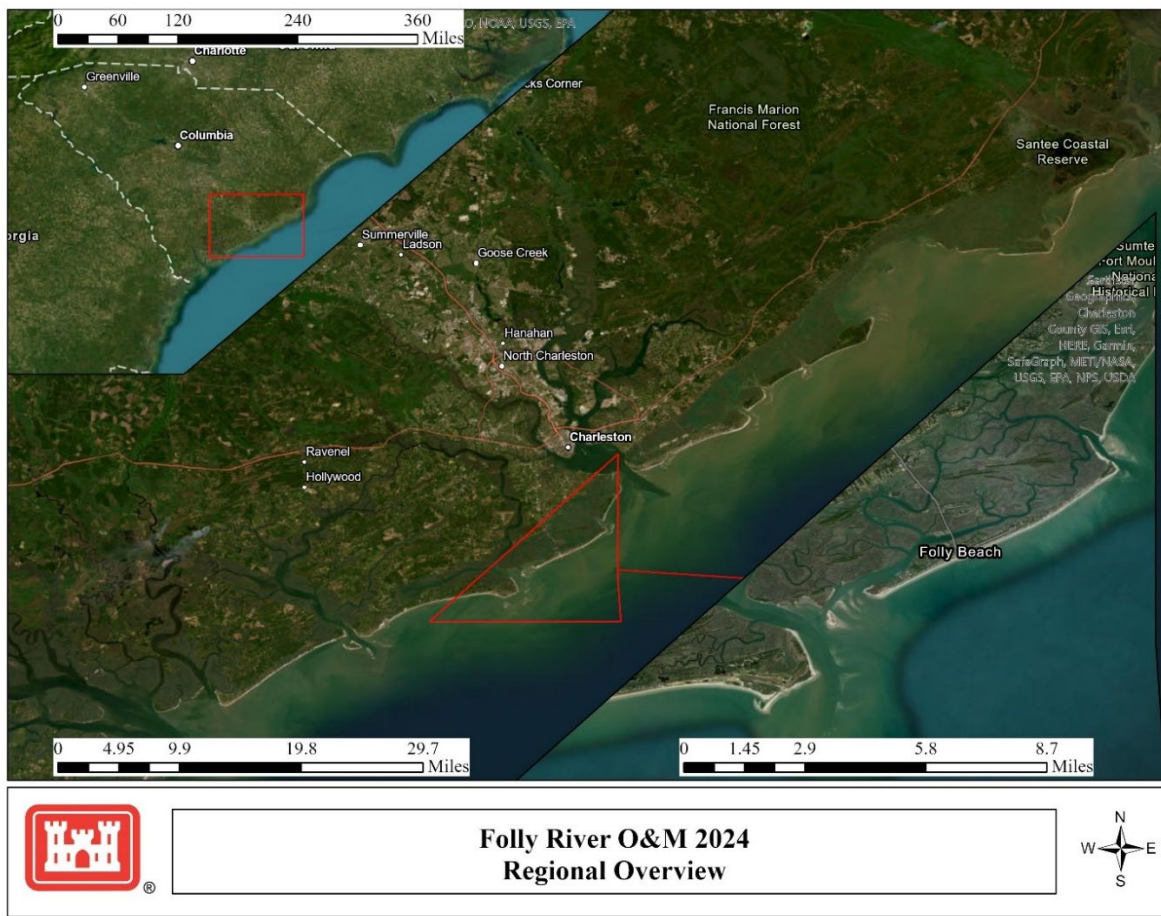


Figure 1 Regional scale view of FRNP vicinity

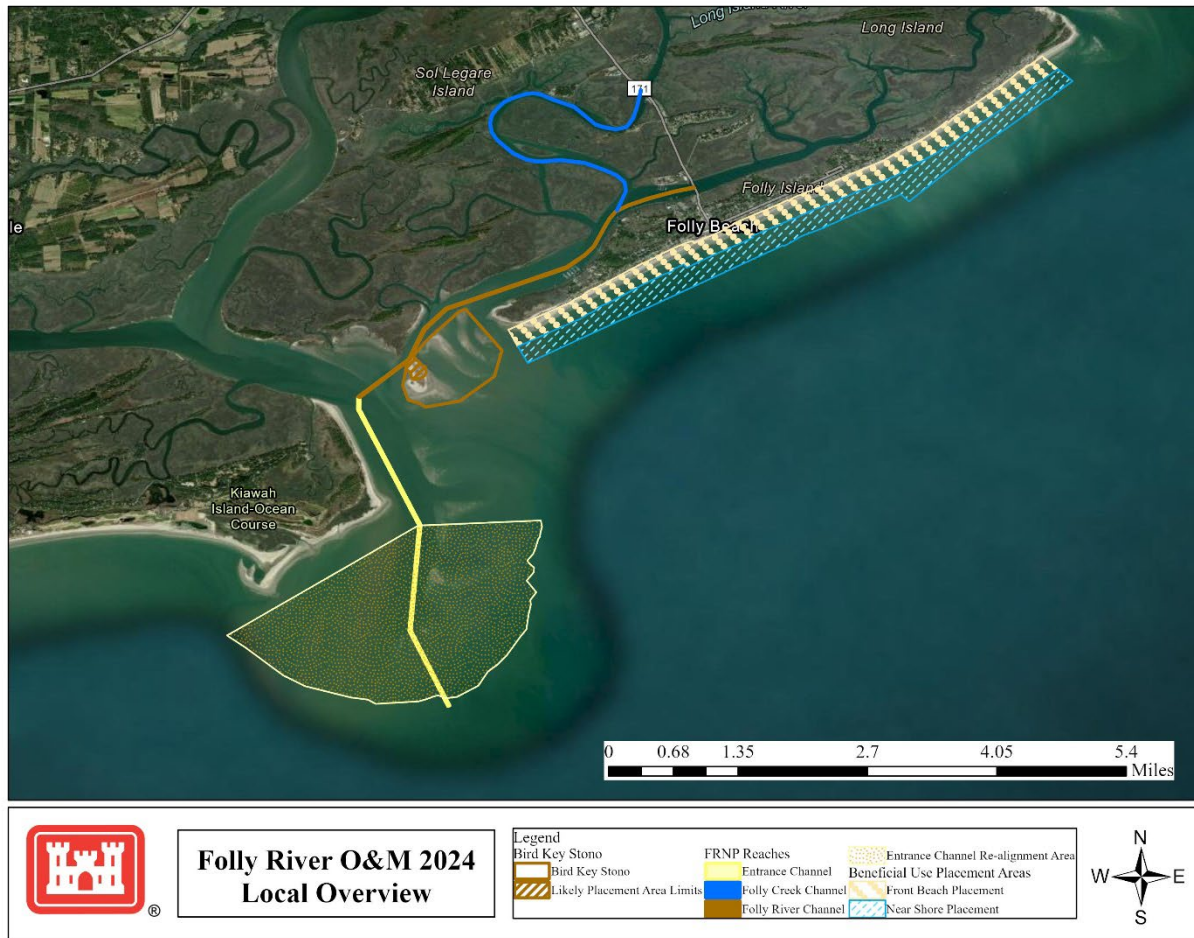


Figure 2 Local scale view of the FRNP area

1.2.1 Entrance Channel

The FRNP entrance channel is 11 feet (ft) deep by 100 ft wide extending from the Stono River 11 ft contour through the ebb delta lying off the river mouth. The entrance channel has an extent up to approximately 3 nautical miles (NM) from the inlet. In 1997, under the same authorities of Section 107 of the River and Harbor Act of 1960, as amended, the entrance channel was re-aligned in order to take advantage of natural channel development and/or migration and reduce the scale of maintenance needs. Since then, re-alignment has occurred during dredge maintenance cycles in keeping with the natural channel development and/or migration. In Figure 2, the area outlined as “Entrance Channel Re-alignment Area” illustrates the area wherein re-alignment may occur to maintain the navigation channel with ongoing natural channel development and/or migration.

1.2.2 Folly River Channel

Folly River is a natural tidal river serving as an outlet for an extensive marsh area. Several tidal streams feed into the river, the largest of which is Folly Creek. Typical depths range from 30+ ft at the mouth of Folly Creek to <4 ft across shoals near the confluence of the Stono River. The navigational reach consists of a 9 ft deep and 80 ft wide navigation channel linking the entrance

channel and Folly Creek, while also extending approximately 3 NM from Highway 171 to the confluence of Folly and Stono Rivers.

1.2.3 Folly Creek Channel

This creek is the main tributary to Folly River. Typical depths range from 12-28 ft and shoaling does not create navigation problems for local commercial fishing vessels. This navigational reach consists of a 9 ft deep and 80 ft wide channel originating from its northern terminus near Highway 171 and extending approximately 3 NM to the confluence with Folly River.

1.2.4 Bird Key Stono Seabird Sanctuary (Bird Key Stono)

Bird Key Stono is an area varying in size and resulting from continually migrating shoals within the tidal/ebb delta adjacent to the Folly and Stono Rivers (Figure 3). Bird Key Stono is owned by the South Carolina Department of Natural Resources (SCDNR) Heritage Trust Division and is a Bird Sanctuary protected under the 2015 South Carolina Code of Laws Section 50-11-860. It is one of only three Heritage Preserve coastal islands in South Carolina that protect seabird and shorebird nesting. Since inception of the FRNP, USACE has continually partnered with SCDNR (formerly South Carolina Wildlife and Marine Resources Department) in working to maintain habitat for seabird and shorebird nesting on Bird Key Stono.

1.2.5 Folly Beach

For the purposes of this EA, Folly Beach refers to the front beach placement area of Folly Island (extent outlined in Figure 2) and is located within the City of Folly Beach. The southwest end of Folly Island is managed by the Charleston County Parks and Recreation Commission as the Folly Beach County Park. The Folly Beach County Park has been the previous extent of where dredged sediment was pipelined to from Folly River channel for BU beach placement.

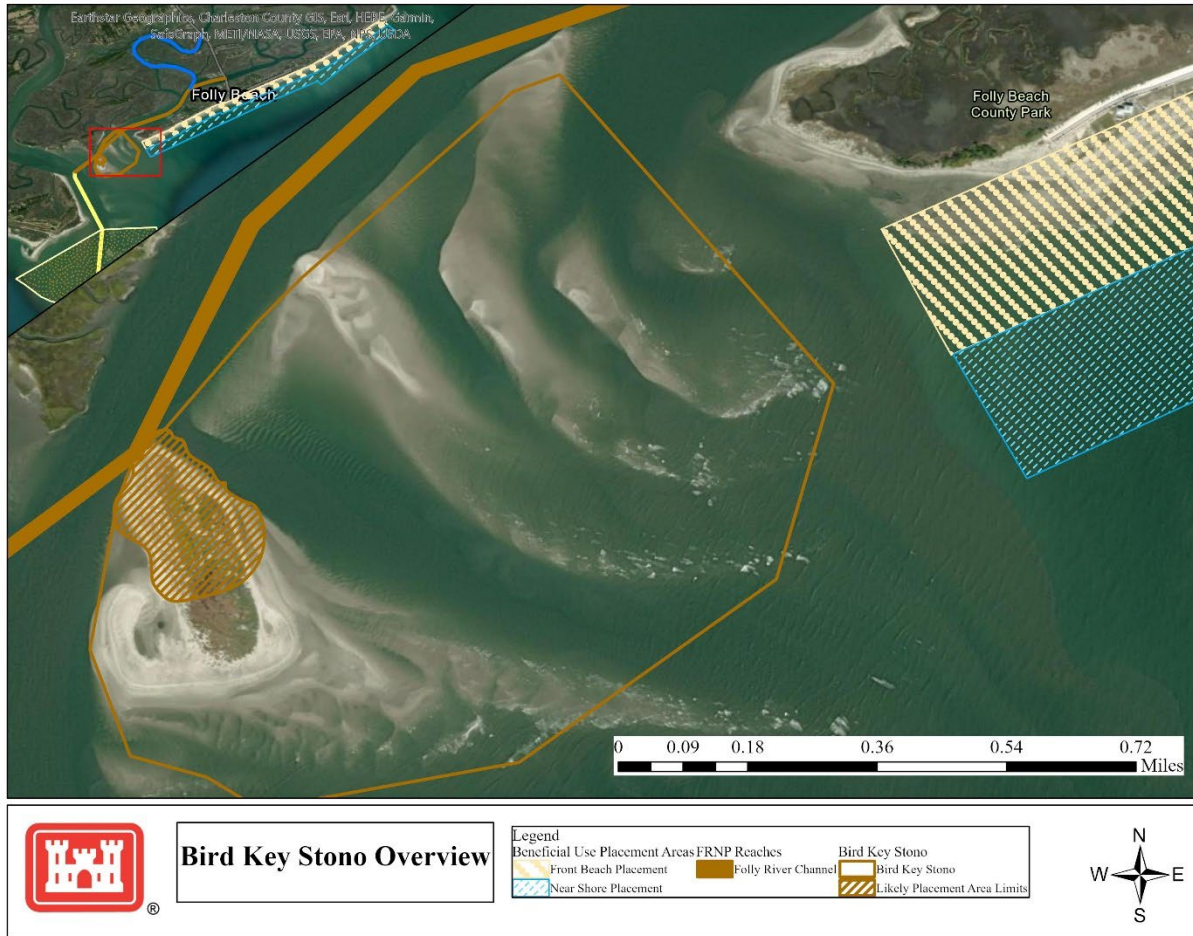


Figure 3 Local scale view of Bird Key Stono

1.3 PURPOSE AND NEED FOR ACTION

The purpose of maintenance dredging is to continue to provide safe navigation for recreational, commercial fishing, and shrimping boats. Migrating shoals create shallow depths in the inlet and the lower portion of the Folly River, which forces operators of commercial shrimp trawlers and large pleasure boats to time their entry and exit with the tides to avoid vessel damage and grounding. Based on sediment transport models by USACE (2021b), sediment supplies to the Folly River borrow area (overlaps with most of Folly River channel) mainly come from the nearshore Folly Beach area, which are carried by the longshore current turning around the southwest tip of Folly Island. Dredged portions in the Stono Inlet (overlaps with the entrance channel re-alignment area) receive large amounts of sediment from neighboring shallow areas. Hydrographic surveys conducted in April 2022 showed approximately 149,125 yd³ of shoaling in the Folly River channel was creating depths as shallow as <1 ft along the western side of Folly Island, and <2 ft in both upstream portions and behind Bird Key Stono. Within the entrance channel, the current alignment has approximately 127,724 yd³ of shoaling creating depths as shallow as 1-2 ft.

Aside from needs related to navigation on the FRNP, sediment management is an important part of the O&M scoping process. In past O&M cycles on the FRNP, dredged sediments from the Folly River channel were pipelined to either Folly Beach County Park or Bird Key Stono, while sediment from the entrance channel was sidecast into adjacent waters. Sidecasting sediment, although efficient and economical, provides little BU relative to other disposal means such as beach placement or nearshore placement; and, as is acknowledged in Engineer Manual 1110-2-5025, may require more frequent dredging as some of the material removed can return to the channel prism because of tidal and littoral currents.

This EA outlines actions to use dredged sediments for the purposes of mitigating shoreline erosion and storm damage for adjacent property owners and public infrastructure and wildlife habitat along Folly Beach and Bird Key Stono. In combination with other projects, including the Folly Beach CSRM Project, alternatives presented here may provide some protection for the projected 2.1 million yd³ of sediment eroding from Folly Beach every 12 years (USACE 2021*a*).

1.4 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

USACE has prepared this EA in compliance with NEPA and associated implementing regulations to evaluate the potential environmental effects of the alternatives considered herein to the following environmental resources:

- Aesthetics
- Aquatic Resources/Wetlands
- Essential Fish Habitat
- Threatened & Endangered Species
- Coastal Barrier Resources System
- Coastal Zone Resources
- Terrestrial Biological Resources
- Cultural Resources
- Floodplains
- Navigation
- Noise
- Water Quality
- Climate Change
- Recreational Environment
- Socioeconomics and Environmental Justice

The following resources were eliminated from detailed analysis because they were not considered relevant to the actions outlined in each alternative (Table 1):

Table 1 Resources dismissed from detailed analysis

Dismissed Resource	Reasoning
Air Quality	According to the U.S. Environmental Protection Agency (EPA) Greenbook website (https://www3.epa.gov/airquality/greenbook/anayo_sc.html) and AirNow.gov; Charleston County is in attainment for fine particles, ozone, and sulfur dioxide pursuant to the National Ambient Air Quality Standards (NAAQS), Section 176(c)(1) of the Clean Air Act (CAA). All dredge equipment will be compliant with air emissions standards under the CAA and will not impact Charleston County's attainment status for air quality.
Invasive Species	No invasive species have been identified within the project area of which propagation would be influenced by the actions herein.
Hazardous, Toxic and Radioactive Waste	Dredged material from USACE projects is excluded from the definitions of hazardous waste, 40 CFR. 261.4; 33 CFR. 336.1, 336.2. Pursuant to Engineering Regulation (ER) 1165-2-132, dredged materials and sediments beneath navigable waters proposed for dredging qualify as hazardous or toxic wastes only if they are within the boundaries of a site designated by the EPA or a state for a response action (either a removal action or remedial action) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). None of the Placement sites are designated CERCLA sites and no potential hazardous, toxic and radioactive waste in or around channels and placement locations were identified.
Geological Resources	The geology of the proposed project area will remain unaffected under any alternative. No unique or noteworthy geological features will be permanently impacted.

1.5 RELATED ENVIRONMENTAL REVIEWS

Several documents have been prepared that concern relevant aspects of the environment of the project area, including a navigation study, several EAs and biological opinions (BO), and a hydrogeomorphology study. Information from the following documents is included in this EA:

- *Folly River Navigation Study* (USACE 1977). This original study was completed prior to the FRNP construction and evaluated environmental and economic impacts of design and construction alternatives. An EA was included in the study appendices.
- *Environmental Assessment and Finding of No Significant Impact (FONSI) for Folly River Navigation Project, Charleston County, South Carolina* (USACE 1997). This EA re-evaluated O&M of the FRNP with consideration of natural changes to Bird Key Stono and the entrance channel.
- *U.S. Fish and Wildlife Services, Biological Opinion, Folly River Navigation Project* (USFWS 2006). This biological opinion was issued by the U.S. Fish and Wildlife Service (USFWS) during Endangered Species Act (ESA) Section 7 consultation for the FRNP in response to a BA submitted that addressed ESA species listed after 1997.
- *Environmental Assessment Folly Beach Shore Protection Project: Folly River Borrow Area, Charleston County, South Carolina* (USACE 2017). This EA evaluated environmental consequences of utilizing sediment from Folly River to nourish Folly Beach and Bird Key Stono.
- *U.S. Fish and Wildlife Services, Biological Opinion, Folly Beach Renourishment and Groin Rehabilitation Project* (USFWS 2018). This BO of the USFWS was issued during ESA Section 7 consultation for the Folly Beach CSRM Project regarding beach

nourishment and groin rehabilitation at Folly Beach and northeast Bird Key Stono in 2018.

- *National Marines Fisheries Service, 2020 South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States* (NMFS 2020). The South Atlantic Regional Biological Opinion (SARBO) covers both maintenance dredging and material placement on a list of USACE projects. FRNP O&M activities will be conducted in accordance with terms of the SARBO.
- *Integrated Feasibility Report and Environmental Assessment for Coastal Storm Risk Management, Folly Beach, Charleston County, South Carolina* (USACE 2021a). This feasibility study and environmental assessment evaluated design modifications to the Folly Beach template and the availability of sand resources in a variety of borrow areas.
- *Sediment Transport Modeling at Stono Inlet and Adjacent Beach, South Carolina* (USACE 2021b). This document included sediment transport modeling to analyze impacts of using borrow areas in the Folly River and Stono Inlet on sediment transport throughout the area during regular intervals of time and adverse weather events.

2 ALTERNATIVES

Alternatives concerning USACE actions on the FRNP were considered and evaluated based on compliance with environmental laws, regulations and executive orders (EO); impacts to the environment including those to aesthetics, aquatic resources/wetlands, essential fish habitat, threatened & endangered species, coastal barrier resources systems, coastal zone resources, terrestrial biological resources, cultural resources, floodplains, navigation, noise, water quality, climate change, recreational environment, socioeconomics and environmental justice; as well as cost effectiveness, engineering feasibility, and the ability of the alternative to meet the purpose and needs of the project. Alternatives were also evaluated to determine whether they met *the Federal standard* (see 33 CFR Parts 335-338). The Federal standard is the dredged material disposal alternative or alternatives identified by USACE which represent the least costly alternatives consistent with sound engineering practices and environmental standards established by the Clean Water Act (CWA) 404(b)(1) evaluation process or ocean dumping criteria. In reviewing alternatives, USACE considered whether they would be technically feasible (engineering); cost effective; and compliant with applicable environmental laws, regulations, and executive orders; and whether they would have less than significant environmental impacts. Only Alternative B (Past Approach) and Alternative C (Proposed Action Alternative) were found to meet the criteria above. Alternative A (No Action Alternative), while it would not meet the purpose and need for action, was included in the evaluation to provide a baseline for environmental impacts, as required by NEPA.

2.1 ALTERNATIVE A (NO ACTION ALTERNATIVE)

Alternative A, the No Action Alternative, represents the most probable future condition if no action is taken. Under the No Action Alternative, USACE would not conduct maintenance dredging; therefore, the FRNP area would continue to shoal in, and boat traffic would continue

to find it increasingly difficult to traverse the area. Migrating shoals would continue to create shallow depths in the inlet and the lower portion of Folly River, which forces operators of commercial shrimp trawlers and large pleasure boats to time their entry and exit with the tides to avoid vessel damage and grounding.

2.2 ALTERNATIVE B (PAST APPROACH)

Under Alternative B, the Past Approach Alternative, USACE would continue with the same course of action as outlined by USACE (1997) and summarized in Table 2 below. The Folly River channel would be maintained to navigation depth using cutterhead pipeline dredging and sediments would be pipelined to the front shores of either Folly Beach County Park, Bird Key Stono, or both. In addition, the entrance channel could continue to be re-aligned within the re-alignment area and dredged to depth with a sidecast dredge. Dredged sediment from the entrance channel would be sidecast outside the channel.

2.3 ALTERNATIVE C (PROPOSED ACTION ALTERNATIVE)

Under Alternative C, the Proposed Action Alternative, USACE actions would include all actions outlined in Alternative B as well as expansion of available sediment placement locations and dredge types (Table 2). More specifically, actions covered under Alternative C include maintenance to navigation depth of: (1) Folly River channel using cutterhead pipeline dredging and disposal of dredged sediment to any individual, or combination thereof, placement areas (i.e., Bird Key Stono, the expanded front beach placement area for Folly Beach, or nearshore along Folly Beach); and (2) the FRNP entrance channel using any individual, or combination thereof, of the following dredge types: sidecast, modified hopper, or cutterhead pipeline and disposal of dredged sediment to any individual, or combination thereof, placement area (i.e., the area adjacent to the entrance channel, the expanded front beach placement area for Folly Beach, and/or nearshore along Folly Beach or Bird Key Stono).

Table 2. Compared summary of actions taken by USACE (1997) and those falling under scope of Alternative B and actions within scope of Alternative C

Reach	Shoaling (yd ³)	Dredging Frequency (years)	Placement Location(s)	Dredge Type(s)
Folly River	Up to 300,000	~3	Alternatives B & C:	Alternatives B & C:
			• Front Beach (Folly Beach County Park only)	• Cutterhead Pipeline
			• Bird Key Stono	
			Alternative C (Only):	
Entrance Channel	Up to 300,000	~2	• Front Beach (All of Folly Beach)	
			• Nearshore Folly Beach	
			Alternatives B & C:	Alternatives B & C:
			• Entrance Channel	• Sidecast
			Alternative C (Only):	Alternative C (Only):
			• Front Beach (All of Folly Beach)	• Modified Hopper
			• Nearshore Folly Beach	• Cutterhead Pipeline
			• Bird Key Stono	

3 METHODS & SCOPE OF PROJECT NEEDS

3.1 DREDGE TYPES

3.1.1 Cutterhead Pipeline Dredge (*Available under Alternatives B & C*)

A cutterhead pipeline dredge is a type of hydraulic cutter-suction dredge that uses a rotating cutterhead to loosen and lift materials while skimming along the sediment surface in the bottom of waterways and uses pumps to move dredged sediment through a pipeline to a placement area. Typically, pipelines are 18-24 inches (in) in diameter, operate 24 hours per day, and have the capability to remove larger volumes of materials. The suction power of a small non-ocean certified cutterhead dredge usually ranges between 1,300 – 2,000 horsepower. Cutterhead pipeline dredges are capable of dredging in shallow or deep water and have accurate bottom and side slope cutting capability. Limitations of these dredges include relative lack of mobility, long mobilization and demobilization, inability to work in high wave action and currents, and they are impractical in high traffic areas. Considering that the cutterhead is typically buried in the sediment to promote operational efficiency—limiting exposure in the water column to the suction field—cutterhead dredging has historically resulted in significantly lower takes of ESA-listed species than hopper dredges (NMFS 2020).

Pipelines placed on the sea floor must either be of sufficient weight to remain in place or be anchored or weighted. Floating pipelines are anchored to the sea floor and may require booster pumps if the length of the pipeline is too long for the dredge to push the material to the placement location. Pipelines are typically placed in the same pipeline corridor for each recurring event to minimize the potential damage to resources in the area.

3.1.2 Sidecast Dredge (*Available under Alternatives B & C*)

A sidecast dredge is capable of dredging in depths from about 5-25 ft and is typically used in shallow areas for shoal removal. This dredge type has two articulated dredging pipes known as dragarms that extend to the seabed and dragheads that scoop sediment from the surface and, with an available 160 horsepower, pumps it up a 12-in diameter, 80-ft long discharge pipe with a 10-ft extension. Dredged sediment is cast up to 100 ft from the centerline of the vessel into adjacent open waters where predominant currents can then carry it away from the channel.

3.1.3 Modified Hopper Dredge (*Available under Alternative C Only*)

A modified hopper dredge, like sidecast dredges, pulls dragheads along the sediment surface and sucks sedimentary material through articulated pipes; but instead of discharging dredged sediment, this dredge type allows for storage and transport in the hull of the vessel (up to 300-500 yd³). Unlike traditional hopper dredge equipment, modified equipment utilizes smaller dragheads (2 ft x 2 ft or 2 ft x 3 ft), openings (5 in x 5 in or 5 in x 8 in) and intake pipes (10-14 in) and operating suction power is limited to 100-110 horsepower. Once filled, stored sediment is transported to the placement area where the split-hull opens and deposits sediment.

For the purposes of this project, this dredge type operates best between 5.5-8 ft mean lower low water (MLLW) in small and/or isolated shoaling locations. Under Alternative C, a modified

hopper dredge would be used to dredge and transport sediment from the entrance channel to the nearshore area of Folly Beach.

3.2 REACHES TO BE DREDGED

Under Alternatives B & C, at all FRNP reaches during any O&M dredge cycle, selection of dredge types and placement areas are dependent on mixed variables including equipment availability, sediment composition, logistics, and cost. However, as discussed above, dredge type and placement area options are more limited under Alternative B.

3.2.1 Entrance Channel (Alternatives B & C)

The FRNP entrance channel re-alignment area consists of an approximately 1,659-acre area designated to allow for “following the deep” where natural shifts in ocean topography can be surveyed to align the channel and maintain a navigation depth of 11 ft and width of 100 ft. This design method allows for significant reductions in the volume of dredged sediments required to maintain the entrance channel, extending periods of safe, efficient navigation. O&M of the entrance channel re-alignment area is estimated to require dredging of up to 300,000 yd³ of sediment in 2-year intervals. Dredging, however, would occur under Alternatives B & C when necessary and funding is available.

3.2.2 Folly River Channel (Alternatives B & C)

The Folly River channel consists of a total area of approximately 41.3 acres within Folly River. Like that of the entrance channel, the exact alignment of the Federal channel may shift slightly through time in order to provide for the most efficient maintenance of navigation conditions; however, this variation is relatively small in scale compared to that of the entrance channel. O&M of channel dimensions of 9 ft depth and 80 ft width is estimated to require dredging of up to 300,000 yd³ in 3-year intervals. As is with the entrance channel, dredging would occur when necessary and funding is available.

3.3 PLACEMENT LOCATIONS

3.3.1 Entrance Channel Re-alignment Area (Alternatives B & C)

Historically, O&M of the entrance channel was achieved using sidecast dredging and is the only dredge type where the area adjacent to the entrance channel will serve as the placement area. This method will continue to be available under Alternatives B & C. However, under Alternative B, O&M of the entrance channel may only occur through use of a sidecast dredge. Under circumstances where a sidecast dredge is to be used (either as necessary under Alternative B or when necessary and determined to be most advantageous under Alternative C), sediment will be dredged from the channel and discharged overboard through a 100-ft pipe into the littoral zone downgradient.

3.3.2 Folly Beach Nearshore Placement (Alternative C Only)

Where nearshore placement could benefit eroded areas of beachfront, sediment from both the Folly River channel and entrance channel may be deposited between the 6-13 ft MLLW contour.

This may be achieved through use of either modified hopper or cutterhead pipeline dredge as described above. Material would be deposited as a “feeder berm” comprised of individual deposits in an array of elongated mounds with a maximum height of approximately 2 ft.

3.3.3 BU Beach Placement (Folly Beach County Park & Bird Key Stono [Alternatives B & C] / Folly Beach [Alternative C Only])

Dredge materials from within the Folly River channel and entrance channel would be pumped via a pipeline and discharged on the shoreline. Temporary training dikes of sand will be used to contain the discharge and control the fill placement. Fill sections will be graded by land-based equipment, such as bulldozers, articulated front-end loaders, and other equipment as necessary to achieve the desired placement profile.

Historically, Bird Key Stono has received dredge materials from the Folly River channel by pipeline placement, as needed, and in agreement with the SCDNR in order to maintain Bird Key Stono as viable bird habitat.

3.4 REAL ESTATE

Folly Beach falls within the City of Folly Beach. USACE will meet with the City of Folly Beach at the beginning of each dredge cycle to coordinate placement locations for O&M dredge materials on Folly Beach. Similarly, USACE will meet with Charleston County Parks and Recreation at the beginning of each dredge cycle to coordinate placement locations for O&M dredge materials on Folly Beach County Park.

Bird Key Stono is managed by SCDNR. USACE will meet with SCDNR at the beginning of each dredge cycle to coordinate placement locations and timeframes on Bird Key Stono.

4 EXISTING CONDITIONS

4.1 AESTHETICS

The visible character of a place is composed of visual resources that can include both natural and artificial attributes. Visual resources influence how an observer experiences a particular location and distinguishes it from other locations.

Folly Beach is considered a beautiful beach resort town, with commercial and recreational fishing resources in the Folly River. The area has many visually pleasing attributes including open water, beaches, and undeveloped marsh. Most development on Folly Beach consists of single-family, residential homes. The south end of Folly Island is maintained by the Charleston County as a park. Bird Key Stono Island is a bird sanctuary for bird watchers to visit via boat.

4.2 AQUATIC RESOURCES / WETLANDS

The FRNP area is comprised entirely of marine, estuarine and riverine wetland/deepwater habitats, generally of which can be categorized as subtidal or intertidal. Subtidal and intertidal

habitats of the FRNP support diverse communities of benthos (bottom-dwelling organisms), invertebrates, plankton (nonmobile organisms in the water column), fish, and marine mammals.

4.2.1 Benthic Organisms

The benthic zone is the lowest ecological region of a body of water, including the sediment surface and sub-surface layers. Organisms living in this zone are referred to as benthos and are either generally categorized as epifauna or infauna. Epifauna generally include corals, mussels, crustaceans, echinoderms, and sponges. Infauna may include polychaetes, oligochaetes, bivalves, other worms, small crustaceans and burrowing amphipods and isopods. Infauna are either filter feeders, processing particles floating in the water column, or deposit feeders consuming organic matter lying on or in the sediment. Some infaunal invertebrates, especially among the crustaceans, are capable of a high degree of lateral mobility, however, the majority of infaunal invertebrates are predominately sedentary. This sedentary nature makes these organisms susceptible to tidal fluctuation, storm events, predation, poor habitat conditions such as low dissolved oxygen, and habitat conversion or destruction.

From 1999 to 2022, SCDNR has collected samples of benthic and nekton organisms throughout a broad series of sites in the waters surrounding Folly Island. For benthic organisms, this was accomplished through the use of Young grab sampling, while for nekton otter trawls were used. Three sites sampled by SCDNR are within close proximity to areas being dredged in the Folly River. These sites include one near the confluence of the Folly River channel and Folly Creek channel (RO15364), a site just northwest of the Folly Beach County Park in the Folly River (RO08347), and one site near the confluence of the Stono River and Folly River (RO99317) (Figure 4). Across the three sites, salinity ranges from 32 to 37 parts per thousand (ppt) on average. Benthic organisms across the sample sites and sample years included predominately amphipods and polychaetes (75.3% average in total) (Table 3). Bivalves were the third largest representative of samples (14.3% average in total), while organisms which are generally considered to be epifauna (i.e., decapods, arachnids, gastropods, and cnidarians) represented about 5% of samples (P. Marcum, email, August 23, 2023).

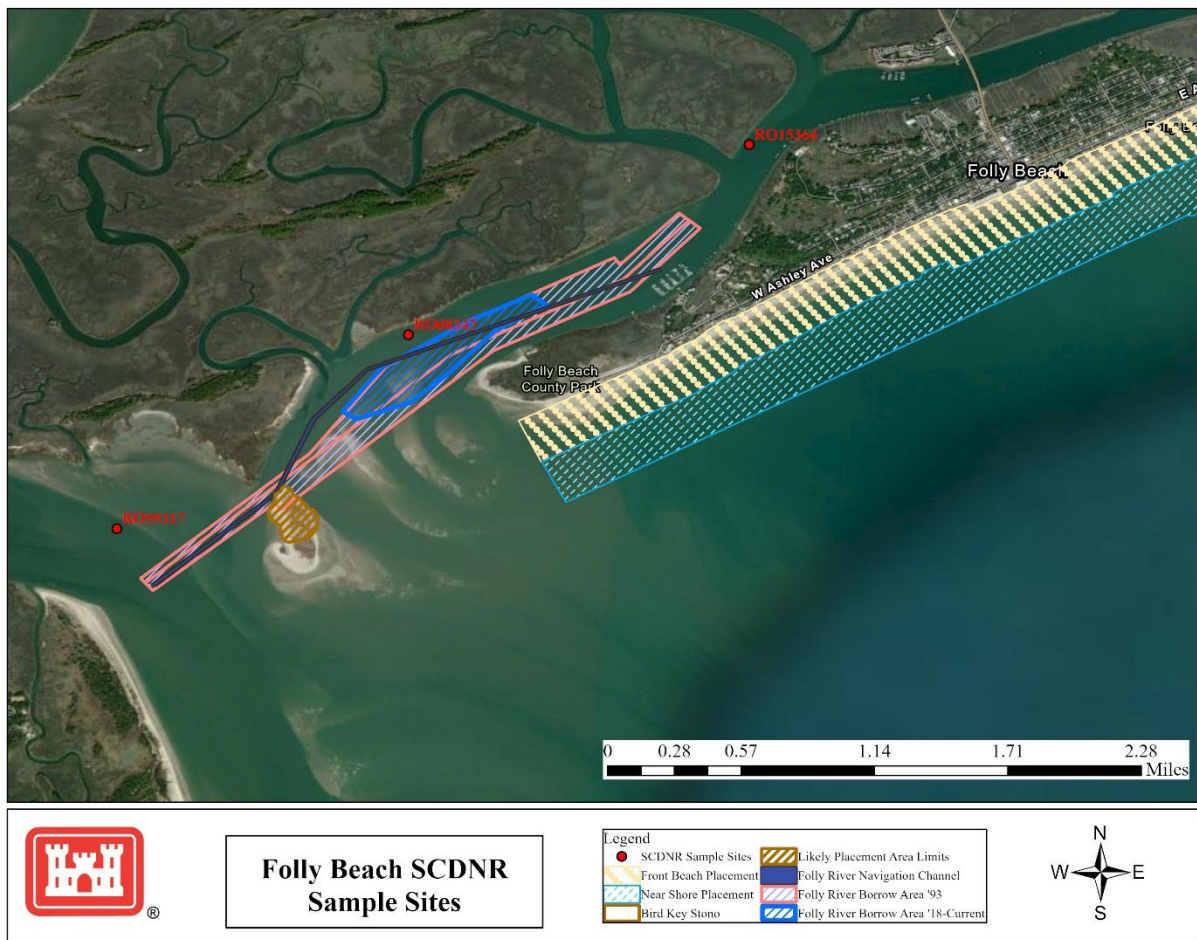


Figure 4. SCDNR sampling sites for plankton and nekton in the Folly River

Table 3. Benthic organism abundance and representative proportion of sites sampled around Folly Island (SCDNR, P. Marcum, email, 2023)

Organism Classification	Average Abundance/m²	% of Sites Sampled
Amphipod	229	40.6%
<i>Protohaustorius deichmannae</i>	568	17.8%
<i>Rhepoxynius hudsoni</i>	347	14.5%
<i>Parahaustorius longimerus</i>	261	5.5%
<i>Americhelidium americanum</i>	38	1.2%
<i>Idunella barnardi</i>	45	1.0%
Other spp.	-	<1%
Polychaete	87	34.7%
<i>Prionospio</i> sp.	375	7.8%
<i>Mediomastus ambiseta</i>	318	6.7%
<i>Mediomastus</i> sp.	174	5.5%
<i>Tharyx acutus</i>	80	3.3%
<i>Leitoscoloplos fragilis</i>	57	2.4%
<i>Spiophanes bombyx</i>	45	1.4%
<i>Glycera americana</i>	38	1.2%
Other spp.	-	≤1%
Bivalve	97	14.3%
<i>Ameritella agilis</i>	182	9.5%
<i>Donax variabilis</i>	80	1.7%
<i>Ameritella versicolor</i>	68	1.4%
Other spp.	-	<1%
Decapod	28	3.6%
<i>Biffarius biformis</i>	57	1.2%
<i>Decapoda</i>	23	1.0%
Other spp.	-	<1%
Nemertean worm	45	3.3%
Nemertea	36	1.9%
<i>Carinomella lactea</i>	68	1.4%
Echinoderm	45	1.0%
<i>Amphiodia pulchella</i>	68	0.7%
Holothuroidea	23	0.2%
Acorn worm	91	1.0%
Arachnid	45	0.5%
Gastropod	23	0.5%
<i>Nassarius acutus</i>	23	0.5%
Cumacean	23	0.5%
<i>Cyclaspis pustulata</i>	23	0.2%
<i>Oxyurostylis smithi</i>	23	0.2%
Cnidarian	23	0.2%
<i>Renilla reniformis</i>	23	0.2%

During and following a beach nourishment under another project in 2018—Folly Beach CSRM Project—SCDNR conducted surveys of faunal communities in the surf zone along the front beach of Folly Beach (Johnson et al. 2020). The study found that the greatest benthic infauna density was observed in the waterline stratum, consisting predominately of mollusks (51%), polychaetes (26%), and amphipods (17%), respectively. Deeper subtidal sampling locations mostly differed in that polychaetes were slightly less representative of the samples than amphipods. Shallow subtidal areas had the lowest densities of invertebrates. Over sixty taxa were identified across sampling efforts, but the majority of organisms were comprised of *Donax variabilis*, *Protohaustorius wigleyi*, *Scolecopsis squamata*, *Parahaustorius longimerus*, *Paraonis fulgens*, and *Amphiporeia virginiana*.

4.2.2 Plankton

Plankton are mainly composed of unicellular algae, larval stages of many fish and invertebrates and the adult stages of several microscopic invertebrates. Adult stages of several macroinvertebrates such as jellyfish (e.g., *Chrysaora* spp., *Cyanea* spp., *Stomolophus* spp., *Rhopilema* spp.) and comb-jellies (*Mnemiopsis* spp.) are also an important part of the plankton community.

When collecting information on surf zone communities before and after beach nourishment in 2018, SCDNR reported 19-42 unique taxa of zooplankton, including 14 different taxa of fish larvae from samples (Johnson et al. 2020). The most abundant zooplankton included decapods, amphipods, copepods, cnidarians, chaetognaths, mysids, isopods, and cumaceans, respectively. The most abundant of the larval fish taxa included anchovies (Engraulidae), gobies (Gobiidae), pipefish (*Syngnathus* spp.), mojarras (Gerreidae), clupeids (Clupeidae), and sciaenids (Sciaenidae). However, the density of fish larvae was generally considered low during sampling efforts.

4.2.3 Nekton

Nekton collectively refers to aquatic organisms capable of controlling their location through active movement and do not rely on the water current or tide for movement. Fish are the principal nektonic species although some crustaceans such as portunid crabs, penaeid shrimp and some mollusks, spend at least a portion of their life as nekton. Several fish species are considered to be estuarine dependent and utilize the coastal estuaries for at least a portion of their life cycle.

Commercial fish species commonly observed in the project area include spotted seatrout (*Cynoscion nebulosus*), weakfish (*Cynoscion regalis*), bluefish (*Pomatomus saltatrix*), red drum (*Sciaenops ocellata*), black drum (*Pogonias cromis*), croaker (*Micropogonias undulatus*), sheepshead (*Archosargus probatocephalus*), menhaden (*Brevoortia tyrannus*), gizzard shad (*Dorosoma cepedianum*), mullet (*Mugil cephalus*), flounder (*Paralichthys* sp.), silversides (*Atherinidae*), and sea catfish (*Ariidae*).

Data collected by SCDNR at the sampling sites in the Folly River referenced above (see 4.2.1) show common nekton include bony fish such as bay anchovy (*Anchoa mitchilli*), pinfish (*Lagodon rhomboides*), spot (*Leiostomus xanthurus*); Atlantic brief squid (*Lolliguncula brevis*); and brown and white penaeid shrimp (Table 4). Surveys by SCDNR in the surf zone were

reported to have observed 37 different taxa which include 29 bony fish, 2 cartilaginous fish, 3 portunid crabs, 2 panaeid shrimp, and 1 squid (Johnson et al. 2020) . The most abundant among these were anchovies (40%), Florida pompano (*Trachinotus carolinus*; 25%), speckled swimming crabs (*Arenaeus cribrarius*; 13%), kingfishes (*Menticirrhus* spp.; 7%), Atlantic silverside (*Menidia menidia*; 5%), mullets (*Mugil* spp.; 2.5%), scaled sardines (*Harengula jaguana*; 2.0%), Atlantic bumper (*Chloroscombrus chrysurus*; 1.7%), mackerels (*Scomberomorus* spp.; 0.7%), and spot (0.5%). See Section 4.3 below for more information related to nekton in the project area.

Table 4. Nekton organism abundance and representative proportion of sites sampled around Folly Island (SCDNR, P. Marcum, email, 2023)

Organism Classification	Average Abundance/m ²	% of Sites Sampled
Bony Fish	21	59.3%
<i>Anchoa mitchilli</i>	54	27.8%
<i>Lagodon rhomboides</i>	22	11.1%
<i>Leiostomus xanthurus</i>	18	9.3%
<i>Cynoscion regalis</i>	11	5.6%
<i>Chilomycterus schoepfii</i>	7	1.9%
<i>Trinectes maculatus</i>	7	1.9%
<i>Brevoortia tyrannus</i>	7	1.9%
Squid	25	25.9%
<i>Lolliguncula brevis</i>	25	25.9%
Decapod	17	13.0%
<i>Penaeus aztecus</i>	14	7.4%
<i>Penaeus setiferus</i>	22	5.6%
Cartilaginous Fish	7	1.9%
<i>Hypanus say</i>	7	1.9%

4.2.4 Commercial Shellfish

The FRNP occurs within Shellfish Management Area 10A, which is managed under SCDNR Office of Fisheries Management. Four state shellfish grounds occur nearby the federal channels of the FRNP, including S206W intersected by the Folly Creek channel, S196 north of the Folly River channel, S189 at the intersection of the Folly and Stono Rivers, and S194E west of the entrance channel. There are also three areas of prohibited or restricted shellfish harvest along the Folly River on the landward side of Folly Island.

4.2.5 Wetlands

The project area has nearby tidal salt marshes along shorelines and island fringes. In general, these marshes are larger in areas that are sheltered from winds and wave actions. The intertidal zone is an important nursery area for larvae and juveniles of many marine species and provides important refuge and foraging habitat for various invertebrates, and marine and shoreline birds.

4.3 ESSENTIAL FISH HABITAT

The 1996 Congressional amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (PL 94-265) set forth new requirements for the National Marine Fisheries Service (NMFS), regional fishery management councils (FMC), and other Federal agencies to identify and protect important marine and anadromous fish habitat. These amendments established procedures for the identification of Essential Fish Habitat (EFH) and a requirement for interagency coordination to further the conservation of federally managed fisheries.

EFH is defined in the MSA as “...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (16 U.S.C. § 1802(10)). The definition for EFH may include habitat for an individual species or an assemblage of species, whichever is appropriate within each Fisheries Management Plan (FMP). Designated EFH for the project area includes intertidal flats, unconsolidated bottoms, surf zone, estuarine emergent wetlands, oyster habitat, and estuarine and marine water column. Federally managed species known to occur within the project area are provided in Table 5 below. The project area includes Habitat Areas of Particular Concern (HAPC) for penaeid shrimp and snapper/grouper complex.

Table 5 Federally managed species for the South Atlantic that may occur within the project area

Common Name	Scientific Name	Jurisdiction ¹	FMP ¹
White Shrimp	<i>Litopenaeus setiferus</i>	SAFMC	Shrimp
Brown Shrimp	<i>Farfantepenaeus aztecus</i>	SAFMC	Shrimp
Gag Grouper	<i>Mycteroperca microlepis</i>	SAFMC	Snapper Grouper
Gray Snapper	<i>Lutjanus griseus</i>	SAFMC	Snapper Grouper
Spanish Mackerel	<i>Scomberomorus maculatus</i>	SAFMC	CMP
Summer Flounder	<i>Paralichthys dentatus</i>	MAFMC	Summer Flounder
Bluefish	<i>Pomatomus saltatrix</i>	MAFMC	Bluefish
Bonnethead Shark	<i>Sphyma tiburo</i>	NMFS	HMS
Bull Shark	<i>Carcharhinus leucas</i>	NMFS	HMS
Sandbar Shark	<i>Carcharhinus plumbeus</i>	NMFS	HMS
Finetooth Shark	<i>Carcharhinus isodon</i>	NMFS	HMS
Sand Tiger Shark	<i>Carcharhinus taurus</i>	NMFS	HMS
Blacktip Shark	<i>Carcharhinus limbatus</i>	NMFS	HMS
Atlantic Sharpnose	<i>Rhizoprionodon terraenovae</i>	NMFS	HMS
Lemon Shark	<i>Negaprion brevirostris</i>	NMFS	HMS
Tiger Shark	<i>Galeocerdo cuvier</i>	NMFS	HMS
Scalloped Hammerhead Shark	<i>Sphyrna lewini</i>	NMFS	HMS
Blacknose Shark	<i>Carcharhinus acronotus</i>	NMFS	HMS
Smoothhound Shark	<i>Ocyurus chrysurus</i>	NMFS	HMS
Spinner Shark	<i>Carcharhinus brevipinna</i>	NMFS	HMS

¹Definitions for acronyms used include: SAFMC = South Atlantic Fishery Management Council, CMP = Coastal Migratory Pelagic, HMS = Highly Migratory Species, MAFMC = Mid-Atlantic Fishery Management Council, and FMP = Fishery Management Plan

4.4 THREATENED & ENDANGERED SPECIES

The Endangered Species Act (ESA), as amended (16 U.S.C. §§ 1531 – 1543), was passed to conserve the ecosystems upon which threatened and endangered species depend, and to conserve and recover those species. An endangered species is defined in the ESA as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is likely to become endangered within the foreseeable future throughout all or a significant part of its range. Critical habitats, essential to the conservation of listed species, can also be designated under the

ESA. The ESA establishes programs to conserve and recover threatened and endangered species and makes their conservation a priority for Federal agencies. Section 7 of the ESA requires Federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) and NMFS Protected Resources Division (PRD) when their proposed actions may affect threatened and endangered species or their critical habitats.

Pursuant to Section 7 of the ESA, USACE has evaluated impacts to ESA-listed species from implementation of actions for each of the alternatives considered herein. A list of ESA species known or expected to be on or near project area was obtained on October 31, 2023, using USFWS's Information for Planning and Consultation tool and is included for reference in Table 6 (Project Code 2024-0010957). A list of ESA species for the state of South Carolina was obtained from NMFS' website (<https://www.fisheries.noaa.gov/southeast/consultations/threatened-and-endangered-species-list-south-carolina>) (last updated September 20, 2023) and is included for reference in Table 7. From these lists, species presence was determined based on the likelihood of a species' occurrence specifically within the project area at any given time, which may depend on various spatial and temporal factors such as availability of suitable habitat, migratory behavior, prey availability, adverse weather events and more.

Notably, the USFWS and NMFS PRD share jurisdiction of sea turtles, with NMFS having jurisdiction when in the marine environment and USFWS having jurisdiction when in the terrestrial environment.

Table 6 USFWS-listed ESA species known or expected to be on or near project area

Common Name	Species	ESA Status ¹	Present ¹
Mammals			
Northern Long-eared Bat	<i>Myotis septentrionali</i>	T	N
Tricolored Bat	<i>Perimyotis subflavus</i>	PE	N
West Indian Manatee	<i>Trichechus manatu</i>	T	Y
Birds			
Eastern Black Rail	<i>Laterallus jamaicensis ssp. jamaicensis</i>	T	U
Piping Plover	<i>Charadrius melodus</i>	T	Y
Rufa Red Knot	<i>Calidris canutus rufa</i>	T	Y
Red-cockaded Woodpecker	<i>Picoides borealis</i>	E	N
Wood Stork	<i>Mycteria americana</i>	T	Y
Reptiles²			
Green Sea Turtle ³	<i>Chelonia mydas</i>	T	Y
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	E	Y
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	E	Y
Loggerhead Sea Turtle ⁴	<i>Caretta caretta</i>	T	Y
Insects			
Monarch Butterfly	<i>Danaus plexippus</i>	C	Y
Plants			
American Chaffseed	<i>Schwalbea american</i>	E	N
Canby's Dropwort	<i>Oxypolis canbyi</i>	E	N
Pondberry	<i>Lindera melissifolia</i>	E	N

¹Abbreviations include: T = threatened, E = endangered, C = candidate and PE = proposed endangered, N = not present, Y = presence known, U = presence not known

²Administrative jurisdiction shared between USFWS and NMFS

³Consisting of North and South Atlantic DPS

⁴Consisting of Northwest Atlantic Ocean DPS

Table 7 NMFS-listed ESA species list for South Carolina

Common Name	Scientific Name	ESA Status ¹	Present
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Marine Mammals			
Sei Whale	<i>Balaenoptera borealis</i>	E	N
Blue Whale	<i>Balaenoptera musculus</i>	E	N
Fin Whale	<i>Balaenoptera physalus</i>	E	N
North Atlantic Right Whale	<i>Eubalaena glacialis</i>	E	Y
Sperm Whale	<i>Physeter macrocephalus</i>	E	N
Fish			
Atlantic Sturgeon ²	<i>Acipenser oxyrinchus</i>	E	Y
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	E	Y
Oceanic Whitetip Shark	<i>Carcharhinus melodus</i>	T	N
Giant Manta Ray	<i>Manta birostris</i>	T	N
Sea Turtles³			
Green Sea Turtle ⁴	<i>Chelonia mydas</i>	T	Y
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	E	Y
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	E	Y
Loggerhead Sea Turtle ⁵	<i>Caretta caretta</i>	T	Y
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	E	N

¹ESA classifications include: T = threatened and E = endangered

²Consisting of South Atlantic and Carolina Distinct Population Segments

³Administrative jurisdiction shared between USFWS and NMFS

⁴Consisting of North and South Atlantic DPS

⁵Consisting of Northwest Atlantic Ocean DPS

4.4.1 West Indian Manatee

Manatees occur in the southeastern U.S., east coast of Mexico and Central America, northeastern South America, the Greater Antilles, and parts of the Lesser Antilles. In general, their southeastern U.S. range is predominately in Florida year-round, and sometimes Georgia and Alabama during warmer months. However, some manatees have been documented as far north as Massachusetts and west to Texas (Gunter 1941; Domning and Hayek 1986; Fertl et al. 2005; Cummings et al. 2014). Their range is limited by intolerance of cold; thus, mostly warmer temperate coastal and inshore waters, natural warm water springs, and even industrial outfalls provide conditions necessary for manatee occupation (Laist and Reynolds 2005). Broader systems which provide these conditions can include coastal and riverine systems which are freshwater, brackish, or marine. Preferred foods encompass another important component of their distribution and include various submerged, emergent and floating vegetations. Other important habitat components include freshwater, corridors, and shelter. Manatees are only seen in South Carolina in the summer months and there is no critical habitat in South Carolina for the species. Counties in South Carolina in which the manatee is known or believed to occur include Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, and Jasper. From 1993-2004, a handful of manatee sightings were reported to SCDNR in the Folly River area annually (<https://www.dnr.sc.gov/manatee/distribute/2000.html>).

Historically, impacts to manatee habitat and direct causes of mortality have been drivers of population decline. Threats to manatee habitat include loss of seagrass due to marine construction activities, propeller scarring and anchoring, and oil spills; loss of freshwater due to damming and competing uses; and increasing coastal commercial and recreational activities (USFWS 2007). Most critical, however, is loss of warm-water natural spring areas in Florida, from loss of flow, diminished water quality, or human activities (Taylor 2006). Direct losses of manatees in the southeastern U.S. primarily involve those in Florida and watercraft collisions, fishing gear entanglement, water control structures, exposure to contaminants, algal blooms, and cold weather among other factors (USFWS 2016).

Implementation of regulatory actions throughout the southeastern portions of the manatee range has significantly reduced manatee declines and contributed to projected population growth and recovery. Although habitat fragmentation and loss are believed to be the most significant threat to manatee outside the U.S., in 2015, the southeastern population was estimated to be stable or increasing from 6,350 individual manatees (Martin et al. 2015; Runge et al. 2015). Based on range-wide recovery projections, in 2016, USFWS proposed the species be down listed to threatened (USFWS 2016).

4.4.2 *Eastern Black Rail*

Eastern black rail have been documented utilizing several habitat types including grassy fields, freshwater wetlands, impoundments, and coastal prairies; however, tidal salt marshes are believed to be primary habitat (Watts 2016). Recent population estimates for the state of South Carolina are between 50 to 100 breeding pairs which are believed to be confined to a few locations consisting mostly of impounded wetlands on the lower ACE Basin, Tom Yawkey Wildlife Center and Santee Coastal Reserve (Watts 2016). Within impoundments, black rails frequent edges and are associated with elevated areas with dense stands of sand cordgrass and saltmeadow cordgrass (Watts 2016).

It is possible a pipeline corridor could be identified for use where overlap with tidal salt marsh occurs, although rails are known to inhabit more remote locations than most of those available at Folly Island, and previous corridors used have occurred where marsh is closely associated with developed areas.

4.4.3 *Piping Plover*

The piping plover breeds on the northern Great Plains, in the Great Lakes region, and along the Atlantic coast (Newfoundland to North Carolina); and winters on the Atlantic and Gulf of Mexico coasts from North Carolina to Mexico, and in the Bahamas West Indies. The species spends up to 10 months in their overwintering range, generally from July 15th to May 15th (Elliot-Smith and Haig 2004; Noel et al. 2007). Some piping plover winter along the South Carolina coast and individuals are occasionally sighted in the project area; however, there are no known large wintering concentrations in the state.

The piping plover winters at coastal intertidal flats including sand and/or mud flats with no or very sparse emergent vegetation or occasionally those partially covered by a mat of bluegreen algae. An extension of these flats above high tide (backshore¹) coupled with debris, detritus, or microtopographic relief providing refuge from adverse weather are important for roosting. Other important habitat components include surf-cast algae for feeding of prey, and spits and washover areas for both feeding and roosting. Piping plovers also have a tendency to use several habitat types combined with a high degree of site fidelity and relatively small movements between habitat patches (Drake et al. 2001).

¹ Backshore is defined in EM-1110-2-1100 as that zone of the shore or beach lying between the foreshore and the coastline comprising the berm or berms and acted upon by waves only during severe storms, especially when combined with exceptionally high water. Also backbeach.

Behavioral studies have shown that piping plover spend most of their time on wintering grounds foraging (Johnson and Baldassarre 1988; Nicholls and Baldassarre 1990; Zonick 2000). Primary prey for wintering plovers includes polychaete marine worms, various crustaceans, insects, and occasionally bivalve mollusks (Zonick and Ryan 1996), which they peck from on top or just beneath the surface of moist or wet sand, mud, or fine shell.

The primary threats to the piping plover are habitat modification and destruction, and human disturbance to nesting adults and flightless chicks. Habitats may be adversely impacted by development and construction, dredging and sand mining, inlet stabilization and relocation, groins, seawalls and revetments, loss of foraging from shoreline stabilization, invasive vegetation, and wrack removal/beach cleaning (USFWS 2015). Other threats include those associated with energy development (e.g., oil spills, oil and gas exploration, wind turbines), as well as natural threats like storms, cold weather events, predation, and disease.

According to publicly available information on eBird (2023) (<https://ebird.org/explore>), high counts² of up to 11 piping plovers have been documented in parts of the project area from mid-March to late-April (Table 8). Other counts submitted to eBird indicate that most plovers are concentrated in nearby inlets.

Table 8 Summary of eBird high count data for piping plover from all hotspots overlapping with the project area

eBird Hotspot	High Count (Date of Count) ¹
Lighthouse Inlet Heritage Preserve	10 (04/22)
Folly Beach “Washout”	8 (03/15)
Folly Beach Fishing Pier	3 (08/22)
Folly Beach County Park	11 (03/15)

¹Local high count data is reflected predominately during spring and fall migration periods, with sporadic high counts ranging between about 2-8 plovers during overwintering period

4.4.4 *Rufa Red Knot*

The *rufa* red knot breeds in the Canadian Arctic; winters in parts of the Southeastern U.S., the Caribbean, and South America; and uses many well-known spring and fall stopover areas³ on the Atlantic coast of the U.S. Red knot are dependent on easily digested food at wintering and stopover locations to achieve adequate weight gain for successful migration (Piersma et al. 1999; van Gils et al. 2005a, 2005b; Niles et al. 2008). In addition to energetic needs for migration, food stores are utilized for body transformation to breeding conditions (Morrison 2006). These needs coupled with the species’ tendency to form congregations representing large proportions of a range-wide population at singular sites makes the species vulnerable (Harrington 2001).

Red knots, generally, overwinter and stopover at coastal marine and estuarine habitats with large areas of exposed intertidal sediments. Preferred microhabitats are muddy or sandy coastal areas, particularly at the mouths of bays and estuaries, tidal flats, and tidal inlets (Harrington 2001; Niles et al. 2008; Lott et al. 2009). In some localized areas, *rufa* red knots use artificial habitats that mimic natural conditions, such as nourished beaches, dredge spoil sites, elevated road

² High counts is defined on eBird as “the highest count of a species submitted on a *single checklist* within a specified date range and region.” This includes all data years maintained by eBird.

³ Stopover sites are defined here as places for birds to rest, refuel, and seek shelter during their bi-annual migration

causeways, rock structures (e.g., jetties, breakwaters) or impoundments. However, *rufa* red knots generally require areas where erosion, accretion, overwashes, island migration, and inlet migration provide dynamic conditions for optimal habitat.

In coastal areas (as opposed to Great Plains habitat), *rufa* red knot foraging habitats include intertidal portions of beaches, islands, and shoals; tidal flats; wind-exposed bay bottoms or oyster reefs; peat banks; brackish ponds or impoundments; and ephemeral tidal pools (USFWS 2021*b*). Typical roosting areas are beyond the intertidal zone, beginning at backshores. In some locations, roosts include shoals, sand bars, overwashes, patches of mostly bare ground within salt marshes, dredge spoil sites, rock structures, or among wrack and mounds of seaweed (USFWS 2021*b*).

Across subspecies, red knot is a specialized molluscivore, eating hard-shelled mollusks, but supplements diet with accessible softer invertebrate prey, such as shrimp and crab-like organisms, marine worms, and horseshoe crab (*Limulus polyphemus*) eggs (Harrington 2001). Among these, food items may be limited to shallow-buried prey (within the top inch of sediment) due to bill morphology (Zwarts and Blomert 1992).

Threats to the *rufa* red knot include habitat loss, reduced food availability, asynchronies in the annual cycle, competition with gulls, and human disturbance. Habitat destruction and modification are occurring throughout the subspecies' range; affected by climate change, shoreline stabilization, and coastal development, in addition to smaller scale impacts like beach cleaning, invasive vegetation, agriculture, and aquaculture. Habitat changes may be compounded in effect by included disturbances from recreational and other human activities.

Rufa red knots occur in the project area most of the year (between July and May). According to publicly available information on eBird (2023), high counts from within the project area have included up to 1,500 red knot at either Lighthouse Inlet Heritage Preserve or Folly Beach County Park in early April to mid-May (Table 9). However, the duration of stopovers in the region may be up to about 47 days (Pelton et al. 2022), so it is possible that red knots from eBird high counts at one hotspot may have been the same birds later at another hotspot.

Table 9 Summary of eBird high count data for *rufa* red knot from all hotspots overlapping with the project area

eBird Hotspot	High Count (Date of Count) ¹
Lighthouse Inlet Heritage Preserve	1,500 (05/15)
Folly Beach "Washout"	100 (05/15)
Folly Beach Fishing Pier	17 (02/08)
Folly Beach County Park	1,500 (04/08)

¹Local high count data is reflected predominately during spring migration from about late March to late-May. Individual overwintering flock sizes rarely reach as high as 75

4.4.5 Wood Stork

Wood storks can be found in brackish and freshwater wetlands along the coast from North Carolina to Florida (and some Gulf coast states). Storks require optimal water regimes with regular flooding and receding waters that concentrate prey (e.g., tidal creeks, ephemeral ponds, shallow wetlands) because of their unique feeding technique (USFWS 2023*a*). The species is highly colonial and nests in large rookeries located in upper branches of large cypress trees, often with multiple nests in one tree (USFWS 2023*a*). Nesting typically occurs in cypress swamps but may also occur in non-native trees and man-made impoundments. These birds are known to use

atmospheric thermal currents to move between nesting and foraging areas as distant as 80 miles, often feeding in flocks from a colony (USFWS 2023a).

In February of 2023, USFWS published a proposed rule in the Federal Register (FR) for removal of the Southeast U.S. Distinct Population Segment of the Wood Stork from ESA listing (USFWS 2023b). When initially listed in 1984, the population was estimated at 4,000-5,000 nesting pairs, while most recent surveys in 2021 indicate there are 3.5 times as many breeding colonies than there were at listing. Threats to the species include habitat loss, conversion and degradation, and climate change. Since listing, wood stork have expanded their breeding range and habitat uses to the point where salt marsh in South Carolina is now exploited to support breeding, and provides year-round consistent foraging (USFWS 2023b). This expansion in range and habitat use has demonstrated the species independence from the Everglades system and reduced the perceived critical nature of the species range.

Although there are no known wood stork colonies on Folly Island, wood storks may forage along the banks of the Folly River or in the salt marshes on the northern side of Folly Island. According to data publicly accessible on eBird, a high count of 18 wood stork have been recorded near the Folly Beach County Park in late May, and some at the “Washout” in late September. Several sightings of Wood Stork on Bird Key Stono have also been documented (eBird 2023).

4.4.6 Sea Turtles

The loggerhead, Kemp's ridley, green and leatherback sea turtles can be found in South Carolina's near shore waters April through November or nesting on beaches from May through October (SCDNR 2014). Of these four species, only three would potentially find Folly Beach and Bird Key Stono suitable habitat for nesting: loggerhead, green turtle, and leatherback turtles. Kemp's ridley sea turtles do not nest within the project area, though they may forage there. However, nest surveys in recent years have documented almost exclusively loggerhead sea turtle nesting on Folly Beach (Table 10).

Anthropogenic factors that impact hatchlings and adult female turtles on land, or the success of nesting and hatching include: beach erosion, armoring and nourishment; artificial lighting; beach cleaning; increased human presence; recreational beach equipment; beach driving; coastal construction and fishing piers; exotic dune and beach vegetation; and poaching. An increased human presence at some nesting beaches or close to nesting beaches has led to secondary threats such as the introduction of exotic fire ants, feral hogs, dogs, and an increased presence of native species (e.g., raccoons, armadillos, and opossums), which raid and feed on turtle eggs. Although sea turtle nesting beaches are protected along large expanses of the western North Atlantic coast, other areas along these coasts have limited or no protection.

Because of the limited remaining nesting habitat in a natural state with no immediate development landward of the sandy beach, frequent or successive severe weather events could threaten the ability of certain sea turtle populations to survive and recover. Sea turtles evolved under natural coastal environmental events such as hurricanes. The extensive amount of predevelopment coastal beach and dune habitat allowed sea turtles to survive even the most severe hurricane events. It is only within the last 20 to 30 years that the combination of habitat

loss to beachfront development and destruction of remaining habitat by hurricanes has increased the threat to sea turtle survival and recovery. On developed beaches, typically little space remains for sandy beaches to become re-established after periodic storms. While the beach itself moves landward during such storms, reconstruction, or persistence of structures at their pre-storm locations can result in a loss of nesting habitat.

Sand placement projects may result in changes in sand density (i.e., compaction), beach shear resistance (i.e., hardness), beach moisture content, beach slope, sand color, sand grain size, sand grain shape, and sand grain mineral content if the placed sand is dissimilar from the original beach sand. These changes could result in adverse impacts on nest site selection, digging behavior, clutch viability, and hatchling emergence (Nelson 1988). Beach nourishment projects create an elevated, wider, and unnatural flat slope berm. Sea turtles nest closer to the water the first few years after nourishment because of the altered profile (and perhaps unnatural sediment grain size distribution) (Ernest and Martin 1999).

On Folly Beach, nesting occurs throughout most of its approximately six miles of beach. The center of Folly Island has a commercial district and newly renovated pier extending several hundred feet out and flanked by a large hotel and condominiums. Single family houses extend in both directions from this central development. From 2019-2023, an average of 106 loggerhead nests were laid here with high nesting success (79.8%-96.9%) (SCDNR 2023). Very few nests are affected by predators other than occasional raccoon or ghost crabs, likely owing considerably to protection efforts by the Folly Beach Turtle Watch. Nests here are also occasionally lost to tidal/storm events. False crawls are also common here, making up about one-third of crawls.

Table 10 Nest counts by SCDNR Sea Turtle Conservation Program as reported by Sea Turtle Nest Monitoring System from calendar year 2019-2023 for Folly Beach (<https://seaturtle.org/nestdb/>). NOTE: Only one green sea turtle nest was documented on this beach during the presented timeframe

Reach	Number of Nests (% of Statewide Count)					Average
	2019	2020	2021	2022	2023	
Folly Beach	145 (1.6%)	57 (1.0%)	100 (1.8%)	99 (1.2%)	129 (1.9%)	106 (1.5%)
Bird Key Stono	-	-	-	-	-	-
South Carolina	8,796	5,562	5,644	7,995	6,628	6,925

4.4.6.1 Green Sea Turtle

Green sea turtles are found in all temperate and tropical waters around the world and stay mainly near the coastline and around islands. They are often found in shallow flats and seagrass meadows during the day and return to scattered rock ledges, oyster beds, and coral reefs in evenings. In U.S. Atlantic waters, green turtles are found from Massachusetts to Texas, the U.S. Virgin Islands, and Puerto Rico. South Carolina is home to predominately green sea turtles of the North Atlantic distinct population segment (DPS) and are designated as federally threatened.

From April through November, juvenile green sea turtles occupy feeding grounds in South Carolina in relatively shallow, sheltered waters where seagrasses and algae are present. They may be found in sheltered estuarine creeks, bays and marshes. The potential exists for nesting along sandy beaches, however, very few cases have been documented by state wildlife agencies. Nesting typically occurs further south between June and September.

Between 2000 and 2019, the SCDNR and the University of Georgia Marine Extension and Georgia Sea Grant conducted nearly 8,000 trawling events during May through most of July between St. Augustine, FL and Winyah Bay, South Carolina, but only captured 21 individual sea turtles. Very little population distribution data exists for this project area. Thus, it is assumed that individuals of green sea turtle may be present in the project area but are expected to be in low or very low densities.

4.4.6.2 Kemp's Ridley Sea Turtle

Kemp's ridley turtles inhabit shallow nearshore and inshore waters of the northern Gulf of Mexico, particularly in Texas and Louisiana. During winter, turtles in the northern Gulf may travel to deeper water. Kemp's ridleys are often found in waterbodies associated with salt marshes. Kemp's ridley nesting is essentially limited to the beaches of the western Gulf of Mexico, primarily in Tamaulipas, Mexico. In the US, nesting occurs primarily in Texas (especially Padre Island National Seashore), and occasionally in Florida, Alabama, Georgia, South Carolina and North Carolina. Neonatal Kemp's ridleys feed on Sargassum and infauna or other epipelagic species. Post-pelagic diets include various items such as mollusks, sea horses, cownose rays, jellyfish, crabs, tunicates and fish. Live bottom (sessile invertebrates attached to hard substrate) has been identified as a preferred habitat of neritic juveniles in the coastal waters of western Florida. Hatchlings may become entrained in Gulf of Mexico eddies and dispersed by oceanic surface currents, then enter coastal shallow water habitats when they reach about 20 centimeters in length.

Similar to the green sea turtle, South Carolina's coastal waters are predominately used as developmental foraging grounds with juveniles generally occupying areas in the summer. The species is often found in nearshore and in-shore salt marsh habitats. Nesting very rarely occurs in South Carolina, with only 3 cases documented - none of which were at Folly Beach. Research conducted from north Florida through central South Carolina by the SCDNR, in partnership with the UGA, captured 260 Kemp's ridley sea turtles between 2000 and 2015. This data would suggest that a low-very low density of this species would be expected occupying the project area.

4.4.6.3 Leatherback Sea Turtle

Leatherback sea turtles are the most widely distributed species of sea turtle, being found throughout the Atlantic, Pacific, and Indian oceans, including areas near Alaska and Labrador. Leatherback turtles are highly migratory and pelagic and can be found at depths more than 3,000 ft. Because of their ability to regulate their body temperature, they can be found in deeper water than other species of sea turtles and can be active in water below 40°F. Leatherback sea turtles primarily feed on jellyfish, but also consume sea urchins, squid, crustaceans, tunicates, fish, blue-green algae, and floating seaweed. The distribution and food habits of post-hatchling and juvenile leatherbacks are unknown, although they may be pelagic and associate with Sargassum weed.

Sub-adult and adult leatherback sea turtles are common in South Carolina's coastal waters in the spring and in smaller numbers in the fall. Nearshore concentrations may occur in South Carolina from April - June during migration when cannonball jellyfish are abundant. From 1997-2007, SCDNR conducted aerial surveys for the species and recorded 1,000 in the state over that

timeframe. Nesting is rare in South Carolina and has not been recorded at Folly Beach or Bird Key Stono in the previous 5 years.

4.4.6.4 Loggerhead Sea Turtle

Within the Northwest Atlantic, the majority of loggerhead sea turtle 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). This occurs 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 on the Yucatán Peninsula in Mexico on open beaches or along narrow bays having suitable sand (NMFS and USFWS 2008).

Loggerheads nest on ocean beaches and occasionally on estuarine shorelines with suitable sand. Nests are typically laid between the high tide line and the dune front (Routa 1968; Witherington 1986; Hailman and Elowson 1992). Wood and Bjorndal (2000) evaluated four environmental factors (slope, temperature, moisture, and salinity) affecting loggerhead nest-site selection on a beach in Florida and found slope had the greatest influence. Other studies have found that loggerheads appear to prefer relatively narrow, steeply sloped, coarse-grained beaches, but acknowledge that nearshore contours may also play a role in nesting beach site selection (Provancha and Ehrhart 1987).

The Northern Recovery Unit (NRU) of loggerheads consist of turtles originating from nesting beaches from the Florida-Georgia border through southern Virginia (the northern extent of the nesting range). The NRU is the second largest loggerhead recovery unit within the Northwest Atlantic Ocean distinct population segment (DPS). Historical data shows the NRU previously experienced a long-term population decline (NMFS and USFWS 2008). More recently, however, nesting for the NRU has had a statistically significant growth rate of 1.3% over a 37-year period (NMFS and USFWS 2023) and annual nest totals from NRU beaches have steadily increased since 2008 (www.seaturtle.org). At a more local scale, nest totals from aerial surveys conducted by SCDNR showed a 1.9% annual decline in nesting in South Carolina from 1980-2007, though recent years have shown greater success for the species having had the two highest years of nesting on record in the state in 2019 (8,772 nests) and 2022 (7,965 nests).

4.4.7 Atlantic and Shortnose Sturgeon

Atlantic and shortnose sturgeon are anadromous fish which inhabit coastal, estuarine, and riverine environments on the Atlantic coast. Shortnose sturgeon rarely inhabit coastal ocean waters and tend to stay in river systems. It is unlikely that shortnose sturgeon occur in the project area due to lack of historical sightings of the species in the Folly River and Stono Inlet. Atlantic sturgeon migrate to the Atlantic Ocean as sub-adults and return to rivers to spawn. Migrating Atlantic sturgeon may be present in or near Stono Entrance Inlet or the Folly River.

4.4.8 North Atlantic Right Whale

North Atlantic right whales are highly migratory, summering in feeding and nursery grounds in New England waters and northward to the Bay of Fundy and the Scotian Shelf. They migrate southward in winter to the northeastern coast of Florida. Calving grounds primarily occur off the

coast of southern Georgia south to northern Florida, however, calving occasionally occurs as far north as Cape Fear, North Carolina. These calving grounds were designated as critical habitat under the ESA in 2016 (81 FR 4838). During the winter months, right whales are routinely seen close to shore in the critical habitat area.

4.4.9 Critical Habitat

Areas of critical habitat, as described in the FR, that overlap with the project area (Table 11) are described below.

Table 11 Critical Habitats in the Project Area for NMFS and USFWS Species

Species	Jurisdiction	Critical Habitat Rule/Date
Piping Plover	USFWS	71 FR 33703 May 19, 2009
Loggerhead sea turtle	USFWS	79 FR 39755 August 11, 2014
	NMFS	79 FR 39856 August 11, 2014
North Atlantic Right Whale	NMFS	59 FR 28793 June 3, 1994
(Proposed) <i>Rufa</i> Red Knot	USFWS	86 FR 37410 July 15, 2021

4.4.9.1 Piping Plover Critical Habitat

FR Vol. 66, No. 132, dated July 10, 2001, *Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for Wintering Piping Plovers* designated 1,223 acres around Stono Inlet as Unit SC-9 piping plover critical habitat. This designation includes all of Bird Key Stono.

4.4.9.2 Loggerhead Sea Turtle Critical Habitat

FR Vol. 79, No. 132, dated July 10, 2014, pg. 39756, *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northwest Atlantic Ocean Distinct Population Segment of the Loggerhead Sea Turtle; Final Rule* and pg. 39856, *Endangered and Threatened Species: Critical Habitat for the Northwest Atlantic Ocean Loggerhead Sea Turtle Distinct Population Segment (DPS) and Determination Regarding Critical Habitat for the North Pacific Ocean Loggerhead DPS; Final Rule* designated 7 miles of Folly Island shoreline and 1 mile from mean high water seaward from Lighthouse Inlet to Saint Helena Sound as critical habitats as LOGG-T-SC-09 (USFWS jurisdiction) and LOGG-N-7 (NMFS jurisdiction), respectively. The beach front of Folly Beach and Folly Beach County Park fall within LOGG-T-SC-09 and the nearshore placement area for Folly Beach falls within LOGG-N-7.

4.4.9.3 North Atlantic Right Whale Critical Habitat

FR Vol. 81, No. 17, dated January 27, 2016, pg. 4838, *Endangered and Threatened Species; Critical Habitat for Endangered North Atlantic Right Whale* designated waters off the southeast US coast from Brunswick County, North Carolina to Brevard County Florida as North Atlantic Right Whale Critical Habitat Unit 2. The nearshore placement area along Folly Beach and the entirety of the entrance channel re-alignment area both fall within this critical habitat.

4.4.9.4 *Rufa Red Knot Proposed Critical Habitat*

FR Vol. 86, No. 133, dated July 15, 2021, pg. 37410 *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Rufa Red Knot (Calidris canutus rufa)* proposes designation of critical habitat for the *rufa* red knot; including Unit SC-14, consisting of approximately 1,989 acres across the entirety of Folly Beach from MLLW to the toe of dunes of densely vegetated habitat, and Unit SC-15, consisting of 294 ac of Bird Key Stono from MLLW to the toe of dunes of densely vegetated habitat.

4.5 TERRESTRIAL BIOLOGICAL RESOURCES

4.5.1 *Terrestrial Habitat and Species*

Terrestrial habitats within and adjacent to the project area include tidal marsh, emergent sand shoals, dunes, mudflats, and urban developed land. Nearby terrestrial habitats may provide for mammals like raccoon (*Procyon lotor*), river otter (*Lontra canadensis*), marsh rice rat (*Oryzomys palustris*), Virginia opossum (*Didelphis virginiana*), and marsh rabbit (*Sylvilagus palustris*), as well as a variety of reptiles/amphibians (e.g., frogs, toads, lizards, snakes, turtles, alligator). Folly Beach and Bird Key Stono are utilized by waterfowl and shorebirds particularly during the winter months. Bird Key Stono provides breeding habitat for thousands of brown pelican (*Pelecanus occidentalis*), laughing gull (*Leucophaeus atricilla*), royal tern (*Thalasseus maximus*), and Sandwich tern (*Thalasseus sandvicensis*), as well as some other species including American oystercatcher (*Haematopus palliatus*), black skimmer (*Rynchops niger*), black-crowned night heron (*Nycticorax nycticorax*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), and Wilson's plover (*Charadrius wilsonia*) (National Audubon Society 2013).

Review of the USFWS Information for Planning and Consultation database (<https://ecos.fws.gov/ipac/>) resulted in identification of the 41 migratory birds of conservation concern that could potentially occupy the project area.

4.6 CULTURAL RESOURCES

The management of cultural resources is regulated under federal laws such as the National Historic Preservation Act (NHPA) of 1966 (54 U.S.C. § 300101 et seq.), the Archaeological and Historic Preservation Act of 1974 (54 U.S.C. §§ 312501- 312508), the American Indian Religious Freedom Act of 1978 (42 U.S.C. §§1996 and 1996a), the Archeological Resource Protection Act of 1979 (16 U.S.C. §§470aa-470mm), NEPA (42 U.S.C. §4321 et seq.), the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 U.S.C. §3001 et seq.), the Abandoned Shipwreck Act of 1987 (43 U.S.C. §§2101-2106), and the Sunken Military Craft Act of 2004 (10 U.S.C. § 113 et seq.).

Cultural resources considered in this study are those defined by the NHPA as properties listed, or eligible for listing, on the National Register of Historic Places (NRHP) and are referred to as historic properties. Historic properties include buildings, structures, sites, districts, objects, cultural items, Indian sacred sites, archaeological artifact collections, and archaeological resources (36 CFR 800.16(l)(1)). Cultural resources also include resources with unknown NRHP eligibility status.

4.6.1 Archaeological and Historical Setting

There are no structures, places, or items of historical significance listed on the NRHP in the immediate project area. Prior to European settlement of the Charleston County area, the Stono and Folly Rivers were used primarily by Native American tribes. Both rivers have been used extensively for maritime activities throughout history, being within proximity to the regionally important Charleston Harbor. Shipwrecks and abandonments have occurred in the project area; however, there is likely little to nothing remaining of these due to shifting channels and ongoing channel work conducted by USACE. There is an absence of evidence recovered by USACE and other agencies from numerous surveys conducted in the project area. Natural forces have scoured, redeposited, and reshaped the area many times to a depth greater than that which is routinely maintained for navigation, making detection of any remains by USACE even less likely.

4.6.2 Inventory of Resources in the Study Area

Cultural resource surveys (i.e., historic research, remote sensing, and dive investigations) have been conducted on/in South Carolina's inland and offshore waters, including within the current Area of Potential Effect (APE). A search of South Carolina's Archaeological Site File (ArchSite) was performed to identify any previously documented sites in Charleston County, South Carolina, in or adjacent to the project area. The most notable site near the project area is the Folly North Site (38CH1213). This area is also home to the Morris Island Lighthouse and Neck Redoubts and Lines Federal Earthwork Fortifications. There are two Civil War era batteries documented near the entrance channel, Battery Delafield and Battery Mahan, however both are over 2 miles outside the dredging footprint.

The area where USACE proposes nearshore placement along Folly Island had not been previously surveyed, and it was identified that there was a potential for undisturbed cultural deposits and underwater resources that could be impacted by the sediment placement. Surveying this area was a stipulation of the Programmatic Agreement (PA) under a separate action (*Programmatic Agreement among the U.S. Army Corps of Engineers, Charleston District, the Bureau of Ocean Energy Management, the City of Folly Beach, and the South Carolina State Historic Preservation Office Regarding the Folly Beach Coastal Storm Risk Management Project, September 2021*). Any surveys performed for the current undertaking would fulfil the requirements under that PA for this section of Folly Beach.

A search of the National Oceanic and Atmospheric Administration's (NOAA) Wrecks and Obstructions Database revealed the presence of four documented wrecks or obstructions within the APE (Figure 5). Little information is available for two of the wrecks/obstructions in the entrance channel, as there is no history on when they were sunk and their possible association with a vessel name. One wreck in the entrance channel is documented as being the 50-foot shrimp named Pear of Sea. The year that it ran aground is unknown, but it was documented in 1979 as breaking up, so there is likely nothing remaining of this vessel. The undertaking, as proposed, is not anticipated to have any effect on this wreck, as it likely no longer exists in this location. The two wrecks/obstructions noted in the Folly River channel are also unknown in terms of when they were sunk and what association they may have.

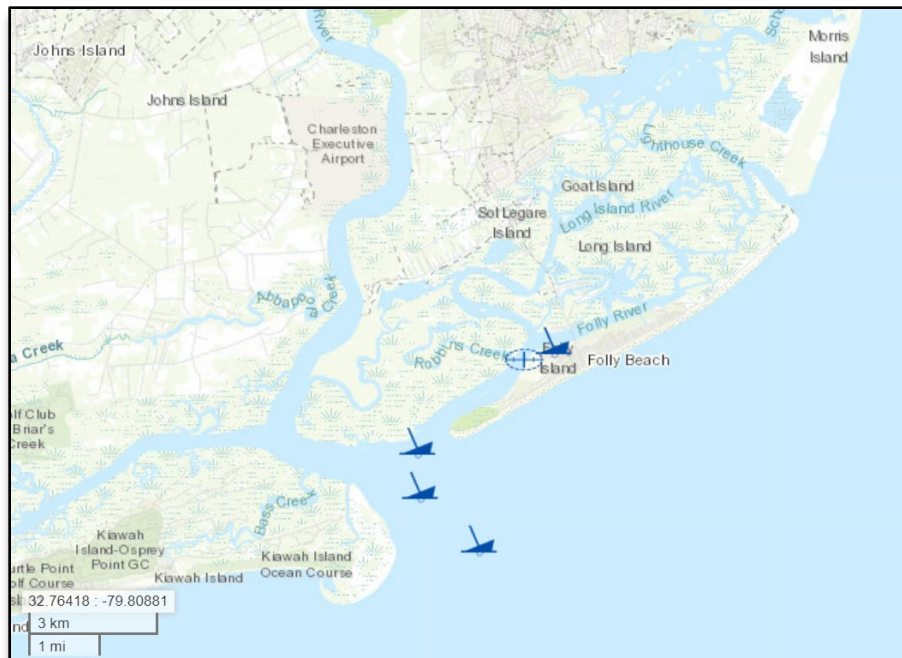


Figure 5. NOAA's Wrecks and Obstruction Database results for FRNP area

4.6.3 Cultural Resources Surveys

USACE conducted submerged cultural resources surveys of the nearshore placement area (733 acres) and a portion of the entrance channel re-alignment area (192 acres) in compliance with NHPA's Section 106 and the Abandoned Shipwreck Act of 1987. The surveys, which consisted of use of a magnetometer, side-scan sonar, or sub bottom profiler, were performed in January and March 2023 and recorded 37 magnetic anomalies and 20 side-scan sonar images potentially indicative of cultural remains. Dive investigations were performed for seven targets of potential cultural significance, and only one of which was determined to be a submerged cultural resource of concern. A possible historic shipwreck was identified within the nearshore placement area, and an avoidance buffer of 150' will be implemented to ensure that sediment is not placed directly on this resource. Sediment migration from nearby placement will not adversely impact the resource, but rather aid in its protection. Results were documented in a report entitled *Submerged Cultural Resources Survey and Diver Investigations, Folly River Federal Navigation Channel and Folly Beach Nearshore, Charleston County, South Carolina* (Coastal Environments Inc. 2023).

In February 2023, the survey results were coordinated with the South Carolina State Historic Preservation Office (SHPO), South Carolina Institute of Archaeology and Anthropology (SCIAA), and 12 consulting tribes (Absentee-Shawnee Tribe of Oklahoma, Alabama-Quassarte Tribal Town, Catawba Indian Nation, Chickasaw Nation, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Kialegee Tribal Town, Muscogee Creek Nation, Poarch Band of Creek Indians, Seminole Tribe of Florida, Shawnee Tribe, Thlopthlocco Tribal Town). SHPO concurred in an email dated February 21, 2023, with the determination of no adverse effect with the caveat that the 150' buffer remains in place (SHPO Project No. 22-RL0141). SCIAA concurred in an email dated February 17, 2023, that they have no concerns as long as the

avoidance buffer is implemented (see responses in Appendix C). SHPO reiterated their concurrence and provided comments for the report in a letter dated September 18, 2023, and SCIAA provided their approval for the report in an email dated September 20, 2023. Two tribes, Catawba Indian Nation and Eastern Shawnee Tribe of Oklahoma, provided responses. The Catawba Indian Nation provided two letters dated March 31, 2023, and September 19, 2023, to provide their concurrence with the no adverse effect determination (THPO #2023-1-23). The Eastern Shawnee Tribe of Oklahoma responded in a letter dated October 10, 2023, to provide concurrence with the no adverse effect determination (EST Reference Number 4620). Section 106 compliance is complete for this undertaking. Additional Section 106 consultation will be required if any inadvertent discoveries are found or the project scope changes.

4.7 FLOODPLAINS

The 100-year floodplain is established by the Federal Emergency Management Agency (FEMA) and is identified on Federal Insurance Rate Maps. Base flood elevations for flood zones and velocity zones are also identified by FEMA, as are designated floodways. All portions of the project area are within the 100-year floodplain. EO 11988 (Floodplain Management) states that Federal agencies shall avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative, Federal agencies shall take action to reduce the risk of flood loss, and minimize the impacts of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.

Any placement of material on beaches would occur within the 100-year floodplain and would therefore constitute an alteration of the floodplain, displacing the floodplain seaward. Placement of sediment on Folly Island and Bird Key Stono cannot be accomplished outside the floodplain.

4.8 NAVIGATION

USACE is responsible for maintaining Federal navigation channels. Removing shoaling from the FRNP is a routine requirement of O&M. Migrating shoals create shallow depths in the Stono Inlet and the lower portion of the Folly River, which negatively impacts navigation for recreational and commercial fishing vessels moving in and out of channels.

4.9 NOISE

Baseline noise levels within the project area vary throughout the year from operating commercial and recreational boats and naturally occurring noises (e.g., wind on the beach, wave action in the surf zone, buzzing of insects, bird calls, etc.). Dredging operations generally produce low levels of low frequency sound. Sounds may come from dragarms sliding along the bottom of the channel, pumping of sediments, and engine operation/exhaust. Nevertheless, effects of noise from dredging have been determined to be non-lethal and non-injurious with minimal behavioral effects on aquatic species (McQueen et al. 2018).

Noise along shorelines is also anticipated with the use of construction machinery and vehicles in order to create temporary dikes and level incoming sediment from pipelines. This type of noise is expected to be very localized and insignificant in magnitude and duration.

4.10 WATER QUALITY

The proposed project lies within the Folly Creek Watershed (Hydrologic Unit Code [HUC] 12 030502020204) and Stono River Watershed (HUC 12 030502020205). There are no known pollution sources other than stormwater and nonpoint source pollutants in the general vicinity of Folly River channel and entrance channel.

The South Carolina Department of Environmental Services (SCDES) (formerly known as the Department of Health and Environmental Control or DHEC) routinely tests water to protect the health of consumers of fish and shellfish and to ensure safe recreation. Monitoring includes screening for safe levels of bacteria, dissolved oxygen, pH, nutrients, and temperature. The state uses this data to designate the appropriate uses of water bodies. Designations include safe drinking water, recreation, fishing, propagation of fish, shellfish, game and other aquatic life, wild river, scenic river, and coastal fishing (EPA 2022).

Turbidity, expressed in nephelometric turbidity units (NTU), quantitatively measures the light scattering properties of water. The quality standard for turbidity by SCDES for freshwater, shellfish harvesting water, and tidal salt water for primary and secondary contact recreation is 25 NTU (SCDES 2014). Suspended solids (fine sediments) are often measured for impact on the amount of light that passes through the water column. Turbidity in coastal waters is usually attributed to the very fine organic particulate matter and sand sized sediments that are re-suspended into the water column by local waves and currents. Higher turbidity levels can usually be expected around inlet areas and estuarine areas due to high nutrient, entrained sediment levels, and shallow waters where wave actions occur.

4.10.1.1 Folly River

Overall, the waters of the Folly Creek Watershed are of good quality, with only a single impaired water source (MD-274) (EPA 2022). This impaired waterbody is several miles from the FRNP area and is classified as “murky waters”, which form naturally when suspended soils and other organic matter in the water reduce oxygen levels making it unsuitable for some aquatic animals and plants. Upstream from the inlet, parts of the river are classified by SCDES as Shellfish Harvestable Waters.

The Folly River drains into the mouth of the Stono Inlet then continues into the Atlantic Ocean. Mixing between riverine flows in the inlet with incoming tides from the Atlantic Ocean creates elevated turbidity in the nearby Folly River channel. Folly River salinity levels are higher downstream closer to the Atlantic Ocean and brackish moving upstream. Sampling in December 2021 by SCDES recorded salinity at the upstream extent of the Folly River channel to be 36 ppt and turbidity at 4.7 NTU.

4.10.1.2 Entrance Channel

The entrance channel is influenced by upstream riverine inputs and tidal inputs mixing in the area influencing turbidity and overall water quality. Upstream in the Stono River, SCDES testing from 2021 found salinity levels of 29 ppt and turbidity of 13 NTU. Of water quality sampling stations within the Stono River Watershed, at least ten have good water conditions while another eight are rated as impaired. Two of these are impaired for murky waters, one is impaired for low oxygen levels, and the remaining are impaired because of bacterial contamination. Bacteria and other pathogens can be caused by human or animal waste, sewage discharges, farm, feedlots, or manure runoff. These bacteria and pathogens can be harmful to people that eat shellfish from or swim in the impaired waterway (EPA 2022).

4.10.1.3 Folly Beach

The waterbody conditions in the nearshore area of Folly Beach are of good quality (EPA 2022). Folly Beach is monitored by SCDES for *Enterococcus* bacteria to indicate levels of bacteria in the water. The beach is tested from May 1st to October 1st for the safety of swimmers.

4.10.1.4 Bird Key Stono

Bird Key Stono is a protected bird habitat located where the Folly River enters the Stono Inlet. Water conditions are not monitored in this exact location, but it can be assumed that water conditions would be like the Folly River and entrance channel discussed above. Although not tested, turbidity can be presumed to be naturally higher around the island due to erosion and wave action.

4.11 SEDIMENT

Native sediment on Folly Beach was investigated during formulation of a 1991 General Design Memorandum. Forty-one beach sediment samples were collected and analyzed, possessing a mean grain diameter of 0.17 millimeters (mm) and identified as fine-grained sand using the Unified Soil Classification System. These samples were acquired from the upper beach profile (above the mean low water line). Sediment samples were also acquired below the mean low water line. Averaging the grain sizes using samples from above the low water line results in a finer native mean grain diameter of 0.15 mm.

USACE (2021a) compiled vibracore data from the Folly River collected in 2012 by Coastal Science and Engineering and in 2015 by ° Technologies, Inc. These data showed usable sand thicknesses reach up to 20 ft and average 14 ft. The water depths range from -4 to -15 ft. Grain sizes ranged from 0.14 mm to 0.21 mm, with an average grain size of 0.16 mm. Percent of fines passing the No. 200 sieve averaged 2.2%.

In 2015 and 2016, Athena Technologies, Inc. (2015, 2016) collected a total of 34 vibracore samples from the Folly River and Stono Inlet. Athena Technologies, Inc. (2015) reported that water depths in the Stono Inlet ranged from -6.38 to -18.71 with sand thicknesses from 2-15 ft and overlaying a clayey sand with a consistent elevation of between -21 to -23 ft. Athena (2016) showed water depths in Stono Inlet ranged from -5.72 to -16.88 ft with sand thicknesses ranging

from 9-15 ft. Sand was consistently homogenous, clean, fine grained, and well sorted, with trace amounts of shell fragments and thin silt or clay lenses. Several cores collected where the Stono River and Folly River converge consisted of more fine grains, with one showing 8.4 ft of sand over a sand with 5-10% clay, while another had a clayey sand consisting of interbedded sands and clays at the surface that extends to almost 7 ft below the surface. USACE (2020) also included data of sediment samples collected from the entrance channel, where fine sand made up most sample composition, ranging from 85-91% with grain sizes measuring about 0.12-0.25 mm. Very fine sand made up 1-5% of samples and silt and clay made up less than 1%.

Sediment from Folly River has been used for placement on Folly Beach since original construction of the beach in 1993. Beach nourishment on Folly Beach has also occurred under the Folly Beach CSRM Project, most recently in 2018 utilizing about 1.1 million yd³ of sediment from the Folly Beach borrow area and about 200,000 yd³ from the navigation channel. Sediment from the Folly River has also been placed on Bird Key and Folly Beach County Park since the inception of the FRNP in 1979.

Since the last use of the Folly River for beach renourishment purposes in 2018, bathymetric surveys have been conducted by USACE each year up until the most recent surveys in April of 2023. Bathymetry has demonstrated return of surficial sediments to the previous baseline within four years in the borrow area, while upstream and downstream portions have recovered 62%-91% of material as of April 2023.

4.12 CLIMATE CHANGE

The climate in this region of South Carolina consists of long hot summers and cool winters. Summers are warm and humid (average July high and low temperatures are 92 degrees Fahrenheit [°F] and 71°F, respectively), and winters are relatively mild (average January high and low temperatures are 58°F and 35°F, respectively). In general, the state has warmed by 0.5-1° (F) over the last century and the sea is rising about 1-1.5 in every decade (EPA 2016). Precipitation occurs chiefly as rainfall and averages about 49.5 in/year with approximately one-third of that total occurring during the months of June, July, and August. It is expected that in the coming decades changing climate in South Carolina will lead to an increase in the number of unpleasantly hot days, an increase in heat-related illness, an increase in inland flooding, a decrease in crop yields, and harm to livestock (EPA 2016). Sea level rise is the biggest climate change concern in the project area. Due to sea level rise, there is an increased risk of coastal storm surge and potential damages to resources located in the project area.

USACE Engineer Pamphlet (EP) 1100-2-1, Engineer Regulation (ER) 1100-2-8162 and Engineer Technical Letter (ETL) 1100-2-1 provide both a methodology and a procedure for evaluating sea level change (SLC). This guidance is used for incorporating the potential direct and indirect physical effects of projected future sea level change in the engineering, planning, design and management of USACE projects. Three estimates are required by the guidance, a low (baseline or historic rate) estimate representing the minimum expected sea level change, an intermediate estimate, and a high estimate representing the maximum expected sea level change. In coordination with the USACE Climate Preparedness and Resilience Community of Practice, USACE predicted intermediate rate was selected for the Charleston Peninsula Coastal Storm Risk Management Feasibility Study and is similarly used in this analysis. This rate was selected

because the 19-year mean sea level moving averaged trended most accurately with the intermediate rate curve (USACE 2002). The guidance was used to evaluate the future sea levels and the impacts to Folly Beach and Bird Key Stono.

This analysis was based on the NOAA tide gauge located in Charleston, South Carolina (Station #8665530), approximately 8 miles north of Folly Beach. This gauge was selected to represent the project site since it was the closest compliant gauge to the project location. The gauge is active and compliant with data from 1901 to present. The linear relative sea level trend for this gauge is 3.39 millimeters (mm)/year (0.01112 ft/year) with a 95% confidence interval of +/- 0.19 mm/year (0.00062 ft/year) based on monthly mean sea level data from 1905 to 2021. The NOAA relative SLC change trend shows a total change of +0.01112 ft/yr. for a total change of +0.56 ft over 50-years.

The USACE online tool Sea Level Tracker was used to determine the current rate of SLC observed and the projected future trends in the rate of SLC. The Sea Level Tracker is used to compare actual mean sea level (MSL) values and trends for specific NOAA tide gauges with the USACE SLC scenarios as described in ER 1100-2-8162 and ETL 1100-2-1. The Sea Level Tracker tool calculates USACE low, intermediate and high SLC scenarios based on global and local change effects. Historical MSL can be represented by either 19-year or 5-year midpoint moving averages (https://climate.sec.usace.army.mil/slr_app/). SLC values for the USACE scenarios have an origin year of 1992 (the midpoint of latest National Tidal Datum epoch) and use the 2022 NOAA SLC rate of 3.39 mm/yr (0.011 ft/yr). Predictions for the year 2074 at Charleston, South Carolina are 0.69, 1.29, and 3.18 feet North American Vertical Datum 88 under the USACE low, intermediate, and high SLC projections.

4.13 RECREATION RESOURCES

The project area is a prime sport fishing area which is enjoyed by many each year. Principal species found in the sport fisherman's catch are spot, croaker, flounder, black and red drum, seatrout, black sea bass, whiting, sheepshead, and sharks. Other activities around the project area may include water skiing, sailing, recreational boating, crabbing, and shrimping. A public oyster gathering area is located just east of the Folly River bridge and a public boat launching ramp is located on the west side of the bridge. Bird Key Stono is also used for fishing and bird watching by recreationalists outside the nesting season. The island is closed from public use from March 15 through October 15. Dogs and camping are prohibited year around.

When construction of the FRNP was originally completed in 1979, the Charleston County Park and Recreation Commission purchased the recurved spit on the west end of Folly Island and partnered with USACE to develop a beach access/biological observation park utilizing sediment dredged from the Folly River channel. Facilities include parking for automobiles, boardwalks across the sand dune for beach access, a bathhouse, and restrooms. Special accommodations have also been made for handicap access and beach usage. The rest of Folly Beach is also used for a variety of recreational activities, including sunbathing, swimming, surfing, kite boarding, fishing, dog walking, walking, and running.

4.14 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

In accordance with EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Federal agencies must assess whether disproportionately high and adverse effects would be imposed on minority or low-income areas by Federal actions. In addition, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires Federal agencies to assess the environmental health and safety risk of their actions on children. Section 112(b)(1) of the WRDA 2020 (PL 166-260) requires the formulation of water resource projects to comply with “*any existing Executive Order regarding environmental justice.*” Moreover, EO 14008, Tackling the Climate Crisis at Home and Abroad, Section 219 directs Federal agencies to “*[develop] programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities*”.

4.14.1 Socioeconomics of Project Area

According to the U.S. Census Bureau, data from the 2020 decennial census indicated that Folly Beach has a population of 2,078, with 94.03% of those surveyed reporting to be white and 93.89% as not Hispanic or Latino. Data from the 2021 American Community Survey 5-year Estimates indicated those from Folly Beach that were sampled, 1.7% were age 5 to 14 years, 0.0% were age 15 to 17, and 3.4% were under age 18, while 96.6% were 18 years and over.

The American Community Survey also included economic data for Folly Beach. For instance, median household income of Folly Beach is \$76,250 - higher when compared to that of South Carolina at \$59,318. Of the population for whom poverty status is determined, 16.2% were below the poverty line in the past 12 months, including 0.0% of those under 18 years old, 21.0% of those 18-64 years of age, 6.5% of those 65 years or older, and all of which identified as white alone, not Hispanic or Latino.

Using the Council on Environmental Quality’s (CEQ) Climate and Economic Justice Screening Tool revealed neither of the two census tracts that encompass the project area (45019002004 and 45019002003) are identified as disadvantaged. Communities are identified as disadvantaged in the health burden category if at or above the 90th percentile for asthma, diabetes, or heart disease, or at or above the 90th percentile for low life expectancy, above the 65th percentile for low income, and 80% or more of adults 15 or older are not enrolled in higher education.

4.15 COASTAL BARRIER RESOURCES SYSTEM

The Coastal Barrier Resources Act (CBRA) of 1982 (19 U.S.C. §3501 et. Seq.), as amended by the Coastal Barrier Improvement Act (CBIA) of 1990 limits federally subsidized development within CBRA Units to minimize the loss of human life by discouraging development in high-risk areas and to protect undeveloped coastal barriers along the Atlantic and Gulf Coasts, including islands, spits, tombolos, and bay barriers that are subject to wind, waves, and tides such as estuaries and nearshore waters. There is one CBRA Unit, Bird Key Complex Unit M07/M07P, within the study area and it encompasses all reaches to be dredged, as well as some placement locations (Figure 6).

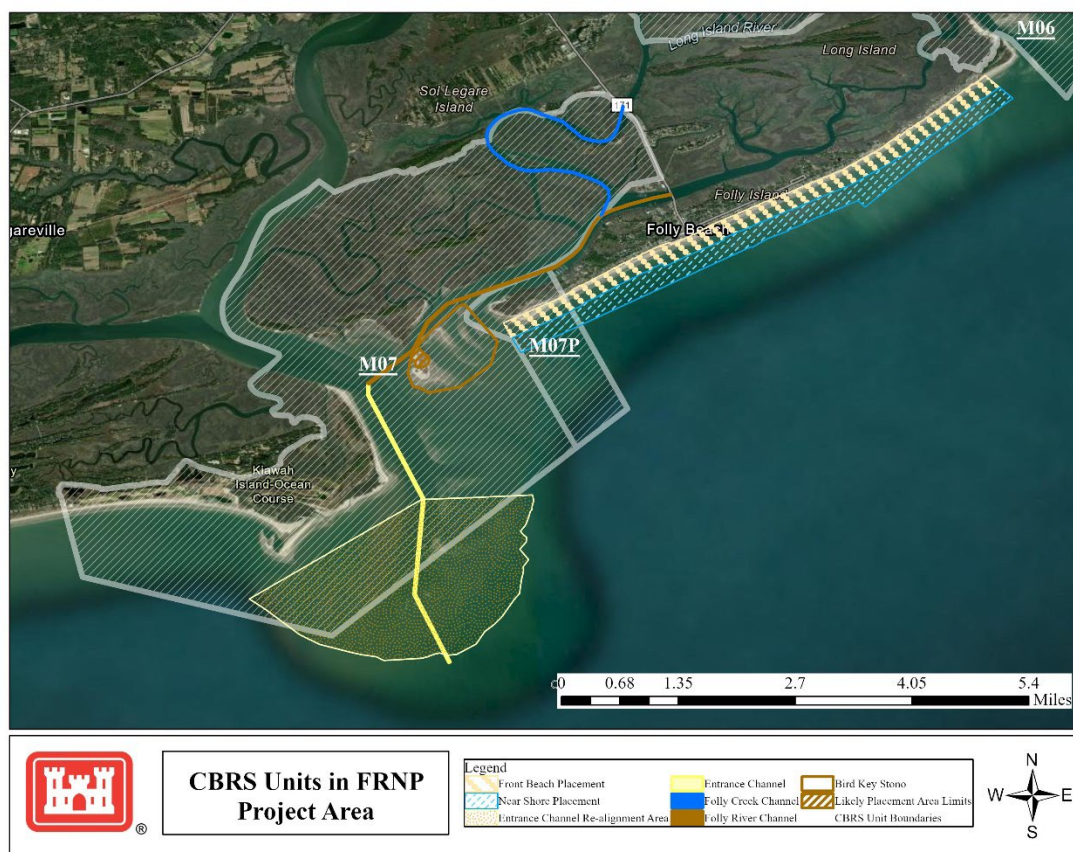


Figure 6 Boundaries of CBRA unit M07/M07P (Bird Key Complex)

4.16 COASTAL ZONE RESOURCES

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. §1451 to §1466) was established as a national policy to preserve, protect, develop, and where possible, restore or enhance, the resources of the Nation's coastal zone for current and future generations. The South Carolina Coastal Zone Management Program (SCCZMP) was established per the CZMA and was authorized in 1977 under SC's Coastal Tidelands and Wetlands Act. The FRNP is within South Carolina's designated Coastal Zone Management Area.

5 ENVIRONMENTAL CONSEQUENCES

This section describes the potential effects on the existing conditions for considered resources from implementation of the alternatives.

5.1 AESTHETICS

5.1.1 Environmental Consequences of Alternative A on Aesthetics

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. Although, there are no direct impacts to aesthetics from this alternative, indirect impacts could occur. For example, more restricted navigation would impact potential for recreation and fishing opportunities and viewing wildlife at Bird Key Stono, thus limiting the ability of individuals to

enjoy aesthetics of the area. Otherwise, very little impact to aesthetics would be expected under this alternative.

5.1.2 Environmental Consequences of Alternative B on Aesthetics

Under Alternative B, although visual resources and aesthetics of the project area will be temporarily impacted while O&M occurs, conservation of opportunities to enjoy the area's aesthetics is expected. O&M will occur as needed and can include use of cutterhead pipeline or sidecast dredging. While a cutterhead pipeline dredge is in operation, the aesthetics of Folly River channel will be temporarily affected. However, maritime traffic is common in the channel and temporary presence of a dredge should have little additive effect on aesthetics. A pipeline from the cutterhead dredge may be routed to a placement area on Bird Key Stono or Folly Beach (Folly Beach County Park only) where temporary dikes may be constructed, and heavy machinery used to level incoming sediment. In summary, Alternative B is temporary and as needed and not expected to materially differ from baseline. Furthermore, maintenance of channel navigability conserves individual recreation opportunities and enjoyment of aesthetics in the project area.

5.1.3 Environmental Consequences of Alternative C on Aesthetics

Under Alternative C, impacts to aesthetics are not expected to materially differ from those of Alternative B.

5.2 AQUATIC RESOURCES / WETLANDS

5.2.1 Environmental Consequences of Alternative A on Aquatic Resources / Wetlands

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. Where navigability of the channel is not maintained, backfilling may occur through time, potentially benefiting some organisms which utilize shoaling and shallow water and reducing benefits for organisms which value deep channels. However, these changes would likely be relatively insignificant.

5.2.2 Environmental Consequences of Alternative B on Aquatic Resources / Wetlands

Aquatic Resources

Direct impacts will occur to benthic species during dredging cycles as they are removed from sand bottoms or buried during placement activities. Following completion of dredging, early successional benthic organisms will soon re-colonize the dredged footprint (Naqvi and Pullen 1982; Bowen and Marsh 1988; Wilber and Clark 2007). Following placement of dredged sediments on beaches, burial and suffocation of invertebrate species will occur, impacting approximately one mile of shoreline during any given maintenance interval (based on the maximum volume expected to be dredged). Timeframes projected for benthic recruitment and re-establishment following beach placements are between 6 months to 2 years (Thrush et al. 1996; Peterson et al. 2000; Zajac and Whitlatch 2003; Bishop et al. 2006; Peterson et al. 2006; Hill-Spanik et al. 2019). On Bird Key Stono, the sand is typically placed above the high tide line on a small section of the island, which will limit impacts to intertidal foraging habitat.

Some planktonic and nektonic organisms entrained by operating dredges will suffer injury or mortality. Compared to other sources of entrainment (e.g., hydroelectric dams), rates for eggs and larval fish entrained by dredging are generally thought to represent a minor proportion of total fish production (Reine and Clarke 1998, Reine et al. 1998). Entrainment rates of mobile fish species are low but are highest for benthic species or those in high densities (Reine et al. 1998, Drabble 2012). Turbidity resulting from dredge operation may reduce primary productivity by phytoplankton and reduce dissolved oxygen in the immediate vicinity of pluming. Increasing the concentration of and exposure time to suspended sediment, generally increases severity of fish response, however, this may vary widely across species (Wenger et al. 2017).

There is also potential for temporary, small-scale impacts to aquatic resources where pipeline corridors may be routed. This would include temporary disturbance of marine soils or vegetation from the impression left by the pipeline and supportive apparatus as well as any risk associated with potential for pipeline leakage. However, any leaks that could occur along pipeline routes are considered in environmental protection plans required of the contractor and the adversity of such an event would be expected to be insignificant in impact given the rapid detectability and potential for mitigation.

Overall effects on plankton and nekton are expected to be of limited impact given the short durations of localized impact and small percentage of fine-grained material in dredged sediments (i.e., more coarse-grained material produces less turbid conditions and has less impacts on dissolved oxygen when suspended). Dredging may take up to approximately four months to complete per dredging cycle depending on necessary quantities of dredged sediment.

Wetlands

Direct and indirect impacts to wetlands would be limited to those described above—particularly where pipeline corridors are routed through wetlands. No other impacts exclusive to wetlands are expected and overall are expected to be insignificant in impact.

5.2.3 Environmental Consequences of Alternative C on Aquatic Resources / Wetlands

Under Alternative C, effects to aquatic resources / wetlands are largely expected to be the same as Alternative B given the overlap in dredge types and placement areas. Alternative C also involves nearshore placement. Impacts from the placement of dredged sand in the nearshore environment is expected to be similar in impact to that from sidecast dredging. Additionally, given the small quantities of sand material placed from each hopper dredge load (250-300 yd³), it is unlikely that intertidal benthic communities that are resilient in high energy environments will be significantly impacted by sand placements within the shallow water area (Van Dolah et al. 1984, Dauvin et al. 2022). Smothering and mortality may occur in lesser mobile species (e.g., amphipods and polychaetes) within the area of placement.

5.3 ESSENTIAL FISH HABITAT

5.3.1 *Environmental Consequences of Alternative A on Essential Fish Habitat*

Under Alternative A, maintenance dredging would no longer occur under USACE on this project. This alternative is likely to have limited and insignificant impacts to EFH.

5.3.2 *Environmental Consequences of Alternative B on Essential Fish Habitat*

Dredging under Alternative B will involve impacts to marine and estuarine water column and unconsolidated bottoms; however, these impacts are expected to be short-term and minor. Dredging will avoid impacts to nearby estuarine emergent wetlands and oyster reefs/shell bank habitats in the project vicinity. Placement activities may result in negative effects on intertidal macrofauna, increased turbidity in the surf zone, or changes in the sand grain size or beach profile; however, these effects would be localized in the vicinity of placement operations.

All actions under this project will be carried out in compliance to the maximum extent practicable with conservation recommendations and best management practices included in the *Programmatic Essential Fish Habitat Consultation for USACE Activities and Projects Regularly Undertaken in South Carolina* (Appendix A). Verification of NMFS regular concurrence with project maintenance cycles is obtained to document this, with the most recent verification returned from NMFS on August 15, 2023. Justification for any BMPs that may not be adhered to are included. If, during future maintenance cycles, NMFS does not concur with determinations made by USACE on action consistency with the programmatic EFH, USACE will conduct additional coordination with NMFS. Therefore, impacts to EFH and HAPC are expected to be temporary and will not result in significant direct and indirect effects on managed species.

5.3.3 *Environmental Consequences of Alternative C on Essential Fish Habitat*

Under Alternative C, actions will generally have the same insignificant direct and indirect effects as Alternative B.

5.4 THREATENED & ENDANGERED SPECIES

A preliminary analysis of impacts to threatened and endangered species in the project area under the jurisdiction of USFWS is provided in Table 12. These preliminary impacts have been analyzed based on dredge type and placement area rather than based on alternatives (in recognition that Alternatives B and C have overlap). Species that are not present in the project area (see Table 6) have received a *no effect*⁴ determination and are not included in Table 12. Species and their critical habitats under the jurisdiction of NMFS (see Table 7) are also not included in Table 12. Impacts to species and their critical habitats under NMFS jurisdiction have been previously analyzed in the South Atlantic Regional Biological Opinion (NMFS 2020). USACE will adhere to all applicable project design criteria (PDC); therefore, no further consultation with NMFS under the ESA is required.

⁴ A *no effect* determination is described by USFWS and NMFS (1998) as “the appropriate conclusion when the action agency determines its proposed action will not affect a listed species or critical habitat.”

O&M dredging of the FRNP entrance channel with modified hopper dredge equipment and subsequent nearshore placement along Folly Beach is scheduled to occur in early 2024. To support this, USACE initiated informal consultation with USFWS on April 28, 2023 (see Appendix B). By letter dated June 26, 2023, USFWS replied and concurred with USACE determinations “made for potential effects to federally listed species from dredging and re-aligning the entrance channel for the Folly River Navigation Project.”

As noted in the USACE’s April 28, 2023 consultation letter, although the proposed action also includes dredging of the Folly River channel, this dredging is not scheduled to occur for approximately 3-5 years. In this regard, the USACE’s April 28, 2023 consultation letter further states that, “USACE is deferring formal consultation with U.S. Fish and Wildlife Service (USFWS) regarding operations and management (O&M) dredging of the Folly River channel until approximately 6 months before dredging occurs.” Notably, the USFWS’s concurrence via letter dated June 26, 2023 expressed no concerns with this approach.

Table 12 Summary of preliminary effects determinations for USFWS-listed ESA species from implementation of alternatives

Dredging Activity & Placement Area	Species	Preliminary Effects Determination¹	Preliminary Critical Habitat Effects Determination¹
Sidecast dredging with sidecast placement (Alternative B) & modified hopper dredging and cutterhead dredging with nearshore placement (Alternatives B & C)	West Indian Manatee	MANLAA	N/A
	Eastern Black Rail	NE	N/A
	Piping Plover	MANLAA	NE
	Rufa Red Knot	MANLAA	MANLAA
	Wood Stork	NE	N/A
	Leatherback Sea Turtle	MANLAA	N/A
	Loggerhead Sea Turtle	MANLAA	MANLAA
	Kemp’s Ridley Sea Turtle	NE	N/A
	Green Sea Turtle	NE	N/A

¹Effects determinations are defined as follows: MANLAA – *may affect, not likely to adversely affect*, NE – *no effect*, MALAA – *may affect, likely to adversely affect*, N/A – not applicable. For descriptions, see footnotes that follow in-text use of determinations.

5.4.1 Environmental Consequences of Alternative A on Threatened & Endangered Species

Under Alternative A, maintenance dredging would no longer occur by USACE on this project and no adverse impacts would be expected to any ESA species.

5.4.2 Environmental Consequences of Alternatives B & C on Threatened & Endangered Species

5.4.2.1 West Indian Manatee

Under Alternatives B & C, manatees may be present in waters around the dredging vessels during warmer months of the year, although they are rarely seen in the project area. *Manatee Protection Measures for South Carolina* published by USFWS provides precautionary measures which will be implemented for all project-related vessels (USFWS 2021a), thus ensuring protection of any manatees which may come within the vicinity of project operations. Habitat and food supply of the manatee will not be substantially impacted, as dredging is only occurring

in areas of shoaling, as needed, and for short durations, and placement areas under any of the alternatives do not contain any manatee habitat. Therefore, based on the limited potential for direct impact to the species, USACE has made a preliminary *may affect, not likely to adversely affect*⁵ determination for this species under Alternatives B & C.

5.4.2.2 Eastern Black Rail

Under Alternatives B & C, direct beach placement of sediment dredged from the Folly River may occur by potentially routing pipelines across marsh habitat on the northern side of Folly Island. A pipeline corridor may intersect areas of potential habitat in tidal marsh on the northern end of Folly Island, though no records of Eastern black rail in these areas are currently known to exist. In addition, potential impacts from this action are expected to be short in duration and small in magnitude with effective pre-cautionary measures in place in the event of a leak. For these reasons, USACE has made a *may affect, not likely to adversely affect* determination for this species.

5.4.2.3 Piping Plover & Rufa Red Knot

The piping plover and *rufa* red knot may occur in foraging or roosting habitat along shorelines of Bird Key Stono and Folly Island while overwintering or migrating. Bird Key Stono is also designated critical habitat for piping plover, while both Folly Island and Bird Key Stono are proposed as critical habitat for *rufa* red knot.

Nearshore Placement

Nearshore placement would only occur under Alternative C and along Folly Beach. Neither species nor their critical habitat would be directly affected by nearshore placement along Folly Beach. However, shorebirds and their habitat may benefit indirectly from placement potentially slowing impacts of erosion on roosting and foraging habitat and extending intertidal foraging habitat seaward at Folly Beach.

Beneficial Use Beach Placement

Actions outlined under Alternatives B & C pertaining to beneficial use beach placement will occur after further consultation with USFWS has been completed.

USFWS (2018) issued a BO for the Folly Beach CSRM Project, which included beach nourishment on Folly Beach and Bird Key Stono using sediments from the Folly River. Given the overlap in actions with this project and those outlined under Alternatives B & C, USACE has adapted the conclusions drawn from the BO to assess impacts because of implementation of the alternatives herein. In the BO, USFWS concluded that when beach nourishment were to occur any time of year on Bird Key Stono and Folly Beach, impacts to both piping plover and *rufa* red

⁵ A *may effect, not likely to adversely affect* determination is described by USFWS and NMFS (1998) as "...effects on listed species are expected to be discountable, or insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur."

knot may include (1) decreased fitness and survivorship due to a temporary loss and degradation of a section of foraging habitat; and (2) decreased fitness and survivorship attempting to migrate to breeding grounds due to a temporary loss and degradation of a section of foraging habitat. USFWS concluded that the actions are not likely to jeopardize the continued existence of the piping plover and *rufa* red knot or the critical habitat of piping plover because effects due to construction activities are expected to be short-term and become beneficial once construction is completed. They further explained that “take” of piping plover and *rufa* red knot will be minimized by implementation of terms and conditions (T&C) outlined in Section 9 of the BO. USACE anticipates similar T&C to be conditional for actions being deferred for consultation. USACE will coordinate placement times and locations on Bird Key Stono with USFWS and SCDNR following further consultation and prior to placement of any dredged sediments.

5.4.2.4 *Wood Stork*

During the initial phase of work, no overlap with activities and potential presence of wood stork will occur and a *no effect* determination has been made. Wood stork presence is possible in shallow waters along the edges of the Folly River, where there is limited foraging habitat (USFWS 2018) and have been observed on Bird Key Stono (eBird 2023). Dredging operations may temporarily disrupt foraging behavior while the vessel is operating nearby or when sediment is being placed on the shoreline of Bird Key Stono, however, the effects are expected to be short in duration and magnitude of impacts (i.e., noise, averted attention, etc.) from construction are not expected to differ substantially from baseline. In addition, a pipeline corridor may intersect areas of viable foraging habitat in tidal marsh on the northern end of Folly Island. Similarly, impacts from this action are expected to be short in duration and small in magnitude with effective pre-cautionary measures in place in the event of a leak.

5.4.2.5 *Nesting Sea Turtles*

As noted above in Section 4.4, the USFWS and NMFS PRD share jurisdiction of sea turtles, with NMFS having jurisdiction when in the marine environment and USFWS having jurisdiction when in the terrestrial environment. Under Alternatives B & C, effects to nesting turtles and/or their habitat under the jurisdiction of USFWS may occur as a result of any of the dredged sediment placement methods with the exception of sidecasting in the entrance channel. Beach placement is available as a placement method under Alternative B at Bird Key Stono and Folly Beach County Park, and additionally Folly Beach under Alternative C. Nearshore placement of dredged sediment from the entrance channel is only available under Alternative C.

Operation of the proposed dredge equipment have not historically resulted in entrainment (NMFS 2020). As previously mentioned, the equipment used by both the side-cast dredge and the modified hopper dredge has smaller draghead sizes and openings, as well as lower suction horsepower than conventional hopper dredges. In 1998, North Carolina Wildlife Resources Commission and USACE conducted a test to determine whether or not these vessels could take sea turtles. The findings concluded that these dredges do not pose a significant threat to sea turtles (USACE 1998), which were concurred with by NMFS (1999). As of 2018, there are no records of take associated with the use of these vessels (SARBO 2020). As noted above, modified hopper dredging does not necessitate the need for a protected species observer to monitor dredged material for the potential presence of take and, therefore, the risk of entrainment

from modified hopper dredging is expected to be discountable and no future minimization measures are needed to limit entrainment. Accordingly, as noted above and consistent with the SARBO (2020), impacts to sea turtles as a result of the dredging operation are expected to be minimal (regardless of the time of year when the work is conducted).

Nearshore Placement

Nearshore placement would only occur under Alternative C, thus no effects from nearshore placement would occur under Alternative B.

Potential effects to nesting turtles from the placement of dredged sediments nearshore, and actions to mitigate thereof, are well summarized by the following PDCs outlined in the SARBO (NMFS 2020):

- *Sand placed on the beach or in the nearshore littoral areas will be placed in a manner that does not create mounds or berms that could prevent nesting sea turtles or hatchlings from entering or exiting the beach from nearshore waters.*
- *All placement, including [ocean dredged material disposal site] ODMDS placement, will not create an obstruction of species movement in the area (e.g., does not create a mound that would deter or prevent species from moving through the area).*

Once placed, beach-quality sand incorporated into shoreline may create nesting opportunities or enhance existing habitat for species like loggerhead sea turtle (and rarely leatherback sea turtle). USACE has made preliminary *may affect, not likely to adversely affect* determinations for loggerhead sea turtle (USFWS jurisdiction) and leatherback sea turtle (USFWS jurisdiction), and preliminary *no effect* determinations for green sea turtles (USFWS jurisdiction) and Kemp's ridley sea turtles (USFWS jurisdiction). A preliminary determination of *may affect, not likely to adversely modify* has also been made for loggerhead sea turtle critical habitat (USFWS jurisdiction).

Beneficial Use Beach Placement

Actions outlined under Alternatives B & C pertaining to beneficial use beach placement will occur after further consultation with USFWS has been completed. Beneficial use beach placement can affect nesting sea turtles when (1) the pipeline route running parallel to the shoreline may impede nesting sea turtles from accessing suitable nesting sites; (2) operation of heavy equipment on the beach may impact nesting females and incubating nests; (3) associated lighting impacts from nighttime operations and the increased beach profile elevation may deter nesting females from coming ashore and may disorient emerging hatchlings; (4) burial of existing nests may occur if missed by monitoring efforts; (5) escarpment formations could result in impediments to nesting females as well as potential losses to the beach equilibration process; (6) relocation efforts could reduce nest success rates; and (7) sediment density (compaction), shear resistance (hardness), sediment moisture content, beach slope, sediment color, sediment grain size, sediment grain shape, and sediment grain mineral content may be altered, potentially affecting the nesting and incubating environment (USFWS 2018).

USFWS issued a BO in 2018 for actions outlined under the Folly Beach CSRM Project, wherein USACE placed sediments from a borrow area in the Folly River (including some sand from the navigation channel) on Folly Beach as a nourishment project (USFWS 2018). The conclusions drawn by USFWS in this BO were that the action was not likely to jeopardize continued existence of the loggerhead sea turtle or its critical habitat as: (1) nesting within the Northern Recovery Unit (NRU) (loggerheads originating from nesting beaches from the Florida-Georgia border through southern Virginia) appears to be increasing despite current threats; (2) nesting within the action area is following the same trend as the NRU despite current threats and environmental conditions; and (3) effects due to construction activities are expected to be short-term and become beneficial once construction is completed. USFWS (2018) further explained that “take” of sea turtles will be minimized by implementation of Terms & Conditions (T&C) outlined in Section 9 of the BO. These measures have been shown to help minimize adverse impacts to sea turtles. USACE anticipates similar T&C to be conditional for actions being deferred for consultation.

5.5 TERRESTRIAL BIOLOGICAL RESOURCES

5.5.1 Environmental Consequences of Alternative A on Terrestrial Biological Resources

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. No measurable impacts to terrestrial biological resources are expected under this alternative.

5.5.2 Environmental Consequences of Alternative B on Terrestrial Biological Resources

Under Alternative B, there will be insignificant effects to the existing terrestrial biological resources in the area. Sediment placement directly on Folly Beach and Bird Key Stono requires heavy earth-moving equipment (e.g., bulldozers) to place and shape the sediments. The presence of this equipment can serve as a temporary nuisance to shorebirds. Although the project area is heavily developed and sustains heavy recreational use, migratory shorebirds could still use the project area for foraging and roosting habitat. Beach placement activities could have a temporary direct effect on roosting habitat and intertidal foraging habitat; however, the effect would be insignificant due to the fact that material is compatible with existing beach sediment and habitat recovery often occurs within one to two years.

Nesting season for most migratory birds in the area is March 15 through October 15. Measures that are taken by USACE to reduce the direct effects on nesting birds include conducting sediment placement on Bird Key Stono during non-nesting season or in coordination with the SCDNR and USFWS. There may be direct benefits of beach placement for both Bird Key Stono and Folly Beach on nesting shorebirds from expansion of and protection of habitat from overwash and erosion.

Overall, under Alternative B, there would be insignificant direct and indirect effects to terrestrial biological resources.

5.5.3 Environmental Consequences of Alternative C on Terrestrial Biological Resources

Since both Alternatives B and C involve the presence of dredging equipment, dredging Alternative C will generally have the same insignificant direct and indirect effects as Alternative B on terrestrial biological resources. Nearshore placement would have no additional effect on terrestrial biological resources beyond the presence of the dredge equipment. USACE would follow the same measures to reduce direct effects on the nesting birds as discussed for Alternative B above.

5.6 CULTURAL RESOURCES

Federal agencies are required by Section 106 of the NHPA and by NEPA to consider the possible effects of their undertakings on historic properties. For cultural resources, the threshold for significant impacts includes any disturbance that cannot be mitigated and affects the integrity of a historic property (i.e., a cultural resource that is eligible for the NRHP). The threshold also applies to any cultural resource that has not yet been evaluated for its eligibility to the NRHP or disturbs a resource that has importance to a traditional group under the American Indian Religious Freedom Act, EO 13007, and NAGPRA.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may be the result of physically altering, damaging, or destroying all or part of a resource, altering characteristics of the surrounding environment by introducing visual or audible elements that are out of character for the period the resource represents, or neglecting the resource to the extent that it deteriorates or is destroyed. Indirect impacts are those that may occur because of the completed project, such as increased vessel traffic in the vicinity of the resource and the associated hydrologic changes associated with this increase.

5.6.1 Environmental Consequences of Alternative A on Cultural Resources

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. Therefore, no direct or indirect project-related impacts on cultural resources would occur.

5.6.2 Environmental Consequences of Alternative B & C on Cultural Resources

The APE for Alternatives B and C has been defined as the entrance channel, Folly River channel and shorelines surrounding channels, Bird Key Stono and Folly Beach. Actions anticipated within the APE would consist of dredging in the channel(s) and placement of dredged material for beneficial use along shorelines. Impacts to cultural resources could result from activities which include (1) soil disturbance, (2) soil compaction, (3) rut formation, (4) damage to submerged and/or above-ground structures and features, (5) visual impacts and (6) vandalism and looting.

To comply with NHPA's Section 106 and the Abandoned Shipwreck Act of 1987, USACE conducted submerged cultural resources remote sensing surveys of the area subject to sediment placement, as well as the advanced maintenance area. The results were coordinated with the SHPO, SCIAA, and consulting tribes to ensure that all identified shipwrecks and archaeological sites potentially eligible for listing on the NRHP will not be affected by the proposed project.

One target of concern was identified as a potential historic shipwreck. SHPO concurred with the determination of no adverse effect with the caveat that a 150-foot work buffer be applied for that resource (see Appendix C). Sediment migration from nearby placement will serve to protect, rather than threaten, this resource.

5.7 FLOODPLAINS

5.7.1 Environmental Consequences of Alternative A on Floodplains

Under Alternative A, maintenance dredging would no longer occur by USACE on this project; therefore, no significant direct or indirect project-related impacts on floodplains would result.

5.7.2 Environmental Consequences of Alternative B on Floodplains

Under Alternative B, actions will continue as previously analyzed by USACE (1997). Beach placement would have some direct benefit to floodplains by increasing resiliency of beaches and alleviating beach erosion. Sidecast dredging will have no direct or indirect impact on floodplains as the sediments will remain in the littoral zone. The existing hydrology of the floodplain will not be substantially changed.

5.7.3 Environmental Consequences of Alternative C on Floodplains

Under Alternative C, effects to floodplains will be nearly identical to those of Alternative B, however, placement of entrance channel sediments nearshore along Folly Beach would likely provide additional reduction in effects from shoreline erosion and sea level rise. Alternative C would likely have direct beneficial effects on floodplains in the area, however, existing hydrology of the floodplain is not likely to substantially change.

5.8 NAVIGATION

5.8.1 Environmental Consequences of Alternative A on Navigation

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. Entrance channels would continue to shoal in, and maritime traffic would become increasingly limited. Operators of commercial shrimp trawlers and large pleasure boats would be forced to time their entry and exit with the tides to avoid vessel damage and grounding, creating safety and efficiency issues.

5.8.2 Environmental Consequences of Alternative B on Navigation

Under Alternative B, navigation conditions would be maintained and result in no net impact to navigation. Commercial shrimp trawlers, large pleasure boats, and other maritime traffic will continue to have safe and efficient access to navigation channels around the Folly Island area.

5.8.3 Environmental Consequences of Alternative C on Navigation

Under Alternative C, navigation would generally benefit to the same degree as Alternative B. However, maintenance of channels could occur with additional dredge types and one additional

placement site providing flexibility in logistics and feasibility during each dredge cycle. Increased flexibility is likely to improve the frequency and efficiency of dredging cycles and to optimize navigation conditions.

5.9 NOISE

5.9.1 Environmental Consequences of Alternative A on Noise

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. Noise would be expected to be lower than would be under Alternatives B & C, although impacts to noise under any of the alternatives is not expected to be materially different from baseline.

5.9.2 Environmental Consequences of Alternative B on Noise

Under Alternative B, actions on the FRNP will continue as previously analyzed by USACE (1997). Noise levels could potentially be elevated from dredging activities up to 24 hours a day, however this is not expected to be materially above baseline.

5.9.3 Environmental Consequences of Alternative C on Noise

Under Alternative C, additional dredge types and placement areas available for O&M are not expected to be different in impact to noise from Alternative B.

5.10 WATER QUALITY

5.10.1 Environmental Consequences of Alternative A on Water Quality

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. No measurable or significant effect to water quality is expected to result from this alternative.

5.10.2 Environmental Consequences of Alternative B on Water Quality

Under Alternative B, both dredging and placement activities would similarly result in temporary, localized turbidity and lowered dissolved oxygen. Sediments occurring in shoaled areas to be dredged have high sand content with less than 10% of fines. Sandy material has a rapid settling rate, and therefore, increases in turbidity from dredging are expected to be short-term. Generally, dredging is also believed to reduce dissolved oxygen levels as it increases suspended sediment in the water column restricting flow and increasing bacterial respiration. However, impacts to dissolved oxygen are expected to be similar as described for turbidity—localized, temporary, and minor. Overall, any impacts to water quality would not be significant and would normalize quickly at the conclusion of O&M.

A 401 Water Quality Certification (WQC) was issued for the FRNP on January 24, 1984, which was determined to be still in effect for the 1997 EA by SCDES Bureau of Water (BOW). The WQC covered placement of sediments on shorelines of Folly Beach County Park and Bird Key Stono. Since dredging and disposal methods for Alternative B have not changed and no new disposal locations are proposed for this alternative, USACE considers the previous water quality certification to still be valid.

5.10.3 Environmental Consequences of Alternative C on Water Quality

Under Alternative C, net impacts to water quality are not expected to be materially different from those of Alternative B. However, because dredge type and placement locations are expanded from that considered in SCDES's last 401 review in 1997, USACE filed a new joint public notice on July 17, 2023, and a new WQC application on July 18, 2023, to include the addition of nearshore placement and full extent of beach front placement on Folly Beach. BOW stated that the 401 WQC was waived for this project via email on September 10, 2024. Therefore, no permanent degradation of water quality will occur in the nearshore environment.

5.11 SEDIMENT

5.11.1 Environmental Consequences of Alternative A on Sediments

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. No significant direct or indirect project-related impacts are expected.

5.11.2 Environmental Consequences of Alternative B on Sediments

Historically, dredge materials from the FRNP have been used for beach placement on Folly Beach County Park, Bird Key Stono, or sidecast into the entrance channel. Sediments in the Folly River and overlapping areas of the Folly River channel have also been dredged and used for beach nourishment for Bird Key Stono and Folly Beach under similar USACE projects including the Folly Beach CSRM Project. Under Alternative B, actions would continue as previously analyzed and result in no net changes to sediment. The sediment characteristics of Folly Beach County Park, Bird Key Stono and the entrance channel placement sites are like those of the source areas to be dredged.

5.11.3 Environmental Consequences of Alternative C on Sediments

Under Alternative C, effects to sediment characteristics will not differ from that of Alternative B. The effects of nearshore placement and beach placement along most of Folly Beach are not expected to materially differ from those considered under Alternative B. The sediments to be dredged within Folly River and the entrance channel are like those on Folly Beach. The combination of nearshore placement and beach placement along most of Folly Beach should reduce impacts of erosion and increase beach resiliency. Therefore, no negative direct or indirect effects on sediment are expected, however increased beneficial effects to Folly Beach may result from additional nearshore placement and beach placement.

At the Nearshore Placement Workshop in 2019, participants from the U.S. Army Engineer Research and Development Center (ERDC) noted that although it is difficult to determine sediment pathways of nearshore placements in the field and laboratory, and that physical mechanisms may only be inferred from before/after sediment distribution; where onshore migration occurs, benefits may include slowing shoreline erosion, protecting coastal structures, and decreasing long-term maintenance and repair costs (Krafft et al. 2020). Onshore or offshore migration can be modeled and predicted using a combination of methods, with some modeling approaches being more appropriate depending on wave characteristics within nearshore

placement areas. McFall et al. (2021) demonstrated the application of various modeling approaches that included variables of effective wave height, wave period, grain size, sediment density, and water density to successfully predict sediment migration from twenty nearshore placement case studies. Thus, a host of source and placement site variables need to be measured to assert what will be the predominant direction of flow of sediment once placed. Nevertheless, some general findings indicate that larger-grain sediments and sediments placed closer to shore are more likely to be “active” and smaller-grain sediments and sediments placed farther from shore are likely to remain static (McFall et al. 2021). Furthermore, Krafft et al. (2020) acknowledge that *“From a holistic perspective, participants noted that sediment is a valuable resource that is lost from the littoral system when placed in an Ocean Dredged Material Disposal Site (ODMDS) or Confined Disposal Facility (CDF). Furthermore, nearshore placements are generally a side effect of required navigation dredging, and keeping sediment in the littoral system benefits the regional sediment budget.”*

Under Alternative C, whereby dredged sediment from Folly River channel and/or entrance channel is placed nearshore, a majority of sediment is likely to be active. USACE (2021b) modeled sediment transport at Folly Beach and noted that the dominant flow and sediment transport directions are from the northeast to the southwest while net sediment gain occurs in the central and southwest sections of Folly Island.

5.12 CLIMATE CHANGE

5.12.1 Environmental Consequences of Alternative A on Climate Change

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. No direct or indirect project-related impacts are expected.

5.12.2 Environmental Consequences of Alternative B on Climate Change

USACE intermediate high projection predicts a relative SLC of +1.06 ft by 2074. Continued O&M in the FRNP would ensure some regional sediment continues to be used to combat erosion on Bird Key Stono and Folly Beach County Park. It is expected that maintaining beach elevations will be beneficial to the area into the future and would have a positive effect on the environment and community of Folly Island.

5.12.3 Environmental Consequences of Alternative C on Climate Change

Under Alternative C, effects to climate change are expected to be like Alternative B. However, Alternative C would further allow for nearshore placement along Folly Beach and expand opportunity to reduce erosion and reduce frequency of required beach renourishment, maintaining beach elevations and reducing flooding impacts. This would have a positive effect for the local environment and community of Folly Island.

5.13 RECREATION RESOURCES

5.13.1 Environmental Consequences of Alternative A on Recreation Resources

Under Alternative A, maintenance dredging would no longer occur by USACE on this project, and recreational opportunities provided by access between Stono Inlet and the rest of the FRNP would become limited as shoaling continues to create navigation problems.

5.13.2 Environmental Consequences of Alternative B on Recreation Resources

Under Alternative B, intermittent cycles of dredging would continue in the FRNP, whereby dredged sediment would continue to be placed directly on Folly Beach County Park and Bird Key Stono, which would directly affect recreational use of small-scale portions of the navigation channels and beaches for the temporary duration of construction. However, this alternative would provide long-term indirect positive effects by reducing the impacts of shoaling to navigation and projected erosion of the beaches.

5.13.3 Environmental Consequences of Alternative C on Recreation Resources

Under Alternative C, impacts to recreational opportunities would be the same as Alternative B, but the area of impacts to recreation resources would be expanded to the full extent of Folly Beach.

5.14 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

5.14.1 Environmental Consequences of Alternative A on Socioeconomics and Environmental Justice

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. The areas of consistent shoaling in the inlet and lower portions of the Folly River would continue to shoal in and maritime traffic would become increasingly restrictive. Timing of entry and exit to the Folly River by commercial shrimp trawlers and large pleasure boats may become more necessary to avoid vessel damage and grounding. These impacts would incur indirect costs to the local shrimping and fishing industry through reduced productivity, potential for damage to vessels, and even loss of life in serious instances. The local economy may suffer losses in demand for local real estate and marketed goods, in turn affecting local tax revenue as well. Additionally, U.S. Coast Guard may respond to more rescues and strandings in the area, creating additional costs.

5.14.2 Environmental Consequences of Alternative B on Socioeconomics and Environmental Justice

Under Alternative B, the FRNP would continue to have a favorable economic impact on the area. Recreational and commercial opportunities would continue to be available in the area and continue to provide opportunity to expand the industrial and commercial base that currently exists. This will directly and indirectly have a beneficial effect on the local, state, and national economy. Indirect benefits may continue to accrue in the area through maintained or increased

business activity, employment, property values, and tax revenues. Other continued benefits for the commercial fishing and tourism industry would also be expected to occur.

Actions outlined under Alternative B would not have a disproportionate effect on low-income and minority populations, would not have adverse effects to the environmental health and safety for children, or affect disadvantaged communities.

5.14.3 Environmental Consequences of Alternative C on Socioeconomics and Environmental Justice

The environmental consequences of Alternative C on socioeconomics and environmental justice would be like those under Alternative B. However, greater benefits like those described under Alternative B are expected from this alternative as regional sediment management would be more favorable for the entirety of Folly Beach.

Actions outlined under Alternative C would not have a disproportionate effect on low-income and minority populations, would not have adverse effects to the environmental health and safety for children, or affect disadvantaged communities.

5.15 COASTAL ZONE RESOURCES

5.15.1 Environmental Consequences of Alternative A on Coastal Zone Resources

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. Therefore, no direct or indirect project-related impacts on coastal zone resources would result. Placement areas will not receive additional material, nor will beaches receive additional protection from erosion.

5.15.2 Environmental Consequences of Alternatives B & C on Coastal Zone Resources

Alternatives B & C have been evaluated by USACE and the associated actions have been determined to be consistent with the SCCZMP.

Consultation with the SCDES Bureau of Coastal Management (BCM) (formerly known as the Office of Ocean and Coastal Resource Management or OCRM) concluded with issuance of conditional concurrence in a letter dated March 1, 2024. USACE will adhere to all conditions included.

5.16 COASTAL BARRIER RESOURCES SYSTEM

5.16.1 Environmental Consequences of Alternative A on Coastal Barrier Resources System

Under Alternative A, maintenance dredging would no longer occur by USACE on this project. No significant direct or indirect project-related impacts on the Bird Key Complex would result. Placement areas will not receive additional material, nor will beaches receive additional protection from erosion.

5.16.2 Environmental Consequences of Alternatives B & C on Coastal Barrier Resources System

O&M dredging of the FRNP entrance channel with modified hopper dredge equipment and subsequent nearshore placement along Folly Beach is scheduled to occur in early 2024. To support this, USACE has completed CBRA consultation with USFWS particularly for this proposed action. Exception 16 U.S.C. 3505(a)(2) for the maintenance or construction of improvements of existing federal channels applies to this project. On February 21, 2023, USFWS concurred that the project meets this exception (Appendix E).

Dredging of the Folly River channel is not scheduled to occur for 3-5 years thereafter; therefore, USACE is deferring CBRA consultation with USFWS regarding O&M dredging of the Folly River channel until approximately 6 months before dredging occurs. However, it is expected that Exception 16 U.S.C. 3505(a)(2) will still apply.

6 CUMULATIVE EFFECTS

Cumulative impacts are defined by 40 CFR 1508.1(g)(3) NEPA regulations as follows:

Cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period.

6.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

O&M of the FRNP has occurred periodically since the project was completed in 1979. Other projects with project areas overlapping the FRNP are briefly described below. These other projects generally have similar objectives, being to renourish and stabilize Folly Beach and/or Bird Key Stono to mitigate impacts of erosion and storm events.

Folly Beach Coastal Storm Risk Management Project

In 1993, USACE placed an initial 738,500 yd³ of dredged material in a protective berm and 1,742,700 yd³ of dredged material for advanced nourishment plus overfill. Sand for this initial construction was removed from the lower Folly River channel.

Subsequent renourishments occurred in 2005, 2014, and 2018 and a partial emergency renourishment occurred in 2007. Also included in the authorized project was groin rehabilitation. USACE rehabilitated nine deteriorated groins, made of wood or large rocks, which were initially constructed by the South Carolina Department of Transportation. USACE has completed rehabilitation of these groins; therefore, per the 1992 *Local Cooperation Folly Beach, Charleston County, SC, Final General Reevaluation Report and Environmental Assessment Agreement*, the City of Folly Beach is now the owner and responsible entity for operating, maintaining, repairing, and rehabilitating these groins.

In 2021, an Integrated Feasibility Report and Environmental Assessment was completed for storm damage repairs to Folly Beach (USACE 2021a). As part of the Recommended Plan identified in the feasibility study, sediment borrow areas were identified for suitability for Folly Beach sediments. One of the locations identified as a suitable borrow area was the Folly River, and the others were offshore borrow areas. To mitigate damages from storm events, sediments may be removed from the Folly River and offshore borrow area and used to repair and renourish Folly Beach. In addition, under the Recommended Plan, the length of the Folly Beach project template is proposed for an increase from 28,890 linear feet to 30,869 linear feet including the Lighthouse Inlet Heritage Preserve and will require greater sand resources than are necessary currently or in past cycles to conduct future renourishments.

Under the Recommended Plan, initial construction was expected to occur in 2024 and renourishment would occur in 12-year cycles for a 50-year period. The estimated volume necessary for initial construction was estimated to be 2.6 million yd³, followed by 2.2 million yd³, 2.4 million yd³, and 2.8 million yd³ during periodic nourishments, totaling 10.1 million yd³ over the lifetime of the project. Among the Folly River and offshore borrow areas, an estimated 20.3 million yd³ of sand is available for the project.

In early 2024, in response to erosion damage from Hurricanes Ian and Nicole, USACE began construction of an emergency beach renourishment along the Folly Beach project template which was nourished last in 2018 (USACE 2023). Similar to the 2018 project, the emergency renourishment utilized sand resources available in the Folly River. The emergency nourishment has restored the beach to full template and has indefinitely prolonged implementation of changes proposed in the 2021 feasibility study beyond 2024.

Both this project and the Folly Beach Coastal Storm Risk Management project have similar objectives and create similar results. For instance, both result in improved navigability of the Folly River channel and both seek to ameliorate the impacts of erosion on Folly Beach and Bird Key Stono. Thus, both projects also have similar direct and indirect impacts to the area and cumulative effects include the impacts from the frequency and intensity of dredging and placing of materials. However, these projects do not operate entirely independent of one another since when the CSRM project draws sand from the same source in the Folly River, the need to carry out maintenance dredging under this project is not realized to the same degree. Likewise, when materials from O&M dredging under this project are placed nearshore or on the beach at erosion hotspots, coastal storm risks are further reduced and the need for renourishment should be more drawn out. Under the Proposed Action Alternative, with the addition of nearshore placement and placement along the extent of Folly Beach, it is anticipated that the need for renourishment and repairs after future storm events will be reduced and thus create a greater degree of overlap in the purpose and need of both projects and reduce the cumulative effects on the environment in the Folly River and Folly Beach.

Charleston Harbor

The Charleston Harbor navigation project is located approximately 7.5 miles north of Folly Beach. The Charleston Harbor project is a deep-draft navigation project that was originally authorized in 1878. It has been deepened and expanded many times since its original authorization and has recently undergone an additional deepening project. Dredging of this

project occurs on an annual basis in different parts of the approximately 38.5-mile-long navigation channel. Dredged material is placed either in the ocean dredged material disposal site or in various upland, confined dredged material placement areas.

Charleston Harbor Jetties

In 1987, the USACE report, *Evaluation of the Impacts of Charleston Harbor Jetties on Folly Island, South Carolina*, addressed the issue of shoreline damage attributable to the federal navigation project. The study found that littoral sediment transportation to Folly Beach from the north is hindered by the Charleston Harbor jetties, causing a decreased sediment supply to Folly Island and to offshore areas.

6.2 RESOURCE AREAS EVALUATED FOR CUMULATIVE EFFECTS

Implementation of Alternative C (Proposed Action Alternative) would have no effects or insignificant cumulative effects on aquatic resources / wetlands, EFH, terrestrial biological resources, cultural resources, aesthetics, air quality, invasive species, floodplains, geological resources, noise, hazardous waste, socioeconomics & environmental justice, climate change, recreational resources, threatened and endangered species, water quality, coastal zone resources and coastal barrier resources systems. As such, these resources were not carried forward into the cumulative effects analysis. Implementation of Alternative C will have minor impacts to the resources further discussed below.

7 COMPLIANCE WITH ENVIRONMENTAL LAWS, STATUTES AND EXECUTIVE ORDERS

7.1 CLEAN AIR ACT OF 1972

The CAA sets goals and standards for the quality and purity of air. It requires the EPA to set NAAQS for pollutants considered harmful to public health and the environment. Charleston County is designated as in attainment for all principal pollutants. The short-term effects to air quality from operation of project equipment would not result in permanent adverse effects to air quality in Charleston County. Air quality permits would not be required for this project.

7.2 CLEAN WATER ACT OF 1972 – SECTION 401 AND SECTION 404

The CWA sets and maintains goals and standards for water quality and purity. A 401 WQC was issued for the FRNP on January 24, 1984, which was determined to be still in effect for the 1997 EA by SCDES. That WQC covered placement of sediments on Folly Beach County Park, Bird Key Stono and within the entrance channel. On July 18, 2023, USACE requested a new WQC for all actions associated with the FRNP. Per an email dated September 10, 2024, SCDES determined that the proposed action falls under the category of projects for which the 401 WQC is waived in accordance with a notice published in the South Carolina State Register on October 22, 2010 (see Appendix D). A 404(b)(1) Analysis of the project is included in Appendix D.

7.3 COASTAL BARRIER RESOURCES ACT OF 1982

The CBRA provides for a Coastal Barrier Resources System (CBRS) of undeveloped coastal barriers along the Atlantic and Gulf Coasts, including islands, spits, tombolos, and bay barriers that are subject to wind, waves, and tides such as estuaries and nearshore waters. Resources in the system are to be protected by restricting Federal expenditures that have the effect of encouraging development of coastal barriers. Within the FRNP project area, Bird Key Stono Unit M-07/M-07P, is considered a CBRS.

The CBRA details exceptions for the maintenance or construction of improvements of existing Federal navigation channels and related structures (such as jetties), including the disposal of dredge materials related to maintenance or construction. O&M of the existing FRNP and disposal of beach quality sand on placement areas are considered as one of these exceptions (16 U.S.C. 3505(a)(2)). USACE is required to coordinate with USFWS at the beginning of each dredge cycle for quantities and locations of sediment placements. For initial construction, on January 20, 2023, USACE requested USFWS concurrence that exception 3505(a)(2) applied to the proposed action. On February 21, 2023, USFWS responded with their concurrence (See Appendix E).

7.4 COASTAL ZONE MANAGEMENT ACT OF 1972

The CZMA requires that

“...each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs.”

Per the Coastal Tidelands and Wetlands Act (S.C. Code Ann.) USACE has determined the project is consistent with the SCCZMP. Consultation with the SCDES BCM concluded with issuance of conditional concurrence in a letter dated March 1, 2024. USACE will adhere to all conditions included (see Appendix F).

7.5 ENDANGERED SPECIES ACT OF 1973

The ESA is designed to protect and recover threatened and endangered species of fish, wildlife, and plants. Suitable habitat is present within the project area for the following federally listed species: West Indian manatee, Eastern black rail, piping plover, *rufa* red knot, wood stork, green sea turtle, leatherback sea turtle, loggerhead sea turtle, Kemp’s ridley sea turtle, Atlantic sturgeon, North Atlantic right whale, and shortnose sturgeon. Additionally, designated critical habitat or proposed critical habitat has been identified in the project area for *rufa* red knot, piping plover, loggerhead sea turtle and North Atlantic right whale.

O&M dredging of the FRNP entrance channel with modified hopper dredge equipment and subsequent nearshore placement along Folly Beach is scheduled to occur in early 2024. To support this, USACE initiated informal consultation with USFWS on April 28, 2023 (see Appendix B). By letter dated June 26, 2023, USFWS replied and concurred with USACE

determinations “made for potential effects to federally listed species from dredging and re-aligning the entrance channel for the Folly River Navigation Project.”

As noted in the USACE’s April 28, 2023 consultation letter, although the proposed action also includes dredging of the Folly River channel, this dredging is not scheduled to occur for approximately 3-5 years. In this regard, the USACE’s April 28, 2023 consultation letter further states that, “USACE is deferring formal consultation with U.S. Fish and Wildlife Service (USFWS) regarding operations and management (O&M) dredging of the Folly River channel until approximately 6 months before dredging occurs.” Notably, the USFWS’s concurrence via letter dated June 26, 2023 expressed no concerns with this approach.

Impacts to species and their critical habitats under NMFS jurisdiction have been previously analyzed in the South Atlantic Regional Biological Opinion (NMFS 2020). USACE will adhere to all applicable project design criteria (PDC); therefore, no further consultation with NMFS under the ESA is required.

7.6 ENVIRONMENTAL JUSTICE (EO 12898)

In accordance with EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Federal agencies must assess whether disproportionately high and adverse effects would be imposed on minority or low-income areas by Federal actions. In addition, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires Federal agencies to assess the environmental health and safety risk of their actions on children. Section 112(b)(1) of the WRDA 2020 (PL 166-260) requires the formulation of water resource projects to comply with “*any existing Executive Order regarding environmental justice.*” Moreover, EO 14008, Tackling the Climate Crisis at Home and Abroad, Section 219 directs federal agencies to “*[develop] programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities*”.

As noted above, total minority populations (i.e., all non-white and Hispanic or Latino racial groups) combined comprise approximately 6 percent of the population in the project area. Furthermore, children (under age 18) and impoverished (below poverty line for at least 12 months) comprise a small percentage of the affected communities. No significant impacts are anticipated.

7.7 FISH AND WILDLIFE COORDINATION ACT OF 1934

The Fish and Wildlife Coordination Act (FWCA) provides authority for USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features and requires that Federal agencies consult with USFWS, NMFS, and state resource agencies on the proposed project. This coordination occurred concurrently with the 30-day public review of the draft EA from March 13, 2023.

7.8 FLOODPLAIN MANAGEMENT (EO 11988)

To comply with EO 11988, the policy of USACE is to formulate projects that, to the extent possible, avoid or minimize adverse effects associated with the use of the floodplain and avoid inducing development in the floodplain unless there is no practicable alternative. Projects that involve beneficial use of dredged material are inherently located within the floodplain. USACE intends to prioritize beneficial use of dredged material wherever and whenever possible. Beach placement helps alleviate problems associated with erosion, including the enhancement of habitat within the floodplain. For the reasons stated above, the project is in compliance with EO 11988, Floodplain Management.

7.9 PROTECTION OF WETLANDS (EO 11990)

This EO requires, among other things, that Federal agencies avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. No wetlands would be destroyed or modified by the proposed project. This project follows the goals of this EO.

7.10 MIGRATORY BIRD TREATY ACT AND EO 13186

The Migratory Bird Treaty Act (MBTA) of 1918 is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possessing, transporting, and importing of migratory birds, their eggs, parts, and nests. EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*) directs Federal agencies to take certain actions to further implement the MBTA, including evaluating the effects of actions on migratory birds. Measures will be taken to minimize and avoid impacts to migratory birds, such as timing of activities. Migratory birds may benefit from the beneficial placement of material which may enhance and protect marine bird and shorebird habitat.

7.11 NATIONAL WILD AND SCENIC RIVERS

The National Wild and Scenic Rivers System was created by Congress in 1968 (PL 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. Actions herein would not affect a stream or portion of a stream that is included in the National Wild and Scenic Rivers system.

7.12 NATIONAL HISTORIC PRESERVATION ACT OF 1966

Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. In accordance with 36 CFR §800.4(d)(1), USACE conducted surveys and consultation with the SHPO, SCIAA, and consulting tribes. Concurrence was provided for a no adverse effect determination for one

historic site, which requires a 150-foot buffer and avoidance zone for sediment placement (see Appendix C).

7.13 PUBLIC INVOLVEMENT AND COORDINATION

The CEQ regulations require that Federal agencies “(a) make diligent efforts to involve the public in preparing and implementing their NEPA procedures and (b) provide public notice of NEPA-related hearings, public meetings, and the availability of environmental documents so as to inform those persons and agencies who may be interested or affected” (40 CFR 1506.6(a) and (b)). As such, a draft of this document was shared with Federal, state, tribal, and local government entities having jurisdictional responsibilities, or otherwise having an interest in the project, as well as members of the public. All comments received during the comment period are included in Appendix G.

8 LIST OF AGENCIES AND PERSONS CONSULTED

8.1 TRIBES

Consultation was initiated with 13 Tribes on September 19, 2022:

Absentee-Shawnee Tribe of Oklahoma,
Alabama-Quassarte Tribal Town,
Catawba Indian Nation,
Chickasaw Nation,
Delaware Tribe of Indians,
Eastern Band of Cherokee Indians,
Eastern Shawnee Tribe of Oklahoma,
Kialegee Tribal Town,
Muscogee (Creek) Nation,
Poarch Band of Creek Indians,
Seminole Tribe of Florida,
Shawnee Tribe, and
Thlopthlocco Tribal Town.

Two tribal responses were received directly in response to this undertaking, and one response received indirectly related to the undertaking. The Catawba Indian Nation responded in a letter dated October 18, 2022, stating that there were no immediate concerns with regard to traditional cultural properties, sacred sites, or archaeological sites within the APE (22-1-73). The Eastern Shawnee Tribe of Oklahoma responded in a letter dated October 26, 2022, stating that the project proposes no adverse effect or endangerment to sites of interest to their tribe (EST Reference Number: 4620). Both tribes requested to be consulted in the event of inadvertent discoveries or project scope changes. The Delaware Tribe of Indians provided a response to a similar undertaking, stating that South Carolina is no longer within their Area of Interest, so they were removed from future consultation related to this undertaking.

The survey results were provided to the tribes in a letter dated February 15, 2023, and the draft report was provided to tribes for their review in a letter dated August 16, 2023. The Catawba Indian Nation provided two letters dated March 31, 2023, and September 19, 2023, to provide

their concurrence with the no adverse effect determination (THPO #2023-1-23). The Eastern Shawnee Tribe of Oklahoma responded in a letter dated October 10, 2023, to provide concurrence with the no adverse effect determination (EST Reference Number 4620).

No tribes requested to be consulting parties to the programmatic agreement associated with the Folly Beach Coastal Storm Risk Management Project, which is a separate action that has an overlapping project area.

8.2 FEDERAL AGENCIES

U.S. Environmental Protection Agency (EPA Region 4)

The EPA was a recipient of the draft EA and FONSI delivered on March 13, 2023. On April 13, 2023, EPA responded in a letter and stated that no significant environmental impacts from the proposed action had been identified (See Appendix G).

U.S. Fish and Wildlife Services (USFWS South Carolina Ecological Services Field Office)

USFWS was a recipient of the draft EA and FONSI delivered on March 13, 2023. No comments were received in response to the draft EA and FONSI. On January 20, 2023, a CBRA Consultation Request was delivered to USFWS via email. On February 21, 2023, USFWS responded with their concurrence that the exception claimed was merited (See Appendix E). In a letter dated April 28, 2023, USACE initiated informal ESA consultation with USFWS regarding the initial phase of the project (i.e., the entrance channel), after which USFWS replied in a letter dated June 26, 2023, acknowledging their concurrence and concluding consultation for the initial phase of the project (See Appendix B).

National Marine Fisheries Services Habitat Conservation Division

NMFS was a recipient of the draft EA and FONSI delivered on March 13, 2023. No comments were received in response to the draft EA and FONSI. On July 24, 2023, USACE delivered the Programmatic EFH Consultation Verification Form to NMFS via email. On August 15, 2023, NMFS responded with their concurrence (See Appendix A).

National Marine Fisheries Services Protected Resources Division

NMFS was a recipient of the draft EA and FONSI delivered on March 13, 2023. No comments were received in response to the draft EA and FONSI.

8.3 STATE AGENCIES

South Carolina Department of Health and Environmental Control Bureau of Air Quality

SCDES was a recipient of the draft EA and FONSI delivered on March 13, 2023. No comments were received in response to the draft EA and FONSI.

South Carolina Department of Health and Environmental Control Bureau of Water

SCDES Bureau of Water was a recipient of the draft EA and FONSI delivered on March 13, 2023. No comments were received in response to the draft EA and FONSI. In fulfillment of obligations under the CWA, a 401 WQC application was filed with the Bureau of Water on July 18, 2023 following issuance of a joint public notice dated July 17, 2023. Per an email dated September 10, 2024, SCDES determined that the proposed action falls under the category of projects for which the 401 WQC is waived in accordance with a notice published in the South Carolina State Register on October 22, 2010 (see Appendix D).

South Carolina Department of Health and Environmental Control Office of Ocean and Coastal Resource Management

SCDES was a recipient of the draft EA and FONSI delivered on March 13, 2023. No comments were received in response to the draft EA and FONSI. In fulfillment of obligations under the CZMA, a Coastal Zone Consistency Determination was filed with issuance of a joint public notice dated July 17, 2023. In a letter dated March 1, 2024, SCDES BCM provided conditional concurrence with the consistency determination. USACE will conduct the proposed action in accordance with the conditions issued (see Appendix F).

South Carolina Department of Natural Resources

SCDNR was a recipient of the draft EA and FONSI delivered on March 13, 2023. In a letter dated April 5, 2023, SCDNR responded with some recommendations. Several follow-up emails between July 6, 2023, and July 21, 2023, included some detailed discussion with regards to the use of hopper dredges and time of year. SCDNR concluded that adherence to time of year recommendations outlined in the NMFS Programmatic EFH Consultation would address SCDNR concerns (See Appendix G).

South Carolina State Historic Preservation Office

Consultation with the SHPO was initiated on September 19, 2022, and survey results were provided in February 2023 and as part of the final report in August 2023. SHPO concurred on February 21, 2023, and again on September 18, 2023, with the determination of no adverse effect with the caveat that the 150-foot buffer remains in place (See Appendix C).

South Carolina Institute of Archeology and Anthropology

South Carolina Institute of Archeology and Anthropology was consulted on the results of the submerged cultural resources surveys. SCIAA concurred on February 17, 2023, and again on September 20, 2023, that they have no concerns as long as the avoidance buffer is implemented for the historic shipwreck site (See Appendix C).

8.4 LOCAL AGENCIES & STAKEHOLDERS

Audubon South Carolina
Charleston County Park Service
Coastal Conservation League

Office of Congressional Representative Nancy Mace
Office of Senator Lindsey Graham
Office of Senator Tim Scott
South Carolina Beach Advocates
South Carolina Chapters of the Sierra Club
South Carolina The Nature Conservancy
South Carolina Wildlife Federation
The City of Folly Beach

No comments were received in response to the draft EA and FONSI.

9 ENVIRONMENTAL COMMITMENTS

USACE employs standard practices when conducting dredging activities. Some of the more specific measures which would be applied to reduce the potential for adverse environmental effects during implementation of the project are as follows:

- Adherence to the appropriate PDC identified in the 2020 South Atlantic Regional Biological Opinion.
- All applicable *Standard Manatee Protection Measures* for South Carolina (USFWS 2021a) will be implemented. Prior to construction, USACE will implement new protection measures if issued in the future.
- Adherence to all applicable conservation recommendations and best management practices, to the maximum extent practicable, included in the *Programmatic Essential Fish Habitat Consultation for USACE Activities and Projects Regularly Undertaken in South Carolina*.
- Adherence to applicable conditions from federal consistency determination concurrence received from OCRM.
- Adherence to any limitations, conditions, or monitoring requirements necessary to assure maintenance of classified or existing water uses and standards and compliance with other requirements of regulations or other appropriate requirements of state law identified with issuance of CWA 401 WQC from SCDES Bureau of Water.
- To the maximum extent practicable, USACE will prioritize BU of dredged sediment at Bird Key Stono during O&M cycles within the Folly River channel, unless SCDNR and USFWS determine materials are not needed at that time.
- A 150-foot avoidance buffer will need to be implemented for sediment placement near the historic shipwreck site.

10 LIST OF PREPARERS

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**Appendix A Magnuson Stevens Fishery Conservation and Management
Act Compliance Record**

Programmatic Essential Fish Habitat Consultation for United States Army Corps of Engineers Activities and Projects Regularly Undertaken in South Carolina - Verification Form

This form will be filled out by the United States Army Corps of Engineers, Charleston District (Charleston District) for activities and projects regularly undertaken in the tidally-influenced waters of South Carolina using the Programmatic Essential Fish Habitat (EFH) Consultation with NOAA's National Marine Fisheries Service, Southeast Regional Office, Habitat Conservation Division (SERO HCD). Upon obtaining sufficient information, the Charleston District will submit the form to SERO HCD for their review and response. After receiving a response from SERO HCD, the Charleston District will keep the completed form(s) for reporting purposes.

In addition to the information required below, the Charleston District must also provide a list of all recommended management practices that will not be adhered to (with justification provided). This list may use the same numbers as the recommended management practices listed in Section 5.

PART I.

Project Activity Type

- ☒ 1. Dredging
- ☒ 2. Placement of Dredged Material
- ☒ 3. Transportation of Dredged Material
- ☒ 4. Beneficial Use - Beach and Nearshore Placement

USACE Charleston District Project Information

Waterway Name:	Folly River Navigation Project (FRNP)	
Latitude (e.g., 42.6258):	32.6418314°N	
Longitude (e.g., -70.6461):	79.9771819°W	
Work Description:	Maintenance dredging may occur within the Folly River navigation channel (3-yr intervals) and Stono entrance channel re-alignment area (2-yr intervals). Maintenance of each reach may involve up to 300,000 yd3 of material excavation and may occur by way of varied dredge types including modified hopper, sidecast and cutterhead. Materials may be sidecast into the entrance channel, placed nearshore along Folly Beach or placed on the beach on Folly Beach and/or Bird Key Stono. Currently, only dredging of the entrance channel is anticipated in March 2024 and is expected to take one-two months. Dredging of the river is not expected to occur for 3-5 years from then. Dredging of the entrance channel is scheduled to occur by modified hopper dredge and to be placed nearshore along the northern half of Folly Beach.	
Total area of impact to EFH (in acres), broken down by individual types of EFH:	<small>Estuarine Emergent Wetlands: <1 acres; Intertidal Non-vegetated Flats and Marshes <1 acres; Estuarine Water Column: up to ~20 acres; Soft Bottom/Subtidal (Non-vegetated Flats): up to ~40 acres; Estuarine Scrub/Shrub: <1 acres; Tidal Creeks: <1 acres; Marine Water column: up to ~40 acres; Offshore Marine Habitats: Spawning Grounds: <1 acres; HAPC (including Spiny Lobster, Snapper/Grouper Complex and Coastal Migratory Pelagics): up to ~40 acres</small>	
Programmatic EFH Consultation Appendix A Project Reference Number:	4	

Part II.

USACE's Determination of Effects to Essential Fish Habitat

The Charleston District will select the appropriate determination:

- ☐ The activity complies with all elements of the Programmatic EFH Consultation, including all Programmatic EFH Consultation recommended best management practices, and adverse effects to EFH will not be substantial.
- ☒ The activity does not comply with all of the elements of the Programmatic EFH Consultation, including some Programmatic EFH Consultation recommended best management practices. However, the justification below demonstrates that the adverse effects to EFH are not substantial. This does not apply to Programmatic EFH Consultation recommended best management practices that are not applicable to the project.

Justification for Not Incorporating All EFH conservation measures

If the project does not comply with all of the applicable Programmatic EFH Conservation measures and the Charleston District has still determined that the effects of a project on EFH are not substantial and the project is otherwise consistent with the Programmatic EFH Consultation, provide justification below and identify which conservation measures, provided in the Programmatic EFH Consultation as BMPs, are not included:

See attached document.

USACE, Charleston District preparer:

Niko Brown

Name

07/24/2023

Date

BROWN,NIKO.ROBERT.1617426810
0
Digitally signed by
BROWN,NIKO.ROBERT.1617426810
Date: 2023.07.24 14:55:20 -0400

Signature

Part III.

SERO HCD Determination (To be filled out by NMFS SERO HCD)

After receiving the Verification Form, SERO HCD will contact the Charleston District with any concerns.

- ☐ SERO HCD concurs with the Charleston District's determination that the proposed project is consistent with the Programmatic EFH Consultation (without the need for justification).
- ☒ SERO HCD concurs with the Charleston District's determination that the proposed project is consistent with the Programmatic EFH Consultation, with justification described above.
- ☐ SERO HCD does not concur with the Charleston District's determination that the project is consistent with the Programmatic EFH Consultation. The Charleston District must conduct additional coordination with SERO HCD and a separate individual EFH consultation may be required.

SERO HCD reviewer:

Pace Wilber

Name

15 August 2023

Date

**WILBER.THOMAS.P
AYSON.1365820186**

Digitally signed by WILBER.THOMAS.PAYSON.1365820186
Date: 2023.08.15 08:07:15 -0400

Signature

5.2. Dredging

5.2.1. Potential Adverse Impacts

The environmental effects of dredging in or adjacent to designated EFH areas can include: (1) direct removal and burial of organisms; (2) turbidity and siltation effects, including light attenuation; (3) contaminant release and uptake including nutrients, metals, and organics; (4) suspended sediments; (5) sedimentation; (6) alteration to hydrodynamic regimes and physical habitat; and (7) habitat degradation and/or conversion.




5.2.2. Recommended Best Management Practices

1. Avoid new dredging to the maximum extent practicable.
2. If minor new work is deemed necessary as part of navigation activities, then dredging area and volume should be reduced to the maximum extent practicable that will still accomplish the stated project purpose; areas that are within the project area, but are deeper than the target dredge depth should be avoided.
3. Incorporate adequate control measures to minimize turbidity plumes. Hydraulic dredging techniques should be the preferred method in areas with fine sediments to reduce turbidity plumes.
4. Equipment to avoid and minimize impacts to species should be used during dredging activities. These include, but are not limited to, sea turtle deflector dragheads and floating pipelines. Inflow screening baskets should be installed to monitor the intake and overflow of the dredge.
5. Avoid placing dredging pipelines and accessory equipment close to oyster aggregations, estuarine/salt marshes, and other high value habitat areas.
6. Implement time-of-year recommendation (i.e., environmental windows), as practicable, to further avoid impacts to habitat during species critical life history stages. Perform dredging during the time frame when impacts due to entrainment of federally managed species or their prey are least likely to be entrained, as practicable. Dredging should be avoided in areas with oyster aggregations.
7. For maintenance dredging, sources of erosion in tidally influenced areas should be identified that may be contributing to excessive siltation and sedimentation and the need for maintenance dredging. Techniques or programs should be implemented that reduce erosion and sedimentation.

For unavoidable adverse impacts to EFH, the Charleston District will consider measures to minimize, mitigate, or offset such effects of the activity on EFH, as appropriate.

Summary of Comments on FRNP March 2024 Appendix Verification Form Additional Comments on BMPs.pdf

Page: 1

-  Number: 1 Author: k2pmenrb Subject: Highlight Date: 7/24/2023 1:34:03 PM -04'00'
The Currituck and Murden modified hopper dredges, to my knowledge, do not have sea turtle deflectors, screening, or PSOs. This is acknowledged by NMFS in a 1999 consultation letter with USACE.
-  Number: 2 Author: k2pmenrb Subject: Highlight Date: 7/24/2023 1:36:09 PM -04'00'
The placement of pipelines through estuarine/salt marsh habitat in previous iterations has occurred and may occur in the planned iteration. Absent significant effects from previous iterations, significant effects would not be anticipated this time either.
-  Number: 3 Author: k2pmenrb Subject: Highlight Date: 8/10/2023 7:48:29 AM -04'00'
Anticipated dredging in the entrance channel is anticipated for March 2024 and to be completed within 1-2 months. This scheduling is due to equipment availability restrictions.

5.3. Placement of Dredged Material

5.3.1. Potential Adverse Impacts

The placement of dredged material can adversely affect EFH by: (1) impacting or destroying benthic communities; (2) habitat removal and degradation; (3) creating turbidity plumes; (4) introducing contaminants and/or nutrients; and (5) burial of organisms.

5.3.2. Recommended Best Management Practices

1. All available options for placement of dredged materials, including placement sites and methods used should be thoroughly investigated. Placement areas should be properly sited, managed, and monitored to avoid adverse impacts associated with dredge material placement.
2. Placement of dredge material in EFH should meet or exceed applicable state and/or federal water quality standards for such placement.
3. Direct and indirect impacts of open-water disposal of dredged material on EFH should be assessed during navigation project reviews. If necessary (e.g., the project occurs outside TOY recommendation), physical and biological monitoring programs to gauge whether actual results of open-water placement are within the predicted ranges should be conducted.
4. The areal extent of any placement site in EFH should be avoided or, if identified as a beneficial use, minimized.
5. Dredge placement sites should be appropriately considered, using the volumes of proposed dredged material prior to dredging so placement sites will adequately contain dredge material.
6. Beneficial uses of uncontaminated sediments should be considered whenever practicable; materials that contribute to habitat restoration and enhancement should be prioritized.
7. When practicable, placement of dredge material should be avoided outside the TOY recommendations (Section 5.1) when direct burial or sedimentation to EFH, federally managed species or their prey are most likely to be impacted.
8. Placement of material into undiked tracts, regardless if Geotubes or similar structures are used, should include Best Management Practices to minimize the likelihood of impacts occurring outside placement areas from the dredged material and from any dike construction.
9. Pipelines between the dredges and placement sites should pass through the least amount of EFH, as practicable, and avoid oyster beds.


For unavoidable adverse impacts to EFH, the Charleston District will consider measures to minimize, mitigate or offset such effects of the activity on EFH, as appropriate.

5.4. Dredging Vessel Operations and Transportation of Dredged Material

5.4.1. Potential Adverse Impacts

The routine operation and maintenance of navigable waterways introduces dredging vessels more frequently to the surrounding environment. The use of large dredge vessels increases the likelihood of encounters with the surrounding habitat and organisms, including dredging vessel groundings, modification of water circulation (breakwaters, channels, and fill), dredging vessel wake generation, pier lighting, anchor and prop scouring, and the discharge of contaminants and

Page: 2

 Number: 1 Author: k2pmenrb Subject: Highlight Date: 7/24/2023 1:45:03 PM -04'00'
Effect of equipment availability mentioned above.

debris. Direct impacts include permanent or temporary loss of productive forage habitat resulting from minor channel realignment and maintenance dredging, turbidity-related impacts due to both dredging and placement of dredged material, and reduced water quality from resuspension of contaminated sediments. Dredging vessel discharges, engine operations, bottom paint sloughing, boat wash-downs, painting and other vessel maintenance activities can deliver debris, nutrients, and contaminants to waterways and may degrade water quality and contaminate sediments if gone unnoticed.

5.4.2. Recommended Best Management Practices

1. For unavoidable adverse impacts to EFH, compensatory mitigation may be required to replace the loss of wetland, stream, and/or other aquatic resource functions and area.
2. Include low-wake vessel technology, appropriate routes, and best management practices for wave attenuation structures as part of the design process. Dredging vessels should be operated at sufficiently low speeds to reduce wake energy, and no-wake zones should be designated near sensitive habitats.
3. The discharge of contaminated bilge water and sewage is illegal and strictly prohibited.
4. Prevent oil contamination of bilge water. Do not drain oil into the bilge. Use containment troughs underneath the engine to capture any drips or spills and oil absorbent pads, socks or pillows to soak up oil and fuel. Keep the bilge area of the dredging vessel as clean and dry as possible fixing all fuel and oil leaks as they occur. Inspect fuel lines and hoses for chaffing, wear, and general deterioration and secure and prevent hoses from chaffing. Clean bilge areas after engine maintenance.

5.5. Beneficial Use - Beach and Nearshore Placement

This section lists BMPs focusing on avoidance and minimization strategies to avoid adverse impacts to EFH most applicable to federal navigation project beach and nearshore placement activities and does not include BMPs that would be applicable only to new beach nourishment projects.

5.5.1. Potential Adverse Impacts

The implementation of restoration/enhancement activities may have localized and temporary adverse impacts on EFH. Possible impacts can include: (1) localized nonpoint source pollution such as influx of sediment or nutrients; (2) interference with spawning and migration periods; (3) temporary or permanent removal of feeding opportunities; and (4) animal burial or smothering.

5.5.2. Recommended Best Management Practices

1. Use material consisting solely of natural sediment and shell material, containing no construction debris, toxic material or other foreign matter.
2. Use material similar in color and grain size distribution (sand grain frequency, mean and median grain size and sorting coefficient) to the native material in the project area. Ideally, sediment used for beach placement should be indistinguishable from native site sediment in terms of color, shape, size, mineralogy, compaction, organic content, and sorting. Sediment for nearshore placement should also be of similar color, shape, size, mineralogy, compaction, organic content, and sorting to any nearby beach sites.
3. Beach placement projects should use fill material with a composite grain size distribution similar to that of the native beach material. Ideally, the median size of the dredged sediment should not be less than the median of the native material and the spread of sizes in the dredge distribution should not exceed that of the native sediment.
4. Avoid beach and nearshore placement in areas containing sensitive marine benthic habitats adjacent to the beach (e.g., spawning and feeding sites, hard bottom, and cobble/gravel substrate).
5. When practicable, conduct beach and nearshore placement following the TOY recommendations (Section 5.1), when productivity for benthic infauna is at a minimum; this may minimize the impacts for some beach sites.
6. Slope of the beach after placement of dredged material should mimic the natural beach profile.
7. The overall volume of fill material to be added to the beach in any fill episode should not exceed 50 percent of the estimated annual net sediment transport for the beach in order to minimize the magnitude of the disturbance to the ecosystem and to prevent large-scale alterations of the local coastal processes.
8. If heavy equipment is used on the beach for placement activities, it should not leave ruts. Storage of heavy equipment and pipe on the beach should be avoided to the extent possible, using staging areas off of the beach wherever available.
9. When practicable, placement episodes should only be conducted after the ecosystem has fully recovered for a duration of at least one year, preferably two or three, in order to avoid permanent perturbations to the system; and disturbances should be episodic and their ecological impacts should not overlap between placement episodes (i.e., a placement episode should not take place before the impacts from the previous fill event have completely abated).
10. A during-construction monitoring plan as deemed necessary for a specific project, designed with appropriate methodology to adequately detect and document both direct and indirect project impacts. Monitoring plans, if deemed necessary, should follow the Before-After-Control-Impact (BACI) sampling framework.
11. A post-construction monitoring plan as deemed necessary for biological, physical and water resources designed with appropriate methodology to adequately detect and document both direct and indirect project impacts. Monitoring plans, if deemed necessary, should follow the BACI sampling framework.

Page: 4

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Appendix B USFWS ESA Section 7 Compliance Record



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, CHARLESTON DISTRICT
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

April 28, 2023

Thomas McCoy
Ecological Services, South Carolina Field Office
U.S. Fish and Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, SC 29407

Dear Mr. Thomas (Tom) McCoy:

In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531), and 50 CFR 402.13 (informal consultation), the U.S. Army Corps of Engineers, Charleston District (USACE) seeks concurrence regarding determinations made for potential effects to federally designated threatened and endangered species as a result of maintenance dredging of the Folly River Navigation Project (FRNP) entrance channel. USACE made determinations of *may affect, not likely to adversely affect* for the following species: piping plover (*Charadrius melodus*), *rufa* red knot (*Calidris canutus rufa*), West Indian manatee (*Trichechus manatus*), leatherback sea turtle (*Dermochelys coriacea*) and loggerhead sea turtle (*Caretta caretta*). A *may affect, not likely to adversely modify* determination was also made for federally designated or proposed critical habitat for *rufa* red knot and loggerhead sea turtle. USACE has also determined that further consideration under the Marine Mammals Protection Act of 1972 (16 USC 1371, et seq) is not required.

Description of Federal Action

The FRNP was originally authorized under Section 107 of the River and Harbor Act of 1960, as amended, which provides for the development of small navigation projects not specifically authorized by Congress. The authorized project includes a 9-foot deep by 80-foot wide channel in Folly River and Folly Creek and a 100-foot wide by 11-foot deep entrance channel that extends through the ocean bar at Stono Inlet. Initial construction of the project was completed in 1979. Maintenance dredging of the project has occurred on a regular basis since 1979.

USACE is currently evaluating alternative actions to accomplish maintaining navigation on the FRNP in an Environmental Assessment. The proposed action includes use of a modified hopper dredge to excavate up to 300,000 cubic yards (cy) of material from the entrance channel realignment area, and transport and placement of dredged material nearshore along Folly Beach (Figure 1). The proposed action also includes dredging of the Folly River channel, which is not projected to occur for approximately 3-5 years; therefore, USACE is deferring formal consultation with U.S. Fish and Wildlife Service (USFWS) regarding operations and management (O&M) dredging of the Folly River channel until approximately 6 months before dredging occurs.

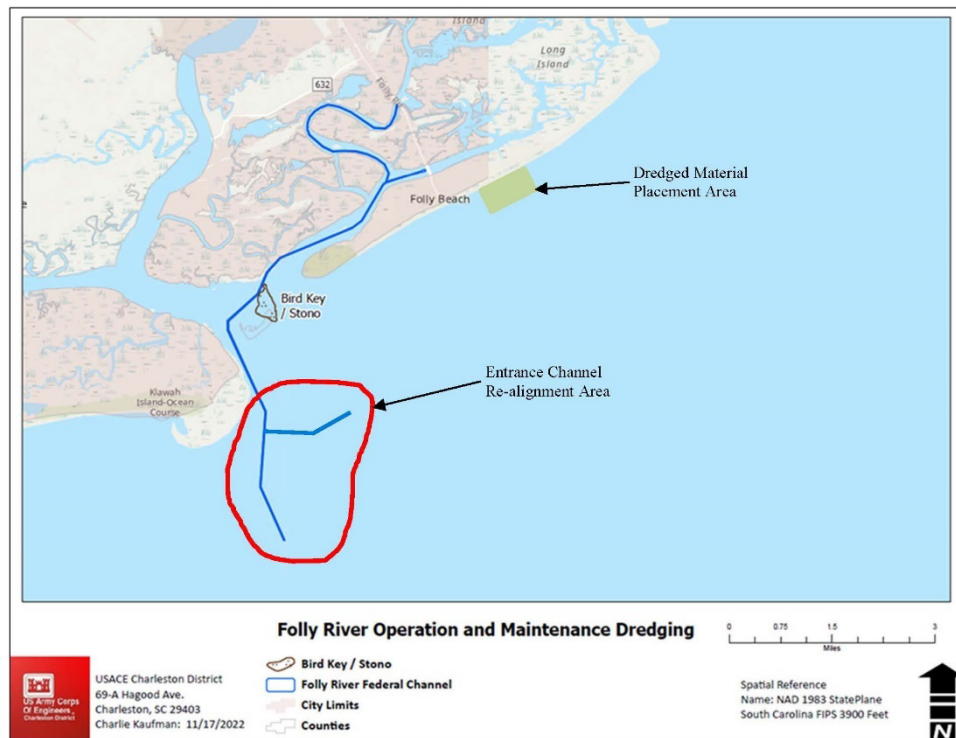


Figure 1 Project overview of initial proposed action construction area including the entrance channel re-alignment area, FRNP navigation channel, and nearshore placement area

Initial project operations (dredging of the entrance channel and nearshore placement) are projected to begin as soon as March 2024 and to be completed in approximately 45 days. The modified hopper dredge to be used has a total capacity of approximately 350 cy of dredged material which will be transported in-vessel to the outlined placement area and deposited through the hopper doors directly to the seafloor in mounded formations from about 6 ft-13 ft mean low-lower water (MLLW). Mounds are expected to be approximately 2 ft to 3 ft in height above the seafloor. Depending on operating conditions, approximately seven to ten deposits can be made per workday assuming 24-hr periodicity.

The rate at which shoaling within the entrance channel occurs will determine the length of required maintenance cycles. Maintenance of the entrance channel is expected to occur in cycles of 2 years depending on the availability of funds. The rate of shoaling may be affected by the occurrence of adverse climatic events such as hurricanes and tropical storms, or other factors such as traffic volume in the navigation channel. The area identified for placement of dredge material is large enough to allow for several dredging cycles with no significant compounding effects expected. Deposited material from each cycle is expected to be naturally displaced and form a sandy layer over a broader area, with some sand being incorporated into the nearby beach.

Species Assessment and Effect Determination

On 27 April 2023, USACE obtained a comprehensive list of threatened and endangered species occurring in the project area from USFWS. The list includes 17 species and 2 critical habitat designations (as well as one proposed critical habitat) (Table 1).

Table 1 List of federally designated threatened and endangered species under ESA present in project area as determined by USFWS

Species	Listing ¹	Species Determination ²	Critical Habitat Determination ²
Monarch Butterfly	C	NE	-
Bachman's Warbler	E	NE	-
Eastern Black Rail	T	NE	-
Piping Plover	T	MANLAA	NE
Red Knot	T	MANLAA	MANLAM
Red-cockaded Woodpecker	E	NE	-
Wood Stork	T	NE	-
American Chaffseed	E	NE	-
Canby's Dropwort	E	NE	-
Pondberry	E	NE	-
Tricolored Bat	PE	NE	-
Northern Long-eared Bat	T	NE	-
West Indian Manatee	T	MANLAA	-
Green Sea Turtle	T	NE	-
Kemp's Ridley Sea Turtle	E	NE	-
Leatherback Sea Turtle	E	MANLAA	-
Loggerhead Sea Turtle	T	MANLAA	MANLAM

¹Species are designated as either "C" if listed candidate, "T" if listed threatened, "E" if listed as endangered or "PE" if listed as proposed endangered

²Determinations are designated as either "NE" for *no effect*, "MANLAA" for *may affect, not likely to adversely affect*, or MANLAM for *may affect, not likely to adversely modify*

Upon review, USACE made determinations of *may affect, but not likely to adversely affect* for the following species: piping plover (*Charadrius melodus*), rufa red knot (*Calidris canutus rufa*), West Indian manatee (*Trichechus manatus*), leatherback sea turtle (*Dermochelys coriacea*) and loggerhead sea turtle (*Caretta caretta*). A *no effect* determination was made for all other listed species under consideration.

Piping Plover and Red Knot:

The extent of potential impact from placement of dredge material falls within federally designated or federally proposed critical habitat for these species. Cyclic placement of the estimated nearshore dredge material may potentially result in some increase in the total area of shoreline and/or tidal flats in the area through time as wave action and tidal flow displace sand mounds. This net increase in sandy sediment to shoreline habitat should improve habitat quality/quantity and have a beneficial impact to these species and critical habitat.

West Indian Manatee:

Operation of modified hopper dredge in the waters throughout the project area may adversely affect manatees that occur in the area through collision or entanglement. However, USACE will implement *Standard Manatee Construction Conditions*, as recommended by USFWS, thereby reducing any potential impact.

Leatherback/Loggerhead Sea Turtles:

The extent of potential impact from placement of dredge material falls within federally designated critical habitat for the loggerhead sea turtle. Cyclic placement of dredge material may potentially result in some increase in the total area of shoreline and/or tidal flats in the area through time as wave action and tidal flow displace sand mounds. This net increase in sandy sediment to shoreline habitat should improve habitat quality/quantity and have a beneficial impact to these species and critical habitat.

Summary

USACE has determined that the proposed Federal action on the FRNP may affect, but is not likely to adversely affect, the aforementioned species and, where applicable, their critical habitats. The proposed Federal action will have no effect on the remaining species in Table 1.

In accordance with Section 7 of the ESA, USACE requests concurrence with the above determinations. Please provide your response and/or comments within 60 calendar days of receipt of this letter.

Sincerely,


for

Nancy Parrish
Chief, Planning and Environmental Branch



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Carolina Ecological Services Field Office
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407



June 26, 2023

LTC Andrew Johannes, District Engineer
U.S. Army Corps of Engineers
69A Hagood Avenue
Charleston, South Carolina 29403

Attn: Ms. Nancy Parrish

Re: Folly River Navigation Project Entrance Channel
Charleston County, South Carolina
FWS Project Code: 2023-0036544

Dear Colonel Johannes:

The U.S. Fish and Wildlife Service (Service) has reviewed your April 28, 2023, letter requesting concurrence on determinations made for potential effects to federally listed species from dredging and re-aligning the entrance channel for the Folly River Navigation Project. These comments are submitted in accordance with provisions of section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531-1543) (ESA).

Your agency has made a determination of *may affect, but is not likely to adversely affect* for the species/critical habitat(s) listed below:

Leatherback sea turtle (*Dermochelys coriacea*)
Loggerhead sea turtle (*Caretta caretta*)/critical habitat unit LOGG-T-SC-09
Piping plover (*Charadrius melodus*)
Rufa red knot (*Calidris canutus rufa*)/critical habitat unit SC-14 (proposed)
West Indian manatee (*Trichechus manatus*)

The Service concurs with this determination and satisfies all requirements under section 7 of the ESA. Please note that obligations under section 7 of the ESA must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, which was not considered in this assessment; or (3) a new species is listed or critical habitat is determined that may be affected by the identified action. Consultation is not necessary for *no effect* determinations.

If you have any questions, please contact Ms. Melissa Chaplin at melissa_chaplin@fws.gov.

Sincerely,

STEPHEN
RICKS

Digitally signed by
STEPHEN RICKS
Date: 2023.06.26
16:50:07 -05'00'

Stephen Ricks
Area Supervisor

Appendix C NHPA Section 106 Compliance Record



September 20, 2022

Andrea Farmer
Archaeologist
Planning Branch
U.S. Army Corps of Engineers
Savannah District
Andrea.A.Farmer@usace.army.mil

Re: Folly River Federal Navigation Project, Beneficial Use of Dredged Material
Folly Beach, Charleston County, South Carolina
SHPO Project No. 22-RL0141

Dear Andrea Farmer:

Thank you for your letter of September 19th, 2022 regarding the Folly River Federal Navigation Project, Beneficial Use of Dredged Material. We also receive drawings, maps, and project information as supporting documentation for this undertaking. The State Historic Preservation Office (SHPO) is providing comments to the U.S. Army Corps of Engineers (COE), Savannah District pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes including those with state recognition, local governments, or the public.

The undertaking consists of the maintenance dredging of the Folly River Federal Navigation Channel and the Stone River Entrance Channel. The dredged material will be placed near the shore along Folly Island (Figures 1 and 2).

The Area of Potential Effect (APE) for archaeological resources is the area proposed for dredging and the area proposed for placement nearshore of Folly Island. The Corps' plans to conduct a submerged cultural resources remote sensing survey of the approximately 500 acres within the Stono Bar Channel Realignment Area that will be subject to maintenance dredging (Figure 3). The SHPO concurs with the need for a submerged cultural resources survey in this areas. Areas within the APE that are determined to be below the authorized depth and therefore not subject to dredging activities will be excluded from the surveys.

The Corps' APE for the proposed nearshore placement along Folly Island has not been previously surveyed; there is potential for undisturbed cultural deposits and underwater resources that could be impacted by the sediment placement of the dredged material (Figure 4). SC ArchSite indicates that the Morris Island Lighthouse and the Little Folly Island Site (38CH1213) are the Corps' APE. The Corps' proposes to conduct a submerged cultural resources remote sensing survey within the approximately 733 acres designated as the placement zone. The SHPO concurs with the need for a submerged cultural resources survey in this area. The survey performed here will also fulfill the PA requirements of the *Programmatic Agreement among the U.S. Army Corps of Engineers, Charleston District, the Bureau of Ocean Energy Management, the City of Folly Beach, and the South Carolina State Historic Preservation Office Regarding the Folly Beach Coastal Storm Risk Management Project*.

The SHPO also concurs with the proposed submerged archaeological survey methodologies, as outlined in paragraph five of the project correspondence letter.

The SHPO requests we are provided a copy of both of the aforementioned submerged cultural resources survey reports upon their completion, for review by our office. Once our office is provided the results of these surveys, we can provide our effect determination if any sites listed in or eligible for listing in the National Register of Historic Places will be effected.

If archaeological materials are encountered during construction, the procedures codified at 36 CFR 800.13(b) will apply. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials. The federal agency or the applicant receiving federal assistance should contact our office immediately.

Please refer to SHPO Project Number 22-RL0141 in any future correspondence regarding this project. If you have any questions, please contact me at (803) 896-6168 or RLarsen@scdah.sc.gov.

Sincerely,

Robert P. Larsen III

Robert P. Larsen III, MSc., RPA
Archaeologist
State Historic Preservation Office



EASTERN SHAWNEE
CULTURAL PRESERVATION DEPARTMENT
70500 East 128 Road, Wyandotte, OK 74370

October 10, 2023
USACE-Charleston
69-A-Hagood Avenue
Charleston, SC 29403-5107

RE: Folly River EST Reference Number 4620, Charleston County, SC

Dear Mrs. Farmer,

The Eastern Shawnee Tribe has received your letter regarding the above referenced project(s) within Charleston County, SC. The Eastern Shawnee Tribe is committed to protecting sites important to Tribal Heritage, Culture and Religion. Furthermore, the Tribe is particularly concerned with historical sites that may contain but not limited to the burial(s) of human remains and associated funerary objects.

As described in your correspondence, and upon research of our database(s) and files, we find our people occupied these areas historically and/or prehistorically. However, the project proposes **NO Adverse Effect** or endangerment to known sites of interest to the Eastern Shawnee Tribe. Please continue project as planned. However, should this project inadvertently discover an archeological site or object(s) we request that you immediately contact the Eastern Shawnee Tribe, as well as the appropriate state agencies (within 24 hours). We also ask that all ground disturbing activity stop until the Tribe and State agencies are consulted. Please note that any future changes to this project will require additional consultation.

In accordance with the NHPA of 1966 (16 U.S.C. § 470-470w-6), federally funded, licensed, or permitted undertakings that are subject to the Section 106 review process must determine effects to significant historic properties. As clarified in Section 101(d)(6)(A-B), historic properties may have religious and/or cultural significance to Indian Tribes. Section 106 of NHPA requires Federal agencies to consider the effects of their actions on all significant historic properties (36 CFR Part 800) as does the National Environmental Policy Act of 1969 (43 U.S.C. § 4321-4347 and 40 CFR § 1501.7(a)). This letter evidences NHPA and NEPA historic properties compliance pertaining to consultation with this Tribe regarding the referenced proposed projects.

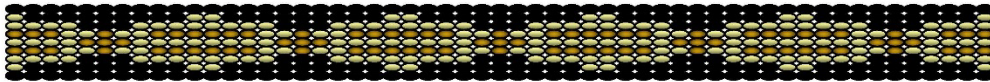
Thank you, for contacting the Eastern Shawnee Tribe, we appreciate your cooperation. Should you have any further questions or comments please contact our Office.

Sincerely,

Paul Barton, Tribal Historic Preservation Officer (THPO)
Eastern Shawnee Tribe of Oklahoma
(918) 666-5151 Ext:1833
THPO@estoo.net

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427



October 18, 2022

Attention: Andrea Farmer
Charleston District, Corps of Engineers
69 A Hagood Avenue
Charleston, SC 29403

Re. THPO #	TCNS #	Project Description
2022-1-73		Folly River Federal Navigation Project Beneficial Use of Dredged Material

Dear Ms. Farmer,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Wenonah G. Haire
Tribal Historic Preservation Officer



EASTERN SHAWNEE
CULTURAL PRESERVATION DEPARTMENT
70500 East 128 Road, Wyandotte, OK 74370

October 26, 2022
USACE-Charleston
69-A-Hagood Avenue
Charleston, SC 29403-5107

RE: Folly River Federal Navigation Project Beneficial Use of Dredged Material, Charleston County, South Carolina

Dear Mrs. Farmer,

The Eastern Shawnee Tribe has received your letter regarding the above referenced project(s) within Charleston County, South Carolina. The Eastern Shawnee Tribe is committed to protecting sites important to Tribal Heritage, Culture and Religion. Furthermore, the Tribe is particularly concerned with historical sites that may contain but not limited to the burial(s) of human remains and associated funerary objects.

As described in your correspondence, and upon research of our database(s) and files, we find our people occupied these areas historically and/or prehistorically. However, the project proposes **NO Adverse Effect** or endangerment to known sites of interest to the Eastern Shawnee Tribe. Please continue project as planned. However, should this project inadvertently discover an archeological site or object(s) we request that you immediately contact the Eastern Shawnee Tribe, as well as the appropriate state agencies (within 24 hours). We also ask that all ground disturbing activity stop until the Tribe and State agencies are consulted. Please note that any future changes to this project will require additional consultation.

In accordance with the NHPA of 1966 (16 U.S.C. § 470-470w-6), federally funded, licensed, or permitted undertakings that are subject to the Section 106 review process must determine effects to significant historic properties. As clarified in Section 101(d)(6)(A-B), historic properties may have religious and/or cultural significance to Indian Tribes. Section 106 of NHPA requires Federal agencies to consider the effects of their actions on all significant historic properties (36 CFR Part 800) as does the National Environmental Policy Act of 1969 (43 U.S.C. § 4321-4347 and 40 CFR § 1501.7(a)). This letter evidences NHPA and NEPA historic properties compliance pertaining to consultation with this Tribe regarding the referenced proposed projects.

Thank you, for contacting the Eastern Shawnee Tribe, we appreciate your cooperation. Should you have any further questions or comments please contact our Office.

Sincerely,

Paul Barton, Tribal Historic Preservation Officer (THPO)
Eastern Shawnee Tribe of Oklahoma
(918) 666-5151 Ext:1833

From: [Van Overschelde, Athena](#)
To: ["Johnson, Elizabeth"](#)
Cc: [Spirek, Jim](#); [Farmer, Andrea A CIV \(USA\)](#)
Subject: [URL Verdict: Neutral][Non-DoD Source] Folly River Federal Navigation Project (SHPO Project No. 22-RL0141) Review
Date: Friday, February 17, 2023 8:48:37 AM
Attachments: [Outlook-USC_Linear.png](#)

Good morning,

The MRD has reviewed the management summary titled *Management Summary for the Submerged Cultural Resources Survey and Diver Investigation Folly River Federal Navigation Channel and Folly Beach Nearshore Charleston County, South Carolina* (SHPO Project No. 22-RL0141) from Coastal Environments, Inc. and we concur with the proposed buffer of 150 feet around Target 1. Apart from that, we have no comments or concerns.

As always, if there are any unexpected discoveries, operations should cease and move to a different area, and SHPO and SCIAA should be contacted to assess the find and decide if further archaeological work is needed.

Please let me know if you need anything further from us.

Thank you,
Athena

Athena Van Overschelde, M.P.S.
Underwater Archaeologist
Maritime Research Division
South Carolina Institute of Archaeology and Anthropology
College of Arts and Sciences
University of South Carolina
1321 Pendleton Street
Columbia SC 29208 USA
Phone: (803) 576-6565
Fax: (803) 254-1338
E-mail: athenav@sc.edu
Maritime Research Division Website: <http://artsandsciences.sc.edu/sciaa/mrd/>
Follow MRD on Facebook: [@MaritimeResearchDivision](#)
SCIAA Website: <http://www.cas.sc.edu/sciaa/>
Follow SCIAA on Facebook: [@SCIAAOfficial](#)

From: [Larsen, Robert](#)
To: [Farmer, Andrea A CIV \(USA\)](#)
Subject: [Non-DoD Source] RE: Folly River Federal Navigation Project (SHPO Project No. 22-RL0141) Review
Date: Tuesday, February 21, 2023 10:09:39 AM
Attachments: [image001.png](#)

Good Morning Andrea,

Thank you for the update on Camp Croft, I look forward to seeing the results for the methodology we had discussed there.

I apologize for the delay on my end, I have been particularly swamped since the New Year. I concur with SCIAA's MRD determination, that if the 150 feet buffer around Target 1 (a potential historic shipwreck) is implemented as recommended in the *Management Summary for the Submerged Cultural Resources Survey and Diver Investigation Folly River Federal Navigation Channel and Folly Beach Nearshore Charleston County, South Carolina* then the SHPO concurs there will be no adverse effect within the Folly Beach APE based upon the buffer's inclusion as a stipulation for the nearshore placement area. Our office has no further comments or concerns, we look forward to receiving the full results for the Stono Bar Realignment Area survey and nearshore survey upon their completion.

As always, If archaeological materials are encountered during construction, the procedures codified at 36 CFR 800.13(b) will apply. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials. The federal agency or the applicant receiving federal assistance should contact our office immediately.

Sincerely,



Robert P. Larsen III, MSc., RPA
Archaeologist
State Historic Preservation Office (SHPO)
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223
803.896.6181
<https://scdah.sc.gov/historic-preservation/resources/archaeology>

From: Farmer, Andrea A CIV (USA) <Andrea.A.Farmer@usace.army.mil>
Sent: Friday, February 17, 2023 8:55 AM
To: Larsen, Robert <RLarsen@scdah.sc.gov>
Subject: FW: Folly River Federal Navigation Project (SHPO Project No. 22-RL0141) Review

Good morning Robert,

I received this out-of-office reply from Elizabeth, so I wanted to reach out to you. The response from SCIAA is attached, along with my original email.

Hope you are doing well! I'll follow-up with you soon on Camp Croft. There have been a few project changes, unrelated to cultural resources, that are holding up progress.

Best regards,

Andrea Farmer, RPA
Archaeologist, Savannah District
U.S. Army Corps of Engineers
912.412.3363 (cell)
Andrea.Adams.Farmer@usace.army.mil

From: Johnson, Elizabeth <EJohnson@scdah.sc.gov>
Sent: Friday, February 17, 2023 8:52 AM
To: Farmer, Andrea A CIV (USA) <Andrea.A.Farmer@usace.army.mil>
Subject: [Non-DoD Source] Automatic reply: Folly River Federal Navigation Project (SHPO Project No. 22-RL0141) Review

Thank you for contacting the SC Department of Archives and History. I am currently out of the office on medical leave. Please direct your questions about the following programs to the staff listed below:

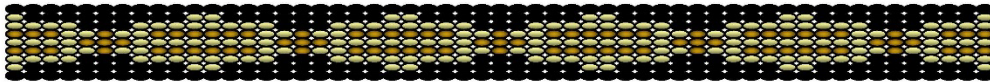
- Preservation Conference, Donna Foster at dfoster@scdah.sc.gov
- Projects involving Section 106 and other reviews, John Sylvest at jsylvest@scdah.sc.gov or Rob Larsen at rlarsen@scdah.sc.gov
- Historic Preservation State Grant Fund, email sgf@scdah.sc.gov
- Tax credit projects, Chris Tenny at ctenny@scdah.sc.gov
- Historic property research and the National Register, Virginia Harness at vharness@scdah.sc.gov or Edwin Breeden at ebreeden@scdah.sc.gov
- Historical markers, Edwin Breeden at ebreeden@scdah.sc.gov
- For other questions please contact Brad Sauls at bsauls@scdah.sc.gov

Thank you,

Elizabeth M. Johnson
State Historic Preservation Office
<https://scdah.sc.gov>

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427
Fax 803-328-5791



March 31, 2023

Attention: Andrea A. Farmer
Charleston District, Corps of Engineers
69 A Hagood Avenue
Charleston, SC 29403-5107

Re.	THPO #	TCNS #	Project Description
	2023-1-23		Folly River Federal Navigation Project Beneficial Use of Dredged Material, Charleston Co., SC Project Number 2022-1-73

Dear Ms. Farmer,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Wenonah G. Haire
Tribal Historic Preservation Officer



September 18, 2023

Andrea Farmer, RPA
Archaeologist, Savannah District
U.S. Army Corps of Engineers
Andrea.Adams.Farmer@usace.army.mil

Re: Folly River Federal Navigation Project, Submerged Cultural Resources Survey, Draft
Folly Island, Charleston County, South Carolina
SHPO Project No. 22-RL0141

Dear Andrea Farmer:

Thank you for your project submittal which we received on August 22nd, 2023 regarding the Folly River Federal Navigation Project, Submerged Cultural Resources Survey, Draft. We also received a copy of the *Cultural Resources Survey and Diver Investigation, Folly River Federal Navigation Channel and Folly Beach Nearshore, Charleston County, South Carolina* as supporting documentation for this undertaking. The State Historic Preservation Office (SHPO) is providing comments to the U.S. Army Corps of Engineers, Savannah District pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes including those with state recognition, local governments, or the public.

The SHPO concurs with the submerged cultural resource survey methodologies utilized within the *Cultural Resources Survey and Diver Investigation, Folly River Federal Navigation Channel and Folly Beach Nearshore, Charleston County, South Carolina*. Our office concurs with the South Carolina Institute for Archaeology and Anthropology-Maritime Research Division's analysis of the report, please see: "Overall, the report provides a comprehensive discussion of the scope and findings to determine the presence or absence of submerged archaeological features in the project area of potential effect. While numerous magnetic and acoustic anomalies were detected, and several ground-truthed by underwater archaeological divers, only two sites were documented. The first, Target 1 (38CH2755) was identified as a probable ballast pile, while the other, Target 6 (38CH2756) was associated with the wreckage of a modern shrimp trawler. The contractor recommends placing a 150-ft buffer around the ballast pile (38CH2755) to protect against depositing dredged materials on the site, and if unavoidable, then to conduct additional archaeological investigation to determine eligibility to the National Register of Historic Places. As for the wreckage of the modern shrimp trawler (38CH2756) the contractor recommends no additional investigations. We concur with the contractor's recommendations concerning these two sites. We also agree with the post-contact plan in the event of encountering archaeological sites or objects during dredging operations". The SHPO has additional technical comments on the report that we ask to see addressed (please see attached). We will accept the report as final once these comments are addressed; there is no need to send a revised draft.

8301 Parklane Road • Columbia, SC 29225 • scdah.sc.gov

Based on the Corps' description of the Area of Potential Effect (APE), the results of the submerged cultural resources survey and the 150 ft. buffer stipulation around archaeological site 38CH2755, our office concurs with the Corps' assessment that no properties listed in or eligible for listing in the National Register of Historic Places will be adversely affected by the Town Creek Federal Navigation Project.

To complete the reporting process, please provide at least three (4) hard copies of a final report: one (1) bound hard copy and a digital copy in ADOBE Acrobat PDF format for the SHPO; two (2) bound and one (1) unbound hard copies and a high-resolution digital copy in ADOBE Acrobat PDF format for SCIAA. Investigators should send all copies directly to the SHPO. The SHPO will distribute the appropriate copies to SCIAA.

Please ensure that a copy of our comments letter is included in the Appendices and Attachments of the final report.

Please provide GIS shapefiles for the surveyed area. Shapefiles for identified archaeological sites should be coordinated with SCIAA. Shapefiles should be compatible with ArcGIS (.shp file format) and should be sent as a bundle in .zip format. For additional information, please see our [GIS Data Submission Requirements](#).

Please ensure that all Draft and Final survey deliverables (reports, survey forms and photographs, and GIS shapefiles) are sent to the SHPO at the same time using the same medium (e.g., DVD-RW, thumb drive, or FTP/file sharing site) to assist in project tracking. Files should be sent to rc@scdah.sc.gov. This new email address is only to be used for submitting survey deliverables. Contact your assigned reviewer directly for any questions or concerns.

If archaeological materials are encountered during construction, the procedures codified at 36 CFR 800.13(b) will apply. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials. The federal agency or the applicant receiving federal assistance should contact our office immediately.

Please refer to SHPO Project Number 22-RL0141 in any future correspondence regarding this project. If you have any questions, please contact me at (803) 896-6168 or RLarsen@scdah.sc.gov.

Sincerely,

Robert P. Larsen III

Robert P. Larsen III, MSc., RPA
Archaeologist
State Historic Preservation Office

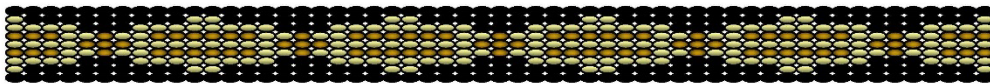
CC.
Jim Spirek – SCIAA-MRD

Technical Comments

- Throughout the PDF report there are odd overlaying of letters and numbers, spaces, and other minor formatting errors. Ensure in the final PDF and printed document those are removed.
- On p. 108—there is a number missing related to the magnetometer sampling rate—please include.
- General spell-check to correct a few misspellings.

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427
Fax 803-328-5791



September 19, 2023

Attention: Andrea Farmer
Charleston District, Corps of Engineers
69 A Hagood Avenue
Charleston, SC 29403-5107

Re. THPO #	TCNS #	Project Description
2023-1-43		Folly River Federal Navigation Channel and the Stono River Entrance Channel and placement of that material near shore along Folly Island in Charleston Co., SC

Dear Ms. Farmer,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-7369, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Wenonah G. Haire
Tribal Historic Preservation Officer

From: [Spirek, Jim](#)
To: [Farmer, Andrea A CIV \(USA\)](#); [Larsen, Robert](#)
Subject: [Non-DoD Source] Re: Folly River Federal Navigation Project, Submerged Cultural Resources Survey, Draft Folly Island, Charleston County, South Carolina
Date: Wednesday, September 20, 2023 4:11:25 PM
Attachments: [image001.png](#)

Andrea,

No. Everything looked good on our end.

Jim Spirek
SCIAA

From: Farmer, Andrea A CIV (USA) <Andrea.A.Farmer@usace.army.mil>
Sent: Wednesday, September 20, 2023 11:51 AM
To: Larsen, Robert <RLarsen@scdah.sc.gov>
Cc: Spirek, Jim <SPIREKJ@mailbox.sc.edu>
Subject: RE: Folly River Federal Navigation Project, Submerged Cultural Resources Survey, Draft Folly Island, Charleston County, South Carolina

Hello Robert,

Thank you for your letter. I will ensure that these technical comments are addressed in the report and that hard copy versions are produced and provided as directed in your letter.

Jim—Do you anticipate having any additional technical comments to be addressed?

Best regards,

Andrea Farmer, RPA
Archaeologist, Savannah District
U.S. Army Corps of Engineers
912.412.3363 (cell)
Andrea.Adams.Farmer@usace.army.mil

From: Larsen, Robert <RLarsen@scdah.sc.gov>
Sent: Monday, September 18, 2023 11:19 AM
To: Farmer, Andrea A CIV (USA) <Andrea.A.Farmer@usace.army.mil>
Cc: Spirek, Jim <SPIREKJ@mailbox.sc.edu>
Subject: [Non-DoD Source] Folly River Federal Navigation Project, Submerged Cultural Resources Survey, Draft Folly Island, Charleston County, South Carolina

From: South Carolina State Historic Preservation Office

Please find attached our comments letter on the subject referenced project. A hard copy can be provided upon request.

Please confirm receipt of this email and attachment(s).

Please contact us if you have any questions regarding our comments.



Robert P. Larsen III, MSc., RPA
Archaeologist
State Historic Preservation Office (SHPO)
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223
803.896.6181

<https://scdah.sc.gov/historic-preservation/resources/archaeology>

Appendix D CWA Section 401 & 404 Compliance Record

From: [Logan D. Ress](#)
To: [Brown, Niko R CIV USARMY CESAC \(USA\)](#); [Charles W. Hightower](#)
Cc: [Shirey, Alan D CIV USARMY CESAC \(USA\)](#); [Schwartz, Amy M CIV USARMY CESAC \(USA\)](#)
Subject: [Non-DoD Source] Re: 401 WQC
Date: Tuesday, September 10, 2024 9:47:47 AM
Attachments: [SCDES_401_WQC_Waiver.pdf](#)

Good morning Niko,

The Department has determined that the project as described in the Draft EA falls under the category of projects for which the 401 Water Quality Certification will be waived in accordance with the attached notice published in the South Carolina State Register on October 22, 2010. Thus, the 401 Water Quality Certification is waived for this project. Please let me know if you have any questions or need anything additional from the Department.

Thanks,
Logan

Logan Ress
401 Water Quality Certification
and Wetland Section
Division of Water Quality
O: 803.898.4333
logan.ress@des.sc.gov
DES.SC.gov



SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL SERVICES

Notice

401 Water Quality Certification Resource Reductions

State budget cuts have impacted the level of services the Department of Health and Environmental Control (Department) can provide and have resulted in the need for the Department to re-evaluate its workloads and priorities. The 401 Water Quality Certification program has been identified as an area where resource reductions are necessary.

In accordance with S.C. Regulation 61-101, Water Quality Certification, the Department can issue, deny, or waive certification for Federal licenses or permits. If the Department fails to act on a certification within a reasonable period of time, not to exceed one year, the certification requirements are waived.

In light of recent budget cuts, the Department has determined that it can no longer certify all Federal licenses and permits for which it receives applications. Thus, the Department has identified categories of projects for which the 401 Water Quality Certification will be waived as follows:

- **Nationwide Permits as issued by the US Army Corps of Engineers (Corps)**
Every five years, the Corps issues nationwide permits (NWP) for categories of activities that have been determined to have minimal individual and cumulative adverse effects on the aquatic environment. In a Federal Register notice published on March 12, 2007, the Corps reissued the NWP, and on May 11, 2007, the Department issued both a 401 Water Quality Certification and a Coastal Zone Consistency Certification in accordance with the S.C. Coastal Zone Management Program. At the time of the May 11, 2007 certification, the Department placed conditions on a number of the NWP that would necessitate an individual permit review for those projects. In light of the need to reduce staff resources, the Department will no longer issue individual certifications for these permits. By waiving these 401 certifications, the state will rely on the initial Corps determination of minimal impacts.
- **Groins and Beach Renourishment Projects**
Groins and beach renourishment activities have very few water quality impacts. As a general rule, the concerns and comments that the Department receives during a 401 Water Quality Certification review for these activities are directed towards the issue of threatened or endangered species. These activities will still require comments from the US Fish and Wildlife Service and/or the National Marine Fisheries Service which have jurisdiction over threatened and endangered species before the Corps can issue their 404 permit. Therefore, the Department has a reasonable assurance that these concerns will be addressed. Further, the Department's OCRM office will still continue to issue direct permits for alteration of the critical area for these activities that also provide a means to address the threatened or endangered species concerns.

These waivers apply only to the 401 Water Quality Certification. Any Coastal Zone Consistency Certifications and the Critical Area Permits issued by the Department's OCRM office are not affected by this action. In light of continuing budget reductions, the Department will periodically evaluate our project workloads to determine if other changes are necessary.

From: [Laycock, Kelly](#)
To: [Brown, Niko R CIV USARMY CESAC \(USA\)](#)
Subject: [Non-DoD Source] RE: 401 Determination of Effects of Neighboring Jurisdictions, SAC-CW-2023-0003, Folly River Navigation Project Maintenance Dredging
Date: Thursday, October 3, 2024 4:24:27 PM

Niko,

Thank you for your notification of a Water Quality Certification for SAC—CW-2023-0003. EPA considered the potential for water quality impacts to a neighboring jurisdiction from the project as certified. EPA will not issue a “may affect” determination for this project pursuant to CWA Section 401(a)(2).

Kelly Laycock
Wetlands Regulatory Section
U.S. Environmental Protection Agency
61 Forsyth St.
Atlanta GA, 30303
phone 404 562 9132

From: Brown, Niko R CIV USARMY CESAC (USA) <Niko.R.Brown@usace.army.mil>
Sent: Thursday, October 3, 2024 3:31 PM
To: Laycock, Kelly <Laycock.Kelly@epa.gov>
Subject: FW: 401 Determination of Effects of Neighboring Jurisdictions, SAC-CW-2023-0003, Folly River Navigation Project Maintenance Dredging

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hey Kelly,

In response to your email, please reference all of the attachments and information in this email. Everything here is correctly referenced.

Niko Brown
Biologist, Planning & Environmental Branch
USACE – Charleston District
(603) 258-8589

From: Brown, Niko R CIV USARMY CESAC (USA)
Sent: Monday, September 23, 2024 3:11 PM
To: [401-R4notices@epa.gov](#); [Laycock.Kelly@epa.gov](#)
Cc: Parrish, Nancy A CIV USARMY CESAC (USA) <[Nancy.A.Parrish@usace.army.mil](#)>; Shirey, Alan D CIV USARMY CESAC (USA) <[Alan.D.Shirey@usace.army.mil](#)>
Subject: 401 Determination of Effects of Neighboring Jurisdictions, SAC-CW-2023-0003, Folly River Navigation Project Maintenance Dredging

**FOLLY RIVER NAVIGATION PROJECT
OPERATION & MAINTENANCE DREDGING
CHARLESTON COUNTY, SOUTH CAROLINA**

Supplemental Environmental Assessment

**U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
CHARLESTON, SOUTH CAROLINA**

404(B) (1) ANALYSIS

FOLLY RIVER O&M DREDGING
CHARLESTON COUNTY, SOUTH CAROLINA

Preliminary Evaluation of Section 404 (b)(1) Guidelines 40 CFR 230

This evaluation covers the placement of all fill material into waters and wetlands of the United States required for the maintenance of the Folly River O&M Dredging Project, Charleston County, South Carolina. The proposed project involves the placement of beach quality sand extracted from suitable O&M dredging within the Folly River and Stono Entrance Channel for nearshore placement along the shoreline of Folly Beach, direct beach placement on Folly Beach and Bird Key Island.

Section 404 Public Notice No.

1. Review of Compliance (230.10(a)-(d))

Preliminary 1/

Final 2/

A review of the NEPA Document indicates that:

- a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and NEPA document);

YES ☒ NO ☐

YES ☐ NO ☐

- b. The activity does not:

- 1) violate applicable State water quality standards or effluent standards prohibited under Section 307 of the CWA;
- 2) jeopardize the existence of federally listed endangered or threatened species or their habitat; and
- 3) violate requirements of any federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies);

YES ☒ NO ☐*

YES ☐ NO ☐

- c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values (if no, see section 2);

YES ☒ NO ☐

YES ☐ NO ☐

- d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 5).

YES ☒ NO ☐*

YES ☐ NO ☐

2. Technical Evaluation Factors (Subparts C-F)

N/A Not Significant Significant

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)

(1) Substrate impacts.	X	
(2) Suspended particulates/turbidity impacts	X	
(3) Water column impacts.	X	
(4) Alteration of current patterns and water circulation.	X	
(5) Alteration of normal water fluctuations/hydroperiod.	X	
(6) Alteration of salinity gradients.	X	

b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)

(1) Effect on threatened/endangered species and their habitat.	X	
(2) Effect on the aquatic food web.	X	
(3) Effect on other wildlife (mammals birds, reptiles, and amphibians).	X	

c. Special Aquatic Sites (Subpart E)

(1) Sanctuaries and refuges.	X	
(2) Wetlands.	X	
(3) Mud flats.	NA	
(4) Vegetated shallows.	NA	
(5) Coral reefs.	NA	
(6) Riffle and pool complexes.	NA	

d. Human Use Characteristics (Subpart F)

(1) Effects on municipal and private water supplies.	NA	
(2) Recreational and commercial fisheries impacts	X	
(3) Effects on water-related recreation.	X	
(4) Aesthetic impacts.	X	
(5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.	X	

3. Evaluation of Dredged or Fill Material (Subpart G) 3/

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)

- (1) Physical characteristics ☒
- (2) Hydrography in relation to known or anticipated sources of contaminants ☒
- (3) Results from previous testing of the material or similar material in the vicinity of the project ☒
- (4) Known, significant sources of persistent pesticides from land runoff or percolation ☒
- (5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances ☒
- (6) Other public records of significant introduction of contaminants from industries, municipalities, or other sources ☒
- (7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities ☒
- (8) Other sources (specify). ☒

<https://www.epa.gov/superfund/superfund-national-priorities-list-npl>

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to result in degradation of the disposal site.**

YES ☒ NO ☐*

4. Disposal Site Determinations (230.11(f)).

a. The following factors as appropriate, have been considered in evaluating the disposal site.

- (1) Depth of water at disposal site. ☒
- (2) Current velocity, direction, and variability at disposal site ☒
- (3) Degree of turbulence. ☒
- (4) Water column stratification ☒
- (5) Discharge vessel speed and direction..... ☒
- (6) Rate of discharge ☒
- (7) Dredged material characteristics (constituents, amount and type of material, settling velocities). ☒
- (8) Number of discharges per unit of time. ☒
- (9) Other factors affecting rates and patterns of mixing (specify)

List appropriate references.

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES ☒ NO ☐*

5. Actions to Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of recommendations of 230.70-230.77, to ensure minimal adverse effects of the proposed discharge.

YES ☒ NO ☐*

Actions taken to ensure minimal adverse effects of the proposed discharge will include all 401 Water Quality Certificate conditions as well as standard Best Management Practices to minimize migration of sediments on and off the placement areas during and after construction

6. Factual Determinations (230.11).

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:

- | | |
|---|---|
| a. Physical substrate at the disposal site
(review sections 2a, 3, 4, and 5). | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |
| b. Water circulation, fluctuation, and salinity
(review sections 2a, 3, 4, and 5). | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |
| c. Suspended particulates/turbidity
(review sections 2a, 3, 4, and 5). | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |
| d. Contaminant availability
(review sections 2a, 3, and 4). | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |
| e. Aquatic ecosystem structure and function
(review sections 2b and c, 3, and 5). | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |
| f. Disposal site
(review sections 2, 4, and 5). | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |
| g. Cumulative impact on the aquatic
ecosystem. | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |
| h. Secondary impacts on the aquatic
ecosystem. | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> * |

7. Findings.

- a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines. ☒
- b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions:. ☐
- c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reasons(s):
- (1) There is a less damaging practicable alternative ☐
- (2) The proposed discharge will result in significant degradation of the aquatic ecosystem. ☐
- (3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem. ☐

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Date: 08 OCT 24

Patrick G. Ripton,
Major, U.S. Army
Acting Commander and District Engineer

*A negative, significant, or unknown response indicates that the permit application may not be in compliance with the Section 404(b)(1) Guidelines.

1/ Negative responses to three or more of the compliance criteria at this stage indicate that the proposed projects may not be evaluated using this "short form procedure." Care should be used in assessing pertinent portions of the technical information of items 2 a-d, before completing the final review of compliance.

2/ Negative response to one of the compliance criteria at this stage indicates that the proposed project does not comply with the guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form evaluation process is inappropriate."

3/ If the dredged or fill material cannot be excluded from individual testing, the "short-form" evaluation process is inappropriate.

Appendix E USFWS CBRA Exception 16 U.S.C. 3505(a)(2) Concurrence

Coastal Barrier Resources Act Consultation Request

January 20, 2023

FROM:

U.S. Army Corps of Engineers,
Charleston District
69A Hagood Ave.
Charleston, SC 29403-5107

TO:

U.S. Fish & Wildlife Service
South Carolina Ecological Services Field Office
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558

Consultation Request: The U.S. Army Corps of Engineers, Charleston District requests a consultation with the U.S. Fish and Wildlife Service (Service) under the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.) for maintenance dredging of the entrance channel of the Folly River federal navigation project. This maintenance dredging project is funded by the Corps of Engineers annual O&M dredging budget.

Project Location: The dredging project is located in Charleston County, SC, and is mostly within Unit M07 of the Coastal Barrier Resources System (CBRS).

Description of the Proposed Action or Project: The project involves maintenance dredging of the entrance channel of the Folly River federal navigation project and placement of the dredged material in a shallow water placement area offshore of Folly Beach. The area of the entrance channel being dredged is within CBRS Unit M07, while the placement area offshore of Folly Beach is outside of Unit M07. Approximately 60,000 yd³ of sediment will be removed from Unit M07. See Figure 1 for the boundaries of Unit M07 in relation to the area of the entrance channel being dredged and the location of the placement area.

Applicable Exception(s) under 16 U.S.C. 3505(a)

General Exceptions

- ☐ 16 U.S.C. 3505(a)(1): Any use or facility necessary for the **exploration, extraction, or transportation of energy resources** which can be carried out only on, in, or adjacent to a coastal water area because the use or facility requires access to the coastal water body.
- ☒ 16 U.S.C. 3505(a)(2): The **maintenance or construction of improvements of existing federal navigation channels** (including the Intracoastal Waterway) and related structures (such as jetties), including the disposal of dredge materials related to such maintenance or construction. *A federal navigation channel or a related structure is an existing channel or structure, respectively, if it was authorized before the date on which the relevant System Unit or portion of the System Unit was included within the CBRS (16 U.S.C. 3505(b)).*

- ☐ 16 U.S.C. 3505(a)(3): The maintenance, replacement, reconstruction, or repair, but not the expansion, of **publicly owned or publicly operated roads, structures, or facilities that are essential links** in a larger network or system. *While this exception generally prohibits expansions, there is a special provision in CBRA that allows for the expansion of highways in Michigan under this exception (see 16 U.S.C. 3505(c)).*
- ☐ 16 U.S.C. 3505(a)(4): **Military activities** essential to national security.
- ☐ 16 U.S.C. 3505(a)(5): The construction, operation, maintenance, and rehabilitation of **Coast Guard facilities** and access thereto.

Specific Exceptions

The exceptions below may apply only if the project or action is also consistent with the purposes of CBRA, which are:

- *to minimize the loss of human life;*
- *minimize wasteful expenditure of federal revenues; and*
- *minimize damage to fish, wildlife, and other natural resources associated with coastal barriers*

by restricting future federal expenditures and financial assistance which have the effect of encouraging development; and by considering the means and measures by which the long-term conservation of these fish, wildlife, and other natural resources may be achieved.

Therefore, if selecting any of the exceptions below, it is necessary to describe how the proposed action or project is consistent with these purposes.

- ☐ 16 U.S.C. 3505(a)(6)(A): **Projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats**, including acquisition of fish and wildlife habitats, and related lands, stabilization projects for fish and wildlife habitats, and recreational projects.
- ☐ 16 U.S.C. 3505(a)(6)(B): Establishment, operation, and maintenance of **air and water navigation aids** and devices, and for access thereto.
- ☐ 16 U.S.C. 3505(a)(6)(C): Projects under chapter 2003 of title 54 and the **Coastal Zone Management Act** of 1972 (16 U.S.C. 1451 et seq.). *Chapter 2003 of title 54 refers to expenditures under the **Land and Water Conservation Fund**. For additional information on the use of this exception for projects under the CZMA, please see this [fact sheet](#).*
- ☐ 16 U.S.C. 3505(a)(6)(D): **Scientific research**, including aeronautical, atmospheric, space, geologic, marine, fish and wildlife, and other research, development, and applications.

- ☐ 16 U.S.C. 3505(a)(6)(E): Assistance for **emergency actions essential to the saving of lives and the protection of property and the public health and safety**, if such actions are performed pursuant to sections 5170a, 5170b, and 5192 of title 42 **and are limited to actions that are necessary to alleviate the emergency**.
- ☐ 16 U.S.C. 3505(a)(6)(F): Maintenance, replacement, reconstruction, or repair, but not the expansion (except with respect to United States route 1 in the Florida Keys), of **publicly owned or publicly operated roads, structures, and facilities**. *Please note that for this exception, FEMA regulations (44 CFR Part 206.347(c)(5)) indicate that "no such facility may be repaired, reconstructed, or replaced unless it is an 'existing facility'" (i.e., one that was constructed prior to its inclusion in the CBRIS and has not been substantially improved or expanded since).*
- ☐ 16 U.S.C. 3505(a)(6)(G): **Nonstructural projects for shoreline stabilization** that are designed to mimic, enhance, or restore a natural stabilization system. *For additional information on the use of this exception, please see this [Frequently Asked Questions](#) document.*

Justification for Exception(s): The Folly River project is an existing U.S. Army Corps of Engineers federal navigation project that was authorized by the Chief of Engineers on 23 December 1977 under Section 107 of the River and Harbor Act of 1960, as amended. This predates the establishment of the Coastal Barrier Resources System. Therefore, the planned dredging of the Folly River entrance channel and nearshore placement of dredged materials fully meets exception 16 U.S.C. 3505(a)(2).

Contact Information: Alan Shirey, U.S. Army Corps of Engineers, Charleston District, 69A Hagood Avenue, Charleston, SC; 843-329-8166; alan.d.shirey@usace.army.mil.



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Nancy A. Parrish
Chief, Planning and Environmental Branch

1/20/23

Date

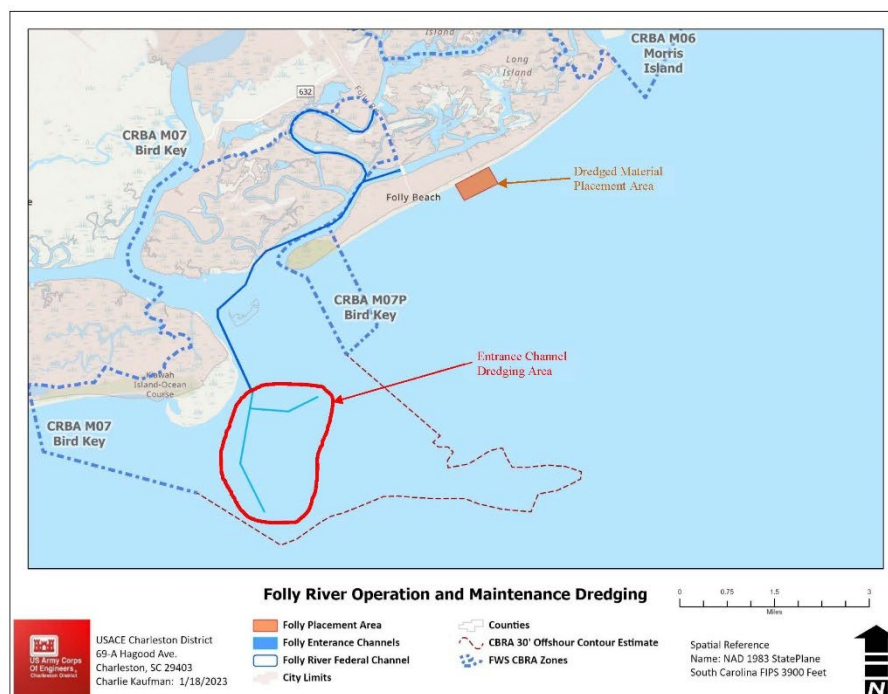


Figure 1 – 2023 Folly River Entrance Channel Maintenance Dredging Project

U.S. Fish and Wildlife Service Response

Below is the Service's response to the U.S. Army Corps of Engineers, Charleston District's (USACE Charleston) request for a consultation under CBRA for maintenance dredging of the entrance channel of the Folly River federal navigation project. This response represents the Service's opinion. **The final decision regarding the expenditure of funds for this action or project rests with the federal action agency.** USACE Charleston has fulfilled its obligation to consult with the Service under CBRA for this particular action or project within the CBRS. Please note that any new commitment of federal funds associated with this action or project, or change in the project design and/or scope, is subject to CBRA's consultation requirement.

The Service has reviewed the information provided by USACE Charleston, and believes the referenced action/project is:

- ☐ Not located within a System Unit of the CBRS and CBRA does not apply (except with respect to the restrictions on federal flood insurance)
- ☒ Located within a System Unit of the CBRS and meets the exception(s) to CBRA selected above
- ☐ Located within a System Unit of the CBRS and meets different exception(s) than the one(s) selected above (see additional information/comments below)
- ☐ Located within a System Unit of the CBRS and does not meet an exception to CBRA (see additional information/comments below)

Additional Information/Comments

This response does not constitute consultation for any project pursuant to section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) or comments afforded by the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 et seq.); nor does it preclude comment on any forthcoming environmental documents pursuant to the National Environmental Policy Act (83 Stat. 852; 42 U.S.C. 4321 et seq.).

THOMAS
MCCOY

Digitally signed by THOMAS
MCCOY
Date: 2023.02.21 06:23:02 -05'00'

Thomas D. McCoy
Field Supervisor

February 21, 2023

Date

Appendix F SCDES CZMA Compliance Record



March 1, 2024

Niko Brown
US Army Corps of Engineers
69A Hagood Ave
Charleston, SC 29403

RE: SAC-CW-2023-0003. Folly River Federal Navigation Project Maintenance Dredging
HQ1-PY82-H263W, Charleston County

Dear Niko Brown:

This Coastal Zone Consistency Determination Conditional Concurrence is in response to the U. S. Department of Army, US Army Corps of Engineers Coastal Zone Consistency Determination submitted to South Carolina Department of Health and Environmental Control Office of Ocean and Coastal Resource Management (SCDHEC OCRM) on January 31, 2024. SCDHEC OCRM's review began on January 31, 2024.

The proposed project involves continued, ongoing maintenance dredging of the Folly River Federal Navigation project in Charleston County, SC. The proposed project involves continued, ongoing maintenance dredging of the Folly River Federal Navigation Project (FRNP). Dredging of the Folly River channel, as needed, proposes using cutterhead pipeline dredging in order to maintain the federal navigation channel of 9 feet deep and 80 feet wide, extending downstream from Highway 171 to the confluence of the Folly and Stono Rivers; a distance of approximately three nautical miles. Dredging will result in approximately 300,000 cubic yards of sediment removed every three years. Dredge materials from within the Folly River channel will be placed, as needed, on Folly Beach, nearshore along Folly Beach and on Bird Key Stono. Additionally, dredging in the FRNP entrance channel proposes using cutterhead pipeline dredging, side-cast dredging, and/or modified hopper dredge in order to maintain the federal navigation channel at 11 feet deep by 100 feet wide extending from the 11-foot contour in the Stono River through the shoal lying off the river mouth to buoy "15" in the ocean; a distance of approximately three nautical miles. Realignment of the federal channel within the FRNP parameters to follow the deep and reduce the need for dredging and/or dredge quantities. Dredging will result in approximately 300,000 cubic yards of sediment removed every two years. Dredge materials from within the entrance channel will be placed, as needed, on Folly Beach, nearshore along Folly Beach, on Bird Key Stono and/or side-cast back into the inlet.

Pursuant to 15 C.F.R. § 930.4 SCDHEC OCRM **conditionally concurs** with the determination that the project is consistent to the maximum extent practicable with the following conditions below to ensure consistency with the enforceable policies contained within the S. C. Coastal Zone Management Program (SCCZMP) pursuant to 15 C.F.R. § 930.45. This concurrence is based upon the review of the Guidelines for Evaluation of All Projects as well as the Wildlife and Fisheries

Management, Dredging (*Dredging and Spoil Disposal*), Activities in Areas of Special Resource Significance (*Barrier Islands and Navigational Channels*), and Beach and Shoreline Access policies contained in the SCCZMP.

1. In the event that any historic or cultural resources and/or archaeological materials are found during the course of work, the applicant must notify the State Historic Preservation Office and the South Carolina Institute of Archaeology and Anthropology. Historic or cultural resources consist of those sites listed in the National Register of Historic Places and those sites that are eligible for the National Register. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials.
2. The proposed activity must follow recommendations and/or guidance from the US Fish and Wildlife Service regarding the potential to effect the piping plover, rufa red knot, West Indian manatee, loggerhead sea turtle, and leatherback sea turtle.

Please contact me if you have any questions about this concurrence or the conditions within it. It is our intention to work with your office to address any concerns that the US Army Corps of Engineers may have as to how this project can be consistent with the enforceable policies of the SCCZMP.

Sincerely,



Christopher M Stout
South Carolina Department of Health and Environmental Control
OCRM - Coastal Zone Consistency
stoutcm@dhec.sc.gov

cc: Mr. Alan Shirey, US Army Corps of Engineers
Mr. Chuck Hightower, SC DHEC Bureau of Water

Appendix G Public and Agency Review Comments & Responses



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT
69 A HAGOOD AVENUE
CHARLESTON SC 29403-5107

March 13, 2023

Dear Stakeholders:

The U.S. Army Corps of Engineers, Charleston District (USACE) is proposing to conduct maintenance dredging on the Folly River Navigation Project (FRNP) and beneficial use of dredged sediments. More specifically, the proposed action includes up to 300,000 yd³ of dredged sediment to be excavated from the Folly River channel each dredge cycle (3-years) using a cutterhead dredge, and placing dredged sediments either on existing beach profiles on Folly Beach and Bird Key Stono and/or nearshore along Folly Beach; as well as up to 300,000 yd³ of dredged sediments to be excavated from the FRNP entrance channel each dredge cycle (2-years) using optional dredge types (i.e., either cutterhead dredge, modified hopper dredge or sidecast dredge), and placing dredged sediments either outside the entrance channel (sidecast option), nearshore along Folly Beach (modified hopper option), or along existing beach profiles at Folly Beach and/or Bird Key Stono (cutterhead option).

USACE has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to communicate environmental information related to the proposed maintenance dredging on the FRNP. The documents are intended for compliance with the National Environmental Policy Act (NEPA). Our preliminary findings are that the proposed action does not have a significant adverse effect on human health and welfare or the environment and, therefore, preparation of a supplemental Environmental Impact Statement is not warranted.

A copy of the Draft FONSI is included for your review and comment. The Draft EA and its appendices are available online for your review and comment at:

<http://www.sac.usace.army.mil/Missions/Civil-Works/NEPA-Documents/>.

Please direct any questions or comments to Niko Brown at (843) 329-8145 or by email at niko.r.brown@usace.army.mil by April 13, 2023.

Sincerely,

Nancy Parrish

Nancy Parrish
Chief, Planning & Environmental Branch

Enclosure



South Carolina Department of Natural Resources

Robert H. Boyles, Jr.
Director

Lorianne Riggan, Director
Office of Environmental Programs

April 5, 2023

Mr. Niko Brown
U.S. Army Corps of Engineers
ATTN: REGULATORY DIVISION
69A Hagood Avenue
Charleston, SC 29403-5107

RE: Folly River Navigation Project Operation and Maintenance Dredging Draft Supplemental Environmental Assessment and Finding of No Significant Impact, Charleston County, South Carolina

Dear Mr. Brown,

Personnel from the South Carolina Department of Natural Resources (SCDNR) have reviewed the Folly River Navigation Project (FRNP) Operation and Maintenance Dredging Draft Supplemental Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), Charleston County, South Carolina prepared by the United States Army Corps of Engineers (USACE or Corps) and evaluated its impact on fish and wildlife habitat, water quality, recreation, and other factors related to the conservation of natural resources. The SCDNR offers the following comments for your consideration.

Project Description

The Draft Supplemental EA outlines actions to use dredged sediments for the purposes of mitigating shoreline erosion and storm damage for adjacent property owners and public infrastructure and wildlife habitat along Folly Beach and Bird Key Stono. The focus of the EA is to evaluate newly considered alternatives to actions previously analyzed in the EA & FONSI for the Folly River Navigation Project (USACE 1997). Specifically, the EA updates previous NEPA analysis for the continued operation and maintenance (O&M) of the FRNP, and evaluates impacts associated with alternative methods to increase beneficial use (BU) of dredged sediment and provide ecological and economic benefits. The project, as proposed, will remove up to 300,000 cubic yards of sediment from the entrance channel in 2-year intervals and similar quantities from the Folly River channel in 3-year intervals. The purpose of the maintenance dredging is to continue to provide safe, shallow navigation for recreational, commercial fishing, and shrimping boats.

The EA considered the No Action Alternative and two additional alternatives to meet project goals. The alternatives included:

1. The No Action Alternative which represents the most probable future condition if no action is taken.

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2. Alternative B (Past Approach) which would continue with the same course of actions as outlined by USACE (1997). In detail, the Folly River channel would be maintained to navigation depth using cutterhead pipeline dredging and sediments would be pipelined to the front shores of either Folly Beach County Park, Bird Key Stono, or both. In addition, the entrance channel could continue to be re-aligned within the outlined re-alignment area and dredged to depth with a sidecast dredge. Dredged sediment from the entrance channel would be sidecast outside the channel.

3. Alternative C (Proposed Action Alternative) which includes (1) maintenance to navigation depth of the Folly River channel using cutterhead pipeline dredging and disposal of dredged sediment to any individual or combination of placement areas including Bird Key Stono, the expanded front beach placement area for Folly Beach, or nearshore along Folly Beach; and (2) the maintenance of the FRNP entrance channel using any individual, or combination of dredge types including sidecast, modified hopper, or cutterhead pipeline and disposal of dredged sediment to placement areas including the area adjacent to the entrance channel, the expanded front beach placement area for Folly Beach, and/or nearshore along Folly Beach or Bird Key Stono.

Agency Comments

The Proposed Action Alternative, Alternative C, includes the option of the beneficial use of sediments dredged from the FRNP for placement as wildlife habitat on the Bird Key Stono Seabird Sanctuary. The Bird Key Stono Sanctuary is a dedicated Heritage Preserve owned and managed by the SCDNR. This Sanctuary was established to protect important resting, feeding and nesting habitat for a variety of sea and shorebird species. The USACE has been coordinating with the SCDNR regarding the potential placement of material on the Sanctuary in a manner that is beneficial to the birds. The SCDNR understands that there will be continued coordination on the matter and is amenable to the placement of material on the Sanctuary provided site selection is agreed upon by USACE, SCDNR, and US Fish & Wildlife Service (FWS) and work is performed between October 16th – March 14th when nesting is not occurring.

The proposed front beach placement area along the Folly Beach shoreline is utilized by a number of threatened and endangered species, including nesting loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), non-breeding piping plover (*Charadrius melodus*), and non-breeding red knot (*Calidris canutus rufa*). The SCDNR understands that the Corps will be initiating a formal consultation with the FWS and obtain a new biological opinion (BiOp) that will address the potential impacts of the proposed project on the above-listed species. This BiOp will include specific terms and conditions as well as conservation measures that will address the protection of these species and their critical habitat. The SCDNR recommends that the project adheres to all terms and conditions outlined in the BiOp.

Beach nourishment activities conducted during sea turtle nesting season (May 1st – October 31st) can result in several adverse impacts, including the direct burial or crushing of nests and/or hatchlings, disruption of adult nesting activity, and decreased nesting success. The use and storage of heavy equipment on the beach can create barriers to nesting females and result in

severe compaction or concretion of beach sediments, interfering with the turtle's ability to nest successfully. Nesting success is highly dependent on the compatibility of nourishment materials with naturally occurring beach sand. Changes in sediment color, grain size, and organic content can adversely affect nesting success. To avoid adverse impacts to nesting turtles, SCDNR recommends that every effort is made to conduct nourishment activities outside of turtle nesting season.

Additionally, given the distance between the Folly River borrow site and the beach proposed for nourishment, it is likely that the proposed plan requires pumping of spoil materials for a significant distance, and across a substantial acreage of estuarine habitat, thus creating the potential for impacts to estuarine resources associated with dredge-pipe placement and dredge-pipe failure and inadvertent discharge. The SCDNR recommends that special precautions be taken to avoid and minimize disturbance from dredging equipment mobilization and operation, especially pipelines.

Finally, the SCDNR concludes that the Finding of No Significant Impact on the quality of the natural environment for Alternative C, the Proposed Action Alternative, is only applicable provided the Corps adheres to seasonal dredging windows regarding the use of hopper dredges if that dredging method is utilized. The SCDNR recommends that the use of hopper dredges be limited to November 1st – March 31st to minimize the potential for negative impacts to sea turtle utilizing the proposed project area during mating and nesting season.

The SCDNR appreciates the opportunity to comment on the Draft Supplemental EA and FONSI for the Folly River Navigation Project and looks forward to further assisting the Corps in the implementation of a maintenance dredging and beneficial use plan at the least cost to our state's natural resources. Please contact me at crowes@dnr.sc.gov should you require any additional information.

Sincerely,



Stacie Crowe
Coastal Environmental Project Manager
Office of Environmental Programs, SCDNR
PO Box 12559
Charleston, SC 29422
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crowes@dnr.sc.gov

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From: [White, Douglas](#)
To: [Brown, Niko R CIV USARMY CESAC \(USA\)](#)
Cc: [Kajumba, Ntale](#); [Buskev, Traci P.](#)
Subject: [Non-DoD Source] EPA Comments on the Draft Supplemental EA of Folly River Navigation Project Maintenance Dredging
Date: Thursday, April 13, 2023 2:00:56 PM

Re: EPA Comments on the Draft Supplemental Environmental Assessment of Folly River Navigation Project Maintenance Dredging, Charleston County, South Carolina

Dear Ms. Parrish:

The United States Environmental Protection Agency (EPA) has reviewed the referenced document in accordance with Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The purpose of this Draft Supplemental Environmental Assessment (EA) is for the United States Army Corps of Engineers (USACE) to evaluate impacts from proposed maintenance dredging within the three channels that make up the Folly River Navigation Project (FRNP) and associated sediment placement. The purpose of the project is to maintain safe and efficient vessel traffic within the waterway that has been impacted by shoaling of the federally authorized channel.

USACE is evaluating two action alternatives in addition to the no-action alternative. The Proposed Action Alternative, Alternative C, would use hydraulic cutterhead pipeline dredging, modified hopper dredging, and sidecast dredging to clear the FRNP to navigation depth. The FRNP includes the entrance channel, Folly River channel, and Folly Creek channel. Each of these sections are approximately 3-miles long. The authorized dimensions of the entrance channel are 11-feet deep and 100-feet wide, while the other two channels are authorized to 9-feet deep and 80-feet wide. Pipelines would transfer dredged sediments from the river and creek channels to nourish Folly Beach. Sediments from the entrance channel would be transferred by pipelines and modified hopper dredges to Folly Beach and the small island of Bird Key Stono. Sidecast dredging would also be employed within the entrance channel. Alternative B consist of the existing maintenance dredging plan for FRNP that USACE developed in 1997. Under Alternative B, USACE would limit maintenance dredging techniques of FRNP to cutterhead pipeline dredging in the river and creek channels, and sidecast dredging within the entrance channel.

The EPA understands that USACE's preferred alternative is the Proposed Action Alternative. Based on a review of the Draft EA, the EPA has not identified any significant environmental impacts from the Proposed Action that would require substantive changes to the EA. The EPA has enclosed detailed technical comments for your consideration (See enclosure).

The EPA appreciates the opportunity to review the Draft Supplemental EA and looks forward to continued participation with the Folly River Navigation Project. If you have any questions regarding our technical recommendations, please contact me at white.douglas@epa.gov or at 404-562-8586.

Enclosure

EPA Comments on the Draft Supplemental Environmental Assessment of Folly River Navigation Project Maintenance Dredging, Charleston County, South Carolina

Biological Resources and Water Quality: The Proposed Action is regulated by the National

Marine Fisheries Service's (NMFS) 2020 South Atlantic Regional Biological Opinion (SARBO). The 2020 SARBO requires that a project meet all relevant project design criteria and that the dredging equipment, timing, and minimization measures be evaluated under the umbrella of risk-based adaptive project management, as outlined in the 2020 SARBO Section 2.9.2. The EPA understands that USACE is coordinating with NMFS and the United States Fish and Wildlife Service (FWS) on the development of this project. The EPA's NEPAassist tool (<https://www.epa.gov/nepa/nepassist>) and the Draft EA identify the potential presence of three protected species within the project area: loggerhead sea turtles, north atlantic right whales, and piping plover shore birds. USACE has determined that potential impacts from the Proposed Action to threatened and endangered species and essential fish habitat would be minor and temporary. Section 5.10.2 of the Draft EA, Environmental Consequences, indicates that turbidity is expected to be temporary and localized due to the high sand content of local sediments. Compared to previous maintenance dredging operations at FRNP, increased use of hydraulic cutterhead dredging and pipeline placement under the Proposed Action is expected to reduce the impacts from turbidity.

Recommendation: The EPA principally defers to NMFS and FWS regarding compliance with the Endangered Species Act. The EPA recommends that any additional conservation measures identified by NMFS and FWS during consultation be implemented. The EPA also recommends that USACE implement turbidity monitoring and best management practices throughout the project, where required by the 2020 SARBO and necessary for the protection of threatened and endangered species.

Environmental Justice: USACE used the Council on Environmental Quality's (CEQ) Climate and Economic Justice Screening Tool to assess potential environmental justice concerns near the Proposed Action. Data from the EPA's EJScreen (<https://www.epa.gov/ejscreen>) mapping tool, does not indicate the presence of communities with environmental justice concerns. Section 4.14, Socioeconomics and Environmental Justice, identifies the methodology of analysis used by USACE. The Draft EA also states that the Proposed Action would not have a disproportionate effect on low-income and minority populations, would not have adverse effects to the environmental health and safety for children, or affect disadvantaged communities.

Recommendation: The EPA recommends that USACE coordinate with the City of Folly Beach and communities near the project area to address impacts as they are identified and to disseminate project status updates.

Air Quality: The location of the Proposed Action is Charleston County, South Carolina, which is in attainment status with the National Ambient Air Quality Standards. Section 7.1 of the Draft EA, Clean Air Act of 1972, indicates that effects to air quality, particularly those from dredging and placement operations, would not result in permanent adverse effects to air quality in Charleston County.

Recommendation: The EPA recommends that USACE implement clean dredge technology to the maximum extent possible. A preference should be given to dredge fleets operating Tier 3 or greater diesel engines.

Beneficial Use of Sediments: The Proposed Action would dispose of dredged sediments with beneficial placement at Folly Beach, nearshore placement at Folly Beach, and at Bird Key Stono island. Sidecast dredging would also dispose dredged sediments within the river delta

through which the entrance channel passes. In general, using dredged material for beach nourishment and other environmentally sensitive applications is strongly encouraged and supported by the EPA. Section 6.1 of the Draft EA indicates that dredged materials from FRNP were determined to be suitable for beach repairs at Folly Beach, as part of the 2021 Coastal Storm Risk Management Project Integrated Feasibility Report and Environmental Assessment. To mitigate damages from storm events, sediments may be removed from Folly River and used to repair and nourish Folly Beach. Additionally, the EPA understands that expanded use of pipeline dredging, as part of the Proposed Action, increases the efficiency of sediment transport and opportunities for beneficial use of sediments.

Douglas White
U.S. Environmental Protection Agency / Region 4
Strategic Programs Office / NEPA Section
61 Forsyth Street, SW
Atlanta, GA 30303-8960
404-562-8586

From: [Stacie Crowe](#)
To: [Brown, Niko R CIV USARMY CESAC \(USA\)](#)
Cc: [Shirey, Alan D CIV USARMY CESAC \(USA\)](#); [Fritz, Erica CIV USARMY CESAC \(USA\)](#)
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: USACE - Public Notice - Folly River Navigation Project Maintenance Dredging Draft EA and FONSI (Charleston County, SC)
Date: Friday, July 21, 2023 3:47:57 PM
Attachments: [image001.png](#)
[image003.png](#)
[image004.png](#)

Niko,

If the Corps is adhering to the NMFS time of year recommendation for Coastal Ocean/Inlet in-water work (pg. 25 of Programmatic EFH Consultation; Appendix A in Draft SEA) as stated in section 5.3.3 of the Draft Supplemental EA, then that would address SCDNR concerns with respect to potential impacts to turtles.

Thanks,

Stacie Crowe

Coastal Environmental Project Manager
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From: Brown, Niko R CIV USARMY CESAC (USA) <Niko.R.Brown@usace.army.mil>
Sent: Thursday, July 20, 2023 11:32 AM
To: Stacie Crowe <CroweS@dnr.sc.gov>
Cc: Shirey, Alan D CIV USARMY CESAC (USA) <Alan.D.Shirey@usace.army.mil>; Fritz, Erica CIV USARMY CESAC (USA) <Erica.Fritz@usace.army.mil>
Subject: FW: USACE - Public Notice - Folly River Navigation Project Maintenance Dredging Draft EA and FONSI (Charleston County, SC)

Hi again Stacie,

Just wanted to follow up on this and see if you had had time to consider my previous email and whether or not you had any questions or would like any further information.

Thanks,

Niko Brown

Biologist
Planning & Environmental Branch, USACE – Charleston

69A Hagood Ave
Charleston, SC 29403
Office Ph: (843) 329-8145
Email: niko.r.brown@usace.army.mil

From: Brown, Niko R CIV USARMY CESAC (USA)
Sent: Thursday, July 6, 2023 2:41 PM
To: Stacie Crowe <CroweS@dnr.sc.gov>
Cc: Shirey, Alan D CIV USARMY CESAC (USA) <Alan.D.Shirey@usace.army.mil>; Fritz, Erica CIV USARMY CESAC (USA) <Erica.Fritz@usace.army.mil>
Subject: FW: USACE - Public Notice - Folly River Navigation Project Maintenance Dredging Draft EA and FONSI (Charleston County, SC)

Hi Stacie,

I wanted to reach out regarding a condition in the letter providing DNR input on the Folly River navigation project. Specifically, I wanted to address the following:

“Finally, the SCDNR concludes that the Finding of No Significant Impact on the quality of the natural environment for Alternative C, the Proposed Action Alternative, is only applicable provided the Corps adheres to seasonal dredging windows regarding the use of hopper dredges if that dredging method is utilized. The SCDNR recommends that the use of hopper dredges be limited to November 1st – March 31st to minimize the potential for negative impacts to sea turtle utilizing the proposed project area during mating and nesting season.”

In the EA, we discuss the option to use a *modified* hopper dredge (e.g., the MURDEN or CURRITUCK) and the differences in specifications between this dredge type and traditional hopper dredges—owing largely to differences in size, power and expected capacity for impacts. For instance, the modified dredges utilize smaller dragheads (2’x2’ or 2’x3’), smaller draghead openings (5”x5” or 5”x8”) and smaller intake pipes (10”-14”). Additionally, the modified dredges possess limited operating suction power of around 100-110 horsepower (See attached “MURDEN-spec.pdf”).

In previous consultation with SAW in 1999 (See attached “NMFS Consultation_Government-Owned_Dredge_Equipment_1999.pdf”), NMFS stated the following regarding the application of what we are referring to as *modified* hopper dredges:

- *“The operation of sidecast dredges FRY, MERRITT and SCHWEIZER and the small capacity, coastal hopper dredge CURRITUCK is not expected to adversely affect listed species of sea turtles because of the slow speed of the vessels, the low suction levels inherent to these small dredges, and the small size of the dragheads. These species should be able to get out of the way of the slow moving dredges, which operate at speeds of 1 to 3 knots when working in inlet channels.”*

- *“If a small, live turtle did get impinged by the pump suction against the draghead, the turtle would very likely soon be broken free of the suction by the motion of the draghead along the irregular bottom and/or its own efforts to free itself. Even if a turtle small enough to pass through the draghead were encountered, it could pass through the dredge relatively unharmed due to the low pump pressures involved.”*

Relocation trawling data collected between 2019 and 2022 (generally Nov-May) in the Charleston Harbor for the Post 45 project (See attached “Coastwise Consulting Charleston Project Summary – Fiscal Year 2019 thru 2022.xlsx”) presents a very small likelihood of turtles in the environment near the Folly River project area being small enough to pass through the dragheads. That data is summarized in the table below:

Species	SS	Curved Carapace Length (cm)			
		Average	Median	Min	Max
Loggerhead	19	72	74	49	92
Kemp’s ridley	17	42	42	25	60
Leatherback	5	145*	150*	130*	162*

*Leatherback size is given in straight carapace length

The smallest of 41 turtles over three years was 25 cm (~10 in), which by itself would be too small to pass through the draghead openings.

In addition to the very limited likelihood of a turtle being small enough to pass through a draghead, there is evidence that even some of the smallest of turtles expected to be encountered would either be naturally freed or willingly free themselves from any potential entrainment. This is reiterated by NMFS in there 1999 consultation with SAW:

“The results of the tests conducted by the Corps of Engineers on a previously-dead, juvenile (13.5-inch carapace length) green turtle demonstrated that the low suction forces and small openings prevented the lifeless turtle from being entrained. Further, the suction force was low enough that the turtle was easily prodded and moved with a pole despite being held by the suction force against the draghead. If a small, live turtle did get impinged by the pump suction against the draghead, the turtle would very likely soon be broken free of the suction by the motion of the draghead along the irregular bottom and/or its own efforts to free itself.”

Further, NMFS acknowledge in the 2020 SARBO:

“The USACE confirmed in October 2018, that they still do not have any records of take associated with these smaller draghead and low suction velocity types of hopper dredges.”

From the body of evidence we currently have, it appears there is little reason to believe that the use of hopper dredge models, meeting the specifications referred to as *modified* in the EA, will have an impact on sea turtles that would be considered significant. This is particularly true for this project, as dredging of the entrance channel is not likely to span a timeframe greater than 2 months during any given maintenance cycle. Its should also be noted that the use of this dredge type would also be an alternative to the use of a sidecast dredge which would use similar trail suction technology and was anticipated to have similarly limited impacts.

I understand that my colleagues Alan Shirey and Erica Fritz did meet with your office to present this information in another format in early May. I hope that given the body of evidence above that DNR finds this information useful and is willing to reconsider their stance on the significance of potential impacts expected from implementation of the proposed alternative for this project. We are looking forward to working with you further to identify ways to minimize potential impacts to the environment while fulfilling our commitment to maintaining navigation in Federal waterways.

Thank you for your time and consideration.

Best,

Niko Brown

Biologist
Planning & Environmental Branch, USACE – Charleston

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Email: niko.r.brown@usace.army.mil

From: Stacie Crowe <CroweS@dnr.sc.gov>

Sent: Friday, April 7, 2023 10:15 AM

To: Brown, Niko R CIV USARMY CESAC (USA) <Niko.R.Brown@usace.army.mil>

Subject: [URL Verdict: Neutral][Non-DoD Source] RE: USACE - Public Notice - Folly River Navigation Project Maintenance Dredging Draft EA and FONSI (Charleston County, SC)

Niko,

SCDNR comments on the Folly River Navigation Project Draft EA and FONSI are attached.

Sincerely,

Stacie Crowe

Coastal Environmental Project Manager
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From: Brown, Niko R CIV USARMY CESAC (USA) <Niko.R.Brown@usace.army.mil>
Sent: Monday, March 13, 2023 4:23 PM
To: McCoy, Thomas <thomas_mccoy@fws.gov>; Chaplin, Melissa <melissa_chaplin@fws.gov>; 'Pace Wilber - NOAA Federal' <pace.wilber@noaa.gov>; Cynthia Cooksey - NOAA Federal <cynthia.cooksey@noaa.gov>; karla.reece@noaa.gov; andrew.herndon@noaa.gov; hightocw@dhec.sc.gov; thompsrb@dhec.sc.gov; Stout, Christopher <stoutcm@dhec.sc.gov>; vonkoleb@dhec.sc.gov; Lorianne Riggins <RigginsL@dnr.sc.gov>; Stacie Crowe <CroweS@dnr.sc.gov>; Michelle Pate <PateS@dnr.sc.gov>; Felicia Sanders <SandersF@dnr.sc.gov>; Ben Dyar <DyarB@dnr.sc.gov>; kajumba.ntale@epa.gov; 'Singh-White, Alya' <Singh-White.Alya@epa.gov>
Cc: Wilson, Wesley CIV USARMY CESAC (USA) <Wesley.B.Wilson@usace.army.mil>; Parrish, Nancy A CIV USARMY CESAC (USA) <Nancy.A.Parrish@usace.army.mil>; Shirey, Alan D CIV USARMY CESAC (USA) <Alan.D.Shirey@usace.army.mil>
Subject: USACE - Public Notice - Folly River Navigation Project Maintenance Dredging Draft EA and FONSI (Charleston County, SC)

The U.S. Army Corps of Engineers, Charleston District (USACE) is proposing to conduct maintenance dredging on the Folly River Navigation Project. In compliance with the National Environmental Policy Act (NEPA), USACE has prepared a Draft Environmental Assessment (EA) and DRAFT Finding of No Significant Action (FONSI) to evaluate the effect of the proposed maintenance dredging.

A copy of the Draft EA and FONSI are available for your review and comment at:
<https://www.sac.usace.army.mil/Missions/Civil-Works/NEPA-Documents/>.

Please provide comments or questions by April 13, 2023 to Niko Brown at niko.r.brown@usace.army.mil or to the below address.

Thank you,

Niko Brown

Biologist
Planning & Environmental Branch, USACE – Charleston

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