

Brunswick Harbor Modifications Project Jekyll Island Fishing Pier
Shoreline Nourishment
GLYNN COUNTY, GEORGIA

Final Supplemental Environmental Assessment/ Finding of No Significant Impact



**U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 WEST OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401**



March 2024

Brunswick Harbor Modifications Project Jekyll Island Fishing Pier Shoreline
Nourishment

Final Supplemental Environmental Assessment

Lead Agency	U.S. Army Corps of Engineers, Savannah District 100 West Oglethorpe Ave. Savannah, GA 31401
Project Location	Glynn County, GA
For further information contact	Summer Wright Summer.g.wright@usace.army.mil 912-222-8945 CESAS-Planning@usace.army.mil U.S. Army Corps of Engineers, Savannah District ATTN: Summer Wright 100 West Oglethorpe Ave. Savannah, GA 31401

FINDING OF NO SIGNIFICANT IMPACT

**BRUNSWICK HARBOR MODIFICATION PROJECT JEKYLL ISLAND FISHING PIER
SHORELINE NOURISHMENT
GLYNN COUNTY, GEORGIA**

The U.S. Army Corps of Engineers, Savannah District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The final supplemental Environmental Assessment (SEA) dated 28 February 2024, for the Brunswick Harbor Modification Project Jekyll Island Fishing Pier Shoreline Nourishment addresses the protection of remaining saltmarsh southwest of the Jekyll Island Fishing Pier along the Brunswick River, Glynn County, GA.

The final SEA, incorporated herein by reference, evaluates the beneficial use of dredged material in the action area. The proposed action alternative (preferred action) includes the placement of new work dredged material from the Brunswick Harbor Modification Project (BHMP) and the future placement of dredged material collected from operations and maintenance (O&M) activity at the Brunswick Harbor Navigation Project (BHNP).

In addition to a “no action” alternative, the proposed action was evaluated. Section 2 of the SEA describes the alternatives development, placement site screening, the no action alternative, and the proposed action alternative (preferred action).

For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the proposed action are listed in Table 1:

Table 1. Summary of Potential Effects of the Recommended Plan.

	Insignificant effects	Insignificant effects as a result of mitigation	Resource unaffected by action
Air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hazardous, toxic & radioactive waste	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Land use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Navigation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Geology/Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hydrology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aquatic Biological Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Essential Fish Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Insignificant effects	Insignificant effects as a result of mitigation	Resource unaffected by action
Threatened/Endangered species/critical habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historic properties/Other cultural resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climate change	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the proposed action. Best management practices (BMPs) as detailed in the SEA will be implemented, if appropriate, to minimize impacts.

- Placement site would be designed to avoid shellfish communities and placement of material in vegetated saltmarsh (Section 2.1.2).
- Placement site would be designed to avoid blockage of two small adjacent tidal creeks (Section 2.1.2).
- The Corps would follow West Indian manatee conditions and appropriate project design criteria in the 2020 South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States (2020 SARBO) (Section 3.6).

No compensatory mitigation is required as part of the proposed action. The Corps proposes to conduct bathymetric monitoring of the placement area to assess changes in elevation immediately following, at six months, and at one-year post-construction.

Public review of the draft SEA and Finding of no Significant Impact (FONSI) was initiated on January 8, 2024, for a 15-day public comment period. All comments submitted during the public review period were responded to in the Final SEA and FONSI. Appendix G contains the comments received during the public comment period. No substantive comments were received.

Pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended, the U.S. Army Corps of Engineers determined that the proposed action may affect but is not likely to adversely affect the following federally listed species or their designated critical habitat: Atlantic and shortnose sturgeon, loggerhead, Kemp’s Ridley, and green sea turtles, and the giant manta ray. The National Marine Fisheries Service (NMFS) concurred with the Corps’ determination on November 17, 2023. This concurrence can be found in Appendix B of the SEA.

Pursuant to section 7 of the ESA, the U.S. Army Corps of Engineers determined that the proposed action will have no effect on the following NMFS ESA federally listed species or their designated critical habitat: the leatherback and Hawk’s Bill sea turtles. The analysis supporting the no effect determination can be found in Section 3.7 of the SEA.

Pursuant to section 7 of the ESA, the U.S. Army Corps of Engineers determined that the proposed action may affect but is not likely to adversely affect the following federally listed species or their designated critical habitat: West Indian manatee and wood stork. The U.S. Fish and Wildlife Service (FWS) concurred with the Corps’ determination on December 13, 2023. This concurrence can be found in Appendix A of the SEA.

Pursuant to section 7 of the ESA, the U.S. Army Corps of Engineers determined that the proposed action will have no effect on the following FWS ESA federally listed species or their

designated critical habitat: nesting sea turtles (Kemp's Ridley, Green, Hawksbill, Loggerhead, Leatherback), eastern black rail, piping plover, and rufa red knot. The analysis supporting the no effect determination can be found in Section 3.7 of the SEA.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), as amended, a Programmatic Agreement (PA) was executed for the Brunswick Harbor Modification Study between the Corps and the GA State Historic Preservation Officer (SHPO) in October 2020 (Appendix F). The Jekyll Island Beneficial Use Material Placement undertaking was covered under that PA. The Corps determined that there are no historic properties listed or eligible for the National Register of Historic Places. The GA SHPO concurred with the determination in a letter dated October 17, 2023 (HP-191113-003). There were no concerns expressed for the undertaking by the Tribes who were consulted as well. Any inadvertent discoveries will be handled according to all applicable cultural resources laws and regulations as they are discovered. Section 106 consultation for this undertaking is complete.

Pursuant to the Clean Water Act (CWA) of 1972, as amended, the discharge of dredged or fill material associated with the recommended plan has been found to be compliant with the Section 404(b)(1) Guidelines (40 CFR 230). The CWA Section 404(b)(1) Guidelines evaluation is found in Appendix D of the SEA.

A water quality certification (WQC) pursuant to Section 401 of the CWA was obtained from the Georgia Department of Natural Resources Environmental Protection Division (GADNR-EPD) on January 26, 2024. Pursuant to section 401 of the CWA, a WQC for the dredging activities of the BHMP was issued on 26 October 2020 by GADNR-EPD. However, GADNR-EPD determined that a new 401 CWA WQC would be required for the shoreline nourishment, as it was not covered by the 401 WQC issued in October 2020. The Corps coordinated with GADNR-EPD on the 401 WQC requirements and used the comment period for the draft SEA to meet requirements under section 401 of the CWA. Documentation of coordination with GADNR-EPD is found in Appendix D of the Final SEA. Any conditions of the water quality certification (WQC) will be implemented in order to minimize adverse impacts to water quality. The Corps requested a neighboring jurisdiction determination from the EPA on January 29, 2024. EPA considered the potential for water quality impacts to a neighboring jurisdiction from the project as certified and did not issue a "may affect" determination for the project pursuant to CWA Section 401(a)(2). Correspondence was received on January 31, 2024.

A consistency determination from the Georgia Coastal Zone Management program pursuant to the Coastal Zone Management Act (CZMA) of 1972 was obtained from the Georgia Department of Natural Resources, Coastal Resources Division (GADNR-CRD) on February 9, 2024 (Appendix C). The Corps requested a consistency determination from the GADNR-CRD on the BHMP channel modifications in addition to the shoreline nourishment effort due to the conditional concurrence provided by the GADNR-CRD on April 23, 2021, for the 2022 Brunswick Harbor Modifications and Operations and Maintenance Study Integrated Feasibility Report and EA/FONSI. Coordination with GADNR-CRD resulted in concurrence on the BHMP channel modifications and the Jekyll Island Fishing Pier shoreline nourishment using only the new work dredged material from the Cedar Hammock bend widener expansion. Future O&M placement of the shoreline nourishment site will require further coordination with the GADNR-CRD.

Pursuant to the Fish and Wildlife Coordination Act (FWCA) of 1934, USFWS determined that FWCA comments would not be provided for this effort and referred the Corps to comments

made on the 2022 Brunswick Harbor Modifications and Operations and Maintenance Study (BHMS) IFR/EA (Appendix A) which encouraged beneficial use.

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Corps consulted with the National Oceanic and Atmospheric Administration, Office of Habitat Conservation (NOAA-HCD) and provided the draft SEA and EFH Assessment (Appendix E) for agency review. NOAA-HCD provided comment on January 23, 2024, that the proposed action is occurring in EFH and that the present staffing precludes further analysis, and that the agency is neither in support or opposition of the proposed action. No conservation recommendations were provided. However, NOAA-HCD participated in three agency meetings on the action and provided feedback on the development of the action alternative and the monitoring and adaptive management plan. The essential fish habitat evaluation and MSA consultation for the project can be found in Appendix E of the SEA.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed. This information can be found in Section 5.0 of the Final SEA. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the proposed action would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

19 MAR 24

Date

Ronald J. Sturgeon, PMP
Colonel, U.S. Army
Commanding

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Appendix K – Jekyll Island Authority Monitoring and Adaptive Management Plan

1 Introduction

The U.S. Army Corps of Engineers (USACE), Savannah District (Corps) has prepared the Supplemental Environmental Assessment (SEA) to the 2022 Brunswick Harbor Modifications and Operations and Maintenance Study (BHMS) Integrated Feasibility Report and Environmental Assessment/Finding of No Significant Impact (IFREA/FONSI) for the inclusion of shoreline nourishment using new work dredged material from the Brunswick Harbor Modification Project (BHMP) and future operations and maintenance (O&M) dredged material from the Brunswick Harbor Navigation Project (BHNP) along the northern leeward shore of Jekyll Island. This SEA was prepared in compliance with the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321- 4370f, and in accordance with Council on Environmental Quality (CEQ) implementing regulations for NEPA, 40 C.F.R. §§ 1500-1508, and USACE implementing regulations for NEPA, 33 C.F.R. Part 230. This document details the alternative development process, as well as the analysis of impacts related to the proposed placement actions.

The FONSI was signed for the 2021 BHMS Integrated Feasibility Report (IFR/EA) on May 25, 2022. The BHMP was authorized for construction through the Water Resources Development Act (WRDA) of 2022 and is currently in the Pre-construction Engineering and Design (PED) phase. The 2022 IFREA/FONSI addressed the expansion of the Cedar Hammock Range bend widener and the expansion of the turning basin at Colonel's Island Terminal, and the creation of a vessel meeting area located at St. Simons Sound. The two expansions require removal of new work dredged material, and continued maintenance. Dredging of areas in the Federal Navigation channel that was not priorly dredged before is considered new work material. The 2022 IFREA/FONSI addressed impacts to placement of the new work and O&M material of the expansions into the existing Andrews Island Dredged Material Containment Area (DMCA). In compliance with Section 125 of the WRDA of 2020, the Corps posted a public notice on July 5, 2023, calling for beneficial use sites using the BHMP dredged material. In response to the public notice, Jekyll Island Authority (JIA) proposed a shoreline nourishment site along Jekyll Island. The Corps has prepared this SEA to evaluate both the adverse and beneficial effects of the proposed shoreline nourishment site. No other proposals were received in response to the public notice.

1.1 Proposed Federal Action

The Corps proposes to use dredged material to nourish the degrading leeward shoreline south of the Jekyll Island Fishing Pier, located adjacent to the Brunswick River. The shoreline nourishment is the placement of dredged material sourced from the Cedar Hammock bend widener expansion, along with future operations and maintenance (O&M) material from the Brunswick Harbor Navigation Project (BHNP).

The Jekyll Island Authority (JIA) submitted a proposal in response to the BHMP July 2023 Public Notice (Appendix H). The beneficial use site was identified by the JIA with considerations toward environmental and recreational resources. Anticipated start date

for the initial placement of dredged material at the shoreline nourishment site is estimated to occur in late 2024-early 2025, depending on contract award of the BHMP. Subsequent maintenance placements would occur based on determination of need and available suitable material from the BHNP. Figure 1 shows the proposed shoreline nourishment site along the northern leeward side of Jekyll Island.

Approximately 205,000 cubic yards (cy) of dredged material would be removed from the Cedar Hammock bend widener expansion and placed along the degraded shoreline with the use of a hydraulic cutterhead dredge for initial placement of dredged material from the BHMP. There is no constraint on time of year to perform the work. Subsequent maintenance placements will occur to replace lost material from the placement template in the future using O&M material from the BHNP. O&M material would either come from the inner harbor or entrance channel, and future placement would utilize cutterhead or hopper dredges and scows.



Figure 1. Jekyll Island nearshore placement site (green polygon).

1.2 Purpose and Need

The purpose of the proposed beneficial use action is to stabilize and protect the shoreline and adjacent marshland southwest of the Jekyll Island Fishing Pier. The need for the proposed action is due to the shoreline erosion that has been observed and quantified using historical aerial imagery and was identified as an area of environmental and recreational concern by the JIA. JIA has determined that the rate of erosion along the shoreline is 2 m/year, according to calculations using past aerial imagery from the Georgia Wetlands Restoration Access Portal (G-WRAP). This erosion is causing loss of saltmarsh environment, and the encroaching Brunswick River is threatening the Clam Creek Road and recreational areas located on the northern portion of Jekyll Island.

1.3 Scope of Analysis

This SEA evaluates shoreline nourishment activities that will place dredged material from the BHMP construction and O&M of the Brunswick Harbor adjacent to the marshland on the leeward side of Jekyll Island. The evaluation is to determine if there will be any significant effects to the human or natural environment that would require the preparation of an Environmental Impact Statement (EIS) or a FONSI. This SEA does not evaluate the modifications, or construction of the BHMP, as those were evaluated in the 2022 BHMS IFRA/EA. Additionally, the scope of this SEA does not include O&M dredging of the Brunswick Harbor.

1.4 Location and Description of Project Area

The Brunswick Harbor is located in the southeastern section of Glynn County, Georgia, adjacent to the City of Brunswick and includes the inner channels through St. Simons Sound, Brunswick River, Turtle River, and the East River to the Colonel's Island Terminal. The Brunswick Harbor Federal navigation channel is dredged annually in the inner harbor and entrance channels. Typically, dredged material is placed in either the ocean dredged material disposal site (ODMDS) located offshore, or in the Andrews Island DMCA located to the east of Downtown Brunswick (Figure 2).

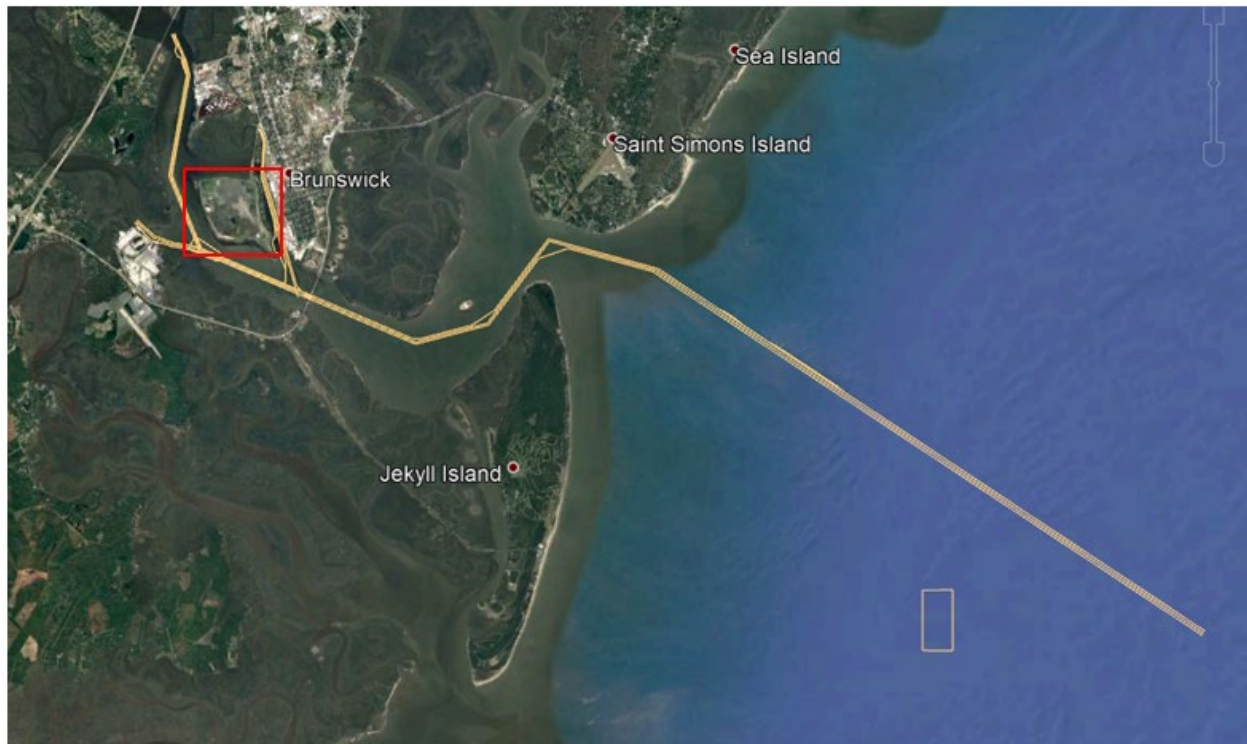


Figure 2. Brunswick Harbor Federal Navigation Channel is identified in yellow. Approved dredged material placement areas include Andrews Island DMCA (red polygon) and the ODMDS site located offshore (yellow polygon).

Jekyll Island is an important environmental, historical, and economic resource in the state of Georgia. It is a high-profile barrier island located in Glynn County, south of St. Simons Island and north of Cumberland Island. Typically, barrier islands along the South Atlantic coast were formed because of sediment transport by longshore currents that move parallel to the shore and evolved during the postglacial sea level rise (SLR) (USACE, 2021a). High-profile barrier islands have more stability to weather, flooding, and storm impacts compared to low-profile barrier islands due to height, profile, and continuity. Jekyll Island's surface area is approximately 5,700 acres, and is composed of marsh, mudflats, creeks, developed upland, well-vegetated dune ridges, and beaches. In addition, there are numerous cultural and historic resources, such as the Horton House and the National Historic Landmark District. Jekyll Island is well known as a sea turtle nesting habitat in the summertime, as well as nesting and foraging habitat for numerous shore and sea bird species. It has well-developed and protected dune fields, maritime forests, and natural creek habitats throughout the island.

1.5 Project Authority

As a SEA to the 2022 BHMS IFREA/FONSI, the proposed action is authorized under Section 1201 of WRDA of 2016. Section 125 of the WRDA of 2020 requires the Assistant Secretary of the Army, Civil Works (ASA(CW)) to maximize the beneficial use of dredged material (BUDM) obtained from construction or O&M of the USACE water resource development projects.

1.6 Prior Reports and Studies

2022 Brunswick Harbor Modification Study IFREA/FONSI: The 2022 BHMS IFREA/FONSI evaluated the expansion of the Cedar Hammock Bend Widener and the Colonel's Island Terminal turning basin, and the creation of a vessel meeting area in the St. Simons Sound that does not require dredging. The expansion efforts include the removal of the new work dredged material and subsequent O&M thereafter. The 2022 IFREA/FONSI is herein incorporated by reference, and this environmental assessment is being prepared as a supplement.

1998 Final Environmental Impact Statement and Record of Decision, Brunswick Harbor Deepening Project, Brunswick, Georgia: In 1998, a feasibility study was completed that recommended changing the evaluated depth of the project from -30 feet below mean lower low water (MLLW) to -36 feet below MLLW within the inner harbor, and to -38 feet below MLLW within the entrance channel. This recommendation was authorized in Section 101 of the WRDA of 1999 (Public Law 106-53) and serves as the evaluation for the current BHNP including O&M of the harbor. The 1998 EIS addressed the impacts of O&M dredging activities in the Brunswick Harbor.

2021 BHMS Subsurface Exploration and Geotechnical Engineering Data Report: Due to initial scoping of potential beneficial use sites during the development of the BHMS, a geotechnical investigation was undertaken in October and November 2020.

This investigation assessed the turning basin and bend widener, yielding detailed sediment characteristics for the project area. According to the results, the turning basin consisted of mostly silty and clayey sediments, and the Cedar Hammock bend widener consisted of mostly coarser-grained material (0.2mm and greater) (Ardaman and Associates, Inc., 2021).

2016 Evaluation of Dredged Sediment from the Brunswick Harbor Navigation Project in Accordance with Marine Protection, Research and Sanctuaries Act (MPRSA) Section 103:

Anamar Environmental Consulting, Inc conducted Tier III sediment testing of the Brunswick Harbor O&M material in 2015 in accordance with MPRSA Section 103 (Appendix J). The project sediments were divided into 8 dredging units. The results of the grain size are listed in Table 1 below. Chemical testing was also conducted as part of this testing event. There were no significant levels of concern for chemicals, whole sediment bioassay, elutriate and water chemistry, or water column bioassays in any of the samples collected from the dredge units.

Table 1. Dredging Unit Stations and Grain Size.

Dredging Unit	Dredging Sub-Units	Stations	Grain Size (approx. % sand)
Bar-CH (Cedar Hammock Range)	(none)	+12+750 to 22+000	69.9
Bar-1/2 (Bar 1 Reach & Bar 2 Reach)	(none)	0+000 to -19+000	94.4
Bar-3 (Bar 3 Reach)	(none)	-19+000 to -23+000	77.3
Bar-4A (Northern portion of Bar 4 Reach)	Bar-4A-1	-23+000 to -25+500	48.5
	Bar-4A-2	-25+500 to -28+000	53.7
Bar-4B (Southern portion of Bar 4 Reach)	Bar-4B-1	-28+000 to -30+500	64.4
	Bar-4B-2	-30+500 to -33+500	46.3
Bar-5 (Bar 5 Reach)	Bar-5A	-33+500 to -36+500	55.5
	Bar-5B	-36+500 to -56+500	39.9
WD-1 (Widener 1 [sediment trap])	(none)	14+500 to -16+600	90.0
WD-2 (Widener 2 [sediment trap])	(none)	20+000 to -29+000	68.2
ODMDS-Sed A	(none)	n/a	88.5
ODMDS-Sed B	(none)	n/a	75.2
ODMDS-Sed C	(none)	n/a	95.5
RS-BW-C (Reference)	(none)	n/a	86

2 Alternatives

The Corps initially evaluated and identified five beneficial use opportunities in the 2022 BHMS IFREA/FONSI. Three sites were screened out due to being further from the dredge locations than the Andrews Island DMCA, and thus exceeded the federal standard. The federal standard for dredged material placement is defined in Corps regulations as the least costly dredged material placement alternative identified that is consistent with sound engineering practices and meets all Federal environmental requirements. The last two beneficial use sites included (1) restoration of the bird island located at the St. Simons Sound and (2) creation of a new bird island in Brunswick Harbor south of the intersection of Cedar Hammock and Brunswick Point Cut ranges. These two sites were determined infeasible due to estimated costs exceeding the federal standard and costs for the base plan of the modification study (see section and 3.6 and 3.7 of the 2022 BHMS IFREA/FONSI). Since the completion of IFREA/FONSI, new guidance was issued on November 7, 2022 relating to implementation of Section 125(a) of 2020 WRDA, which requires the maximization of beneficial use for construction and O&M material of a project involving the disposal of dredged material. In the 2022 BHMS IFREA/FONSI, the Corps discussed revisiting beneficial use opportunities during the PED phase. In light of this and the Section 125 guidance, the Corps decided to seek beneficial use proposals through the public notice posted on July 5, 2023. The Corps received one site proposal from the JIA. No other proposals were submitted.

The Corps conducted a preliminary evaluation of the technical feasibility of the JIA site. This evaluation considered economic and navigational factors and determined the site was technically feasible. These factors included: migration of material into the navigation channel, cost effectiveness, and constructability. The proposed action was determined economically feasible due to the cost effectiveness of the site being close to the Cedar Hammock bend widener in comparison to the longer pumping distance to the upland Andrews Island DMCA. The proposed action also met the federal standard when taking into consideration construction and pumping costs and environmental and economic benefits. The proposed action was found to not have significant negative impacts on the navigation channel due to recent hydrologic modeling conducted within the proposed action area (see Section 3.3.3 for more detail).

This SEA has been prepared to provide an analysis of the environmental and socioeconomic impacts of the proposed JIA site to determine environmental feasibility. The two alternatives analyzed in this SEA are listed in Table 2 below.

Table 2. Descriptions of the NAA and Proposed Action.

Alternative	Description	Location (lat/long)	Placement Method
No Action Alternative (NAA)	The 205,000 cy of dredged material from the Cedar Hammock Bend Widener will be placed in the Andrews Island	31.140163°N -81.509337°W	Upland placement into existing Andrews Island DMCA via cutterhead

	DMCA.		pipeline.
Proposed Action (Preferred Action)	The 205,000 cy of dredged material from the Cedar Hammock Bend Widener under the BHMP and future O&M material from the BHNP will be placed directly onto the degraded shoreline adjacent to the marshlands of the northern Brunswick River side of Jekyll Island to stabilize and protect the remaining shoreline.	31.112685°N -81.419067°W	Unconfined placement for shoreline nourishment of Jekyll Island degraded saltmarsh via cutterhead pipeline.

2.1 No Action Alternative

The No Action Alternative (NAA) is to place the 205,000 cy of dredged material from the Cedar Hammock Bend Widener into the Andrews Island DMCA. Dredged material from the BHMP and future O&M dredged material from the BHNP will continue to be placed into Andrews Island DMCA or the ODMDS. This alternative would not result in shoreline nourishment at Jekyll Island. The benefits of extending the lifecycle use of the Andrews Island DMCA would also not be realized. While the NAA would not meet the purpose and need, it is carried forward as a basis for comparison against the proposed action alternative.

2.2 Proposed Action Alternative

The proposed federal action is to directly place approximately 205,000 cy of primarily sandy dredged material from the Cedar Hammock Bend Widener expansion onto the degraded shoreline southwest of the Jekyll Island Fishing Pier (Figure 1). This location is on the leeward side of northern Jekyll Island. The material will be placed in shallow areas that were historically marsh and sandy mudflat habitat that has been degraded due to loss of elevation from tidal and wave-driven erosional forces (Figures 3 and 4). Placement of sediment in this area will provide valuable protection and attenuate wave energy along the adjacent shoreline.

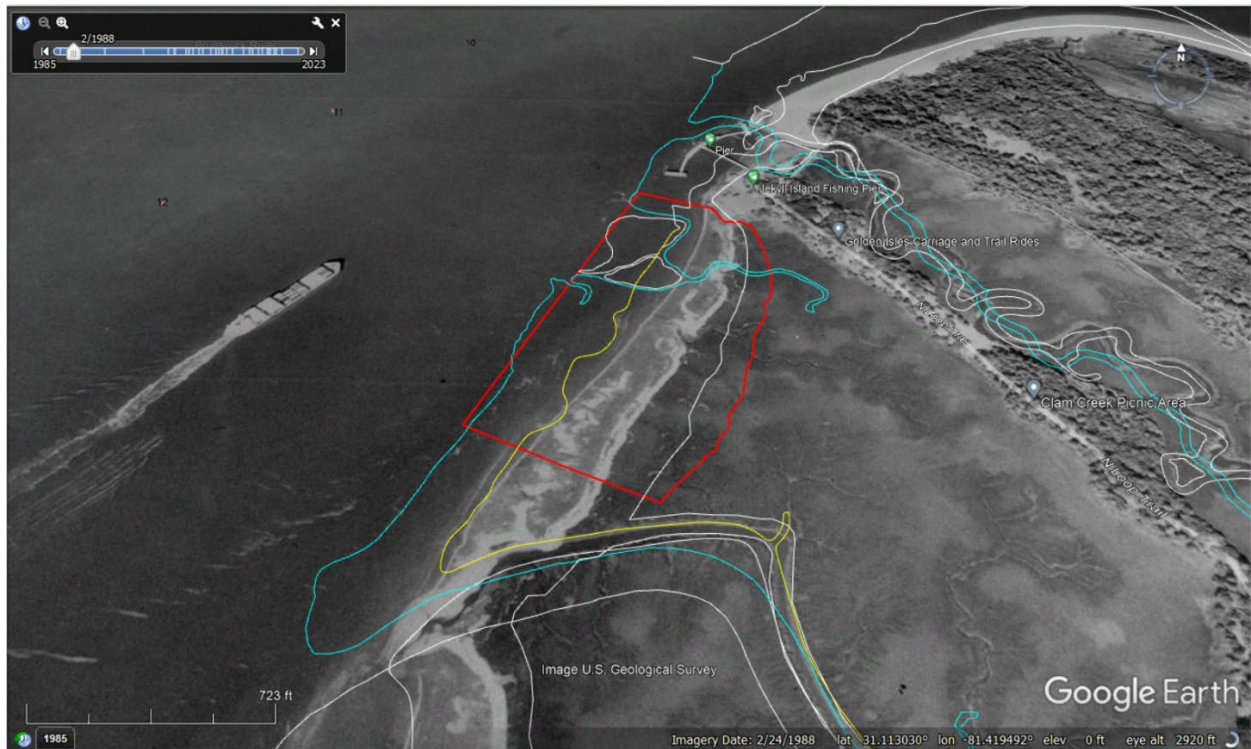


Figure 3. 1988 aerial imagery of the proposed placement location. The proposed placement polygon is in red. The blue line is historical shoreline from 1855, and the yellow is historical shoreline from 1933 (G-WRAP, 2023).

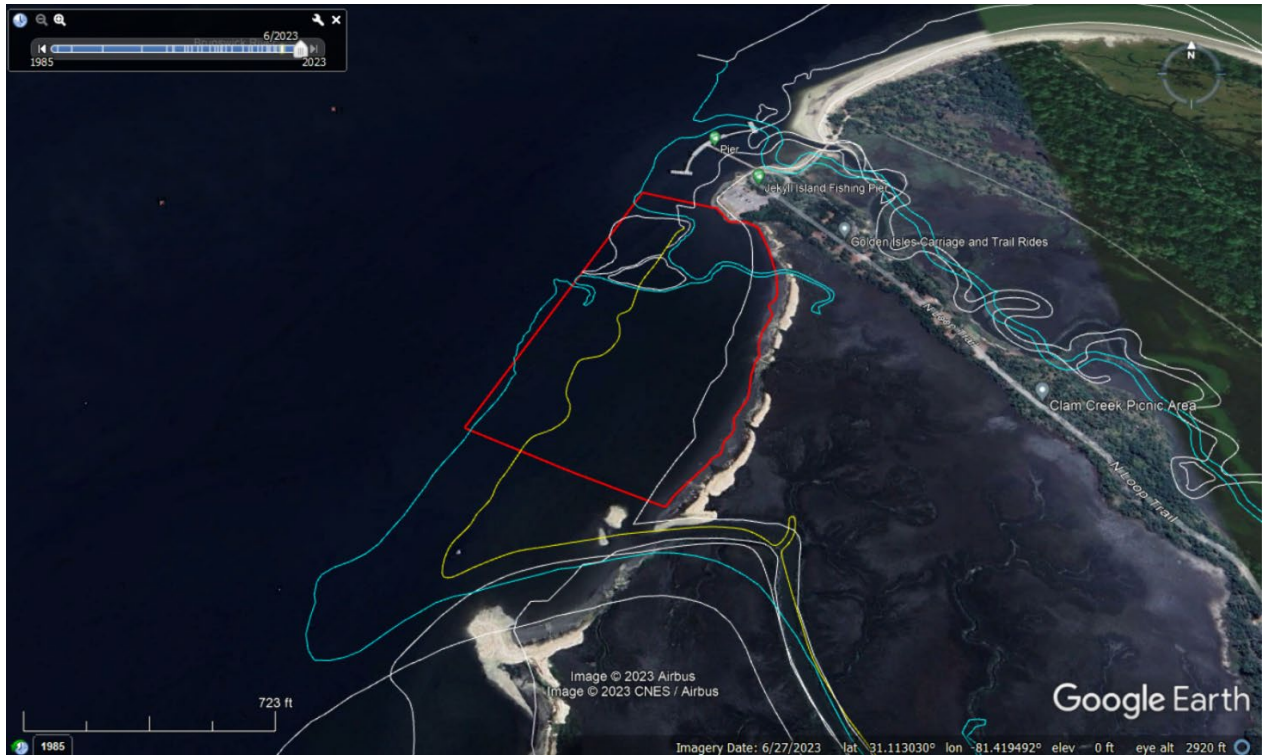


Figure 4. June 2023 aerial imagery of the current shoreline with comparisons to the proposed placement and the historical shorelines (blue-1855, yellow-1933) (G-WRAP, 2023).

Initial placement will occur during dredging operations under the BHMP. This site will not receive any hardened structure after sediment placement completion; therefore, material is expected to migrate within the system over time from natural forces. The Corps may use dredged material from future O&M of the BHNP to replace sediment that has migrated from the original design template, as needed (Table 3).

Table 3. Estimated initial and maintenance placement volumes and approximate placement recurrence rate.

Initial Placement Volume (CY)	Maintenance Placement Minimum (CY)	Maintenance Placement Maximum (CY)	Acreage	Approx. Minimum Reoccurrence Rate (Yrs)
205,000	Dependent upon shoreline erosion extent and amount of material available.	100,000 cy	30	2-5

Maximum placement elevation at the top of the shoreline nourishment berm as shown in the attached current 60% design is 7.0 +/- 0.5 ft mean lower low water (MLLW) in the area closest to the shoreline (Appendix I; Figure 5). While the attached current 60%

design document indicates a 0.5 ft tolerance, industry feedback and technical constraints may require a +/- 1.0 ft tolerance. MHW is approximately 7.35 ft MLLW in the Brunswick area (NOAA, 2023a). The slope into the subtidal zone descends by 1 ft MLLW until reaching the existing elevation. The slope of the placement will mimic natural features in the surrounding area. Heavy equipment such as bulldozers will be used to shape the material to design specifications. While the estimated material to be removed from the bend widener is 205,000 cy, approximately 118,000 cy is expected to be placed within the design template due to the estimation that 20% of the fine-grained material is expected to winnow away with the tidal and riverine flows. Five borings within the bend widener area were taken in 2021 as part of the BHMS (Figure 6). The dredge material at the bend widener consists of poorly graded sands, silty sands, and highly weathered limestone (Table 4). Future maintenance placements will utilize sediment from shoals within the inner harbor or entrance channel. Exact location of the material would be dependent on proximity to the placement site and percent fines based on the 2016 MPRSA Tier III sediment data described in Section 1.6.

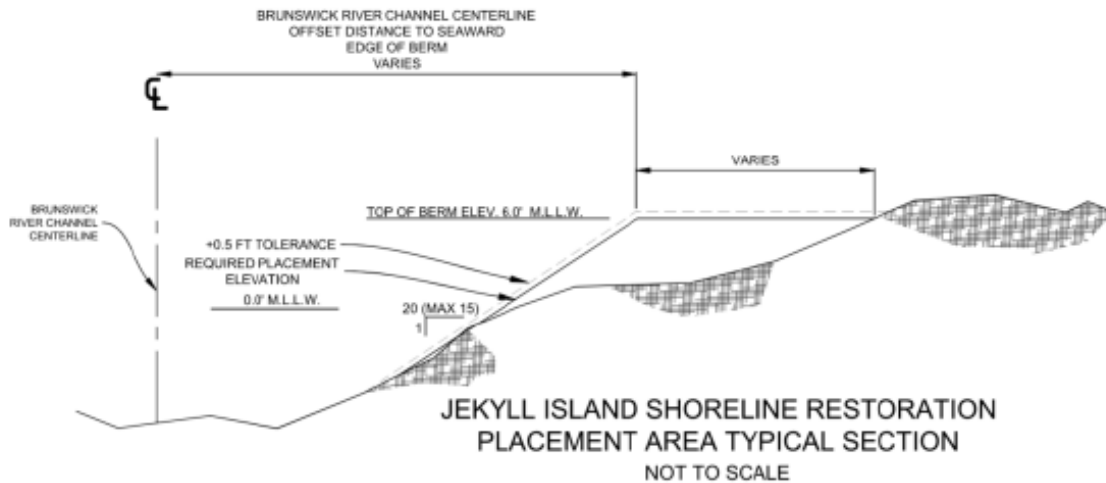


Figure 5. 60% design cross-section of the shoreline nourishment.

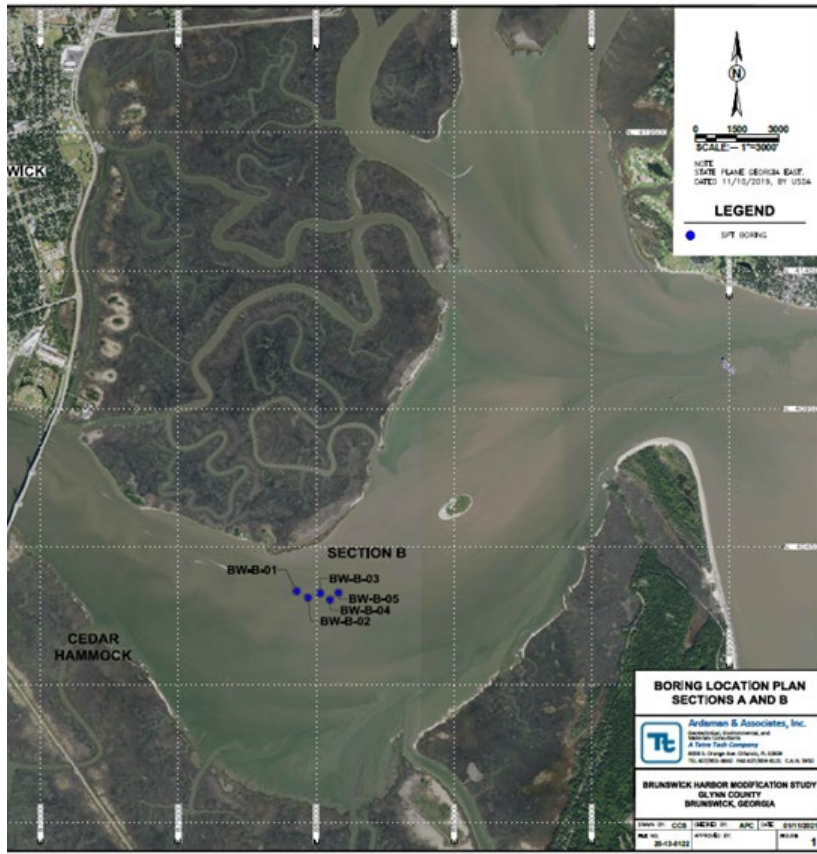


Figure 6. Location of the 2021 BHMP geotechnical borings in the Cedar Hammock bend widener expansion.

Table 4. Percent fines of the bend widener geotechnical borings.

Boring	Percent Fines
BW-01	82
BW-02	71
BW-03	8
BW-04	6
BW-05	8

The design avoids any placement within the inflow/outflow points of the two adjacent tidal marsh creeks to address concerns regarding placement material migrating and impeding flow into and out of the creeks. Buffer zones were included in the 60% design

(Attachment 1). The buffer zones are approximately 350 ft north to south of the inflow/outflow points of the creeks. The zone depicted by hatch marks in the 60% design (Appendix I) will have no placement within this area. Placement around this zone will increase by 1 ft MLLW until reaching the maximum 7.0 ft MLLW elevation of the berm. Monitoring of the tidal creeks will occur during construction and afterwards by JIA to ensure that tidal creek flows are not inhibited by migration of the material placed. If tidal creeks do become blocked by sediment migration as a result of construction, actions will be taken to restore tidal flows. If sediment sloughing into the tidal creek buffer zones does occur, however, it is anticipated that flows will be naturally restored via tidal flows and precipitation events. More analysis can be found in Section 3.2 of this SEA.

For initial placement, hydraulic cutterhead will be the means of placing the dredged sediment into the proposed shoreline nourishment site. Pipeline will be moved around to achieve design elevation, with the use of heavy machinery to grade within design tolerances as needed. Estimated construction duration is approximately 30 days. Future O&M placement may be done with either cutterhead pipeline or hopper dredge and scows.

Design and construction restraints include the following:

- No material placement within the tidal creek restricted zones.
- No material placement on the oyster bed and shell rake located south of the placement area.
- No material placement on the adjacent saltmarsh and vegetation.
- No construction equipment on or pipeline placed on the adjacent saltmarsh.

The Corps proposes to conduct bathymetric monitoring of the placement area to assess changes in elevation immediately following, six months, and one year post-construction.

For monitoring and adaptive management, JIA proposes (see Appendix K) to commit to the following post-construction activities:

- Real-Time Kinematic surveys to evaluate elevation changes.
- Drone footage to monitor sediment movement and tidal creek flows (dependent upon FAA approval).
- Provide labor and use of handheld equipment to remove sediments in the event that tidal creek flows are negatively impacted by the migration of dredged sediment upstream beyond the ability for natural tidal and precipitation forces to reopen the creeks.

3 Affected Environment and Environmental Consequences

This section provides a discussion of the affected environment and potential environmental consequences of the Proposed Action in comparison with the NAA.

3.1 Resources Dismissed from Detailed Analysis

The Corps does not anticipate any effects to air quality, aesthetics, noise, hazardous, toxic, or radioactive wastes, land use, navigation, geology/soils, vegetation, and environmental justice from either the No Action Alternative or the Action Alternative. These resources have been dismissed from detailed analysis (Table 2). In addition, the Corps does not anticipate that the proposed action would result in any irretrievable commitments of resources due to the temporal nature and spatial extent of the placement. Relevant resources are considered in more detail below in this section.

Table 5. Environmental Resources Dismissed from Detailed Analysis.

Resource	Reason for Dismissal
Air Quality	There will be a negligible short-term reduction of air quality due to emissions from placement operations. Construction is expected to occur for approximately 30 days. The action area is located within an attainment area, but due to the limited temporal and spatial extent of construction, impacts are expected to be de minimus. Placement activities involve placement of slurried material, so limited fugitive dust would occur. Therefore, the project would have an overall negligible effect on air quality.
Noise	A negligible temporary increase in the noise level during construction in the vicinity of the project may occur but would be similar to noise levels created by motorized vessels transiting the Brunswick River. Construction noise would cease with completion. Therefore, the Corps has determined that the proposed project would have an overall negligible effect on noise level concerns.
Hazardous, Toxic, and Radioactive Waste	Dredged material is not designated as hazardous waste unless within a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site. This proposed action is not within a CERCLA site, and environmental testing was completed in 2021 for the Cedar Hammock Bend Widener dredged material demonstrating that there is no source or indication of contamination within the dredged sediments (Ardaman & Associates, Inc., 2021).
Land Use	The proposed action will have no effect to land use in the vicinity of the placement area. The Brunswick Harbor Federal navigation channel will continue to provide navigation access for commercial and recreational vessels.
Navigation	BUDM provides a long-term benefit to navigation by ensuring navigability of the channel while also increasing the longevity of DMCA's and ensuring compliance with WRDA 2020. The material

	is not expected to impact navigability in the Brunswick Harbor Federal navigation channel.
Geology/Soils	Degraded intertidal features are expected to benefit through additional elevation through the proposed placements. No unique or noteworthy geological features will be permanently impacted. The slope of the placement will mimic natural features in the surrounding area. Additionally, the sediment being placed is native sediment from the Brunswick River and will not change the overall composition of the sediment within the system. The dominant grain size in the placement area is fine to very fine sand.
Vegetation	There is no submerged aquatic vegetation within the proposed placement area. There is existing <i>Spartina alterniflora</i> in the saltmarsh adjacent to the placement area, but no impacts are expected to this vegetation as a result of deposition of the dredged material. Dredged material is expected to drift along the littoral current as a result of the flood/ebb currents.
Environmental Justice	According to the Climate and Economic Justice Screening Tool (CEJST), no environmental justice or disadvantaged communities are located within or near the project area. Therefore, no benefits or disproportionate impacts are expected to Environmental Justice communities. Additionally, there is no visitor usage data of the Jekyll Island Fishing Pier. However, usage of the fishing pier and the adjacent camping area should not be impacted from the shoreline nourishment.

3.2 Hydrology

3.2.1 Existing Conditions

The nearshore area of the northern leeward side of Jekyll Island is heavily influenced by ebb/flood tides from the Atlantic Ocean, precipitation, and wave refraction energy. The National Oceanic and Atmospheric Administration (NOAA) operates and maintains two nearby active tide gages which track tidal fluctuations in the area and is located within approximately 1-mile radius of the nearshore site. Datum information is provided in Table 6 and Figures 7 and 8 below.

Table 6. Water Levels and Tide Ranges for the Two Nearby NOAA Stations (NOAA, 2023a).

Station ID	Station Name	Mean Higher High Water (feet)	Mean High Water (feet)	Mean Tide Level (feet)	Mean Sea Level (feet)	Mean Low Water (feet)	Mean Lower Low Water (feet)

8677832	Jekyll Island Marina, Jekyll Creek, GA	7.39	7.04	3.63	3.75	0.22	0.00
8677406	Howe Street Pier, Brunswick, GA	7.72	7.35	3.79	4.01	0.22	0.00

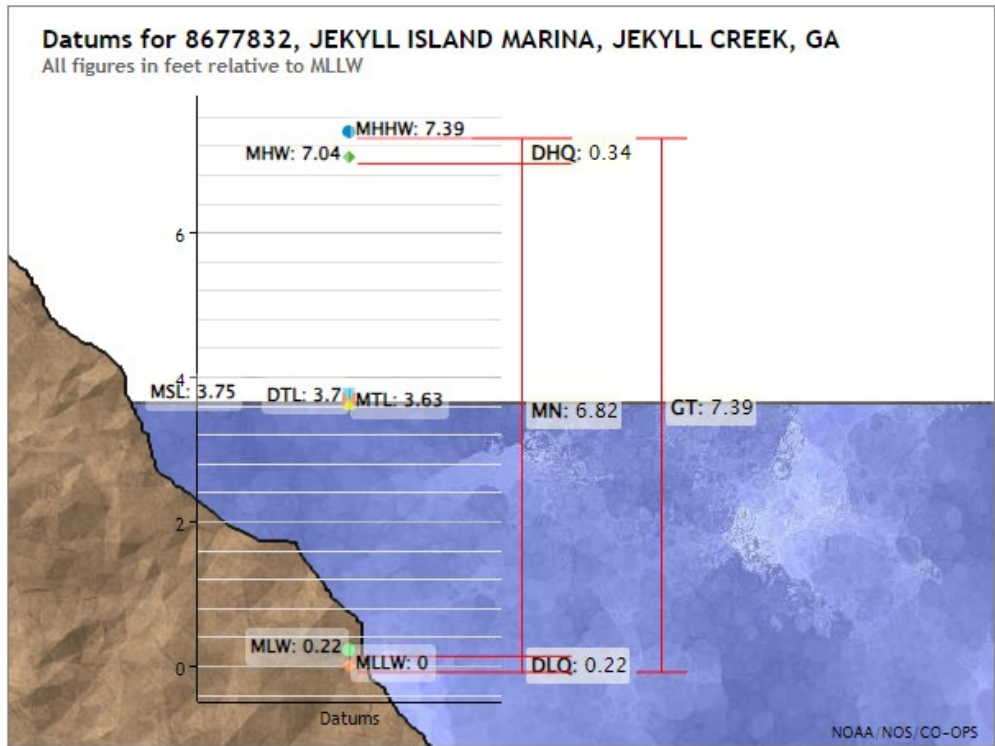


Figure 7. Jekyll Creek Marine, Jekyll Creek Datum Relationship (NOAA).

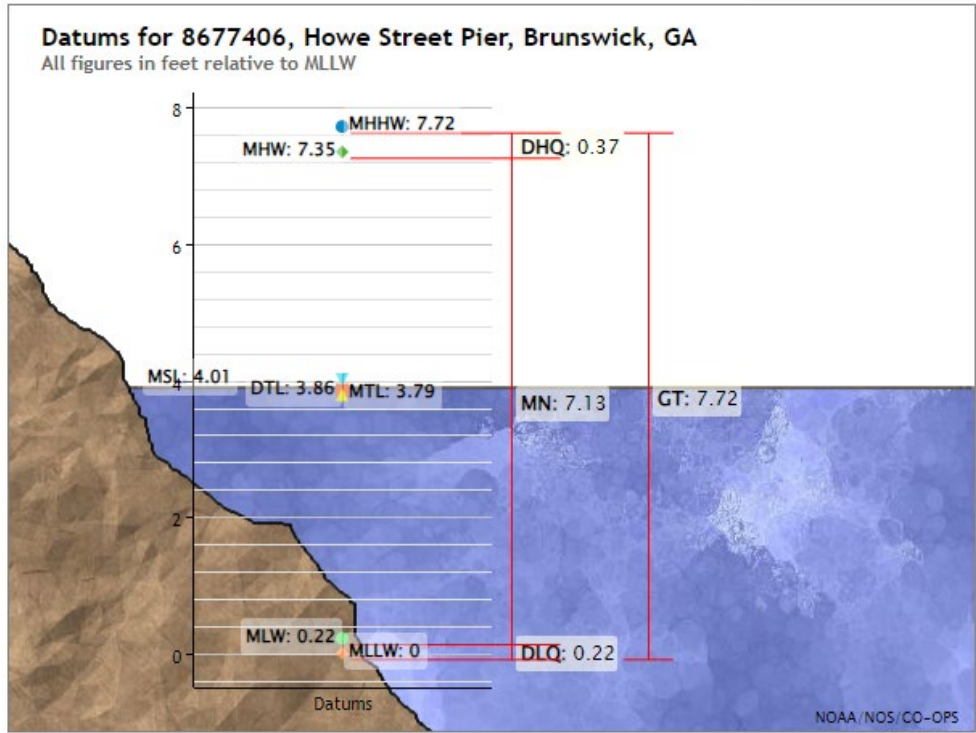


Figure 8. Howe Street Pier, Brunswick, GA Datum Relationship (NOAA).

There are two small tidal creeks within the adjacent saltmarsh that provide tidal inundation and flushing of the saltmarsh. Figures 9 and 10 provide visuals of the northern most tidal creek adjacent to the placement area. These tidal creeks are affected by ebb/flood tides and precipitation. During precipitation events, downstream flows tend to be highest out of the tidal creeks. The mouths of the tidal creeks are approximately 5 ft wide with mostly shell rake and sandy material deposited from the Brunswick River.



Figure 9. Mouth of the northernmost tidal creek adjacent to the placement area facing the Brunswick River at low tide.



Figure 10. Northern most tidal creek adjacent to the placement area.

3.2.2 Environmental Consequences of No Action Alternative

The NAA would have minor, long term impacts to the hydrology in the proposed action area as the dredged material from the BHMP and BHNP will be deposited into the Andrews Island DMCA. Continued erosion may cause the hydrology of the adjacent tidal creeks to eventually be impeded by shoreline change and loss, thereby impacting morphology and channel lengths of the creeks.

3.2.3 Environmental Consequences of Proposed Action

The proposed action would have minimal localized short term negative impacts to the hydrology. Wave energy impacting the existing degraded shoreline will be reduced with the presence of the placement material. There will be no changes to the tidal regime or riverine flow, given the small footprint of the placement in the context of the larger riverine/estuarine system.

There may be short term minor impacts to flows of the two small tidal creeks in the adjacent saltmarsh due to the potential for placement material to move into the creeks during flood currents, or to slump into the creek as the sediment equilibrates with the tidal flows. It is expected that any placement material deposited into the creeks will be removed during ebb tide and also due to precipitation events that sustain downstream flows strong enough to erode the deposited material. The placement site has sufficient

tidal range and prism such that the tidal creeks are expected to equilibrate quickly to pre-project creek channel area and flow magnitude.

With regard to sediment placement, according to Piercy et al., (2023) coarse grained material will settle directly adjacent to the placement discharge point whereas finer-grained material will diffuse and travel further from the placement discharge point. Applying these findings to this project, the expectation is that, since the placement material will consist of mostly sandy material from the new work and O&M dredging, the material will mound close to the discharge point because there is a lack of fines which could diffuse from that location. This is beneficial for two reasons; first, the constructed berm and elevation will be much easier to achieve as sediment can be placed with more precision. Second, there is a lack of fines available to diffuse from the placement location and potentially fill the tidal creeks during construction. It is expected that the creeks will remain clear of fines due to sufficient erodibility, and that the coarse material will remain at its placement location at distance from the creeks.

An Escoffier curve analysis was conducted to examine the present-day and future with project stability of the existing tidal creeks at the project site. Escoffier curve analysis uses a diagram that plots in-channel flow velocity and the channel equilibrium velocity against the tidal creek equilibrium cross sectional flow area (Figure 11) to determine if the tidal creek is in a dynamically stable configuration. If the channel area and in-channel velocity is plotted at position D, the inlet will remain open and stable because the flow velocity, bed stress and channel area are in dynamic equilibrium. Table 7 provides comparisons of the equilibrium channel area and velocity of the creeks without and with shoreline nourishment.

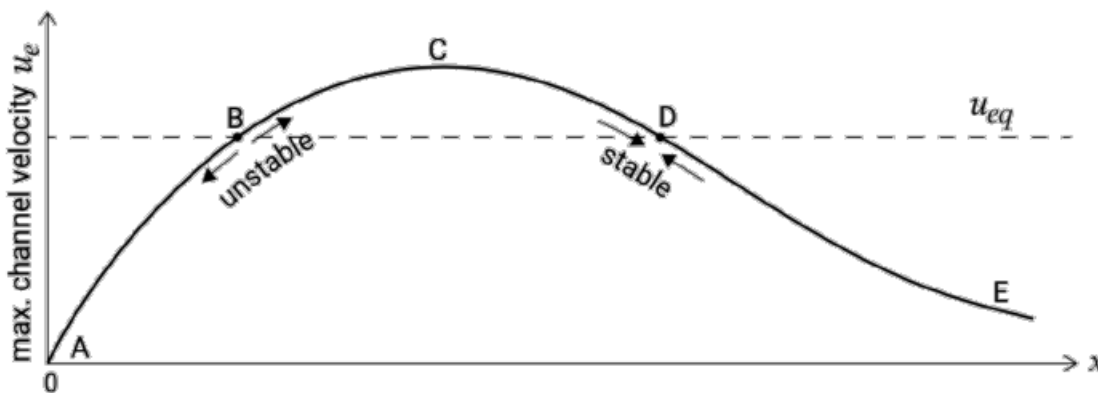


Figure 11. Escoffier curve analysis plots maximum channel velocity (y-axis) against cross sectional flow area (x-axis).

Table 7. Equilibrium channel area and velocity calculations for the tidal creeks without and with shoreline nourishment.

	Equilibrium Channel Area	Channel Velocity
Without Shoreline Nourishment	2.56 m ²	0.43 m/s
With Shoreline Nourishment	2.57 m ²	0.44 m/s

According to the Escoffier curve diagram, the existing condition of the two tidal creeks are hydraulically stable. With shoreline nourishment, the creeks remain hydraulically stable according to the Escoffier curve diagram whereby the calculated channel velocity (0.4 m/s) and the equilibrium channel area (2.6 m²) falls close to point D along the curve (Figure 12).

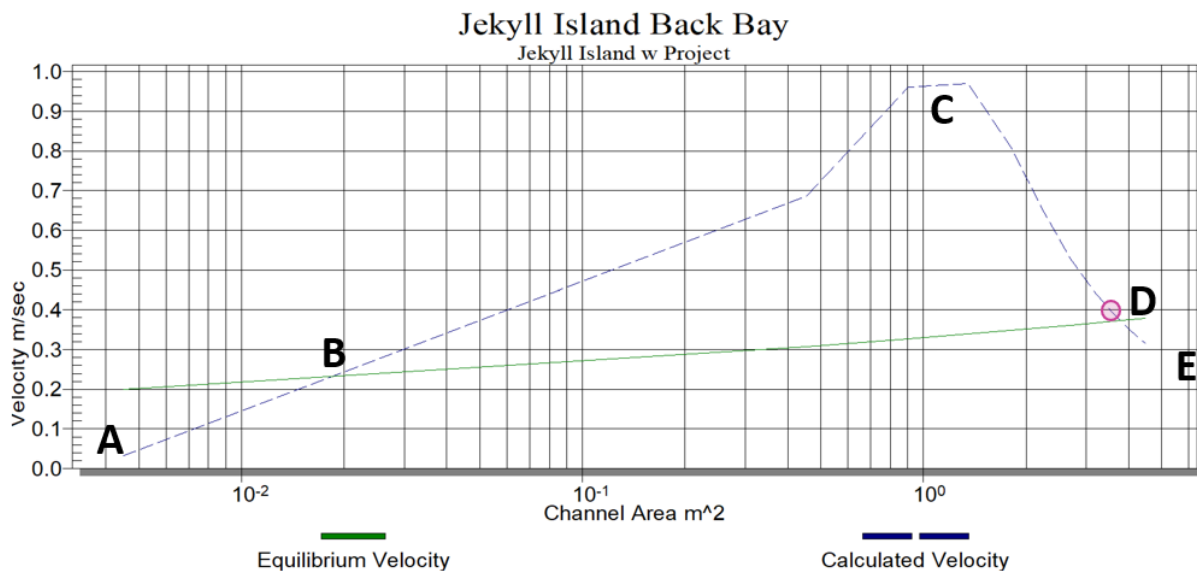


Figure 12. Escoffier curve analysis for the tidal creeks with shoreline nourishment.

Channel flow velocity and channel area of the two adjacent tidal creeks are not expected to change. It is expected that the flow velocities of the creek would be restored through natural ebb flows and precipitation events and would have the capacity to flush sediment from the creeks. Tidal flushing would still occur, and tidal creeks would still be able to deliver flow into the tidal marshes, retaining hydrologic connectivity. Additionally, the Corps in cooperation with JIA would continue to monitor the site after placement and would conduct adaptive management as needed maintain the tidal creeks, further avoiding and minimizing any minor adverse impacts. Therefore, the proposed action would not have significant impacts to hydrology. During future maintenance placements, the Corps would continue to monitor during construction and coordinate with JIA ongoing monitoring efforts. Therefore, based on this analysis, the proposed action

would have minor, short term negative impacts on hydrology and these impacts would occur primarily during construction.

3.3 Water Quality

3.3.1 Existing Conditions

The State of Georgia assesses its water bodies for compliance with water quality standards established for their designated uses as required by the CWA. Water quality standards are found in Georgia’s Rules and Regulations for Water Quality Control (Chapter 391-3-6-.03). All waters in Georgia are classified into categories, which have different standards depending on the designated use of the water body. These uses include: (a) Drinking Water Supplies; (b) Recreation; (c) Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life; (d) Wild River; (e) Scenic River; and (f) Coastal Fishing. Recreation designation is assigned if the water supports general recreational activities such as water skiing, boating, or swimming. The littoral waters on the ocean side of Jekyll Island are classified as Recreational. Waters within Brunswick River are classified as Fishing.

Assessed water bodies are placed into one of three categories, depending on water quality assessment results: supporting designated use; not supporting designated use; or assessment pending. These water bodies are found on Georgia’s 2020 305(b) list (Table 8). The subset of the water bodies that do not meet designated uses on the 305(b) list are also assigned to Georgia’s 303(d) list. Although the 305(b) and 303(d) lists are two distinct requirements under the CWA, Georgia reports both lists in one combined format called the Integrated 305(b)/303(d) List.

The Brunswick River is classified as category 5, which means data indicates that at least one designated use is not being met and total maximum daily loads (TMDL(s)) need to be completed for one or more pollutants. According to the 2022 305(b)/303(d) List published by the Georgia Department of Natural Resources Environmental Protection Division (GADNR-EPD), TMDL is drafted for Selenium (Se) in 2021, TMDLs are to be drafted by 2026 for Arsenic (As) and Copper (Cu), and TMDL for fish tissue (PCBs) is to be drafted by 2031.

Table 8. 305(b)/303(d) List Supporting Water Bodies in Project Area.

Reach ID	Name/Location	River Basin/Use	Cause/Source
GAR030702030211	South Brunswick River to the St. Simons Sound (Brunswick)	Satilla Fishing	Se, As, Fish Tissue (PCBs), Cu

Georgia’s Rules and Regulations for Water Quality Control, Rule 391-3-6-.03(5)(d) states that all waters shall be free from turbidity which results in a substantial visual contrast in a water body due to a man-made activity. Turbidity levels at the action areas are influenced by the dynamic currents associated with the riverine and coastal influences within the Brunswick Harbor, and the littoral zone of Jekyll Island, including

wave, wake and tidal action. The two reported major sources of turbidity in coastal areas are very fine organic particulate matter and sand-sized sediments that are re-suspended around the seabed by local waves and currents (Dompe and Haynes 1993). Higher turbidity levels are typically expected around the areas where river flows and tidal flows mix, and particularly in estuarine areas, due to high nutrient and entrained sediment levels. High turbidity episodes usually return to background conditions within several days to several weeks, depending on the duration of the disturbance (i.e., storm event) and on the volume of suspended fines.

For the BHMS, Tier III testing was conducted within the Cedar Hammock bend widener range in November 2020 (Ardaman & Associates, Inc., 2021) (Appendix J). Table 4 in Section 2.2 provides the grain size of the borings. Five sediment samples and one water sample from the bend widener were also analyzed for laboratory analytical testing. Dioxins and furans concentrations were not found to be significant in the bend widener samples. No RCRA-8 metals, pesticides, poly-chlorinated biphenyls (PCBs), and polynuclear aromatic hydrocarbons (PAHs) were found to be within the bend widener samples. In the elutriate water sample, no dioxins and furans, RCRA-8 metals, pesticides, PCBs, and PAHs were detected.

For the BHNP, Anamar Environmental Consulting, Inc conducted Tier III sediment testing of the Brunswick Harbor O&M material in 2015 in accordance with MPRSA Section 103. The project sediments were divided into 8 dredging units. Table 1 in Section 1.6 provides the grain sizes for the dredging units. Chemical testing was also conducted as part of this testing event. There were no significant levels of concern for chemicals, whole sediment bioassay, elutriate and water chemistry, or water column bioassays in any of the samples collected from the dredge units.

3.3.2 Environmental Consequences of No Action Alternative

The NAA will result in cutterhead dredge pipeline being placed from the bend widener or lower areas of the Brunswick Harbor to the Andrews Island DMCA, potentially causing an increase in turbidity in the Brunswick River due to disturbance of sediments. Generally, activities that stir up sediments and increase turbidity are believed to temporarily reduce dissolved oxygen levels as sediments are dispersed in the water column. Impacts to dissolved oxygen are therefore expected to be similar as described for turbidity. It is anticipated that any turbidity plumes would dissipate rapidly and effects to turbidity and water quality would be negligible and not significant. Overall, there will be short-term minor negative impacts to water quality as a result of the NAA.

3.3.3 Environmental Consequences of Proposed Action

The placement of dredged material for shoreline nourishment using material from the BHMP and BHNP is anticipated to primarily affect turbidity and dissolved oxygen in the project area. The suspension of sediment in the water column during dredging and material placement can result in a temporary increase in turbidity in the area. The proposed action may also temporarily impact dissolved oxygen levels at the site of the active dredging and placement. With the redispersion of sediment into the proposed action area water column, sediment oxygen demand increases and thereby decreases

dissolved oxygen. Impacts to dissolved oxygen are therefore expected to be similar as described for turbidity.

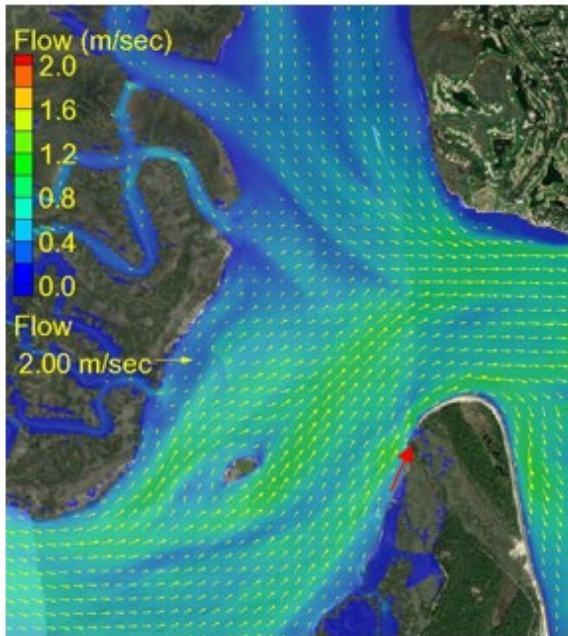
Material placement-generated turbidity plumes are limited to an area only a few hundred feet to a few thousand feet and most turbidity settles out quickly once material placement is complete (NOAA, 2023b). Wilber et al., 2006 reported that elevated total suspended solids (TSS) concentrations associated with active material placement along a beach were limited to within 1,312 feet of the discharge pipe in the swash zone. The distance suspended solids can travel outside of the project footprint can vary depending on the density of the suspended solids (generally referred to as the percent of fines in the material) and local hydrographic patterns, such as the local tides and currents. The velocity of water movement in the area can affect the time that suspended solids remain in the area. For example, riverine environments with an outgoing tide will flush away turbidity quicker than areas with less current such as an estuary with limited tidal flushing. In rivers, the currents also act to compress the turbidity plume as it moves downstream and settles, reducing the overall area/volume affected by it (2020 SARBO Section 3.1.1.2, p.97). As the placement material is of high sand content and the proposed action area is subject to tidal flushing, turbidity plumes are expected to settle out quickly and any impacts would be negligible, localized, and temporary.

Turbidity plume directions have been estimated for the placement activity (Figure 13; Figure 14). It is expected that most of the material placed would remain in the template, but there may be some minor turbidity plumes generated during placement. The direction will be dependent on the tidal flows at time of construction. Turbidity plume consideration was based upon the Coastal Modeling System (CMS) model completed by the USACE Engineer Research Development Center (ERDC). CMS is a numerical model that calculates tidal flows, wave-induced currents, and morphologic change. Based on this modeling effort, the general pattern of flow in the proposed action area is north to south (littoral) along the shoreline. The flow along the area appears to be up to 0.4 m/sec during the ebb and tidal flow simulations. In evaluation of the modeling, sediment movement and impacts to water quality are expected to be minor and spatially limited.

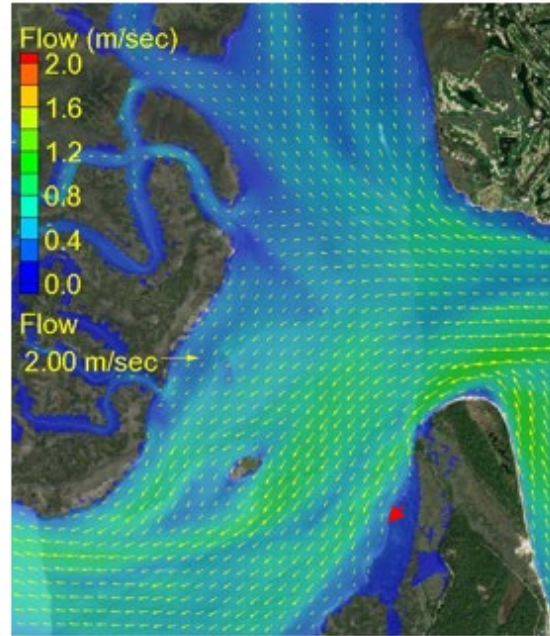
According to the CMS modeling, the longshore transport south of the Jekyll Island Pier, which is primarily affected by daily tidal currents (both flood and ebb currents), is primarily flood tide and is therefore directed more southward along the shoreline. The cross-shore transport from wind wave generation, particularly during storm events, is also influential enough to cause shoreline erosion and deposit sediment away from the shoreline. Therefore, sediment movement is expected to primarily move southward with some moving cross-shore, but this is also dependent upon tidal flows (flood and ebb conditions). It is expected that the material placed will migrate slowly over time from the placement site.

Because of the localized temporary nature of the turbidity impacts, no significant impacts to water quality are expected. No long-term negative impacts to water quality

are expected as a result of the shoreline nourishment. Short-term impacts would be localized and negligible. Future maintenance placements would be similar to impacts from initial placement.



(1) An ebb tidal flow simulated by CMS-flow



(2) A flood tidal flow simulated by CMS-flow

Figure 13. (1) Red arrow is estimated turbidity plume direction during ebb tide. (2) Red arrow is estimated turbidity plume direction during flood tide. Further detail of flow is depicted by the yellow arrows from the CMS modeling results.

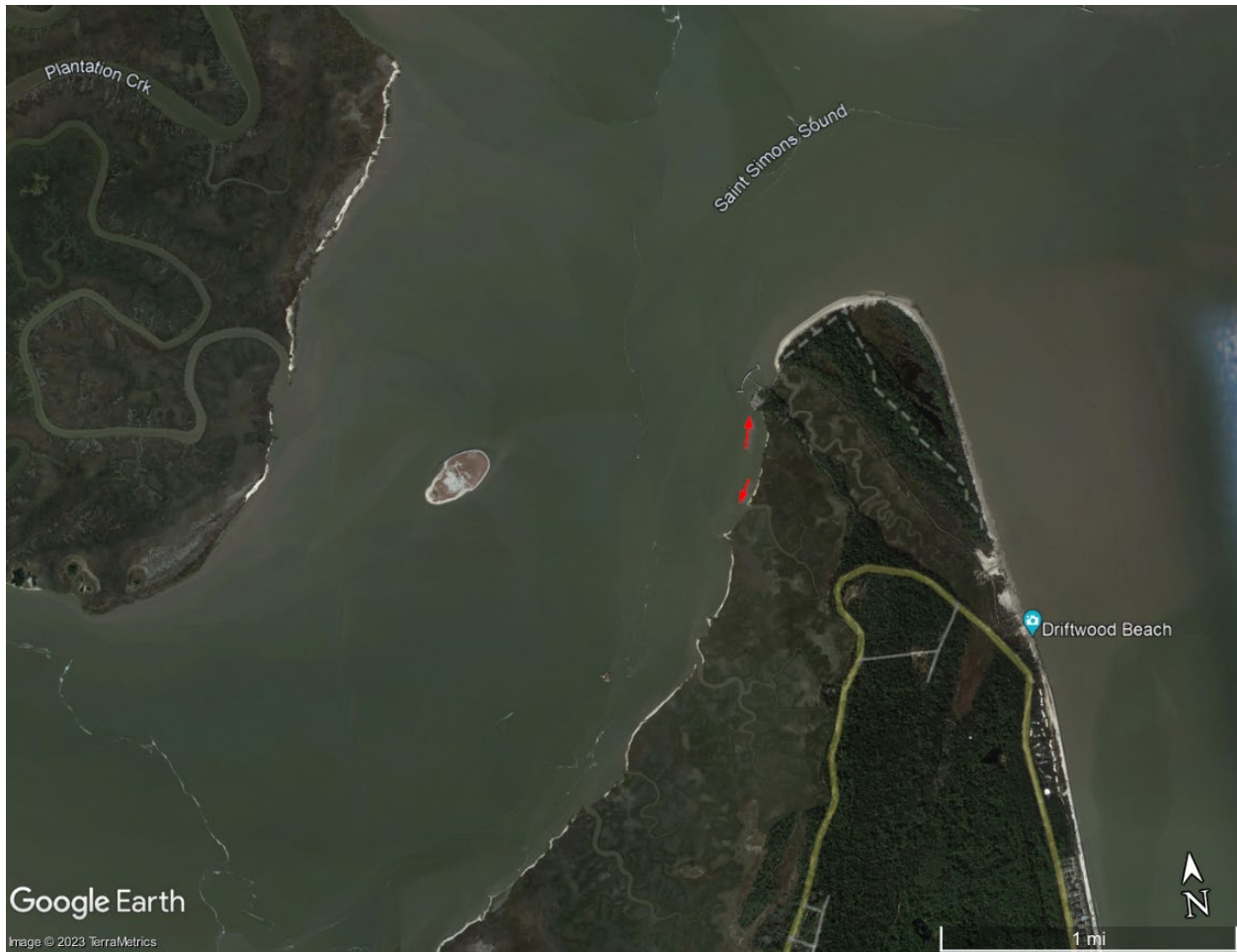


Figure 14. General turbidity plume directions at placement location during ebb and flood tides.

3.4 Wetlands

3.4.1 Existing Conditions

The project area is adjacent to approximately 60 acres of salt marsh that is located to the west of Clam Creek Road and northeast to the Du Biannons Creek. The wetland is classified as Estuarine and Marine Wetland Habitat (E2EM1N) as identified using the U.S. Fish and Wildlife (USFWS) National Wetlands Inventory mapper (Figure 15). The estuarine wetlands consist primarily of natural levee and low marsh habitat which is characterized by the native cordgrass *Spartina alterniflora*. Salt marshes play a role in coastal hydrological and sediment transport processes and are vital foraging and spawning habitat for many species of fish, crabs, and shrimp. Most of the salt marshes within and around the Brunswick River have experienced erosion and are currently vulnerable to further degradation and retreat due to sea level change (SLC) and increased coastal storm intensity. This specific area in northern Jekyll Island has an average erosion rate of 2 m/year. This area also has a few tidal creeks that allow for flushing and inundation of the wetland. At 7.2 ft MHHW large portions of the adjacent

wetlands is fully inundated and experiences sheet flow instead of concentrated channel flow.

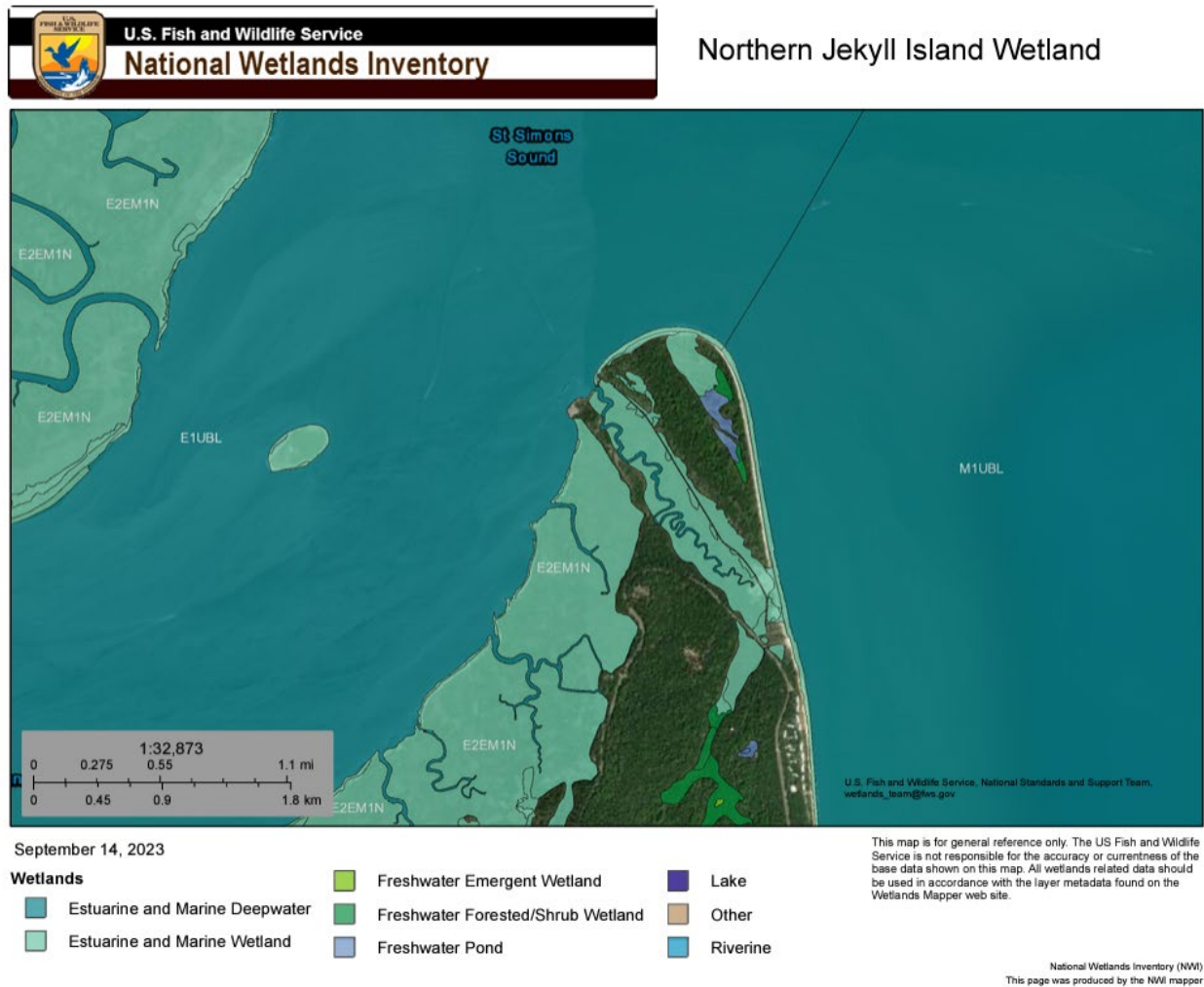


Figure 15. USFWS Wetlands in the Project Area.

3.4.2 Environmental Consequences of No Action Alternative

With implementation of the NAA, placement of dredged material would not occur along the degraded shoreline. Vulnerable wetlands have been identified within the action area that could benefit from the additional sediment increasing resiliency to SLC, coastal storms, and shipwake. In the proposed action area, just south of the pier, there is a notably low allochthonous, or external sediment supply, which would typically come from the north. This lack of sediment availability is exacerbating the erosion and marsh degradation of the proposed placement location. Longshore sediment transport is interrupted by the fishing pier directly to the north, further impeding sediment deposition into the proposed action area. Under the NAA the benefits of the proposed placement would not be realized, resulting in short-term, minor adverse effects and long-term,

moderate adverse effects to the adjacent wetlands due to continued erosion and degradation of this vulnerable area.

3.4.3 Environmental Consequences of Proposed Action

With implementation of the proposed action, the estuarine and marine wetland located east of the proposed placement area would be stabilized and protected through the placement of dredged material that would act as a buffer to erosion from riverine, tidal, and storm activity. A bulldozer would be used to create even grades within the placement area in accordance with the design; a barge would provide access to the placement site from the river for the bulldozer and therefore would not be placed on any wetlands. No dredged material would be placed on the wetlands or vegetation. The tidal creeks would continue to function hydrologically, flushing the wetlands and maintaining water elevations necessary for wetland plants. While not a primary objective of the proposed action, the design elevation of 7.0 +0.5 ft MLLW has been selected to allow for potential natural recruitment of *Spartina* into placement area. There may be minor negative, short-term impacts from sediment dispersal along the saltmarsh shoreline during the estimated 30 days of construction, but the overall long-term impact is expected to be beneficial due to wetland protection from erosion. Future maintenance placement effects would be similar to initial placement, and the same constraints of no placement of material on wetlands or vegetation would apply. Therefore, the Corps finds that there would not be significant impacts to wetlands from the proposed action.

3.5 Aquatic Biological Resources

3.5.1 Existing Conditions

The habitat of the proposed placement area is primarily marine influence, flushing with the tides daily, with marine water input from the Atlantic Ocean and freshwater inputs from the Brunswick River. Due to the marine influence, a number of marine species can be found in the placement area as depicted in Table 9.

Table 9. Common managed aquatic species potentially utilizing the proposed placement area.

Common Name	Scientific Name	Function	Life Stage Use(s)	Fisheries Management Plan
Atlantic butterfish	<i>Peprilus triacanthus</i>	Refuge, Forage	Adult	MAFMC
Atlantic sharpnose shark	<i>Rhizoprionodon terraenovae</i>	Refuge, Forage, Nursery	Juvenile, Neonate	NMFS Highly Migratory Species
Blacknose shark	<i>Carcharhinus acronotus</i>	Refuge, Forage	Juvenile, Adult	NMFS Highly Migratory Species
Blacktip shark	<i>Carcharhinus limbatus</i>	Refuge, Forage,	Juvenile, Adult,	NMFS Highly

		Nursery	Neonate	Migratory Species
Bluefish	<i>Pomatomus saltatrix</i>	Refuge	Juvenile	MAFMC Bluefish
Bonnethead shark	<i>Sphyrna tiburo</i>	Refuge, Forage, Nursery	Juvenile, Adult, Neonate	NMFS Highly Migratory Species EFH
Brown shrimp	<i>Penaeus aztecus</i>	Refuge, Forage, Nursery	ALL	SAFMC Shrimp
Bull shark	<i>Carcharhinus leucas</i>	Refuge, Forage	Juvenile, Adult	NMFS Highly Migratory Species
Spanish Mackerel	<i>Scomberomorini</i>	Refuge, Forage, Nursery	ALL	SAFMC Coastal Migratory Pelagics
Finetooth shark	<i>Carcharhinus isodon</i>	Refuge, Forage	ALL	NMFS Highly Migratory Species
Lemon shark	<i>Negaprion brevirostris</i>	Refuge, Forage	Juvenile, Adult	NMFS Highly Migratory Species
Pink shrimp	<i>Penaeus duorarum</i>	Refuge, Forage, Nursery	ALL	SAFMC Shrimp
Sandbar shark	<i>Carcharhinus plumbeus</i>	Refuge, Forage	Juvenile, Adult	NMFS Highly Migratory Species
Scalloped hammerhead shark	<i>Sphyrna lewini</i>	Refuge	Neonate	NMFS Highly Migratory Species
Gray snapper, gag	<i>Lutjanus griseus</i> ; <i>Mycteroperca microlepis</i>	Forage	ALL	SAFMC Snapper Grouper
Spinner shark	<i>Carcharhinus brevipinna</i>	Nursery	Neonate	NMFS Highly Migratory Species
Summer flounder	<i>Paralichthys dentatus</i>	Forage	Juvenile, Larvae	MAFMC Summer Flounder, Scup, Black Sea Bass
Tiger shark	<i>Galeocerdo cuvier</i>	Forage	Juvenile/Adult	NMFS Highly Migratory Species
White shrimp	<i>Penaeus setiferus</i>	Refuge, Forage, Nursery	ALL	SAFMC Shrimp

3.5.2 Environmental Consequences of No Action Alternative

The NAA would result in minor negative impacts to aquatic biological resources due to having to place the cutterhead pipeline from the bend widener on downstream areas of the Brunswick Harbor to the Andrews Island DMCA, potentially causing an increase in

turbidity in the Brunswick River due to disturbance of sediments. Aquatic species that utilize the creeks within the marsh adjacent to the proposed action area may experience long-term negative impacts as a result of further saltmarsh loss and degradation, including the loss of tidal creek habitat.

3.5.3 Environmental Consequences of Proposed Action

Direct placement of material from the BHMP and BHNP for shoreline nourishment will result in short-term impacts to turbidity during construction within the action area. These impacts would be minor in nature and are expected to quickly dissipate once construction is completed (approximately 30 days of construction). It is expected that during construction activities most mobile aquatic species would avoid the disturbance and find other suitable areas until construction activities are completed. Additionally, given the adjacent foraging habitat, impacts to mobile aquatic species would be temporary and minor. It is expected that the area will recolonize over the long-term (approximately two years) with benthic species, as there is abundant adjacent habitat in the project area. Future placement of dredged material placement is expected to occur at a minimum of every three years due to erosion rates and availability of suitable material, allowing for recovery of benthic species between placements. Therefore, no long-term, adverse impacts are anticipated from the proposed action. Additionally, long-term, minor benefits may occur from the protection of tidal creek habitat. Overall, in considering the short-term, minor impacts during construction, and the potential long-term benefits, the Corps finds the proposed action would not result in significant impacts to aquatic species.

3.6 Essential Fish Habitat

3.6.1 Existing Conditions

EFH

Essential fish habitat (EFH) is defined by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1802(10)) of 1996 as those waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. The MSA is the primary law responsible for governing marine fisheries management in U.S. federal waters and aims to promote conservation, reduce bycatch, and rebuild overfished industries. A detailed EFH assessment pursuant to MSA can be found in Appendix E. The following information summarizes that analysis.

Within the project area, EFH adjacent to and within the proposed placement sites include intertidal habitat, estuarine water column, coastal inlets, oyster reefs and shell banks, open waters/unconsolidated bottom, and tidal creeks.

HAPC

Habitat Areas of Particular Concern (HAPC) are a subset of EFHs that are rare, stressed by development, provide important ecological functions for federally managed species, or are especially vulnerable to anthropogenic (or human impact) degradation. HAPCs may include areas used for migration, reproduction, and development. The

Magnuson-Stevens Act does not provide any additional regulatory protection to HAPCs. However, if HAPCs are potentially adversely affected, additional inquiries and conservation guidance may result during the NMFS EFH consultation (NMFS 2008). HAPCs can include intertidal and estuarine habitats. Within and near the project area, there are two HAPC: coastal inlets and oyster reefs and shell banks. The oyster reefs are located south of the placement area.

The South Atlantic Fishery Management Council (SAFMC) has designated coastal inlets and state-designated overwintering areas of Georgia and South Carolina as HAPCs for white, brown, and pink shrimp.

Managed Fish Species

Managed fish species occurring in the project area include snapper/grouper complex, penaeid shrimp (brown, white, and pink), summer flounder, Spanish mackerel, as well as a variety of coastal sharks and species (refer to Section 3.5 for full list of species).

Table 10 provides the managed species expected to be within the placement area and their respective EFH and HAPC.

Table 10. Managed species expected to be found within placement area and their EFH and HAPC within or adjacent to the placement area.

Species	EFH in Placement Area	HAPC in Placement Area
Penaeid Shrimp	Adjacent Jekyll Island salt marsh, intertidal mud flats, estuarine water column	Coastal inlet
Snapper/Grouper Complex	Estuarine water column, intertidal flats, coastal inlets, and unconsolidated bottom	None
Coastal Pelagics (Spanish Mackerel)	Estuarine habitat	None
Sharks, summer flounder, other managed species	Estuarine water column, unconsolidated bottoms, tidal creeks, and coastal inlets	None

3.6.2 Environmental Consequences of No Action Alternative

Under the NAA, the Corps would not beneficially use dredged material from the BHMP and BHNP in the proposed placement area, and therefore would not have any impacts to EFH and HAPC. However, not using dredged material from the channel in beneficial ways within the action area would mean long-term benefits would not be realized. The calculated shoreline erosion of 2 m/yr yields substantial loss of intertidal wetland and ecosystem functionality in the long-term. The NAA would have no short-term, direct adverse impacts to EFH, and significant long-term adverse effects due to ongoing

degradation of important estuarine emergent wetland habitat from SLC and ongoing erosional forces.

3.6.3 Environmental Consequences of Proposed Action

Impacts to EFH and HAPC within the action area are listed in Table 11. Appendix E provides a more detailed analysis of impacts to EFH, and these impacts are summarized here.

During placement activities of dredged material, some direct and indirect effects will occur within unconsolidated bottom, estuarine water column, intertidal flats, tidal creeks, oyster reefs, and coastal inlets. These direct impacts include temporary loss of intertidal non-vegetated flats (mudflats) and unconsolidated bottom through placement of sediment along the shoreline for nourishment. It is expected, however, that recolonization of benthic communities in the proposed action area would begin soon after construction activities are completed as sediment will be allowed to migrate naturally within the river system. Disturbances are common in coastal environments so faunal communities are resilient to many kinds of periodic disturbances. Recovery is normal for healthy salt marsh habitats if the disturbance event is under the critical threshold and if there are adjacent unaffected habitats that can serve as a source for colonists (McCall, 2012). This direct impact would be minor and long-term (approximately 2 years); however, these effects are balanced with the benefits that BU provides to species and the overall system.

The impacts to tidal creek EFH would be short-term minor negative effects as the channels may experience blockage from sediment migration during time of placement. However, precipitation inputs will provide volume flow, which will be expressed as an increased ebb velocity to further suspend and erode any deposited material from the channels as a result of the placement activities. In addition, as part of the design of the shoreline nourishment site, buffer zones are created around the inflow/outflow points of the tidal creeks. No placement will occur around the inflow/outflow points in an effort to prevent sediment migration. Therefore, the tidal creeks EFH may experience minor, short-term negative impacts until a few tidal cycles or precipitation event restores natural flows. Section 3.2.3 provides further detailed analysis regarding tidal creek flows.

Live oyster-beds are located south of the placement area. No direct placement would occur on the oyster-beds; however, turbidity plumes may cause some deposition of sediment onto the oyster-beds during placement. This deposition is expected to be temporary (approximately 30 days of construction) and any deposited material would continue to wash out with tidal flows. Therefore, the oyster-beds may experience minor, short-term negative impacts through duration of construction due to turbidity plumes.

Table 11. EFH categories in project area.

Essential Fish Habitats	Potential Presence	Potential Effects	Potential Impacts
	Within Placement Area	Within Project Area	Sediment Placement Activities
Intertidal Flats	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Yes
Estuarine Water Column	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Minor and Temporary
Open waters/Unconsolidated Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Yes
Tidal Creeks		<input checked="" type="checkbox"/>	Minor and Temporary
Oyster Reefs		<input checked="" type="checkbox"/>	Yes
Coastal Inlets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Minor and Temporary

Additional impacts to EFH, HAPC, and managed species include short-term and minor increases in turbidity during placement activities. Turbidity and suspended sediments that may result from placement activities within the action area could interfere with foraging activities by managed species. Based on scientific literature and information provided by the NOAA Greater Atlantic Region regarding the expected effects for turbidity from dredging and placement, material placement-generated turbidity plumes are limited to an area only a few hundred feet to a few thousand feet and most turbidity settles out quickly once material placement is complete (NOAA, 2023). It is expected that the turbidity plume could extend beyond the length of the placement site but once the placement of sediment is completed, turbidity will quickly dissipate and will go back to pre-construction conditions (2020 SARBO, Section 3.1.1.2). It is anticipated that the effect would be minimal as the Brunswick River is generally turbid and the additional turbidity generated by the sediment placement will be minimal and temporary relative to background levels. Once these activities are completed, any turbidity will quickly dissipate given the riverine/tidal currents.

Impacts to managed species from the proposed project are expected to occur as a result from potential impacts to their respective EFH/HAPC associated with placement activities rather than direct impacts to the species themselves. Impacts to the managed species are fully addressed in Section 3.5. It is expected that during construction activities most mobile species would move out of construction areas and find other suitable area until construction activities are completed.

The proposed action is not expected to cause significant adverse impacts to EFH, HAPC, or managed species located within the action area. Short-term negative effects to the managed species that use this habitat are expected to be minor and temporary in

nature due to the expected construction duration of 30 days. Long-term minor negative impacts may occur to the EFH and HAPC due to the expected recovery and recolonization time to be around two years after the initial shoreline nourishment. Future maintenance of the site may also have long-term minor adverse impacts, as the benthic community would be temporarily impacted after each placement. Benthic communities would recolonize after each placement (Clarke and Miller-Way, 1992).

Overall, the Corps has determined that the proposed action would have long-term minor negative impacts to EFH and HAPC due to two-year expected recovery time, and long-term minor negative effects from future maintenance of the site as the benthic community would be temporarily impacted after each placement. However, there are expected to be long-term benefits to the EFH within and adjacent to the proposed action area due to the shoreline nourishment providing protection from further erosion of the EFH.

3.7 Protected Species

3.7.1 Existing Conditions

The Endangered Species Act (ESA) of 1973 (16 USC 1531-1543) regulates activities affecting plants and animals Federally classified as endangered or threatened, as well as the designated critical habitat of such species under USFWS and National Marine Fisheries Service (NMFS) jurisdictions.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712; Ch. 128; July 3, 1918; 40 Stat. 755) prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service. The Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668c) prohibits anyone from "taking" bald eagles, including their parts, nests, or eggs without a permit issued by the Secretary of the Interior. Under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, 51 species of birds have been identified under the IPAC that are protected within the project area, including the American bald eagle.

The Marine Mammal Protection Act (MMPA) of 1972 established a national policy to prevent marine mammal species and population stocks from declining beyond the point where they are no longer significant functioning elements of their ecosystems. It must be noted that all marine mammals are protected under the MMPA, and some are additionally protected under the ESA. Three federal entities share responsibility for implementing the MMPA:

- NOAA National Marine Fisheries Service (NMFS)—responsible for the protection of whales, dolphins, porpoises, seals, and sea lions.
- U.S. Fish and Wildlife Service (USFWS)—responsible for the protection of walrus, manatees, sea otters, and polar bears.

- Marine Mammal Commission—provides independent, science-based oversight of domestic and international policies and action of federal agencies addressing human impacts on marine mammals and their ecosystems (NOAA MMPA).

Protected Species Occurrence within the Project Area

The USFWS’s Information, Planning, and Consultation System (IPAC) indicated several federally listed species potentially within the project area (USFWS, 2023). These included a total of three federally listed endangered species, eight federally listed threatened species, and one federally listed candidate species. Table 12 identifies USFWS ESA listed species occurring within the Jekyll Island shoreline nourishment area and would have the potential to be impacted by the proposed action. Five of these species are also under NMFS jurisdiction which is indicated with an Asterisk.

Table 12. USFWS Federally Listed Species occurring within the Jekyll Island Placement Area.

Category	Common Name	Scientific Name	Federal Status	Critical Habitat Designated (Yes/No)	Effect Determination
Birds	Eastern Black Rail	<i>Laterallus jamaicensis ssp. jamaicensis</i>	Threatened	No	NE ¹ ; preferred habitat is not located within proposed placement site.
Birds	Piping Plover	<i>Charadrius melodus</i>	Threatened	Yes	NE; preferred habitat is not located within proposed placement site.
Birds	Rufa Red Knot	<i>Calidris canutus rufa</i>	Threatened	Yes Proposed Listing: 86 FR 37410 July 15, 2021	NE; preferred habitat is not located within proposed placement site.
Birds	Wood Stork	<i>Mycteria americana</i>	Threatened	No	MANLAA ² ; no rookeries in the proposed placement area.
Mammals (Marine)	West Indian Manatee	<i>Trichechus manatus</i>	Threatened	Yes	MANLAA; manatee conditions included in specifications.
Reptiles	Eastern Indigo Snake	<i>Drymarchon couperi</i>	Threatened	No	NE; preferred habitat is not located within proposed placement site.
Reptiles	Green Sea Turtle*	<i>Chelonia mydas</i>	Threatened	No	NE; no known nesting areas located within proposed placement site.
Reptiles	Hawksbill Sea Turtle*	<i>Eretmochelys imbricata</i>	Endangered	No	NE; no known nesting areas located within proposed placement site.
Reptiles	Kemp's Ridley Sea Turtle*	<i>Lepidochelys kempii</i>	Endangered	No	NE; no known nesting areas located within

					proposed placement site.
Reptiles	Leatherback Sea Turtle*	<i>Dermochelys coriacea</i>	Endangered	No	NE; no known nesting areas located within proposed placement site.
Reptiles	Loggerhead Sea Turtle*	<i>Caretta caretta</i>	Threatened	Yes Placement Areas are outside designated critical habitat	NE; no known nesting areas located within proposed placement site.
Insects	Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	No	NE; preferred habitat is not located within proposed placement site.

1. MANLAA=May affect, not likely to adversely affect.
2. NE-No effect

NMFS ESA listed species were assessed using the NMFS Threatened and Endangered Species List (NMFS, 2022) which indicated several federally listed species potentially within the project area. Table 13 identifies NMFS ESA listed species occurring within the Jekyll Island shoreline nourishment area and the potential to be impacted by the proposed action.

Table 13. NMFS Federally Listed Species occurring within the Jekyll Island Placement Area.

Common Name	Scientific Name	Federal Status	Critical Habitat Designated in Proposed Action Area	Effect Determination
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	No	NLAA ¹
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered	No	NE ²
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	No	NLAA
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	No	NE
Green sea turtle	<i>Chelonia mydas</i>	Threatened	No	NLAA
Giant manta ray	<i>Manta birostris</i>	Threatened	No	NLAA
Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Endangered	No	NLAA
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered	No	NLAA

1. NLAA=Not likely to adversely affect.
2. NE=No effect.

NOAA ESA-listed species that may occur in the project area include the giant manta ray, sea turtles, and sturgeon species. Any occurrences of sturgeon species within the project area would be highly unlikely as this is not a sturgeon river as designated in Appendix E of the 2020 SARBO and there is no critical habitat for Atlantic sturgeon in the project area. Additionally, there is no nesting habitat or critical habitat for sea turtle species placement area along the Brunswick River side of Jekyll Island and while individual transient sea turtles may occur in the project such occurrences would be rare (M. Dodd, 2023). Most sea turtle nesting occurs along the Atlantic Ocean-facing side of Jekyll Island along the sandy beaches. The giant manta ray typically prefers open ocean but may utilize the placement area for foraging.

3.7.2 Environmental Consequences of No Action Alternative

Under the NAA, the Corps would not place new work dredged material from the Cedar Hammock bend widener or O&M dredged material from the BHNP into the degraded shoreline along Jekyll Island. Material would be placed into Andrews Island DMCA; therefore, there would be no effect to federally listed species in the proposed action area. However, not using dredged material to nourish degraded shoreline would not result in beneficial effects to foraging and nesting bird species. The NAA would have no effect to ESA-listed species, and minor, insignificant long-term adverse effects to migratory bird species.

3.7.3 Environmental Consequences of Proposed Action

The Corps assessed impacts of placement activities to species for both USFWS and NMFS. For USFWS and NMFS listed species, biological assessments were prepared, and informal consultation was initiated with each agency (Appendices A and B).

3.7.3.1 USFWS-Listed Species

A biological assessment has been prepared to address impacts to federally listed threatened and endangered species or designated critical habitat under USFWS jurisdiction (Appendix A). This assessment contains a thorough review of potential impacts to species and critical habitat listed in Table 12. The Corps reviewed the proposed placement of new work dredged material from Cedar Hammock bend widener and O&M material from the BHNP into the degraded shoreline along the northern side of Jekyll Island to ESA-listed species and their habitat. Based on the analysis, the Corps determined that the proposed action “may affect, not likely to adversely affect” (MANLAA) the following species: wood stork and West Indian manatee. West Indian manatee conditions provided by USFWS will be included in the project specifications. For all other listed species in Table 12, the Corps has made a no effect determination as these species are not likely to occur in the placement area. There is no sea turtle nesting habitat in the area, and therefore, no effect to sea turtle nesting (M. Dodd, 2023). The Corps received concurrence on the effect determinations from USFWS on December 13, 2023 (Appendix A). The proposed action would have short-term minor negative impacts to the wood stork and West Indian manatee due to construction

duration of 30 days, and no impacts to the other USFWS ESA-listed species within the action area. Future maintenance placement would have similar impacts to that of the initial placement as construction duration should be similar.

3.7.3.2 NMFS-Listed Species

A biological assessment has been prepared to address impacts to federally listed threatened and endangered species under NMFS jurisdiction (Appendix B). This assessment contains a thorough review of potential impacts to species listed in Table 13. The Corps reviewed the proposed placement of new work dredged material from Cedar Hammock bend widener and O&M material from the BHNP into the degraded shoreline along the northern side of Jekyll Island to ESA-listed species. Based on the analysis, the Corps has determined that the project will “not likely adversely affect” (NLAA) the following species: Kemp’s Ridley sea turtle, loggerhead sea turtle, green sea turtle, Atlantic and shortnose sturgeon, and giant manta ray. For all other species listed in Table 13, the Corps has made a no effect determination due to the unlikelihood of these species occurring in the proposed action area. Informal expedited consultation was completed with the NMFS Protected Resources Division (PRD) on November 17, 2023. Based on the agency’s knowledge, expertise, and the Corps’ materials, NMFS concurred with the Corps’ conclusions that the proposed action is not likely to adversely affect the NMFS ESA-listed species and/or designated critical habitat. The proposed action would have short-term minor negative impacts to the Kemp’s Ridley, loggerhead, and green sea turtles, giant manta ray, and Atlantic and shortnose sturgeon, and no impacts to the other NMFS ESA-listed species. Future maintenance placements would have similar effects as initial placement due to same expected construction duration.

3.8 Recreation

3.8.1 Existing Conditions

Visitation numbers of over 3.5 million in 2022 indicate the recognition of importance of Jekyll Island’s historical, cultural, recreational, and natural resources. Specific visitation data for the Jekyll Island Fishing Pier is not identified. The Brunswick River side of northern Jekyll Island is a popular area for fishing, crabbing, camping, horse-back riding, clam harvesting, and swimming. The Jekyll Island Fishing Pier is located northeast of the proposed action area, as the end of Clam Creek Road. The area is also where the Clam Creek Picnic Area is. The Jekyll Island Fishing Pier is one of the only three ocean piers on the Georgia coast. The busiest time for the area is in the summer, but fishing along the pier and horse-back riding occurs year-around.

3.8.2 Environmental Consequences of No Action Alternative

Under the NAA, there would be no placement of dredged material within the degraded shoreline area. New work and O&M material would be placed in Andrews Island DMCA. Under the NAA, the proposed action area would continue to erode from wave and tidal action. The Brunswick River would continue to encroach upon the Clam Creek Road and the Jekyll Island Fishing Pier parking lot, potentially creating future structural

issues. The continued loss of saltmarsh would also impact clam harvesting and fishing in this area due to loss of habitat. Therefore, under the NAA, there would be minor long-term negative impacts to recreational resources in the action area.

3.8.3 Environmental Consequences of Proposed Action

Under the proposed action, there would be placement of dredged material into the degraded shoreline using material from the BHMP and BHNP. This would result in minor, temporary negative short-term impacts on recreation in this area, specifically sight-seeing, fishing, and clam harvesting during construction. Construction is expected to last approximately 30 days. During construction, equipment used for placement would be visible, resulting in a temporary change in the visual aesthetics. The presence of construction equipment and placement activities may also result, as noted in section 3.5, in the dispersal of mobile aquatic species, including fish that are popular for recreational fishermen. These impacts would be temporary, and it is expected that fishing would resume once construction is complete.

Given the elevation of the site design, it is expected that the dredged material would be primarily visible during low tides, as it is primarily sandy material native to the area. The placement site would provide similar views as adjacent beach areas located north of the fishing pier, and no long-term impacts to views are anticipated.

However, due to the proposed action preventing further erosion of the saltmarsh, there would be long-term beneficial impacts to recreational activities such as clam harvesting and fishing in the saltmarsh area. Furthermore, Clam Creek Road and the Jekyll Island Fishing Pier parking lot would be protected from the encroaching Brunswick River. Overall, impacts to recreation are not anticipated to be significant.

3.9 Climate Change

3.9.1 Existing Conditions

The main climate change assessment is the potential impacts from future SLC. Relative sea-level change (RSLC) was calculated using the USACE SLC curve calculator (2022.72) which is available at: <https://climate.sec.usace.army.mil/slat/>.

Relative sea level (RSL) refers to local elevation of the sea with respect to land, including the lowering or rising of land through geologic processes such as subsidence and glacial rebound. It is anticipated that sea level will rise within the next 50 years. To incorporate the direct and indirect physical effects of projected future SLC (also referred to as sea level rise (SLR)) on design, construction, operation, and maintenance of coastal projects, USACE has provided guidance in ER 1100-2-8162, Incorporating Sea Level Change in Civil Works Programs, dated June 15, 2019, and Engineer Pamphlet (EP) 1100-2-1, Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation, dated June 30, 2019. Three estimates are required by the guidance: a Low (Baseline) estimate representing the minimum expected SLC; an Intermediate estimate; and a High estimate representing the maximum expected SLC.

This analysis was based on the National Ocean Service (NOS) tide gage, located in Fernandina Beach, Florida (Station #8720030), approximately 28 miles south of the action area. This gage was selected to represent the project site since it was the closest gage compliant with USACE guidance (>40 years) to the project location. The gage is active and compliant with data from 1897 to present. The NOAA gages in Brunswick, GA lack the extensive historical records necessary for compliance due to discontinuation. The linear relative sea level trend for this gage is 2.20 mm/year (0.00722 ft/year) with a 95% confidence interval of +/- 0.17 mm/year (0.00056 ft/year) based on monthly mean sea level data from 1897 to 2021 (Figure 16). The NOAA RSLC trend shows a linear change of +0.00722 ft/yr for a total change of +0.361 ft over 50-years.

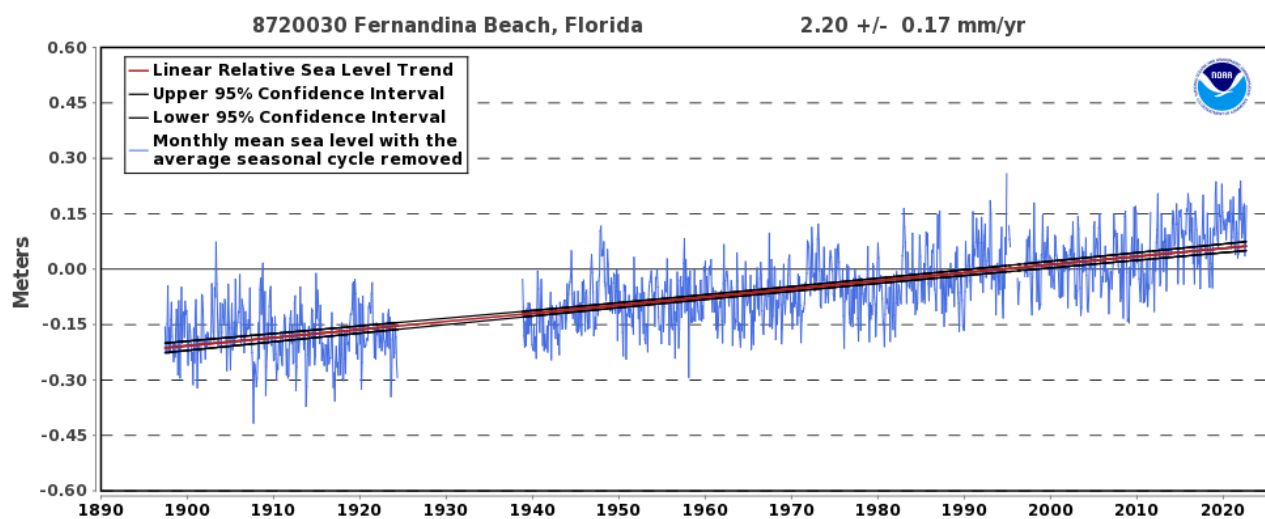


Figure 16. Relative Sea level Trend for Gage 8720030.

The USACE SLC curve calculator was used to compute estimated relative SLC projections for Gage 8720030 (Table 14). SLC values for the USACE scenarios have an origin year of 1992 (the midpoint of latest National Tidal Datum epoch) and the 2022 NOAA SLC rate of 2.20 mm/year (0.00722 ft/year) was selected. Estimates for the year 2073 at Jekyll Island, GA are 0.06, 0.64, and 2.49 feet NAVD88 under the USACE low, intermediate, and high SLC projections. Currently, SLC in the region is trending to the USACE Intermediate Scenario based on the 19-year moving average (Figure 17). Long-term predictions of SLC indicate that the study area will be highly vulnerable to sea level-related hazards.

Table 14. USACE Sea Level Calculator Summary for Gage 8720030

Gage 8720030	
Location	Fernandina Beach, Florida
Period of Record	1897– 2023

National Oceanic and Atmospheric Administration (NOAA) 2022 Relative Sea Level (RSL) Trend (feet/year)	0.00722
NOAA 2022 95% Confidence Interval (feet/year)	0.00056
Equivalent Change over 50 years (feet)	0.361
USACE Low Scenario 2073 (ft, NAVD88)	0.06
USACE Intermediate Scenario 2073 (ft, NAVD88)	0.64
USACE High Scenario 2073 (ft, NAVD88)	2.49
Conversion NAVD88 ft to 1992 MSL ft	0.53

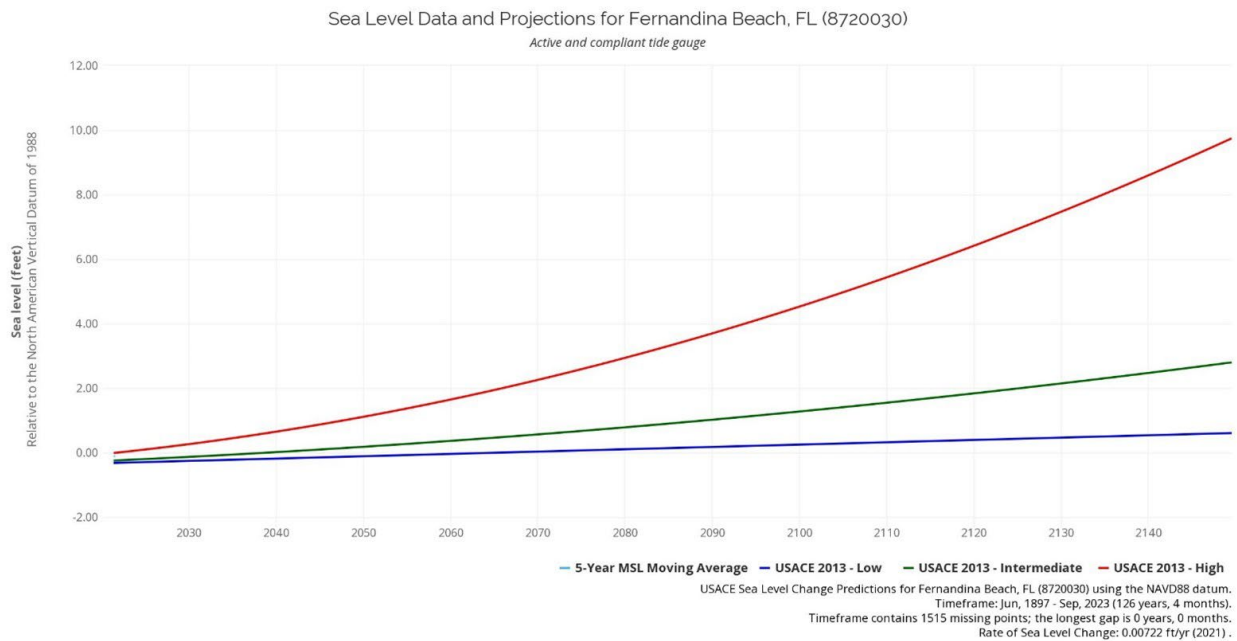


Figure 17. Sea level change curve calculator output for Fernandina Beach, FL showing three USACE scenarios for Gage 8720030.

3.9.2 Environmental Consequences of No Action Alternative

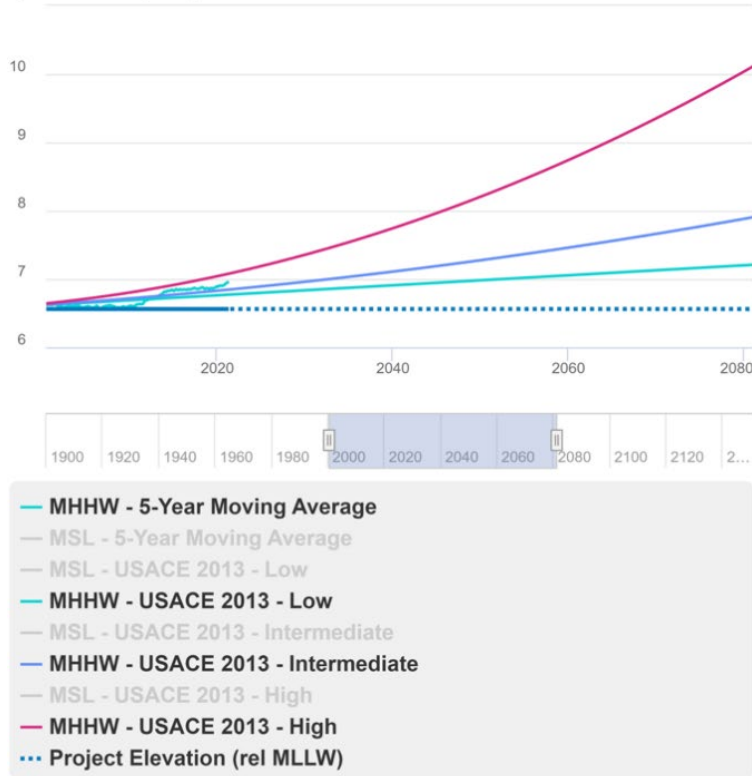
The USACE intermediate projection predicts a relative SLC of +0.86 ft by 2073. With no implementation of the proposed action, no placement of material would occur. The current action area is completely submerged during high tide under current mean sea level (MSL) and will continue to be submerged with SLR (Figure 16). With SLR, the timeframe that the action area will be submerged during the tidal cycle will increase over time, and the wave energy will also increase as it is proportional to water depth. During the highest tides, depth limited waves will increase at each point along the adjacent shoreline and wave energy will penetrate further into the wetlands. The placement site location will continue to be susceptible to coastal storms and SLC, increasing the risk of loss of

important saltmarsh, fish and wildlife habitat, and recreational and cultural resources due to erosion and inundation.

The Sea Level Analysis Tool (SLAT) is a web application supported by USACE that enables users to visualize observed sea level data, compare observations to projected sea level change, and estimate when tidal and extreme water levels will intersect with elevation thresholds related to local infrastructure. SLAT uses inputs from NOAA tide gages to estimate and visualize projected SLR for those tidal stations. As described in Section 3.9.1, the Fernandina Beach, FL 8720030 gage was chosen since it is the closest compliant gage to the proposed action area. Because the gage is located approximately 28 miles south of the action area, linear regression was required to interpolate the appropriate action area elevation. By applying linear interpolation, a water level of 7.2 ft above MLLW at Jekyll Island Marina (NOAA Station 8677832) corresponds to a water level of 6.4 ft above MLLW at Fernandina Beach (NOAA Station 8720030). According to the SLAT, the action area elevation (depicted by the dotted line) experiences current inundation under average high tide conditions and would continue to experience “drowning” with projected SLR (Figure 18). Under the no action, shoreline retreat and the conversion of saltwater marsh to open water is expected to occur due to SLR. The adjacent saltmarsh wetlands will not be able to “roll back” and will eventually be drowned and lost completely as a result of continued SLR. Therefore, without the realized benefits of the proposed action, climate change impacts would not be minimized, resulting in long-term moderate negative impacts as a result of the NAA.

Sea Level Data and Projections: Fernandina Beach, FL (8720030)
 NOAA Tide Gauge

Feet above Mean Lower Low Water Datum
 (1983-2001 epoch)



SLC rate used in equation based projections: 2.23 mm/yr (0.73 ft/100 yrs)
 MSL record span: 1897 to 2023 (126 years)
 Missing data: The MSL record for this gauge has a gap of 5 or more years

Figure 18. SLAT sea level data and projections with action area elevation.

3.9.3 Environmental Consequences of Proposed Action

The proposed action of placing material to protect the adjacent saltmarsh and recreational resources will increase resilience against the effects of SLC associated with climate change. Placement is intended to provide increased elevation or stabilization at each site, and this will help reduce the loss of habitat from SLC as a result of climate change. Climate change will have long-term negative impacts on the proposed action due to expected sea level rise of 0.86 ft by 2073 and more intense, frequent low-pressure systems generating shoreline loss. With the proposed action of initial placement using BHMP material and continued future placement using BHMP material, the adjacent saltmarsh will have increased chance of keeping pace with SLR under natural accretional circumstances.

Consistent with section 102(2)(C) of NEPA, Federal agencies must disclose and consider the reasonably foreseeable effects of their proposed actions including the extent to which

a proposed action and its reasonable alternatives (including the no action alternative) would result in reasonably foreseeable GHG emissions that contribute to climate change. Per the Council on Environmental Quality (CEQ) 2023 NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, federal agencies should consider the potential effects of the proposed action on climate change through the assessment of greenhouse gas emissions (GHG). GHG emissions under the proposed action will be higher than the NAA due to the additional use of heavy machinery to move sediment around to create even grades within the design template. However, it is expected that the amount of GHG emissions released as a result of placement activities from the initial placement and subsequent maintenance placements will not be significant enough to contribute to climate change.

Carbon dioxide (CO₂) emissions for a heavy-duty 250 HP diesel bulldozer with a production rate of 15,000 cy/8 hours emits an estimated 2,604 lbs of CO_{2e}, which is the total amount of emitted greenhouse gas emissions expressed in terms of the equivalent measurement of carbon dioxide (Table 15). A bulldozer will be used to create even grading within the placement area in accordance with the design. The bulldozer will be used for approximately 30 days for the proposed action. Therefore, a total of 78,150 lbs, or 35 metric tons of CO_{2e} will be emitted from the use of a bulldozer. This is equivalent to consuming 3,938 gallons of gasoline or burning 39,205 pounds of coal (EPA’s Greenhouse Gas Equivalencies Calculator). The social cost of carbon, or SC-GHG, was also quantified. SC-GHG estimates allow monetization of the climate change effects from GHG emissions. The SC-GHG translates metric tons of emissions into the familiar unit of dollars, allows for comparisons to other monetized values, and estimates the damages associated with GHG emissions over time and associated with different GHG pollutants (CEQ, 2023). The Cost of Climate Pollution tool was used to quantify the social cost of the carbon dioxide gas emissions as a result of using the bulldozer to create even grades. Using a 3% average discount rate and 2024 year of analysis and emissions, 35 metric tons of CO₂ is equivalent to \$1,937. Additionally, the GHG emissions during construction is offset by the protection of the adjacent salt marsh from erosion, which serves as a carbon sink. Therefore, it is expected that the proposed action will have minimal, insignificant short-term impacts to climate change as a result of CO₂ emissions and may have minimal long-term benefits from the protection of the salt marsh. Future maintenance placements will also have similar GHG emissions and minimal, insignificant short-term impacts during construction.

Table 15. Greenhouse gas emissions for a bulldozer with a 15,000 cy/8-hour production rate expressed in terms of CO_{2e}.

Emissions Source	CO₂	CH₄	NOX	CO_{2eq}
Crawler Tractor (Dozer)	1328.000	0.066	4.278	2604.623

3.10 Cultural Resources

3.10.1 Existing Conditions

The Area of Potential Effect (APE) for this undertaking is defined as a quarter-mile radius. According to Georgia's Natural, Archaeological, and Historic Resources Geographic Information System (GNAHRGIS.org), two archaeological sites, 9GN236 and 9GN237, are located within the APE. Both sites were identified as part of an archaeological survey of Jekyll Island performed by the Office of the State Archaeologist and West Georgia College for the Jekyll Island Authority in 1985. Site 9GN236, also referred to as the North Leg 'A' Site, is documented as a prehistoric Indian artifact and shell scatter. Site 9GN237, also referred to as the North Leg 'B' Site, is documented as a prehistoric Indian artifact and shell scatter. While both sites have been disturbed, both sites are thought to contain intact subsurface midden deposits that have the potential to provide information important to the prehistory of Jekyll Island. Preservation is recommended, so these sites are thought to be recommended eligible for the National Register of Historic Places.

No submerged cultural resources surveys have been performed within the project area, but one remote sensing survey was performed within the APE in the 1980s. No anomalies of concern were documented. Furthermore, the National Oceanic and Atmospheric Administration, Office of Coast Survey, Wrecks and Obstructions Database, reveals that no wrecks or obstructions are known within this area.

3.10.2 Environmental Consequences of No Action Alternative

Two prehistoric shell middens have been identified along the shoreline adjacent to the placement area. The sites are documented as having erosional concerns. As a result of the NAA, existing shell midden may be impacted or lost as a result of continued shoreline loss in the placement area.

3.10.3 Environmental Consequences of Proposed Action

There may be a minor beneficial effect to cultural resources as a result of the proposed action due to the shoreline nourishment providing erosional protection to the existing shoreline where the prehistoric shell middens were identified.

4 Cumulative Impacts

Cumulative effects result from the proposed action when added to other past, present, and reasonably foreseeable projects or actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

4.1 Past, Present, and Reasonably Foreseeable Future Actions

Currently, there are no placement or construction activities ongoing near the proposed placement area. Placement of dredged material has not occurred previously in the proposed placement area. In the future, it is expected that BU placement will occur at this location periodically with O&M material or as needed over time to restore or protect habitat that is lost or vulnerable due to erosion and storms. There may be other beneficial use placement areas evaluated near or around Jekyll Island, but none have been identified so far. Past actions include the construction of the fishing pier, recreation area, and Clam Creek Road.

4.2 Resource Areas Evaluated for Cumulative Effects

The remainder of this chapter describes the results of the cumulative effects analysis for each resource considered from Chapter 3. The text below summarizes the past, present, and reasonably foreseeable actions that might impact each resource category identified to have an incremental cumulative effect. If a resource was not identified to have a cumulative effect, then this resource was not discussed in detail within the chapter. The cumulative effects analysis discusses future conditions as follows:

- Without Project: No Corps Action
- With Project: Implementation of beneficial use of dredged material

4.2.1 Hydrology

Without Project: The NAA would have no effect on the hydrology of the nearshore environment of the leeward side of Jekyll Island, the Brunswick River, and the adjacent saltmarshes.

With Project: The proposed action, when considered with past, present, and reasonably foreseeable future projects, would result in minimal effect to hydrology. Placing material adjacent to the saltmarsh will change the cross-sectional area of the channel and therefore could negligibly increase velocities in the deeper parts of the channel. Temporary impacts may occur to the adjacent tidal creeks within the saltmarsh, but it is expected that the normal hydrology of these creeks will equilibrate after precipitation events. Temporary turbidity plumes are expected to occur from the hydrologic influences of the nearshore environment of Jekyll Island and the adjacent Brunswick River during placement activities. However, the plumes are expected to quickly disperse. Monitoring of the tidal creeks discussed in Section 3.2.3 would also occur for future maintenance placements.

4.2.2 Water Quality

Without Project: Without the proposed beneficial use actions there will be no effect or change to water quality of the nearshore environment of Jekyll Island and the Brunswick River.

With Project: The proposed shoreline nourishment, when considered with past, present, and reasonably foreseeable projects including other dredging activities under the BHNP or other non-federal construction activities within the action area, would result in temporary, slight adverse effects to water quality of the nearshore environment of Jekyll Island and the Brunswick River. During initial and future placement activities, temporary turbidity plumes may be generated but are expected to quickly disperse and limited to certain extents. No long-term impacts would be expected.

4.2.3 Wetlands

Without Project: The NAA is expected to have moderate negative effects to wetlands. The remaining saltmarsh adjacent to the proposed placement area will continue to degrade from erosive wind-wave and tidal energy forces. The current average rate of erosion of this area is 2 m/yr but is expected to increase in the future due to SLR and more severe storms as a result of climate change.

With Project: The proposed shoreline nourishment activity, when considered with past, present, and reasonably foreseeable future projects, is expected to have temporary, slight adverse effects during placement activities. Overall, a beneficial effect is expected along the adjacent saltmarsh due to the placement acting as a buffer to the erosive forces. Overall, a long-term beneficial effect is expected as the shoreline nourishment activity would keep sediment in this coastal system and allow for passive sediment transport to the adjacent and southern wetlands, thus increasing resiliency to SLC and coastal storm activity.

4.2.4 Aquatic Biological Resources

Without Project: The NAA is expected to have no change to existing aquatic resources within the action area as no construction activities associated with placement of dredged material would occur.

With Project: No negative cumulative impacts would be expected with the proposed beneficial use activities when considered with past, present, and reasonably foreseeable future projects. Overall, any temporary impacts resulting from the proposed shoreline nourishment is expected to result in minimal effects to aquatic resources within the action area and will not cause any long-term adverse impacts. Effects to the aquatic resources in the small tidal creeks within the adjacent saltmarsh will be minimal and temporary as any dredged material that moves into the channels is expected to erode with precipitation events.

4.2.5 Essential Fish Habitat

Without Project: The NAA would have no effect to EFH within the action area as no construction activities associated with placement of dredged material would occur. It is expected, however, that implementation of the NAA may have long-term moderate negative impacts on existing EFH within the proposed project area due to ongoing degradation of important tidal creek habitat from SLC and ongoing erosional forces.

With Project: No long-term negative cumulative impacts would be expected from the proposed action, combined with other present actions by others, and reasonably foreseeable future actions. The proposed shoreline nourishment activity would have long-term minor adverse impacts to EFH and HAPC within the action area during construction activities due to temporary degradation of benthic habitat and dredged material moving into the tidal creeks. These slight adverse impacts are anticipated to be temporary in nature as no hardening structures will be constructed and sediment would be allowed to move freely within the system over time.

4.2.6 Protected Species

Without Project: The NAA would have no effect to protected resources within the action area as no construction activities associated with placement of dredged material would occur.

With Project: With implementation of the proposed project, no significant cumulative impacts would occur for federally listed species within the project area, with implementation of various construction protection measures including those for migratory bird species and West Indian manatees and by following various design criteria guidelines as outlined in the 2020 SARBO.

4.2.7 Recreation

Without Project: The NAA would have long-term minor negative impacts to the Jekyll Island Fishing Pier and Clam Creek campground area. As the shoreline continues to erode, saltmarsh will be lost, and the recreational area will experience inundation from SLC and flooding impacts.

With Project: The proposed beneficial use action, when considered with past, present, and reasonably foreseeable future projects, would have moderate beneficial effects to recreation along northern Jekyll Island due to shoreline protection and minor, temporary effects to fishing in the proposed project area due to placement of material in shallow water environment.

4.2.8 Climate Change

Without Project: The NAA would have minor, long-term negative effects to vulnerable habitat in the project area due to climate change. The placement site location will continue to be susceptible to coastal storms and SLC, increasing the risk of degradation and loss

to fish and wildlife habitat due to erosion, inundation, and barriers preventing further inland migration.

With Project: The proposed beneficial use action, when considered with past, present, and reasonably foreseeable future projects, would have moderate long-term benefits to habitats susceptible to the impacts of climate change. The proposed action of placing material to nourish the degraded saltmarsh shoreline would increase resilience against the effects of SLC associated with climate change. Placement at this location is intended to provide increased erosion protection of saltmarsh, and this would help reduce the loss of habitat from SLC. The proposed action will have minimal, short-term impacts to climate change as a result of CO₂ emissions in addition to any other future actions within or around the action area.

4.2.9 Cultural Resources

Without Project: Erosional concerns exist for the APE, which includes two archaeological sites. Continued erosional concerns will have a negative impact on these resources, including loss of integrity.

With Project: The Corps determined that the shoreline nourishment will have no effect on the cultural resources within the area. By securing the shoreline, this will provide stabilization for the two cultural resources within the APE.

5 Compliance with Environmental Laws, Statutes and Executive Orders

This chapter provides documentation on how the proposed action complies with all applicable Federal environmental laws, statutes, and executive orders.

5.1 Statutes

Abandoned Shipwreck Act of 1987 (43 U.S.C. §§ 2101-2106)

There are no known shipwrecks that may be impacted by the proposed action. Any inadvertent discoveries would be handled according to all applicable cultural resources laws and regulations as they are discovered.

Anadromous Fish Conservation Act of 1965, as amended (16 U.S.C. § 757a et. seq.)

Any future planning for the use or development of water or land resources affecting anadromous fish will be coordinated with local, State and Federal resource agencies in accordance with NEPA regulations and submitted to Congress.

Archaeological and Historic Preservation Act, as amended (54 U.S.C §§ 312501-312508) and Archeological Resources Protection Act (16 U.S.C § 470 aa-mm)

There are known cultural resources in this area. The Corps determined that there is no effect to the resources from the proposed action. Concurrence was provided by the Georgia State Historic Preservation Office (SHPO) a letter dated October 17, 2023, for the no effect determination (HP-191113-003). Two tribal responses were received. The Cherokee Nation responded in an email dated September 25, 2023, that Glynn County is outside of their Area of Interest (AOI). They requested to defer to other federally recognized Tribes in the AOI and be removed from further consultation. The Catawba Indian Nation responded in a letter dated October 16, 2023, and stated that they have no concerns regarding the project (THPO #2023-46-9). Any inadvertent discoveries would be handled according to all applicable cultural resources laws and regulations as they are discovered.

Bald Eagle Act of 1972 (16 U.S.C. §§ 668-668d)

No impacts are expected to bald and golden eagles from the proposed action, all activities would take place in open water environment, during site visit to survey for resources in the area no bald and golden eagle nests were observed.

Clean Air Act of 1972, as amended (42 U.S.C. § 7401 et. seq.)

The “general conformity” requirements of Section 176(c)(4) of the Clean Air Act, are met as only short-term negligible impacts are anticipated. The area is in attainment and the proposed action would not affect the attainment status.

Clean Water Act of 1971, as amended (33 U.S.C. § 1251 et. seq.)

CWA 401 water quality certification (WQC) for BHMS in the Brunswick River was issued in 2021. GADNR-EPD determined that a new 401 CWA WQC would be required. The Corps submitted a 401 WQC request to GADNR-EPD on November 7, 2023. The Corps received the 401 WQC from the GADNR-EPD on January 26, 2024. The Corps requested a neighboring jurisdiction determination from the EPA on January 29, 2024. EPA considered the potential for water quality impacts to a neighboring jurisdiction from the project as certified and did not issue a “may affect” determination for the project pursuant to CWA Section 401(a)(2). Correspondence was provided on January 31, 2024.

While the Corps does not process and issue permits for its own activities, pursuant to 33 CFR 336.1, we do authorize our own discharges of dredged or fill material by applying all applicable substantive legal requirements, including application of the Section 404(b)(1) guidelines. As part of our review, the Corps evaluated the probable impacts, including cumulative impacts, of the placement of dredged material, which is the relevant activity resulting in discharge, and the intended use on the public interest. All factors which may be relevant to the proposal must be considered including the cumulative effects. For reasons identified in Appendix D, the Corps concludes that the proposed activity is in the public interest, and the proposed action is the least environmentally damaging practicable alternative (LEDPA).

Coastal Barrier Resources Act of 1982 (16 U.S.C. § 3501 et seq.)

Due to the placement area being classified as GA-06P (Otherwise Protected Area) under the Coastal Barrier Resources Act (CBRA), consultation is not required.

Coastal Zone Management Act of 1972, as amended (16 U.S.C. § 1451 et seq.)

The Corps prepared a CZMA evaluation to determine if the proposed action in the Brunswick River is consistent with the Georgia Coastal Management Program (GCMP). For purposes of the CZMA, the enforceable policies of the GCMP constitute the approved state program. In accordance with the CZMA, the Corps has determined that the proposed action would be carried out in a manner which is fully consistent with the enforceable policies of the GCMP. The Corps submitted the CZMA consistency determination to the GADNR Coastal Resources Division GADNR-CRD on November 9, 2023 (Appendix C). The Corps requested a consistency determination from the GADNR-CRD on the BHMP channel modifications in addition to the shoreline nourishment effort due to the conditional concurrence provided by the GADNR-CRD on April 23, 2021 for the 2022 Brunswick Harbor Modifications and Operations and Maintenance Study Integrated Feasibility Report and EA/FONSI. Coordination with GADNR-CRD resulted in concurrence on the BHMP channel modifications and the Jekyll Island Fishing Pier shoreline nourishment using only the new work dredged material from the Cedar Hammock bend widener expansion. Future O&M maintenance placement of the shoreline nourishment site will require future coordination with the GADNR-CRD. GADNR-CRD provided their Coastal Zone Management Consistency Determination Concurrence on February 9, 2024.

Endangered Species Act of 1973 (16 U.S.C. § 1531 et. seq)

Pursuant to section 7 of the ESA, the NMFS issued the 2020 SARBO, dated July 30, 2020, that determined that operations and maintenance dredging in accordance with the 2020 SARBO will not jeopardize the continued existence of the ESA-listed species in the action area. The 2020 SARBO is a programmatic opinion that considers effects to the following species: sea turtles (Kemp's Ridley, green, hawksbill, leatherback, and loggerhead), sturgeon (shortnose and Atlantic), Nassau grouper, Giant manta ray, scalloped hammerhead shark, smalltooth sawfish, oceanic whitetip shark, whales (North Atlantic right, Blue, Fin, Sei, and Sperm), Johnson's seagrass, and corals (Boulder star, elkhorn, Lobed star, Mountainous star, Pillar, rough cactus, and staghorn). All project design criteria, terms and conditions, and reasonable and prudent measures in the 2020 SARBO shall be implemented in order to avoid and minimize effects to endangered species. Maintenance dredging is a covered activity of the 2020 SARBO.

The initial placement of new work dredged material from the BHMP and subsequent O&M material from the BHNP for shoreline nourishment at the placement site is not a covered activity of the 2020 SARBO. For NMFS ESA-listed species, the Corps has made a determination of no effect and MANLAA for shoreline nourishment and submitted an expedited informal consultation to NMFS PRD. The effects analysis can be found in section 3.7 of this EA. The NMFS consultation and biological assessment is provided in Appendix B. NMFS completed review of the consultation on November 17, 2023. Based on the agency's knowledge, expertise, and the Corps' materials, NMFS concurred with the Corps' conclusions that the proposed action is not likely to adversely affect the NMFS ESA-listed species and/or designated critical habitat.

With regards to species under USFWS jurisdiction, pursuant to section 7 of the ESA, the Corps has made a "may affect, but not likely to adversely affect" determination for the West Indian manatee and wood stork. A no effect determination was made for all other USFWS-regulated ESA-listed species with the potential to occur in the action area (Section 3.7). There is no designated critical habitat in the project location. The Corps has prepared a biological assessment detailing the effect analysis. The Corps received concurrence from USFWS regarding the effects determinations on December 13, 2023. The USFWS coordination and biological assessment is located in Appendix A.

Estuary Protection Act of 1968 (16 U.S.C. § 1221 et. seq.)

The protection and conservation of estuaries were considered in this SEA. Any future planning for the use or development of water or land resources affecting estuaries will be coordinated with local, State and Federal resource agencies.

Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. §§ 661-665;665a; 666; 666a-666c)

The Corps received concurrence on the effect determinations made for the USFWS ESA-listed species on December 13, 2023. USFWS determined that FWCA comments

would not be provided for this effort and referred the Corps to comments made on the BHMS IFR/EA (Appendix A).

Flood Control Act of 1944, as amended, Section 4 (16 U.S.C. § 460d)

Not applicable since congressional authorization already exists (refer to section 1.5 of this EA) for O&M of the Brunswick Harbor.

Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et. seq.)

The Corps coordinated accordingly with the NOAA-HCD and provided the draft SEA and EFH Assessment (Appendix E) for agency review. NOAA-HCD provided comment on January 23, 2024 that the proposed action is occurring in EFH designated by the SAFMC, MAFMC, or NMFS. NOAA-HCD clarified that the present staffing precludes further analysis, and that the agency is neither in support or opposition of the proposed action. No conservation recommendations were provided.

Marine Mammal Protection Act of 1972, as amended (16 U.S.C. § 1361 et. seq.)

Contract specifications for shoreline nourishment placement activities will include marine mammal protective measures required by the ESA Section 7 consultation with USFWS, specifically west Indian manatees. The proposed action will not result in take of marine mammals.

Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. § 1401 et. seq.)

This act is not applicable as ocean disposal of dredged material is not included in the proposed action.

Migratory Bird Conservation Act of 1928, as amended (16 U.S.C. § 715)

The beneficial use of dredged material will nourish lost shoreline and may provide additional bird foraging habitat, providing benefits to migratory species. For this reason, the Corps has determined the proposed action is compliant with this Act.

Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712)

This Act makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations. The Corps does not anticipate that migratory birds would be adversely (directly or indirectly) affected by the proposed action. However, contract specifications regarding sighting or presence of migratory birds would be included in the project contract in order to prevent disturbance or harm.

National Environmental Policy Act of 1969, as amended (42 U.S.C. § 4321 et. seq.)

Compliance with NEPA is accomplished through the preparation of this SEA and FONSI, if appropriate.

National Historic Preservation Act of 1966, as amended (54 U.S.C. § 300101 et. seq)

Pursuant to Section 106 of the NHPA, a Programmatic Agreement was executed between the Corps and GA SHPO for the BHMS. For the Jekyll Island undertaking, the Corps determined that there is no effect to the resources from the proposed action. Concurrence was provided by the Georgia State Historic Preservation Office a letter dated October 17, 2023, for the no effect determination (HP-191113-003). Tribes were also consulted for this undertaking, and no concerns were expressed. Any inadvertent discoveries would be handled according to all applicable cultural resources laws and regulations as they are discovered.

Native American Graves and Repatriation Act (25 U.S.C. § 3001 et. seq)

Federal or Tribal lands are not involved. Eleven tribes were consulted regarding this undertaking in a letter dated September 14, 2023. Two tribal responses were received. The Cherokee Nation responded in an email dated September 25, 2023, that Glynn County is outside of their Area of Interest (AOI). They requested to defer to other federally recognized Tribes in the AOI and be removed from further consultation. The Catawba Indian Nation responded in a letter dated October 16, 2023, and stated that they have no concerns regarding the project (THPO #2023-46-9). Any inadvertent discoveries of human remains and/or associated funerary objects will be coordinated with Tribes.

River and Harbor and Flood Control Act of 1970, Sections 209 and 216 (PL 91-611; see generally 33 U.S.C. § 701 et. seq.)

Since Congressional authorization for the O&M of the Brunswick Harbor exists, benefits related to the current project were already analyzed and previously approved.

Sunken Military Craft Act of 2004 (10 U.S.C. §§ 113 et. seq.)

There are no known sunken military craft that may be impacted by the proposed action. Any inadvertent discoveries would be handled according to all applicable cultural resources laws and regulations as they are discovered.

5.2 Executive Orders

Executive Order 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971.

No cultural resources will be adversely impacted by the proposed action. Any inadvertent discoveries would be handled according to all applicable cultural resources laws and regulations as they are discovered.

Executive Order 11988, Floodplain Management, 24 May 1977 amended by Executive Order 12148, 20 July 1979.

The Corps is in compliance with the EO 11988 and has determined that the 8-Step Decision Making Process is unnecessary as the purpose of the 8-step process is to evaluate alternatives to avoid adverse effects; this project will have no adverse effects on the floodplain. The project does not affect land use, does not encourage growth in a floodplain, and does not involve construction within a floodplain. Furthermore, this proposed action will restore and preserve the natural and beneficial values of the floodplain. Therefore, as this project would have a beneficial impact to floodplains and floodplain functions, this action is in compliance with the EO and completion of the 8-step process is not necessary.

Executive Order 11990, Protection of Wetlands, 24 May 1977.

The Corps anticipates minor temporary impacts to wetlands from the proposed action (Section 3.4). There will be no loss of wetlands, however, and long-term benefits would be expected to occur as a result of the proposed action. Therefore, this action is consistent with this EO.

Executive Order 12898, Environmental Justice, 11 February 1994.

In accordance with this EO, the Corps has determined that no group of people would bear a disproportionately high share of adverse environmental consequences resulting from the proposed work. In addition, no environmental justice communities are located within or near the placement area.

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, 21 April 1997.

The project would not create a disproportionate environmental health or safety risk for children.

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, 6 November 2000.

Federal or Tribal lands are not involved. There are no known Indian Sacred Sites that may be impacted by the proposed action. Any inadvertent discoveries will be coordinated with tribes. Tribes will be kept apprised of project updates.

Executive Order 13751 Safeguarding the Nation from the Impacts of Invasive Species, 6 December 2016.

The project will not introduce, establish, or spread invasive species to the project area and is therefore compliant with the EO.

Executive Order 13186, Protection of Migratory Birds, 10 January 2001.

6 Migratory Bird Treaty Act and Migratory Bird Conservation Act Measures will be taken to protect migratory birds. Compliance with these acts demonstrates compliance with the EO. Public Involvement and Coordination

This section summarizes public outreach that has occurred for this project. Coordination for the environmental laws are included the respective appendices. For general coordination on the project those records are found in Appendix G.

6.1 Summary of Public Outreach

The Corps posted a public notice on July 5, 2023, calling for beneficial use sites using the BHMP dredged material (Appendix H). The public notice was also emailed to agencies and stakeholders to ensure the request for sites was widely distributed.

The draft EA was issued for public comment for a period of 15 days, beginning on January 08, 2024. A copy of comments received and responses to comments are in Appendix G of the Final EA and FONSI. Comments were received from EPA, the Shawnee Tribe, and NOAA-HCD. EPA requested clarification of the 15-day public comment period, which was coordinated accordingly with the appropriate agencies and the CWA Section 401 certifying authority. The Shawnee Tribe stated the project was outside of the area of concern. NOAA-HCD provided comment regarding MSA consultation, which can be found in Appendix G and Appendix E. The Georgia Historic Preservation Division (HCD) provided comment on January 26, 2024, acknowledging that the office has received notification of the project and looked forward to reviewing Section 106 compliance. However, Section 106 compliance was completed on October 17, 2023. The Corps responded on January 30, 2024, confirming that the Section 106 compliance was completed on October 17, 2023.

6.2 List of Agencies and Persons Consulted

6.2.1 Tribes

Tribal consultation was initiated in September 2023 with 11 federally recognized tribes, including the Alabama-Quassarte Tribal Town, Catawba Indian Nation, Cherokee Nation, Chickasaw Nation, Coushatta Tribe of Louisiana, Kialegee Tribal Town, Muscogee (Creek) Nation, Poarch Band of Creek Indians, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and Thlopthlocco Tribal Town (Appendix F). The Tribes did not express concerns regarding the proposed action.

6.2.2 Federal Agencies

The Corps continues to coordinate with USFWS, NMFS, and EPA on the proposed project. Coordination began early in the project development and will continue through project completion.

Informal expedited consultation was completed with the NMFS PRD on November 17, 2023 (Appendix B). Based on the agency's knowledge, expertise, and the Corps'

materials, NMFS concurred with the Corps' conclusions that the proposed action is not likely to adversely affect the NMFS ESA-listed species and/or designated critical habitat.

The Corps received concurrence from USFWS regarding the effects determinations on December 13, 2023. The USFWS coordination and biological assessment is located in Appendix A.

Section 106 of the National Historic Preservation Act 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. A PA for the BHMS was signed by the HPD on October 14, 2020. For the proposed action of this SEA, HPD concurs that no historic properties that are listed or eligible for listing in the National Register of Historic Places (NRHP) will be affected by this undertaking due to the scope and location of the work.

6.2.3 State Agencies

The Savannah District has consulted with the GADNR-CRD, GADNR-EPD, and GADNR-WRD on the shoreline nourishment site in September-November 2023.

For Section 106, the Georgia SHPO was consulted. No historic properties or other resources cultural significance will be impacted. Section 106 consultation is now complete for this undertaking.

6.2.4 Local Agencies

The JIA, in conjunction with the University of Georgia (UGA), provided the Savannah District with the shoreline nourishment proposal on August 11, 2023, in response to the Corps' request for beneficial use sites posted on July 5, 2023.

The Savannah District consulted with JIA on design considerations, monitoring and adaptive management, and ecological and historical resources located in the placement area (Appendix K).

6.2.5 Stakeholder Engagement

The Corps has engaged with Federal, State, and Local agencies to aid in the evaluation of the proposed action. Stakeholder meetings have been held with NMFS, USFWS, GADNR-EPD, GADNR-CRD, GADNR-WRD, UGA, and JIA. The following provides a summary of these meetings:

- September 14, 2023 – Stakeholder/Agency Meeting
 - Introduction and description of proposed action
 - CWA 401 Pre-Filing Meeting
 - Discussion of design considerations and constraints
- October 12, 2023 – Stakeholder/Agency Meeting
 - Presentation and discussion of 60% Design
- November 8, 2023 – Stakeholder/Agency Meeting

- Presentation of hydrologic analysis regarding tidal creeks
- Discussion on further refinement of 60% design considerations and constraints

7 List of Preparers

Name	Affiliate	Discipline/Role
Andrea Farmer	USACE Planning	Archaeologist/Co-Author
Kimberly Garvey	USACE Planning	Planning Chief/Reviewer
Suzanne Hill	USACE Planning	NEPA Lead/Reviewer
Samantha Holtzinger	USACE Project Management	Project Manager/Reviewer
Kelly Legault	USACE	Coastal Engineer/Co-Author
Jared Lopes	USACE Planning	Planner/Co-Author
Laurel Reichold	USACE RSM	Program Manager/Reviewer
Emily Wortman	USACE Hydrology and Hydraulics	Engineer/Project Engineer
Summer Wright	USACE Planning	Biologist/Lead Author

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9 List of Acronyms

BU	Beneficial Use
BHMP	Brunswick Harbor Modification Project
BHNP	Brunswick Harbor Navigation Project
CO ₂	Carbon Dioxide
cy	Cubic yards
DMCA	Dredged Material Containment Area
EFH	Essential Fish Habitat
EO	Executive Order
ERDC	Engineer Research Development Center
ESA	Endangered Species Act
GA DNR	Georgia Department of Natural Resources
GA EPD	Georgia Environmental Protection Division
GHG	Greenhouse Gas
GPA	Georgia Ports Authority
HAPC	Habitat Areas of Particular Concern
MANLAA	May Affect, Not Likely to Adversely Affect
MLLW	Mean Lower Low Water
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Units
ODMDS	Ocean Dredged Material Disposal Site
O&M	Operation and Maintenance
ppt	Parts per thousand
PRD	Protected Resources Division
RSL	Relative Sea Level

RSLC	Relative Sea Level Change
SARBO	South Atlantic Regional Biological Opinion
SAS	Savannah District
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Office
SLC	Sea Level Change
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fisheries and Wildlife Service
WRDA	Water Resources Development Act
WQ	Water Quality