June 2020

DRAFT ENVIRONMENTAL ASSESSMENT

OPERATION AND MAINTENANCE DREDGING OKEECHOBEE WATERWAY FROM THE OKEECHOBEE WATERWAY/INTRACOASTAL WATERWAY CROSSROADS TO THE ST. LUCIE LOCK

With dredged material placement in Dredged Material Management Area O-7 and O-23

MARTIN COUNTY, FLORIDA

U.S. Army Corps
of Engineers
JACKSONVILLE
DISTRICT

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT FOR OPERATION AND MAINTENANCE DREDGING OF OKEECHOBEE WATERWAY FROM THE OKEECHOBEE WATERWAY/INTRACOASTAL WATERWAY CROSSROADS TO THE ST. LUCIE LOCK MARTIN COUNTY, FLORIDA

The U.S. Army Corps of Engineers, Jacksonville District (Corps) has prepared an environmental assessment (EA) in accordance with the National Environmental policy Act of 1969 (as amended) for the operation and maintenance dredging of the Okeechobee Waterway (OWW) from the intersection of the OWW and the Intracoastal Waterway (IWW), locally known as the Crossroads, to the St. Lucie Lock and Dam.

The Preferred Alternative consists of dredging and placement of dredged material in to the previously constructed dredged material management area (DMMA) O-7 or the pending construction O-23, depending on the dredge locations and availability of the DMMA. Material from the dredged locations will be pumped, via pipeline, to the DMMA, dewatered, and water returned to the waterway.

The Corps incorporated all practicable means to avoid and minimize adverse environmental effects into the recommended plan. The Corps will implement the environmental commitments as detailed in the EA to minimize impacts.

The project has two components implicated pursuant to Section 7 of the Endangered Species Act of 1973, as amended (ESA): operation and maintenance (O&M) dredging and placement of dredged material into a DMMA. The dredging component of the project will be coordinated with National Marine Fisheries Service (NMFS) through the South Atlantic Regional Biological Opinion dated March 27, 2020. No effects to federally listed threatened and endangered species under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction are expected from placement activities. The Corps has determined that O&M dredging may affect but is not likely to adversely affect the West Indian manatee. The USFWS 2011 Standard Manatee Conditions for In-Water Work will be included in the project plans and specifications and will be implemented by the contractor during in-water work. The Corps has determined the project will not impact any designated critical habitat. Applicable terms and conditions resulting from the ESA consultation will be implemented. Pertinent correspondence is found in Appendix C.

Discharge of the dredged material into the DMMA is considered fill into the waters of the United States. In compliance with the Clean Water Act of 1972, as amended, (CWA), a Section 404(b)(1) Guidelines evaluation has been completed and is included in the Environmental Assessment as Appendix A. The project will meet the state of Florida's water quality standards. CWA Section 401 water quality certification will be obtained prior to the start of construction. The project will implement and meet all conditions imposed by the necessary authorizations in order to minimize adverse impacts to water quality.

Pursuant to the Coastal Zone Management Act (CZMA), a Federal Consistency Determination will be submitted to the state of Florida for review. The Corps determined that the Recommended Plan is consistent with the applicable policies of the Florida Coastal Management Program and the Federal Consistency Determination is included in Appendix B.

Consultation for the proposed work has been initiated and completed under Section 106 of the National Historic Preservation Act with the Florida State Historic Preservation Officer (SHPO) and appropriate federally recognized tribes. The Corps has determined the proposed project would have no adverse effect to historic properties. SHPO concurred with the Corps determination on September 24, 2019. The Seminole Tribe of Florida concurred with the Corps' determination on September 23, 2019. The Miccosukee Tribe of Indians of Florida declined to comment.

Public benefits (navigation, recreation) will be provided by the proposed project with unobstructed channel navigation.

The Corps has determined that the Recommended Plan would have a negligible adverse effect on Essential Fish Habitat (EFH) and minor temporary effects on federally managed fish species. An EFH assessment is included in the EA. Measures, as described in the EA, will be in place during construction to eliminate, reduce, or avoid adverse impacts below the threshold of significance to fish and wildlife resources. The Corps will request concurrence with these determination from NMFS Habitat Conservation Division (HCD) concurrent with the noticing of the draft EA.

The Corps considered all applicable laws, executive orders, and regulations in the evaluation of the alternatives. Based on this EA, previous reports, the reviews by other Federal, State and local agencies, and the review by my staff, it is my determination that the Recommended Plan would not significantly affect the human environment; therefore, preparation of an Environmental Impact Statement is not required. A copy of these documents will be made available to the public at the following website: http://www.saj.usace.army.mil/About/DivisionsOffices/Planning/EnvironmentalBranch/EnvironmentalDocuments.aspx.

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Andrew D. Kelly, Jr. Date
Colonel, U.S. Army
District Commander

DRAFT ENVIRONMENTAL ASSESSMENT
OPERATIONS AND MAINTENANCE DREDGE OF OKEECHOBEE WATERWAY FROM THE OKEECHOBEE WATERWAY/INTRACOASTAL WATERWAY CROSSROADS TO THE ST. LUCIE LOCK MARTIN COUNTY, FLORIDA

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MARTIN COUNTY, FLORIDA

1. PROJECT PURPOSE AND NEED

1.1 PROJECT DESCRIPTION.

The U.S. Army Corps of Engineers, Jacksonville District (Corps), is proposing to conduct maintenance dredging of the Okeechobee Waterway (OWW) Federal navigation project from the intersection with the Intracoastal Waterway (IWW), known locally as the Crossroads, to the St. Lucie Lock in Martin County, Florida.

This Environmental Assessment (EA) will evaluate the operation and maintenance dredging of Reach I, II, III, and IV, spanning approximately 15.5 miles of the OWW with placement of dredged material into the previously authorized and constructed Dredged Material Management Area (DMMA) O-7 or within the pending construction DMMA O-23. DMMA O-7 is located approximately 2,344 feet west of the St. Lucie Lock and Dam. DMMA O-23 is located to the south of 1310 NE Business Park Place, approximately 0.55 miles north of the OWW shoreline. The federal channel would be maintained to its authorized dimensions: 8 feet below Mean Low Water (-8 ft MLW), plus 2 feet overdepth, by 80 feet. The current projections for removal of material within the channel is 42,000 cubic yards for Reach III and 31,000 cubic yards for Reach IV. The removal volumes for Reaches I and II will be located, calculated, and designed at a later time as funding allows.

1.2 PROJECT NEED OR OPPORTUNITY.

The accumulation of sediment, commonly referred to as shoaling, has restricted the width of the project channel and reduced navigable depth. Vessels are currently being forced outside the authorized channel in search of deeper water or prop dredging through the shallow channel. Removal of the shoal material would maintain the navigable capacity of the project channel.

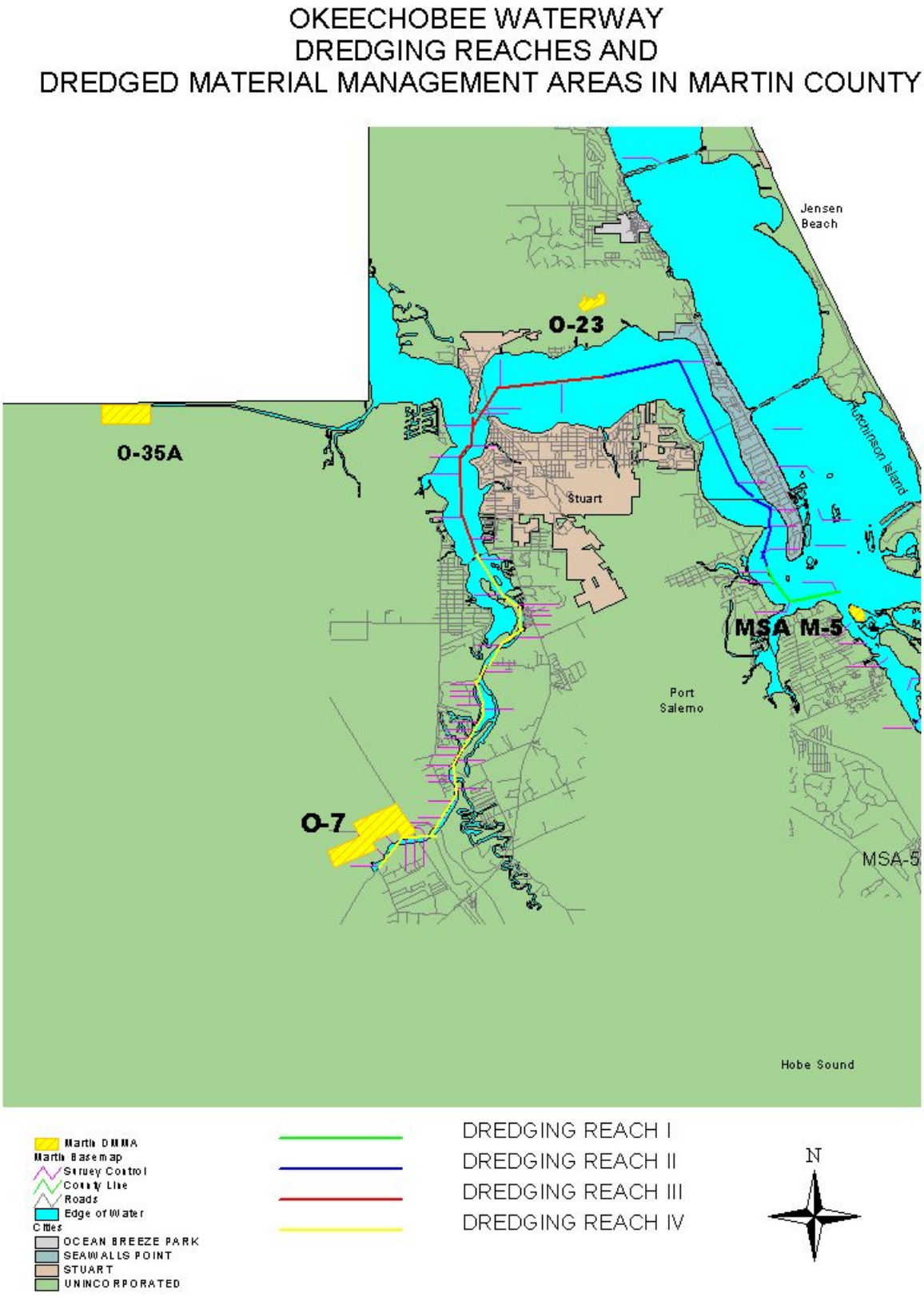


Figure 1. OWW Dredging Reaches and Dredged Material Management Areas.

1.3 PROJECT AUTHORITY.

1.3.1 Initial Authorization

Creation of the OWW was authorized on July 3, 1930, by the River and Harbor Act of 1930, H.R. 11781.

1.3.2 Supplemental Authorizations

Deeping of the channel to the current dimensions was authorized on March 2, 1945 by the River and Harbor Act of 1945, P.L. 79-14.

1.4 RELATED ENVIRONMENTAL DOCUMENTS.

Related National Environmental Policy Act (NEPA), design, and planning documents for the OWW Federal navigation project, Martin County, FL includes the following:

- Long-Ranged Dredged Material Management Plan for the Okeechobee Waterway – Crossroads to St. Lucie Lock, Martin County, FL. Florida Inland Navigation District. Jupiter, FL. 1998.
- Regulatory Division Permit for O-7 – Department of the Army Permit SAJ-2009-00178 (IP-GGL) dated 6 January 2011; Planning Division Finding of No Significant Impact. 29 February 2016.
- Draft Environmental Assessment – Construction of Intracoastal Waterway Dredged Material Management Area O-23. May 2020.

1.5 DECISIONS TO BE MADE.

This EA will evaluate the proposed dredging of the OWW from the OWW/IWW Crossroads to the St. Lucie Lock, Martin County, FL (hereafter project channel). Dredged material would be placed in DMMA O-7 or the proposed O-23.

1.6 SCOPING AND ISSUES.

1.6.1 Relevant Issues.

The following issues were identified as relevant to the proposed action and are appropriate for further evaluation: cultural resources; Native American lands; air quality; threatened and endangered species including sea turtles, wood stork, West Indian manatee, and smalltooth sawfish (STSF); essential fish habitat; seagrass, oysters, and mangroves; turbidity and water quality; fish and wildlife resources; recreation and tourism; navigation; noise and aesthetics; socio-economic impact; and cumulative impacts.

1.6.2 Issues Eliminated from Further Analysis.

The proposed action is expected to have little or no impact on soils, housing, wetland, hardbottom, Coastal Barriers Resources System units, Hazardous Toxic and Radioactive Waste, or population dynamics. Wetland analysis was excluded from review due to the nature of the proposed work. A 404(b)(1) analysis was completed for potential incidental fallback from dredging activities and to cover the placement of the dredged material within the DMMA sites. This EA provides an evaluation of the effects of the maintenance dredging of the OWW and placement within DMMA

O-7 or O-23. Previous NEPA documents evaluated issues of concern related to construction of DMMA O-7 and a NEPA document is currently under review for the construction of DMMA O-23. These evaluations have been determined to be valid. The information presented in these evaluations appears to be complete, and relevant Federal laws have not changed in a manner that would require re-evaluation of these resources. Therefore these evaluations are incorporated by reference into this EA.

1.7 ENVIRONMENTAL COORDINATION

1.7.1 Water Quality Certification

The Corps will request FDEP (Florida Department of Environmental Protection) to verify that the activity, as proposed, is exempt under Chapter 62-330.051(7)(a), Florida Administrative Code, and under Section 403.813(1)(f), F.S., from the need to obtain a regulatory permit under Part IV of Chapter 373 of the Florida Statutes. This project would be performed in compliance with State of Florida water quality standards. In accordance with the Coastal Zone Management Act, a Federal Consistency Determination (CD) has been prepared for the proposed project (Appendix B) and will be reviewed by the State for their concurrence that the project is consistent to the maximum extent practicable with the enforceable policies of the Florida Coastal Management Program. Consistency review will be performed during the coordination of the Draft EA.

1.7.2 Endangered Species Act- Section 7 Consultation

In accordance with Section 7 of the Endangered Species Act, the project will be coordinated with the National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service (USFWS). The applicable conditions of the South Atlantic Regional Biological Opinion (SARBO) issued by NMFS and the Statewide Programmatic Biological Opinion (SPBO) issued by the USFWS would be followed during construction. Applicable terms and conditions resulting from the ESA consultation will be implemented. Pertinent correspondence is found in Appendix C.

1.7.3 Essential Fish Habitat (EFH) Consultation

EFH consultation will be conducted in accordance with the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act. Consultation with the National Marine Fisheries Service Habitat Conservation Division (HCD) will be conducted concurrently with the public notice. Per the September 3, 2019 and October 2, 2019 EFH Findings between NMFS' Southeast Regional Office and South Atlantic Division, U.S. Army Corps of Engineers and Jacksonville District, respectively, the EFH Assessment for the project is integrated within the draft EA.

1.7.4 Section 106 of the National Historic Preservation Act (NHPA) Consultation

Consultation of the proposed action was completed in compliance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), as amended, and its implementing regulations (36 CFR Part 800). Consultation with the Florida State Historic Preservation Office (SHPO), appropriate federally recognized tribes, and other interested parties is completed. Consultation was concluded prior to project implementation and is in compliance with the goals of the NHPA with completion of the coordination.

2. ALTERNATIVES

The alternatives section describes alternatives analyzed for the proposed action, including the no action alternative and the Preferred Alternative. The beneficial and adverse environmental effects of the alternative are presented in comparative form (Table 1), providing a summarized basis for choice to the decision maker and the public. Section 4 (Environmental Effects) compares the alternatives in more detail, providing a clear basis for choice to the decision maker and the public. A preferred alternative was selected based on the information and analysis presented in the sections on the Affected Environment and based on the description of the alternatives below.

2.1 DESCRIPTION OF ALTERNATIVES.

2.1.1 No action Alternative

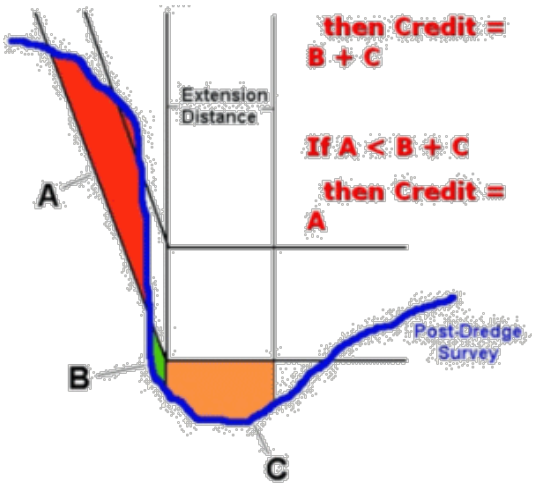
The maintenance dredge of the project channel would not be performed. Without maintenance dredging of the channel, the existing shoaling would inhibit safe navigation and exponentially increase the amount of accumulated sediment, both within the navigable channel and other portions of the OWW. Reduction of navigability would negatively impact commerce and recreation throughout the project channel.

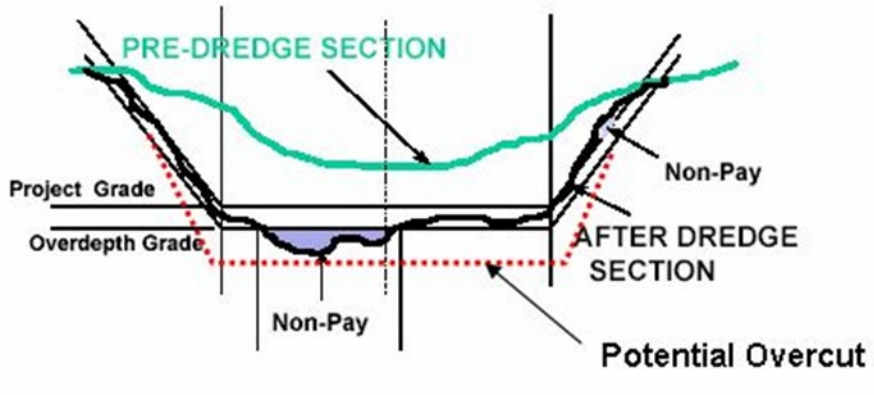
2.1.2 Preferred Dredging Alternative

The preferred alternative is to perform the maintenance dredge of the project channel. This would eliminate overall effects of the no action alternative, which would result in the potential loss of navigation, commerce, and recreation benefits.

The Corps does not normally specify the type of dredging equipment to be used. This is generally left to the dredging industry to offer the most appropriate and competitive equipment available at the time. Never-the-less, certain types of dredging equipment are normally considered more appropriate depending on the type of material, the depth of the channel, the depth of access to the disposal or placement site, the amount of material, the distance to the disposal or placement site, the wave-energy environment, etc. A more detailed description of types of dredging equipment and their characteristics can be found in Engineer Manual, EM 1110-2-5025, *Engineering and Design - Dredging and Dredged Material Disposal*. This Engineer Manual is available on the internet at
http://www.usace.army.mil/publications/eng-manuals/em1110-2-5025/toc.htm.

The plans and specifications normally require dredging beyond the project depth or width. The purpose of the "required" additional dredging is to account for shoaling between dredging cycles (reduce the frequency of dredging required to maintain the project depth for navigation). In addition, the dredging contractor is allowed to go beyond the required depth. This "allowable" accounts for the inherent variability and inaccuracy of the dredging equipment (normally ±2 feet). In addition, the dredge operator may practice over-cutting. An "over-cut" along the sides of the channel may be employed in anticipation of movement of material down the sides of the channel. Over-cut throughout the channel bottom may be the result of furrowing or pitting by the dredging equipment (the suction dredge's cutterhead, the hopper dredge's drag arms, or the clam-shell dredge's bucket). In addition, some mixing and churning of material below the channel bottom may occur (especially with a large cutterhead). Generally, the larger the equipment, the greater the potential for over-cut and mixing of material below the "allowable" channel bottom. Some of this material may become mixed-in with the dredged material. If the characteristics of the material in the overcut and mixing profile differ from that above it, the character of the dredged material may be altered. The quantity and/or quality of material for disposal or placement may be substantially changed depending on the extent of over-depth and over-cut.





This segment of the OWW has seen periodic maintenance dredges between 1937 and 1996. The design volumes of the dredges ranged from hundreds of cubic yards to over 200,000 cubic yards.

Since dredging equipment does not typically result in a perfectly smooth and even channel bottom (see discussion above); a drag bar, chain, or other item may be drug along the channel bottom to smooth down high spots and fill in low spots. This finishing technique also reduces the need for additional dredging to remove any high spots that may have been missed by the dredging equipment. It may be more cost effective to use a drag bar or other leveling device.

2.1.3 **Dredged Material Placement Options**

Upland storage, including DMMAs O-23 and O-7, offers a number of significant advantages over the other available methods: (1) upland storage provides an efficient means of dredged material management without the excessive costs of transportation and material re-handling involved with the use of ocean disposal; (2) provided suitable upland sites can be identified, upland storage avoids most wetland impact issues inherent in the use of open water disposal; and (3) unlike beach disposal, the use of upland sites does not depend upon the physical characteristics of the dredged material. The use of a limited number of centralized upland sites has additional economic, operational, and environmental advantages over the use of a greater number of smaller sites: (1) fewer, larger sites reduce the total acreage required and thereby reduce the total cost of site acquisition; (2) developing and constructing fewer, larger sites is more cost effective than developing and constructing a number of smaller sites; (3) the use of centralized sites allows for improved site security and requires the allocation of fewer operating personnel; and (4) the use of fewer, larger sites reduces the total impact to upland habitat and allows for improved effluent and storm water control, as well as the institution of more efficient and comprehensive monitoring procedures.

The use of fewer centralized sites as discussed above also facilitates the active management of these sites as permanent operating facilities. This represents a significant departure from the historic practice of more or less abandoning sites after limited use. Operating sites as permanent facilities allows for the implementation of a suite of management procedures and techniques with long-term operational and environmental benefits. Example management measures include improved detention area design; material handling and processing to increase dewatering efficiency (e.g., mechanical grading, trenching, storm water control); and the use of natural buffer areas and dike vegetation to improve their appearance. Most importantly, the permanency of the sites encourages exploring ways to remove and reuse the dewatered material. Alternatively, if no market for the material is found, it could be removed and stored in less ecologically sensitive upland areas further inland. Road access, existing or potential, is therefore essential. Sites managed as intermediate processing areas rather than one-time holding facilities will serve the needs of the IWW in perpetuity. This approach, in combination with effective site management measures, will establish the long-term material management capability required.

2.2 **ALTERNATIVES ELIMINATED FROM FURTHER EVALUATION**

2.2.1 **Ocean Disposal**

Ocean disposal of material dredged from the waterway is not a realistic option for the OWW project. Ocean disposal requires the transport of dredged material from the dredging site to an authorized offshore disposal area. In the case of the OWW, this operational requirement poses a very costly and difficult task. First, the material must be loaded into hopper barges capable of transiting the relatively shallow depths of the OWW. This consideration places severe limits on hopper capacity. Regulatory restrictions on hopper overflow during filling further limit hopper capacity. These barges must then proceed to St. Lucie Inlet for passage to sea. Once reaching the inlet, the material must then be transferred to deep draft seagoing barges for transport to the authorized disposal area. A review of offshore disposal areas currently authorized by the U.S. Environmental Protection Agency (EPA) to receive dredged material identified approved

offshore placement sites 22 miles northeast and 29 miles southeast of St. Lucie Inlet. Therefore, the costs associated with this type of operation and the likely increase in future regulatory restrictions on the use of ocean dumping, together make reliance on this method of material disposition inappropriate for the long-term maintenance of the OWW.

2.2.2 **Open Water Disposal**

This particular method of material disposition was perhaps the most widely used approach prior to the evolution of today's environmental regulatory programs addressing wetlands protection. Discussions with representatives of the relevant regulatory agencies have confirmed that this approach carries unacceptable environmental impacts in terms of the degradation or destruction of wetlands. In addition, the intent of the FIND's dredged material management program is to provide a permanent infrastructure of material management facilities. The creation or expansion of open water islands represents a one-time opportunity for material placement and does not lend itself to active material management practices which require upland access for equipment and personnel. As a result, the use of open water disposal was not considered an acceptable dredged material management strategy for the OWW in Martin County.

2.2.3 **Nearshore Placement**

Extensive areas of exposed hardbottom habitat occur in the nearshore off the beaches of Martin County. Nearshore hardbottom reefs serve as settlement habitats for immigrating sub-adults of fish and invertebrates, or as intermediate nursery habitats for juveniles emigrating out of nearby inlets (Vare 1991). At least 86 taxa of fish have been identified around nearshore hardbottom habitats along southeast mainland Florida, including at least 34 species of juvenile reef fish which may utilize these habitats as nursery areas (Lindeman and Snyder 1999). Therefore due to the presence of and the need to avoid impacts to this important resource, nearshore placement was eliminated from further consideration.

2.2.4 **Beach Placement**

The sediments in the portion of the OWW to be served by the O-7 or O-23 dredged material management facilities are not suitable for beach placement because they contain significant amounts of fine, organic-rich materials (Taylor et al., 1998). Therefore, this alternative was eliminated from further consideration.

2.3 **COMPARISON OF ALTERNATIVES**

Table 1 lists alternatives considered and summarizes the major features and consequences of the preferred alternative two alternatives carried through for analysis. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

Table 1: Summary of Direct and Indirect Impacts.

ALTERNATIVE ENVIRONMENTAL FACTOR	No Action Status Quo	Maintenance Dredge of the OWW with placement in DMMA O-7 or O-23
CULTURAL & NATIVE AMERICAN RESOURCES	No impact.	The Corps has determined no historic properties affected. Consultation has been completed prior to project implementation.
AIR QUALITY	No impact.	Anticipated emissions within national ambient air quality standards. Adverse impacts not anticipated.
SEA TURTLES	No impact.	Effects to marine turtles may be avoided or minimized with approved protective measures. The Corps will comply with the SARBO.
WEST INDIAN MANATEE	Reduction in movement and foraging habitat due to shallow waters and loss of seagrass. Potential for additional vessel collisions within constricted navigation areas.	May affect, but not likely to adversely affect, with implementation of standard protection measures as outlined in the SPBO.
SMALLTOOTH SAWFISH	No impact.	May affect, but not likely to adversely affect, with implementation of protection measures as outlined by SARBO.
ESSENTIAL FISH HABITAT	Potential loss of EFH from continued shoaling due to increased shallow depths and sand/muck.	Marine water column and unconsolidated sediment habitat would be temporarily impacted during dredge activities.
SUBMERGED AQUATIC VEGETATION	Potential loss of suitable growing habitat for submerged aquatic vegetation from continued shoaling.	Any potential vegetation within the project footprint (inside channel and 100-foot buffer for potential spudding and anchoring in the event hydraulic cutterhead is used) could be impacted during dredging activities.
OYSTERS	Potential loss of suitable oyster habitat from increased shoaling, shallow depths, and lack of anchoring medium.	Unconsolidated sediment could be suspended in the water column during dredging activities and could temporarily impair oyster habitat. Long-term impact to oysters is unlikely due to currents, location of the oyster reefs, and water depths.
MANGROVES	No impact.	Dredge equipment and pipeline route will avoid impacts to mangrove habitat fringing the waterway between the dredge area and the DMMA.
TURBIDITY AND WATER QUALITY	Potential for repeated turbidity and water quality degradation from boat traffic disturbing the shallow sediments in shoaled areas.	Short-term increase of turbidity and reduction in water quality within the project channel and dispersion zone.
FISH AND WILDLIFE RESOURCES	No impact.	Wildlife temporarily displaced during dredging. No significant long-term adverse impacts anticipated.
RECREATION AND TOURISM	Recreational boating opportunities could be lost due to inability to utilize OWW.	Recreational opportunities and tourism may be temporarily impacted during dredging.
NAVIGATION	Loss of safe navigation for OWW.	Navigation may be temporarily impacted during dredging due to operation of dredging vessels. Navigation will have a long-term benefit as a result of the project.
CUMULATIVE EFFECTS	Major long-term loss of navigation and recreation throughout the OWW from the Crossroads to the St. Lucie Lock and Dam.	No long term impacts are anticipated.

3. AFFECTED ENVIRONMENT

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if the alternative was implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "no action" alternative forms the baseline conditions for determining the environmental impacts of the proposed action.

3.1 THREATENED AND ENDANGERED SPECIES

3.1.1 Manatees

The Florida manatee (*Trichechus manatus*) can be found in the inshore waters of the project channels and in the coastal waters of the Atlantic Ocean primarily during migration. The proposed work is located adjacent to the critical habitat designated (per 50 CFR § 17.95) at the Crossroads of the OWW and IWW. Figure 2 shows a map of the designated critical habitat (DCH) for the manatee.

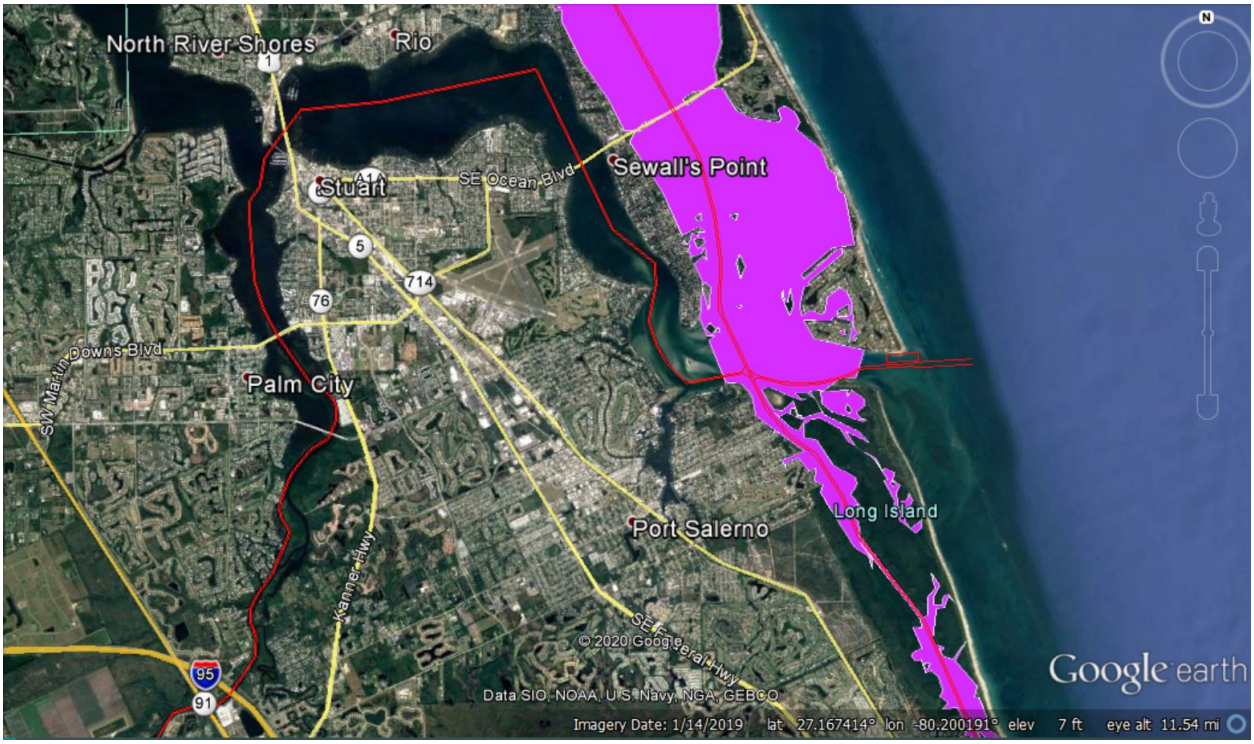


Figure 2. Manatee Designated Critical Habitat.

3.1.2 Sea Turtles

Three sea turtle species nest regularly on beaches of the southeastern US. Approximately 90% of Loggerhead (*Caretta caretta*) turtles nest in Florida. Green Sea Turtle (*Chelonia mydas*) nesting in the US occurs principally along the east central Florida beaches and Leatherback (*Dermochelys coriacea*) primarily nest in Puerto Rico and the Virgin Islands.

3.1.3 **Wood Stork**

The wood stork (*Mycteria americana*) is a highly colonial species of wading bird found throughout Florida. The wood stork is found in freshwater and estuarine waters, preferring cypress and mangrove swamps. The birds nest in large rookeries and feed in flocks. Wood storks feed in shallow waters where prey is concentrated from falling water levels, such as freshwater marshes, narrow tidal creeks, or flooded tidal pools. The wood stork is endangered due to the reduction in food base necessary to support breeding colonies. The reduction in food base is attributed to loss of wetland habitat and changes in water hydroperiods from draining wetlands and changing water regimes (i.e. construction of levees, canals, and floodgates). The entire project channel lies within the core foraging areas for the N. Fork St. Lucie River and 616009 Sewel Point/MC2/Bird Island colonies.

3.1.4 **Smalltooth Sawfish**

The smalltooth sawfish (*Pristis pectinata*), currently listed as endangered by NMFS, rarely occurs within the project area. This species has become rare along the southeastern Atlantic and northern Gulf of Mexico coasts of the U.S. during the past 30 years, with its known primary range now reduced to the coastal waters of Everglades National Park in extreme southern Florida.

3.2 **WATER QUALITY**

FDEP has designated waters in the project area as Class III, Fish Consumption; Recreation, Propagation and Maintenance of a Limited Population of Fish and Wildlife.

3.2.1 **Sediment Analysis**

Material from the OWW is generally not beach quality material. Sediments throughout the OWW are high in nutrients and are termed “muck”. Years of excess sedimentation, resulting from the transportation of silt and other fine particles from tributaries, canals, and storm drains, has potentially covered areas throughout the project corridor in a muck layer. Additional sediment sampling is being conducted, but the project channel and surrounding areas are anticipated to be a mixture of fine sand and muck.

3.3 **ESSENTIAL FISH HABITAT**

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act of 1976, 16 USC § 1801 et seq, waters and substrate within the project area have been identified as EFH by the South Atlantic Fishery Management Council. EFH is defined as those waters and substrate necessary for fish to spawn, breed, feed, or grow to maturity. Estuarine/inshore EFH within footprint of the project consists of estuarine water column and unconsolidated substrate. According to best available data from the Florida Fish and Wildlife Conservation Commission (FWC) and South Florida Water Management District (SFWMD) sources, seagrass is largely absent from the project area, but does exist in shoaled areas to the west of the Crossroads (See Section 3.5 for further discussion of seagrass). Species managed by the NMFS that may occur within the project channel can be found in Table 2, and possible prey species in Table 3. As discussed later in Section 4.3, the preferred alternative will implement minimization and avoidance measures to limit and avoid impacts to EFH.

Table 2. Federally Managed Species of Fish that May Occur within the Project Area

Species	Life Stage	Substrate Preference	
		Unconsolidated Sediment	Seagrass
Brown Shrimp *Farfantepenaeus aztecus*	A, J, L	A, J, L	J, L
Pink Shrimp *Farfantepenaeus setiferus*	A, J	A, J	J
White Shrimp *Litopenaeus setiferus*	A, J	A, J	J, L
Spiny Lobster *Panulirus argus*	A, J	A, J	A, J
Black Seabass *Centropristis striata*	A, J	A, J	
Gag *Mycteroperca microlepis*	A, J	A, J	
Cobia *Rachycentron canadum*	J	J	
Mutton Snapper *Lutjanus analis*	A, J	J	J
Gray Snapper *Lutjanus griseus*	A, J, L	A, J, L	A, J, L
Lane Snapper *Lutjanus synagris*	A, J	A, J	J
Yellowtail Snapper *Lutjanus chrysurus*	A, J	J	J
White Grunt *Haemulon plumieri*	A, J	A, J	A, J
Sheepshead *Archosargus probatocephalus*	A, J, L	A, J	J, L
Red Drum *Sciaenops ocellatus*	A, J, L	A, J, L	J, L
Hogfish *Lachnolaimus maximus*	A, J	J	J
Spanish Mackerel *Scomberomorus maculatus*	A, J	A, J	
Black Drum *Pogonius cromis*	A, J	A, J	A, J
Southern Flounder *Paralichthys lethostigma*	A, J	A, J	J

Table 3. Prey Species that May Occur within the Project Area

Species	Life Stage	Substrate Preference	
		Unconsolidated Sediment	Seagrass
Thinstripe Hermit Crab	A, J	A, J	

Clibanarius vittatus			
Horse Conch *Pleuroploca gigantean*	A, J	A, J	A, J
Bay Anchovy *Anchoa mitchilli*	A, J, L	A, J	A, J
Sheepshead Minnow *Cyprinodon variegatus*	A, J, L	A, J, L	
Atlantic Menhaden *Brevoortia tyrannus*	A, J, L	A	J, L
Bay Scallop *Argopecten irradians*	A, J, L	A, J	A, J, L
Atlantic Rangia *Rangia cuneata*	A, J, L	A, J, L	
Quahog Mercenaria mercenaria	A, J	A, J	
Grass Shrimp *Palaemonetes pugio*	A, J		A, J
Stripped Mullet *Mugil cephalus*	A, J	A, J	A, J
Spot *Leiostomus xanthurus*	A, J	A	J
Atlantic Croaker *Micropogonias undulates*	A, J	A, J	
Silversides *Menidia menidia*	A, J, L	A, J, L	A, J, L
American Eel *Anguilla rostrata*	A, J, L	J, L	A, J, L

Source: Atlantic Fishery Management Council 1998: Florida Museum of Natural History-Ichtyology Website, 2008.

*Substrate preference, unconsolidated sediment and seagrass habitats occur in or near the project area. A = Adult; J = Juvenile; L = Larva

3.4 **FISH AND WILDLIFE RESOURCES**

Marine life common to east-central Florida can be found within the project channel and within the identified 100-foot buffer from the project area. Macroinvertebrates commonly found in soft-bottom estuarine habitat within Florida include annelids, a variety of mollusks besides oysters, arthropods, sponges, and polyps (Hoffman and Olsen 1982). Regional development, drainage and navigation improvements, including connection of the St. Lucie River to the Okeechobee Waterway, creating the "C-44 canal", and other operations of the Central and Southern Florida system, require discharges of large volumes of freshwater to the estuary during intense rainfall events. Along with the freshwater discharges have come muck deposits, other sediments and excessively high levels of nutrients including phosphorus and nitrogen. Muck has accumulated on estuary bottoms and has covered large areas, impeding penetration of sunlight to the bottom,

reducing oxygen levels in the water column, and indirectly causing the disappearance of native seagrass and oyster beds.

3.5 SEAGRASS, OYSTERS, AND MANGROVES

Several species of seagrass could occur within the general vicinity of the project channel, including turtle grass (*Thalassia testudinum*), star grass (*Halophila englemannii*), paddle grass (*Halophila decipiens*), shoal grass (*Halodule wrightii*), manatee grass (*Syringodium filiforme*), and widgeon grass (*Ruppia maritima*).

SFWMD and FWC have mapped seagrass data from various sources, using data collected from 1987 to 2017. The best available data, obtained from SFWMD and FWC and compiled in 2017, show a distribution of seagrass in the shallow, shoaled areas in the vicinity of the project near the Crossroads. There are no identified seagrasses within the project channel, but there is a likelihood of seagrass present within the 100-foot buffer on the north edge of the channel in Reach I. The aerial photo in Figure 3 shows the 2017 mapped data of continuous seagrass in the project vicinity. There is no documented seagrass presence within or adjacent to the project channel in Reaches II, II, and IV.

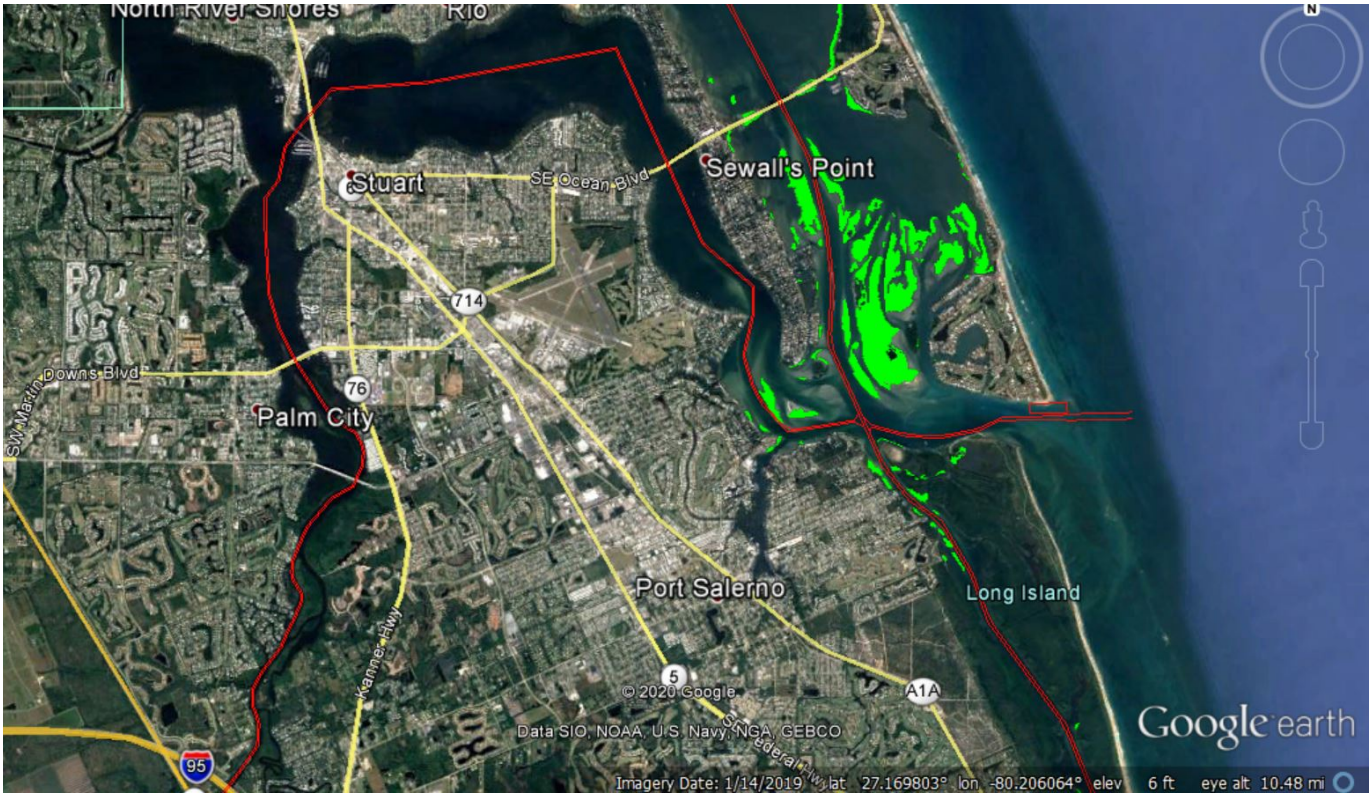


Figure 3: Seagrass distribution throughout the project corridor

Oysters are a keystone species in coastal ecosystems. Oysters colonize in reef systems that provide habitat for various fish and other invertebrates, filter water, and stabilize shorelines. Eastern oysters (*Crassotrea virginica*) populate the coastal waters of the Atlantic Ocean and is the species located within the project corridor. There are no documented oyster reefs located within the project

channel due to the depth of the water and lack of available firm substrate. The shoals along the project channel are shallow enough to allow the accumulation of oyster reefs. Figure 4 shows the distribution of documented oysters along the OWW. An area of specific interest for this EA is the oyster reef located to the east of the U.S. 1 bridge in close proximity to the project channel.

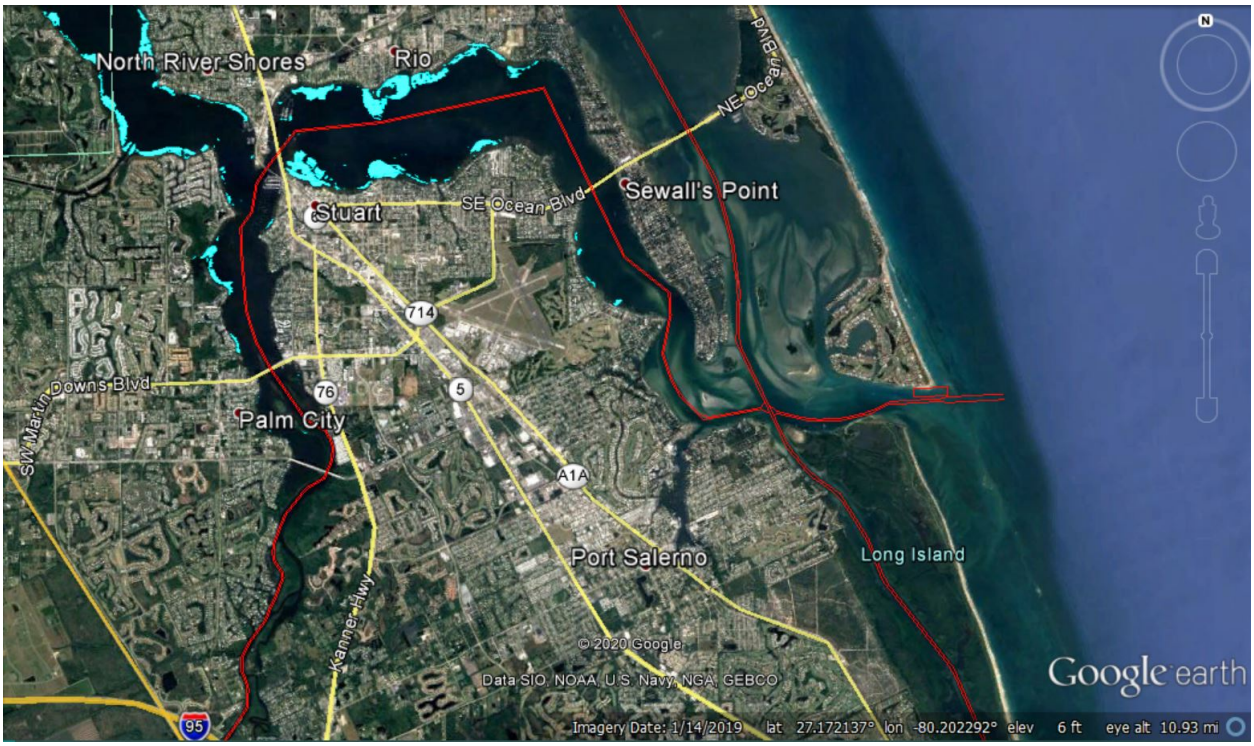


Figure 4: Oyster distribution throughout the project corridor

Mangroves occur in dense, brackish swamps along coastal and tidally influenced, low energy shorelines. In Florida, mangrove forests extend from the Florida Keys to St. Augustine on the Atlantic coast and consist of three main species of true mangroves: red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), and white mangrove (*Laguncularia racemosa*). Mangroves provide vital nurseries for fisheries that support global communities and often shelter biodiversity of global importance (Acharya, 2002). Additionally, mangroves play an important role in shoreline protection (Teas, 1977). Figure 5 shows the distribution of mangrove habitat within the project corridor. The majority of mangrove habitat within the project corridor occurs in the vicinity of the channel in Reach IV.

Figure 5: Mangrove habitat throughout the project corridor

The locations for the proposed pipeline corridors for the transport of the dredged material include the open water of the OWW as well as upland/creek/irrigation canals. The pipeline would be located within the open water of the OWW from the dredging operation to the DMMA. At the shoreline of the DMMA location, the pipeline would be located in areas with freshwater farm irrigation canals and Hog Creek (O-7) and a mix of tidal vegetation and freshwater influenced vegetation throughout Warner Creek (O-23).

3.6 **AIR QUALITY**

Martin County lies within the Southeast Florida Intrastate Air Quality Region, as established by 40 CFR Part 81.49. The U.S. Environmental Protection Agency (EPA) (40 CFR Part 81.310) designates Martin County as being in attainment with National Ambient Air Quality Standards for ozone, nitrogen dioxide, carbon monoxide, total suspended particulates, and sulfur dioxide. Air quality in Martin County exceeds national standards. Ambient air quality along coastal Martin County is generally good due to prevalent ocean breezes from the northeast through the southeast. Coastal development and the popularity of the beaches area all contribute to the presence of motorized vehicles and vessels in the project area at any given time. The usually present sea breezes along the shore readily disperse airborne pollutants.

3.7 **CULTURAL RESOURCES**

All portions of the proposed project area have been previously utilized or have been subjected to cultural resource surveys. A submerged cultural resources survey was performed from 29 to 31 March 2019 by Panamerican Consultants, Inc. of Memphis, Tennessee. The survey consisted of a magnetometer, sidescan sonar, and a subbottom profiler survey which identified 336 magnetic

anomalies, 93 sidescan sonar targets, and one subbottom paleofeature. Analysis of the survey data identified two potentially significant targets. Target 1 (USACE-0035) is a 125-x-100-foot magnetic anomaly associated with a small debris field designated. Target 2 (USACE-0036) is a 100-x-250-foot positive relief feature identified by subbottom profiler. Target 2 is likely a relict landform located approximately five feet below the bottom of the channel at the confluence of the North Fork and South Fork of the St. Lucie River. Based on the results of PCI's investigation identification of targets USACE-0035 and USACE-0036 the Corps has determined these remote sensing targets are potentially eligible for inclusion in the National Register of Historic Places (NRHP). Therefore, the Corps proposed placed a 75-foot avoidance buffer around Target 1 (USACE-0035) and a 150-foot avoidance buffer around Target 2 (USACE-0036). Contingent upon maintaining these avoidance buffers, the Corps has determined that future undertakings within the OWW navigation channel will have no adverse effect to historic properties listed or eligible for inclusion in the NRHP. If target avoidance is not possible, the targets would be investigated by archaeological divers to determine identity and historical significance based on National Register of Historic Places (NRHP) eligibility criteria. Consultation with the Florida State Historic Preservation Officer (SHPO), the Seminole Tribe of Florida (STOF), the Miccosukee Tribe of Indians of Florida (MTIF), the Seminole Nation of Oklahoma (SNO), and the Thlopthlocco Tribal Town (TTT) was initiated on August 19, 2019, with the inclusion of the cultural resource survey to be reviewed.

Based on these recommendations, the proposed project was determined to have no effect on cultural resources listed or eligible for listing in the NRHP. On September 24, 2019, SHPO concurred with the findings of the survey results and recommended the buffer for Target 1 be increased to 150-feet (DHR Project File Number 2019-5112). On September 23, 2019, STOF responded to the consultation and acknowledged the project falls within the STOF Area of Interest. The STOF stated no objection to the proposed project provided the targets are avoided. STOF requested the Corps re-initiate consultation prior to commencement of any work if avoidance is not possible.

3.8 **NATIVE AMERICAN LANDS**

No portion of the proposed project area exists within or adjacent to known Native American-owned lands, reservation lands, or Traditional Cultural Properties. However, Native American groups have lived throughout this region in the past, and their decedents continue to live within the State of Florida and throughout the United States. Pursuant to Section 106 of the National Historic Preservation Act (16 USC 470), obligations regarding the Corps Trust Responsibilities to federally-recognized Native American Tribes, and in consideration of the Burial Resources Agreement between the Corps and the Seminole Tribe of Florida, prior consultation on the project has not indicated any historic use of the project area.

3.9 **RECREATIONAL RESOURCES**

A total of 18,376 vessels were registered in Martin County as of 2018 (Florida Department of Highway Safety and Motor Vehicles, 2018). The OWW provides recreational opportunities for boaters, fishermen, wildlife observation, and leisure.

3.10 **NAVIGATION**

The OWW is a federally maintained channel stretching from the east coast to the west coast of Florida through Lake Okeechobee. The project channel runs from the St. Lucie Lock to the Crossroads, with the entire waterbody ranging from 345 feet wide at the narrowest to 6,000 feet wide at the widest. The channel design was initially authorized by Congress in 1930 to -6 ft MLW. The channel was later authorized for deepening to -8 ft MLW in 1945. Navigation of larger vessels is limited to the channel, however, smaller recreational vessels may navigate freely throughout the waterway. The shorelines of the entire project corridor support private and commercial docks, boat ramps, and marinas. With the increased shoaling and reduced channel depths and widths, navigation is potentially dangerous in portions of the project channel and surrounding area.

4. ENVIRONMENTAL EFFECTS

The anticipated changes to the existing environment (including direct and indirect effects) for the No Action Alternative and the Preferred Alternative are included in Table 1. This section includes the scientific and analytic basis for the comparisons of the alternatives. The following includes anticipated changes to the existing environment including direct, indirect, and cumulative effects.

4.1 THREATENED AND ENDANGERED SPECIES

4.1.1 No Action Alternative

No impacts to threatened and endangered species are anticipated as the no action alternative would result in no dredging being performed and no placement of dredged material.

4.1.2 Dredging of the OWW

The following protection measures will be implemented to minimize adverse impacts to threatened and endangered species.

4.1.2.1 Sea Turtles, Smalltooth Sawfish, and West Indian Manatees

The Corps determined that the proposed dredge work may affect, but is not likely to adversely affect swimming sea turtles, manatees, or STSF based on protective measures. Protection of manatees will follow the standard manatee construction conditions for in water work. The project will be coordinated with USFWS and NMFS upon noticing of this draft EA. Recommendations from the agencies will be incorporated, as applicable and practicable, in to the final project design and implementation. The proposed action is not likely to adversely affect sea turtles, STSF, or manatees with implementation of the following standard protection measures:

- The contractor would instruct all personnel associated with construction activities about the potential presence of manatees, sea turtles and STSF in the area and the need to avoid collisions with them.
- If siltation barriers are used, they shall be made of material in which manatees, sea turtles and STSF cannot become entangled, are properly secured, and are regularly monitored to avoid entrapment. Barriers must not block entry to or exit from essential habitat.
- If a manatee, sea turtle or STSF were sighted within 100 yards of the project area, all appropriate precautions would be implemented by the contractor to ensure protection of these species. These precautions would include the operation of all moving equipment no closer than 50 feet of these species. If a manatee, sea turtle or STSF were closer than 50 feet to moving equipment, the equipment would be shut down and all dredging activities would cease to ensure protection of the animal. Dredging activities would not resume until the species has departed the project area.
- All vessels associated with the project would operate at ‘no wake’ speeds at all times while in shallow waters or channels where the draft of the boat provides less than three feet clearance from the bottom. Boats used to transport personnel would be shallow draft vessels, preferably of the light-displacement category, where navigational safety permits. Vessels transporting personnel between the landing and any workboat would follow routes of deep water to the greatest possible extent. Shore crews would use upland road access if available.

- Mooring bumpers would be placed on all large vessels wherever and whenever there is a potential for manatees to be crushed between two moored vessels. The bumpers would provide a minimum stand-off distance of four feet.
- All personnel would be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, sea turtles and STSF, which are protected under the Endangered Species Act and the Marine Mammal Protection Act.

4.1.2.2 **Wood Stork**

Impacts are highly unlikely as all activities associated with dredging will occur below MLW and will not impact the shallow, suitable foraging habitat for the stork. Project operations in Reach IV have the potential to coming in close proximity to potential shallow water wood stork foraging areas. Due to the type and scope of work, these locations are unlikely to be disturbed during dredging activities and the Corps has determined there would be no effect to the wood stork.

4.1.3 **Material Placement in DMMA O-7 or O-23**

The Corps has determined the placement of the material within DMMA O-7 or O-23 would have no effect on threatened or endangered species. The placement of the material within DMMA O-7 or O-23 will be coordinated with USFWS and protective measures will be utilized during placement and dewatering activities.

4.2 **WATER QUALITY**

4.2.1 **No Action Alternative**

Without the removal of the shoaled areas within the project channel, there is a likelihood for increased degradation of water quality throughout the waterway resulting from boat traffic. Shallow navigation channels would result in "prop dredging" and boats stirring up deposited sediment. High boat traffic would cause diminished water quality throughout the project channel, given the nature of the deposited sediments.

4.2.2 **Dredging of the OWW**

Dredging activities would likely produce a temporary, minor, and localized adverse effect to water quality. Specifically, turbidity levels within the mixing zone would likely elevate above established background levels during periodic maintenance dredge operations. Visible plumes at the water surface would also be expected in the immediate vicinity of the operation. Elevated turbidity levels are expected to dissipate rapidly, returning to background levels in a short time period. In order to ensure that turbidity levels do not exceed the compliance standards, turbidity monitoring will be undertaken at the dredge site and at the location of the outlet of the discharge water from the DMMA. If turbidity levels exceed compliance standards, the Corps and/or its contractor will alter construction techniques or shut down the dredging or dredged material placement operations until such time that compliance with turbidity standards are met.

The Corps and/or its contractor will implement a spill contingency plan for hazardous, toxic, or petroleum material to minimize the potential for adverse effects to water quality from accidental spills.

The sediment within the dredged area is likely a mixture of muck and fine sand. The removal of the muck layer in areas of the dredging would provide an ecological benefit to the environment. Muck builds up in deep channels and blocks light from benthic organisms and serves as a legacy load that slowly releases nutrients back in to the water column (Maglio et al., 2016). The maintenance dredging of the channel is anticipated to remove deleterious nutrients from the waterway, in the areas where muck is present, without creating a measurable impact to adjacent resources.

4.2.3 **Material Placement in DMMA O-7 or O-23**

The primary change in water quality during placement of dredged material within DMMA O-7 or O-23 would be a temporary increase in turbidity at the site of the weir return water outfall. Any return water from the use of the DMMA will meet applicable water quality standards.

The design of the DMMA allows for the discharge of return water after a reduction in both suspended solids and deleterious nutrients. The amount of proposed dredged material will not exceed the capacity of the DMMA, therefore, the amount of discharge required will be minimal. In the event a discharge would be required, it is likely that the particulates would remain settled out and the dissolved nutrients in the released water would have the same levels as those found in the adjacent OWW waters.

4.3 **ESSENTIAL FISH HABITAT**

4.3.1 **No Action Alternative**

Increased shoaling within the waterway would lead to a reduction in available EFH. The shallow water resulting from the shoaling would not support fish and other marine fauna. Future shoaling is expected to be exponential, increasing the reduction in EFH throughout the project channel. The no action alternative would allow for the continued reduction of EFH throughout the project footprint.

4.3.2 **Dredging of the OWW**

The proposed dredging could impact the estuarine water column and unconsolidated substrate. Species managed by the NMFS that are common within the project area can be found in Table 2, and prey species in Table 3. The Corps has determined that the proposed action would only have a negligible adverse impact on EFH or federally managed fisheries along the east coast of Florida. This determination was based on the fact that the substrate of the project area is naturally dynamic and unconsolidated, and measures shall be taken to protect adjacent habitat. Turbidity could affect vision of marine life within the sediment plume as well as those marine organisms with gills, but these effects would be temporary as they would be limited to the duration of the dredge operations. Dredging activities could impact migrating larvae and/or juvenile fish due to related elevated turbidity and suspended sediment levels during operation time period. In addition, it is important to note that the dredging area encompasses a fraction of the entire water body, and similar habitat occurs immediately adjacent. EFH coordination for the proposed action with the NMFS will be initiated concurrent with noticing of this draft NEPA document.

4.3.3 **Material Placement in DMMA O-7 or O-23**

The Corps determined the placement of the dredged material within DMMA O-7 or O-23 would not have an adverse impact on EFH. Return water from the material placement would cause a temporary turbidity impact in the localized area and would affect vision of marine life within the return area as well as those organisms with gills. However, conditions would return to normal shortly after cessation of placement. The Corps will coordinate with HCD to ensure protection of the fisheries resources in the area.

4.4 **FISH AND WILDLIFE RESOURCES**

4.4.1 **No Action Alternative**

Fish and wildlife resources could be negatively impacted through the increased shoaling throughout the channel. Shallow water would reduce foraging habitat due to a reduction in prey species utilizing the area. The no action alternative would not remove the accumulated shoals and result in continuing degradation of fish and wildlife habitat.

4.4.2 **Dredging of the OWW**

Fish and wildlife within the dredging area would be temporarily displaced during construction. Any fish or seabirds displaced during dredging would be expected to return following completion of construction. All dredging will occur below MLW so upland bird nesting and foraging habitat should not be impacted from the dredging operations. In addition, some opportunistic foraging during dredging is expected by some fish and birds species. With the channel prism and side slopes, the project is anticipated to remove approximately 42,000 cubic yards of shoaling within Reach III and 31,000 cubic yards within Reach IV. This is expected to improve dissolved oxygen levels and conditions for oysters and submerged aquatic vegetation. Additional dredging in the other reaches are subject to shoal identification and funding.

4.4.3 **Material Placement in DMMA O-7 or O-23**

The Corps would implement its migratory bird protection plan if work is performed at the DMMA during the nesting season, approximately April 1 through August 31. The plan would include monitoring the site during the nesting season. If nests were found, then a buffer zone of at least 200 feet would be placed around each nest. It is anticipated that the containment basins within DMMA O-7 and O-23 will attract foraging wading birds and colonial nesting shorebirds and become useful habitat for these species during and between dredging events. No adverse impacts to migratory birds are anticipated with the migratory bird protection plan in effect. Other types of wildlife that utilize the site would be temporarily displaced during construction.

4.5 **SEAGRASS, OYSTERS, AND MANGROVES**

4.5.1 **No Action Alternative**

The accumulated sediments in various portions of the channel would likely have a negative effect on seagrass and oysters throughout the project channel. The reduced underwater habitat from shoaling would limit the available space for seagrass and oyster recruitment. Sand and muck accumulation would reduce the amount of available anchoring locations for oysters throughout the waterway. Increased water turbidity from boat wakes and propellers would reduce light penetration

to submerged aquatic vegetation. The no action alternative would result in an increase in negative effects to seagrasses and oysters. There are no impacts anticipated to mangroves.

4.5.2 **Dredging of the OWW**

Dredging could result in temporary impacts to submerged aquatic vegetation and oysters from potential turbidity plumes dispersed throughout the project channel during construction. However, the project channel is devoid of any seagrasses, oysters, and mangroves, therefore direct impacts to these resources will not occur. A majority of the surrounding area, to include the 100-foot buffer, of the project channel throughout each reach is not populated by seagrasses, oyster, or mangroves. The relatively small areas with potential impacts from dredging activities are considered minimal on a spatial scale and the likelihood of recovery following disturbance is high. In the unlikely event of complete loss of resource in a localized area, adjacent habitats would provide a primary source of recruitment resources.

4.5.3 **Material Placement in DMMA O-7 or O-23**

DMMA O-7 and O-23 are located within uplands and the placement of the dredged material will not directly impact seagrass, oysters, or mangroves. The transport of the slurry material will avoid impacts to these resources as well. Return water will not impact SAV or oysters, given the return water discharge location is located at least 6.5 navigable miles from the nearest documented oyster bed and 13.5 navigable miles from the nearest documented seagrass for DMMA O-7. Mangrove habitat is located approximately 1.5 navigable miles from the return discharge for DMMA O-7, however, there is no expected adverse impacts to mangroves resulting from the return water. The return water discharge location for DMMA O-23 has not been finalized, however, the discharge of Warner Creek in to the OWW, which is adjacent to the project site and a likely candidate for return water discharge is located approximately 4.1 navigable miles from the nearest identified seagrass and 3.7 navigable miles (upstream) to the nearest identified mangrove habitat. Mangrove habitat has not been mapped within Warner Creek, but conditions are acceptable for mangroves to potentially populate the area. The discharge location is adjacent to oyster beds, but the facility operations would ensure that discharged water from the containment basin would meet state Class III water quality standards for turbidity and other parameters.

The utilization of the irrigation canals and Hog Creek for DMMA O-7 could result in temporary impacts to freshwater vegetation from the discharge of saline return water through the freshwater system. It is anticipated that the impacts to these resources would be temporary and natural recruitment would occur between dredging events. The location of the pipeline for the transport of the water could result in minor clearing of vegetation required. For DMMA O-23, clearing of vegetation throughout Warner Creek would be required in order to place the transport pipeline from the offload site to the DMMA. Erosion prevention revetment could be required at the shoreline to ensure return water discharge does not have a significant effect to the shoreline integrity, in the event the return water is discharged at the shoreline when using DMMA O-23. Overall, given the infrequent dredging operations and use of either DMMA, there are only minor, temporary impacts expected from the pipelines and return water.

4.6 AIR QUALITY

4.6.1 No Action Alternative

No impacts to the OWW are anticipated as the no action alternative would result in no dredging being performed and no placement of dredged material.

4.6.2 Dredging of the OWW

The short-term impacts from emissions by the dredge and other construction equipment associated with the project are not anticipated to affect onshore or offshore air quality significantly. Exhaust emissions from vehicles, vessels, and construction equipment associated with the project would have a temporary and localized effect on air quality. Offshore sea breezes are anticipated to disperse pollutants.

4.6.3 Material Placement in DMMA O-7 or O-23

Construction equipment at the upland disposal site would emit exhaust fumes and could generate soil billows. The contract specifications would require the contractor to minimize pollution of air resources such as controlling particulates, i.e. dust, or excess machinery emissions.

4.7 CULTURAL RESOURCES

4.7.1 No Action Alternative

No impacts to historic properties as the no action alternative would result in no dredging being performed and no placement of dredged material.

4.7.2 Dredging of the OWW

Based on the remote sensing survey conducted in 2019 of the project area, 336 magnetic anomalies, 93 sidescan sonar targets, and one subbottom paleofeature have been identified. Analysis of the survey data identified two potentially significant targets. No diver evaluations were performed on the magnetic targets and a buffer of 150-feet around Target 1 (USACE-0035) as well as a 150-feet buffer around Target 2 (USACE-0036) was recommended to avoid effects on the potentially significant resources. The SHPO concurred with these buffers to avoid impacts as well as the Corps determination that contingent upon the preservation of the buffers, no historic properties would be affected by the dredging (DHR Project File Number 2019-5112).

During implementation of the dredging of the OWW, the Corps will continue to protect these cultural resources by maintaining the 150-foot buffers. Contingent upon maintaining the buffer, the Corps has determined that the dredging of the OWW will have no effect on historic properties listed or eligible for listing in the NRHP. As a result of consultation, both the Florida SHPO and the Seminole Tribe of Florida concur with the Corps determination of no effect to historic properties in letters dated September 24, 2019 and September 23, 2019 respectively (Appendix C). The Miccosukee Tribe of Indians of Florida declined to comment.

4.7.3 Material Placement in DMMA O-7 or O-23

No cultural resources have been identified within this portion of the project area. Additionally, there are no previously identified historic properties or districts adjacent to either DMMA O-7 or O-23.

4.8 NATIVE AMERICAN LANDS

4.8.1 No Action Alternative

No impacts to Native American properties will occur, as the no action alternative would result in no dredging being performed and no dredged material placement.

4.8.2 Dredging of the OWW

As part of the development of this project, the Dredging of the OWW has been coordinated with the appropriate federally-recognized tribes within the immediate area of potential effect. As discussed in Chapter 3, there are no known Native American properties within the project area and the project will have no effects to Native Americans. Consultation with the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida is complete. As a result of this consultation, the Seminole Tribe of Florida concurred with the Corps determination of no effect and the Miccosukee Tribe of Indians did not provide comment.

4.8.3 Material Placement in DMMA O-7 or O-23

No Native American resources or properties have been identified within this portion of the project area. Additionally, there are no previously identified historic properties or districts adjacent to either DMMA O-7 or O-23.

4.9 RECREATIONAL RESOURCES

4.9.1 No Action Alternative

The no action alternative would negatively impact recreational boating throughout the project channel. Without the reduction in accumulated shoaling, recreation throughout the project channel would be limited due to navigational hazards.

4.9.2 Dredging of the OWW

Recreational activities are likely to be temporarily impacted throughout the project channel during dredging activities, as the equipment will be located within the publicly accessible waterway. Upon completion of the project and removal of the equipment, there are no anticipated detrimental impacts to recreation in the area.

4.9.3 Material Placement in DMMA O-7 or O-23

Placement of the material in DMMA O-7 or O-23 would not impact recreational resources, as the sites are located on privately owned parcels, not open to access to the public. Material transport piping would be located outside of the navigable channel and secured as to not impede or restrict water activities in the overall waterway.

4.10 NAVIGATION

4.10.1 No Action Alternative

The no action alternative would result in a detrimental effect to navigation, as no dredging being performed would leave shoaling in place, resulting in more dangerous navigation throughout the project channel and surrounding areas.

4.10.2 Dredging of the OWW

Navigation is likely to be temporarily impacted throughout the project channel during dredging activities due to the location of the equipment. Portions of the channel will be blocked by slow moving vessels and support craft. There will be sufficient waterway for navigation during all dredging activities. Long-term benefits to navigation are expected upon completion of the project.

4.10.3 Material Placement in DMMA O-7 or O-23

Navigation will not be impacted from the placement of the material within DMMA O-7 or O-23, as they are upland disposal sites. Navigation throughout the waterway will have a temporary impact from the siting of the material transport pipeline. The pipeline will be located outside of the channel and will avoid any navigable routes between the dredge and placement locations to ensure minimal hazards to navigation during the course of the dredging and placement operations.

4.11 SOCIO-ECONOMIC IMPACT

4.11.1 No Action Alternative

The no action alternative would result in a major economic detriment to the area surrounding the project channel. The channel is highly trafficked by vessels, both commercial and recreational. These vessels provide an economic stimulus to the area. With the accumulation of sediment, there is a negative impact to the navigation, which would result in less traffic and business to the area, which, in turn, would lead to an economic decline.

4.11.2 Dredging of the OWW

The removal of the shoaled areas within the project channel would ensure the safe navigation of vessels throughout the project corridor. With clear and safe navigation, the public and commercial entities are more likely to utilize the waterway, resulting in additional business to the surrounding communities. The dredging of the waterway would have a significant economic benefit to the community and local region.

4.11.3 Material Placement in DMMA O-7 or O-23

The placement of the material would result in a minimal economic benefit to the area from the increased employment opportunities resulting from the placement operations. This impact is temporary and would be limited to the population either employed by the contractors or those with the expertise of dredged material management. Overall, the Corps has determined the socio-economic impact resulting from the material placement within the DMMAs is temporary and minor.

4.12 **CUMULATIVE EFFECTS**

A cumulative effect on the environment results from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR § 1508.7). Table 4 shows a summary of the cumulative effects.

Table 4. Summary of Cumulative Effects

	Past (Historical Project Effects)	**Present (Current Project Effects)**	**Future Without Project (No Action Alternative)**	**Future With Proposed Dredging and DMMA O-7 or O-23 Placement (Preferred Alternative)**
Sea Turtles	Construction of the channel created potential for increased vessel interactions with swimming sea turtles.	No effect.	No effect.	Minimal effect with use of clamshell or cutterhead dredge.
Manatees	Dredging of the OWW increased vessel traffic.	No effect.	Channel depths would decrease, resulting in less foraging habitat and restriction of movement. Potential for more vessel collisions as navigational channels are constricted.	Minimal effect with use of standard protection measures.
Water Quality	Temporary increase in turbidity with past dredging events. Long-term alteration of the historic water quality conditions.	No effect.	Pollution prevention measures should continue. Decreased water depths could lead to chronic turbidity from prop dredging.	Temporary increase in turbidity with dredging and dewatering return.
Essential Fish Habitat	Channelization increased saltwater flow. No substantial effects on Federally managed fish species.	No effect.	Reduction in available EFH due to shallow waters and accumulation of shoaled sediments. effect.	No substantial effect on Federally managed fish species with avoidance of seagrass.
Fish and Wildlife Resources	Loss of terrestrial habitat with construction of upland disposal site.	No effect.	Reduction in foraging habitat due to accumulation of shoaled sediments. Compounding shoaling effects would have a negative impact on the availability of prey species.	Dredging would impact benthic organisms. Minimal impact on migratory birds with protective measures. Other wildlife temporarily displaced with use of upland disposal site.
Air Quality	Local emissions increased with creation of navigation channels. Minor emissions	No effect.	No effect.	Minor emissions from dredging and placement equipment.

	from dredging equipment.			
Cultural Resources	No historic properties affected.	No historic properties affected.	No historic properties affected.	No historic properties affected with avoidance measures.
Recreation Resources	Creation and maintenance of the channel increased recreational opportunities, such as boating.	No effect.	Adverse impact to recreational boating due to shoaling.	Temporary disruption to boat traffic from dredging and piping equipment. Long-term benefit to recreation in the area.
Aesthetic Resources	No effect.	No effect.	Accumulation of shoaled sediments would potentially result in a negative appearance of the waterway. Aesthetics is generally subjective, based on the viewpoint, and natural accumulation of sand in a waterway could be seen as naturally pleasing. The Corps has determined any effect on aesthetics result from no action being performed would be negligible.	Equipment would temporarily affect the aesthetics of the area.
Noise	Minimal increase in local noise levels from construction of navigation channels.	No effect.	No effect.	Equipment noise would be localized and minimal.
Navigation	Construction of the channel improved navigation through the OWW.	No effect.	Significant adverse impact to navigation if work is not performed.	Temporary impediment to navigable areas from dredging and piping equipment. Overall significant beneficial impact to navigation if proposed work was performed.
Socio-Economics	Creation of the channel provided a significant economic stimulus to the area.	No effect.	Significant adverse economic impact if work is not performed.	Significant positive economic impact if the proposed work was performed.

4.13 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.13.1 Irreversible

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. Other than the use of fuel, equipment and supplies, there would be no irreversible commitment of resources.

4.13.2 **Irretrievable**

An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. Dredging of OWW could temporarily disrupt navigation and recreational activities.

4.14 **UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS**

Dredging would temporarily adversely impact water quality, recreation, navigation, seagrass, oysters, and mangrove resources. Seagrass and oysters would be affected during dredging of the waterway, however recolonization is not likely to be impacted. Upland disposal could temporarily displace wildlife.

4.15 **LOCAL SHORT-TERM USES AND MAINTENANCE/ENHANCEMENT OF LONG-TERM PRODUCTIVITY**

Most fish species and other motile organisms like crabs should be able to avoid the equipment. Since the project area is limited in size and the surrounding areas are accessible and open, the long-term productivity of fish and other motile species should not be significantly affected. It is anticipated that the channel and adjacent areas are of sufficient depth for the dredging vessels to operate and maneuver without impacting adjacent sea grasses, oysters, and mangroves. Depending on the type of dredging methodology used, there is a chance for some seagrass areas to be temporarily affected due to the requirement for spudding and anchoring outside of the project channel. Placement of dredged material within the upland disposal site is also typically a short duration, but could adversely impact wildlife. As this site is only periodically used, the wildlife would recolonize the interior of the property and habituate the site between dredging events.

4.16 **INDIRECT EFFECTS**

Maintaining the authorized depths of the project channels would benefit the commercial vessel traffic industry and local and statewide economies. The project may also create a temporary nuisance to recreational navigation during maintenance activities. This may contribute to increased development in adjacent areas.

4.17 **COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES**

This project is compatible with Federal, State, and most local objectives. The project has been scoped, planned and conditioned to maintain compliance Federal, State, and local laws and regulations where the Corps has waived its sovereignty.

4.18 **CONFLICTS AND CONTROVERSY**

Since the project has been scoped, planned and conditioned to maintain compliance with Federal, State, and local laws and regulations where the Corps has waived its sovereignty, the Corps does not anticipate conflict or controversy. Dredging would be conducted in a manner that would avoid or minimize impacts to resources outside the project limits.

4.19 **UNCERTAIN, UNIQUE, OR UNKNOWN RISKS**

There is a potential for incidental dredged sediment to transport out of the project area. The exact amount is uncertain, therefore, there may be “unknown” risks associated with dredging activities.

4.20 **PRECEDENT AND PRINCIPLE FOR FUTURE ACTIONS**

The proposed placement is not anticipated to set a precedent for future actions. Dredging of the OWW has been infrequent and historical documents for maintenance dredging throughout the project corridor are unavailable. A study by Taylor Engineering (Taylor et al., 1998) performed for the Florida Inland Navigation District (FIND) noted 60 small, confined maintenance dredge operations between 1936 and 1996 throughout the project area. The dredge design volumes ranged from 205 cubic yards to 203,427 cubic yards and were located in various sections of the project channel.

4.21 **ENVIRONMENTAL COMMITMENTS**

The Corps and its contractors commit to avoiding, minimizing or mitigating for adverse effects during construction activities by including the following commitments in the contract specifications, provided by USFWS and NMFS:

1. Standard protective measures for manatees shall be required.

2. Sea turtle and smalltooth sawfish construction conditions will be required.

3. The District's migratory bird protection policy shall be implemented.

4. The work shall be performed in compliance with State water quality standards.

5. The contracting officer would notify the contractor in writing of any observed noncompliance with Federal, State, or local laws or regulations, permits and other elements of the contractor's Environmental Protection Plan. The contractor would, after receipt of such notice, inform the contracting officer of proposed corrective action and take such action as may be approved. If the contractor fails to comply promptly, the contracting officer would issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions would be granted or costs or damages allowed to the contractor for any such suspension.

6. The contractor would train his personnel in all phases of environmental protection. The training would include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to ensure adequate and continuous environmental pollution control. Quality control and supervisory personnel would be thoroughly trained in the proper use of monitoring devices and abatement equipment, and would be thoroughly knowledgeable of Federal, State, and local laws, regulations, and permits as listed in the Environmental Protection Plan submitted by the contractor.

7. The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract would be protected during the entire period of this contract. The contractor would confine his activities to areas defined by the plans and specifications.

4.22 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

4.22.1 National Environmental Policy Act of 1969 (42 USC § 4321 *et seq.*)

Section 1.4 depicts NEPA documents that have previously discussed and evaluated the project's dredging activity and the existing placement area. This EA was prepared to evaluate the proposed project's effect to the human environment. The EA will be noticed to disclose the Federal action and offer the public an opportunity to provide comment and participate in the decision making process. Comments received will be incorporated into this document and listed in Section 6.4 below. The project is in compliance with NEPA.

4.22.2 Endangered Species Act of 1973 (16 USC §1531 *et seq.*)

Pursuant to Section 7 of the Endangered Species Act of 1973, (16 U.S.C. §1531 et seq.) as amended, the project has been coordinated with NMFS through the SARBO dated March 27, 2020. The Corps has made the determination of may affect, not likely to adversely for the West Indian manatee and the smalltooth sawfish. The applicable conditions of the SARBO issued by the NMFS and the SPBO issued by the USFWS would be followed during construction. Consultation with the appropriate resource agencies will be conducted concurrent with the noticing of the draft environmental assessment.

4.22.3 Fish and Wildlife Coordination Act of 1958, As Amended (16 USC § 661 *et seq.*)

Coordination with USFWS will be conducted. The provisions of the Fish and Wildlife Coordination Act of 1958, as amended (FWCA) (48 Stat. 401; 16 U.S.C. 661 et seq.) are covered in the SPBO and a Coordination Act Report (CAR) is not needed. The project complies with this Act.

4.22.4 National Historic Preservation Act of 1966 (54 USC § 300101 *et seq.*)

The proposed action is in compliance with Section 106 of the National Historic Preservation Act, as amended (Public Law 89-665). As part of the requirements and consultation process contained within the National Historic Preservation Act implementing regulations of 36 CFR Part 800, this project is also in compliance through ongoing consultation with the Archaeological and Historic Preservation Act, as amended (16 U.S.C. §§469-469c) (Public Law 93-291), Archeological Resources Protection Act (16 U.S.C. §§470aa-470mm) (Public Law 96-95), American Indian Religious Freedom Act (Public Law 95-341), Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §3001 et. seq.), Executive Orders (E.O.s) 11593, 13007, and 13175, the Presidential Memorandum: Government to Government Relations with Native American Tribal Governments (1994) and appropriate Florida Statutes. Consultation with the Florida SHPO, appropriate federally recognized tribes, and other interested parties has been initiated. The Florida SHPO and the Seminole Tribe of Florida concurred with the Corps determination of no effect to historic properties in letters dated September 24, 2019 and September 23, 2019, respectively. The proposed action is in compliance with the goals of the NHPA.

4.22.5 Clean Water Act of 1972 (33 USC § 1341 *et seq.*)

The project shall be in compliance with this Act. A Section 404(b) Guidelines evaluation has been completed and is included in Appendix A. A Section 401 Water Quality Certification exemption

shall be obtained from the FDEP through the Joint Coastal Permitting Program. All State Water Quality Standards would be met. The project is in compliance with this Act.

4.22.6 **Clean Air Act of 1963 (42 USC § 7401 *et seq.*)**

Vehicular emission and airborne dust particulates resulting from construction activities shall be controlled. No air quality permits will be required. This project will be coordinated with EPA, and will be in compliance with this Act.

4.22.7 **Coastal Zone Management Act of 1972 (16 USC § 1451 *et seq.*)**

A Federal consistency determination in accordance with 15 CFR Part 930 Subpart C is included in this report as Appendix B. The Corps determined that the proposed action is consistent to the maximum extent practicable with the enforceable policies of the Florida Coastal Management Program. The project will be exempt from regulatory permitting, therefore, the Corps will request State consistency review during the coordination of the draft EA. The project will be in compliance with this Act.

4.22.8 **Farmland Protection Policy Act of 1981 (7 USC § 4201 *et seq.*)**

No prime or unique farmland would be impacted by the dredging. Therefore, this Act is not applicable to the proposed work.

4.22.9 **Wild and Scenic River Act of 1968 (16 USC §1271 *et seq.*)**

No designated Wild and Scenic river reaches would be affected by project related activities. This Act is not applicable.

4.22.10 **Marine Mammal Protection Act of 1972 (16 USC § 1361 *et seq.*)**

Protective measures, to include the 2011 Standard Manatee Conditions for In-Water Work, for marine mammals shall be implemented. This project will be coordinated with the USFWS and NMFS. All protection measures will be incorporated in to the project plans and specifications and will be implemented by the contractor during all in-water work. The work will be in full compliance with the Act.

4.22.11 **Estuary Protection Act of 1968 (16 USC §§ 1221-26)**

Congress designated the Indian River Lagoon as an estuary of national significance. The protective measures described in Section 4 would ensure avoidance and minimization of impacts from the proposed dredging. This project is in compliance with the Act.

4.22.12 **Federal Water Project Recreation Act of 1965, As Amended (16 USC §§ 460(L) (12)-460(L) (21))**

Although the project channel provides recreational benefits, the principles of the Federal Water Project Recreation Act are not applicable to this project.

4.22.13 **Submerged Lands Act of 1953 (43 USC § 1301 *et seq.*)**

The project will occur on submerged lands of the State of Florida. The project will be coordinated with the State and will be in compliance with the Act.

4.22.14 **Coastal Barrier Resources Act and Coastal Barrier Improvement Act (16 USC § 3501 *et seq.*)**

The proposed dredging and placement areas occur outside of any Coastal Barrier Resource System. Therefore, this act is not applicable to the proposed project.

4.22.15 **Rivers and Harbors Act of 1899, Section 10 (33 USC § 403 *et seq.*)**

The proposed work could temporarily obstruct navigable waters of the United States but would ultimately improve navigability of these waters. The proposed action will be subjected to a public notice and other evaluations normally conducted for activities subject to the act. The project is in full compliance with this Act.

4.22.16 **Anadromous Fish Conservation Act of 1965, As Amended (16 USC §§ 757A-757G)**

Anadromous fish species would not be affected. The project will be coordinated with the NMFS and will be in compliance with this Act.

4.22.17 **Migratory Bird Treaty Act of 1918 (16 USC §§ 703-712) and Migratory Bird Conservation Act of 1929 (16 USC §§ 715-715d, 715e, 715f-715r)**

The Corps will include standard migratory bird protection measures, i.e. nest avoidance, in the project plans and specifications and will require the contractor to abide by those requirements. The project is in compliance with these acts.

4.22.18 **Marine Protection, Research, and Sanctuaries Act of 1972 (16 USC § 1431 *et seq.* AND 33 USC § 1401 *et seq.*)**

The term "dumping" as defined in Section 3 (f) of Act 33 U.S.C. 1402 does not apply to the disposal of material for beach nourishment, upland disposal, or to the placement of material for a purpose other than offshore disposal (i.e. placement of rock material as an artificial reef or the construction of artificial reefs as mitigation). Therefore, ocean disposal is not a component of this project and the Marine Protection, Research and Sanctuaries Act does not apply to this project.

4.22.19 **Magnuson-Stevens Fishery Conservation and Management Act of 1976 (16 USC § 1801 *et seq.*)**

The Corps has determined that the project would have only a negligible adverse effect on EFH or federally managed fish species occurring along the southeast coast of Florida. EFH coordination will be completed concurrent with noticing of this draft NEPA document. Per the September 3, 2019 and October 2, 2019 EFH Findings between NMFS' Southeast Regional Office and South Atlantic Division, U.S. Army Corps of Engineers and Jacksonville District, respectively, the EFH Assessment for the project is integrated within the draft EA.

4.22.20 **Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC § 4601 *et seq.*)**

This project will not be acquiring any real estate interests from private property owners. This Act is not applicable.

4.22.21 **E.O. 11990, Protection of Wetlands**

There would be no impacts to wetlands by project activities. This project is in compliance with the goals of this Executive Order.

4.22.22 **E.O. 11988, Floodplain Management**

Based on the analysis in the EA, the Corps concludes that the proposed project will not result in harm to people, property, and floodplain values, will not induce development in the floodplain, and the project is in the public interest. The project complies with this Order.

4.22.23 **E.O. 12898, Environmental Justice**

Based on the information provided by the USEPA EJSCREEN tool, the project is located within an area of medium-high minority (45% versus the state average of 35%) and low-income populations (55% versus the state average of 47%). The dredging and placement of dredged material into either DMMA will continue to allow economic growth and benefits to the waterway and surrounding areas. This project will not cause any disproportionate and long-term adverse effects to minority or low income populations. The analysis can be found in Appendix D. The project complies with the Order.

4.22.24 **E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks**

The proposed action does not affect children disproportionately from other members of the population and would not increase any environmental health or safety risks to children. The project complies with the Order.

4.22.25 **E.O. 13089, Coral Reef Protection**

This project would not impact those species, habitats, and other natural resources associated with coral reefs, including hardbottom habitats. The project complies with this Order.

4.22.26 **E.O. 13186, Responsibilities of Federal Agencies to Protect Migratory Birds**

Measures to avoid the destruction of migratory birds and their eggs or hatchlings are described in Section 4 of this EA and are incorporated by reference. The Corps will include standard migratory bird protection requirements in the Project plans and specifications and will require the contractor to abide by those requirements. The project complies with this Order.

4.22.27 **E.O. 13112, Invasive Species**

The project's plans and specifications will include conditions to avoid the introduction and/or promotion of non-native species to the region. The Corps will require the contractor to abide by those requirements. The project complies with this Order.

5. LIST OF PREPARERS

5.1 **PREPARERS**

Preparer	Discipline	Role
Michael Ornella II, U.S. Army Corps of Engineers	Biologist	Principal Author
Ryan Clark, U.S. Army Corps of Engineers	Archaeologist	Cultural Resources

6. PUBLIC INVOLVEMENT

6.1 SCOPING AND DRAFT EA

A Notice of Availability will be issued for this action in which the Proposed FONSI and draft EA will be made available to the public. Comments received will be incorporated into this document and discussed in Section 6.4 below.

6.2 AGENCY COORDINATION

Coordination will be conducted with appropriate Federal and state agencies, as described in this report. Comments received from agency coordination will be included in Section 6.4 following the review of the draft EA. Agency coordination letters will be located in Appendix C.

6.3 LIST OF RECIPIENTS

The Notice of Availability (NOA) provided an electronic link to review the draft EA. This NOA was made available to appropriate stakeholders. A list of stakeholders receiving notification is available upon request.

6.4 COMMENTS RECEIVED AND RESPONSE

Upon completion of the review of the Proposed FONSI and draft EA, comments received will be summarized in this section. A copy of all correspondence will be included in Appendix C of the final NEPA document.

REFERENCES

2018 Alphabetical Vessel Statistics by County. (2018). Retrieved from https://www.flhsmv.gov/pdf/vessels/vesselstats2018.pdf

Acharya, Gayatri. 2002. Life at the margins: The social, economic andecological importance of mangroves. *Madera y Bosques*, vol. 8, no. Es1, pp.53-60.

Hoffman, E.G. and S.H. Olsen. 1982. Benthic macroinvertebrate study conducted for ITT Rayioner Fernandina Division. Report for ITT Rayioner, Inc., Olympic Research Division, Shelton, Washington.

Lindeman, K.C. and D. B. Snyder. 1999. Nearshore hardbottom fishes of southeast Florida and effects of habitat burial caused by dredging. *Fishery Bulletin*. Vol. 97, no. 3, pp. 508-525.

Maglio, C. K., Weaver, R .J., Trefry, J. H., Bostater, C. R., Shenker, J. M., Johnson, K. B, Trulock, S. F., Ousley, J. D. Cotter, P. F. and DeMarco, P. M. 2016. Environmental Benefits Realized During Navigation Maintenance Dredging: A Case Study in the Indian River Lagoon, Florida. Proceedings of the Twenty-First World Dredging Congress, WODCON XXI, Miami, Florida, USA, June 13-17, 2016.

Taylor, et. al., 1998. Long-Range Dredged Material Management Plan for the Okeechobee Waterway in Martin County, Florida. Taylor Engineering, Inc., Jacksonville, Florida.

Teas, H. (1977). Ecology and Restoration of Mangrove Shorelines in Florida. *Environmental Conservation, 4*(1), 51-58. doi:10.1017/S0376892900025042

Vare, C.N., 1991. A survey, analysis, and evaluation of the nearshore reefs situated off Palm Beach County, Florida. Masters thesis, Florida Atlantic University, pp. 121

APPENDIX A - SECTION 404(B) EVALUATION

SECTION 404(b) EVALUATION

OPERATIONS AND MAINTENANCE DREDGING OF OKEECHOBEE WATERWAY FROM THE OKEECHOBEE WATERWAY/INTRACOASTAL WATERWAY CROSSROADS TO THE ST. LUCIE LOCK MARTIN COUNTY, FLORIDA

I. Project Description

a. Location. The proposed work would be performed from the IWW/OWW intersection to the St. Lucie Lock (Figure 1).

b. General Description. The U.S. Army Corps of Engineers, Jacksonville District (Corps), is proposing to conduct maintenance dredging of the Okeechobee Waterway (OWW) Federal navigation project from the Crossroads to the St. Lucie Lock in Martin County, Florida. The dredged material will be placed in the Dredged Material Management Area (DMMA) O-7 or O-23.

c. Authority and Purpose. Maintenance of the OWW was authorized by the Harbor and River Act of 31 May 1974, House Document 294/93/1.

d. General Description of Dredged or Fill Material.

(1) General Characteristics of Material. Dredged material from the project channels typically consists of fine sand and mud/muck.

(2) Quantity of Material. Approximately 42,000 cubic yards from Reach III and 31,000 cubic yards from Reach IV would be dredged and placed in the DMMA O-7 or O-23. Additional reaches are subject to shoal calculations and funding allowances.

(3) Source of Material. From the OWW, between the Crossroads and St. Lucie Lock.

e. Description of the Proposed Discharge Site(s).

(1) Location. The DMMA O-7 or O-23 (see Figure 1).

(2) Size. O-7 is a 77.29 acre DMMA. O-23 will be an approximately 31 acre DMMA.

(3) Type of Site: Upland disposal site.

(4) Type(s) of Habitat. Previously authorized and constructed DMMA (O-7)/Pending construction DMMA (O-23).

(5) Timing and Duration of Discharge. Timing is undetermined and duration is generally less than two months.

f. Description of Disposal Method. Slurry material pumped from dredge location and deposited in to DMMA via pipeline.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The project channels have sloped bottoms with authorized depths (See Section 1.1 for more information).

(2) Sediment Type. Unconsolidated with sand, mud/muck.

(3) Dredged/Fill Material Movement. Material placed in the DMMA would be dewatered and stored long-term, with potential uses at a future date.

(4) Physical Effects on Benthos. Benthic organisms would be impacted by dredging activity. Re-colonization should begin in less than one year. No expected impacts from upland disposal.

(5) Actions to minimize impacts. Dredging operations would be monitored to ensure that construction activities are performed in authorized project areas only. Upland disposal minimizes impacts to open water and aquatic resources.

b. Water Circulation. Fluctuation and Salinity Determinations.

(1) Water Column Effects.

(a) Salinity: No significant effect.
(b) Water Chemistry: No significant effect.
(c) Clarity: Turbidity would temporarily decrease clarity. (Return water)
(d) Color: Turbidity would temporarily change color. (Return water)
(e) Odor: No significant effect.
(f) Taste: No significant effect.
(g) Dissolved Gas Levels: No significant effect.
(h) Nutrients: No significant effect.

(2) Current Patterns and Circulation.

(a) Current Patterns and Flow: Currents in the project area are primarily tidal.

(b) Velocity: No significant effect.
(c) Stratification: No significant effect.
(d) Hydrologic Regime: No significant effect.

(3) Normal Water Level Fluctuations. Tides in the project area are semi diurnal with varying levels throughout the year. The project would not affect normal water level fluctuations.

(4) Salinity Gradients. The project would not affect salinity gradients.

(5) Actions to minimize impacts. The project would not affect water levels. Turbidity would be monitored per the requirements of the State permit. If at any time the turbidity standard were exceeded, those activities causing the violation would cease.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site. There will be an increase in suspended particulates and turbidity levels in the vicinity of the dredging operation.

(2) Effects (degree and duration) on Chemical and Physical Properties of the Water Column.

(a) Light Penetration: Light penetration would decrease during dredging operations.
(b) Dissolved Oxygen: Dissolved oxygen levels would not be significantly altered by this project.
(c) Toxic Metals and Organics: This project would not cause any significant release of toxic metals or organics.
(d) Pathogens: This project would not cause any release of pathogens.
(e) Aesthetics: Turbidity would temporarily impact aesthetic quality of the dredging and return water areas.

(3) Effects on Biota.

(a) Primary Production, Photosynthesis: The project would not have a significant impact on primary production or photosynthesis.
(b) Suspension/Filter Feeders: Turbidity would affect suspension/ filter feeders, but the effects would not be significant.
(c) Sight Feeders: Sight feeders would be affected by turbidity, but the effects would not be significant.

(4) Actions to minimize impacts. As stated earlier, turbidity would be monitored per the requirements of the State permit. If at any time the turbidity standard were exceeded, those activities causing the violation would cease.

d. Contaminant Determinations. Levels of contaminants are not expected to have a significant impact on plankton, benthos, nekton, or the aquatic food web. Re-suspension of sediment within the dredging and return water areas is expected to have minimal impact on these organisms.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton: Significant effects on plankton are not anticipated.
(2) Effects on Benthos: Benthos would be impacted by the project, but benthic organisms would be expected to begin recovery within one year.
(3) Effects on Nekton: Significant effects on nekton are not anticipated.
(4) Effects on Aquatic Food Web: As stated earlier, benthos would be impacted, but additional significant effects on the food web are not anticipated.
(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges: Dredging is not expected to have a significant impact on the adjacent areas. This work would be performed in compliance with the Water Quality Certification issued by the State of Florida.
(b) Wetlands: The proposed work would not affect wetlands.
(c) Mud Flats: The proposed work would not have a significant affect to mud flats.
(d) Vegetated Shallows: The proposed work would not affect vegetated shallows.
(e) Coral Reefs: There are no coral reefs in the project area.
(f) Riffle and Pool Complexes: There are no riffle and pool complexes in the project area.

f. Threatened and Endangered Species. Implementation of identified standard protection measures would avoid or minimize adverse impacts to threatened and endangered species per the SARBO and SPBO.

g. Other Wildlife. Dredging and upland disposal would temporarily displace wildlife in the respective areas. Utilization of the sites would continue after the cessation of dredging and disposal activities.

h. Actions to Minimize Impacts. Measures shall be taken to avoid or minimize impacts to threatened and endangered species as well as other wildlife (please refer to Section 4).

i. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. This determination will be in accordance with the Water Quality Certification issued for this project.

(2) Determination of Compliance with Applicable Water Quality Standards. The work would be conducted in accordance with the Water Quality Certification issued for this project.

(3) Potential Effects on Human Use Characteristic.

(a) Municipal and Private Water Supply: No effects are anticipated.

(b) Recreational and Commercial Fisheries: Impacts to fisheries would not be significant (See Sections 3.5 and 4.3).

(c) Water Related Recreation: Construction activities would temporarily disrupt water related recreation.

(d) Aesthetics: Construction would temporarily impact aesthetics.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves: Work would be conducted in compliance with the Water Quality Certification issued by the State of Florida.

j. Determination of Cumulative Effects on the Aquatic Ecosystem. Periodic dredging operations would have impacts on the aquatic ecosystem. Most impacts should be relatively short-term and populations of benthic organisms within the placement areas should fully recover due to the natural sediment dynamics of the area.

k. Determination of Secondary Effects on the Aquatic Ecosystem. None.

III. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

a. Adaptation of the Section 404(b)(l) Guidelines to this Evaluation: No significant adaptations of the guidelines were made relative to this evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem: No practical alternative exists which meets the project objectives that do not involve discharge of fill into waters of the United States.

c. Compliance with Applicable State Water Quality Standards: Dredging would be performed in compliance with the Water Quality Certification issued by the State of Florida.

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act: The discharge operation would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

e. Compliance with Endangered Species Act of 1973: The proposed project would not jeopardize the continued existence of any species listed as threatened or endangered or result in the destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972: This act does not apply to this project.

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant Adverse Effects on Human Health and Welfare

(a) Municipal and Private Water Supplies: No effect.

(b) Recreation and Commercial Fisheries: No significant adverse impacts are anticipated.

(c) Plankton: No substantial adverse impacts are anticipated.

(d) Fish: No substantial adverse impacts are anticipated.

(e) Shellfish: No substantial adverse impacts are anticipated.

(f) Wildlife: Use of the impoundment basin could temporarily displace wildlife. Re-colonization of these sites would occur between maintenance events.

(g) Special Aquatic Sites: No substantial adverse impacts are anticipated.

(2) Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems: Most impacts should be relatively short-term (see section 4.2).

(3) Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity and Stability: No significant adverse effects are anticipated.

(4) Significant Adverse Effects on Recreational, Aesthetic, and Economic Values: Recreation and aesthetic values would be temporarily disrupted due to construction activity.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem: All appropriate and practicable measures shall be taken to minimize impacts.

i. On the basis of the guidelines the proposed disposal sites for the discharge of dredged material are specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

FINDING OF COMPLIANCE
FOR
OPERATIONS AND MAINTENANCE DREDGING OF OKEECHOBEE WATERWAY FROM THE OKEECHOBEE WATERWAY/INTRACOASTAL WATERWAY CROSSROADS TO THE ST. LUCIE LOCK MARTIN COUNTY, FLORIDA

1. No significant adaptations of the guidelines were made relative to this evaluation.

2. The DMMAs O-7 and O-23 are the placement sites available for this project. Use of either of these sites (Figures 1) would not result in significant impacts to water level fluctuation, circulation or currents.

3. The planned disposal of dredged material at any of the sites would not violate any applicable State water quality standards with the possible exception of turbidity. Therefore, turbidity standards would be monitored per the Water Quality Certification issued by the State of Florida. If a turbidity violation is noted, then those activities causing the violation shall be terminated. The disposal operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

4. Use of the DMMA O-7 or O-23 would not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended. Consultation with the U.S. Fish and Wildlife Service will be completed.

5. The proposed disposal of dredged material will not result in significant long-term adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. Significant adverse effects on life stages of aquatic life and other wildlife, aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values will not occur.

6. Appropriate steps shall be taken to minimize potential adverse impacts of the discharge on aquatic systems.

7. On the basis of the guidelines the proposed disposal sites for the discharge of dredged material are specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects to the aquatic ecosystem.

APPENDIX B - COASTAL ZONE MANAGEMENT CONSISTENCY

FLORIDA COASTAL MANAGEMENT PROGRAM
FEDERAL CONSISTENCY EVALUATION PROCEDURES

OPERATIONS AND MAINTENANCE DREDGING OF OKEECHOBEE WATERWAY FROM THE OKEECHOBEE WATERWAY/INTRACOASTAL WATERWAY CROSSROADS TO THE ST. LUCIE LOCK MARTIN COUNTY, FLORIDA

1. Chapter 161, Beach and Shore Preservation. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed plans and information will be submitted to the State in compliance with this chapter.

2. Chapters 163(part II), 186, and 187, County, Municipal, State and Regional Planning. These chapters establish the Local Comprehensive Plans, the Strategic Regional Policy Plans, and the State Comprehensive Plan (SCP). The SCP sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: The proposed project will be coordinated with various Federal, State and local agencies during the planning process. The project meets the primary goal of the State Comprehensive Plan through preservation and protection of the shorefront development and infrastructure.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a State emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The proposed project involves the dredging of the OWW, which will increase safe navigation throughout the project corridor. Therefore, this project is consistent with the efforts of Division of Emergency Management.

4. Chapter 253, State Lands. This chapter governs the management of submerged State lands and resources within State lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The proposed project complies with State regulations pertaining to the above resources. The work complies with the intent of this chapter.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the State to acquire land to protect environmentally sensitive areas.

Response: Since the affected property already is in public ownership, this chapter does not apply.

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the State to manage State parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed project is located adjacent to Jensen Beach to Jupiter Inlet Aquatic Preserve. The project will be coordinated with the State to ensure compliance with this chapter.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: This project has been coordinated with the State Historic Preservation Officer (SHPO). Because of the nature of the project there is little potential for impact to historic properties. The project is consistent with this chapter.

8. Chapter 288, Economic Development and Tourism. This chapter directs the State to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The proposed dredging encourages commercial and recreational use that in turn provides economic benefits to the area. This would be compatible with tourism for this area and therefore, is consistent with the goals of this chapter.

9. Chapters 334 and 339, Transportation. This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: The dredging would help maintain interstate commerce by ensuring safe navigation of the OWW and therefore is consistent with the goals of this chapter.

10. Chapter 370, Saltwater Living Resources. This chapter directs the State to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in State waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the State engaged in the taking of such resources within or without State waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The proposed dredging would not have a substantial adverse impact on saltwater living resources. Submerged resources may be temporarily adversely affected by the work. However, there is little likelihood of direct impacts and the project lies adjacent to similar habitat. Therefore, substantial impacts to the aquatic ecosystem are not anticipated. Based on the overall impacts of the project, the project is consistent with the goals of this chapter.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Fish and Wildlife Conservation Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project would not have a substantial adverse impact on living land and freshwater resources.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This project does not involve water resources as described by this chapter.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This project does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore, this chapter does not apply.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development. This chapter also deals with the Area of Critical State Concern program and the Coastal Infrastructure Policy.

Response: The proposed dredging will be coordinated with the local regional planning commission. Therefore, the project is consistent with the goals of this chapter.

16. Chapters 381 (selected subsections on on-site sewage treatment and disposal systems) and 388 (Mosquito/Arthropod Control). Chapter 388 provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the State.

Response: The project shall not further the propagation of mosquitoes or other pest arthropods.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the State by the Florida Department of Environmental Regulation (now a part of the Florida Department of Environmental Protection).

Response: An Environmental Assessment addressing project impacts has been prepared and will be reviewed by the appropriate resource agencies including the Florida Department of Environmental Protection. Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. A Water Quality Certification is being sought from the State. The project complies with the intent of this chapter.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the State soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: Agricultural lands do not occur in the vicinity of the project; therefore this chapter does not apply.

APPENDIX C - PERTINENT CORRESPONDENCE

APPENDIX D – ENVIRONMENTAL JUSTICE ANALYSIS

OPERATION AND MAINTENANCE DREDGING
OKEECHOBEE WATERWAY FROM THE OKEECHOBEE WATERWAY/INTRACOASTAL WATERWAY CROSSROADS TO THE ST. LUCIE LOCK

With dredged material placement in Dredged Material Management Area O-7 and O-23

ENVRIONMENTAL JUSTICE ANALYSIS
June 2020

On February 11, 1994, the President of the U.S. issued Executive Order (E.O.) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This E.O. mandates that each Federal agency make environmental justice (EJ) part of the agency mission and to address, as appropriate, disproportionately high and adverse human health or environmental effects of the programs and policies on minority and low-income populations. Significance thresholds that may be used to evaluate the effects of a proposed action related to EJ are not specifically outlined. However, Council on Environmental Quality (CEQ) guidance requires an evaluation of a proposed action's effect on the human environment and the Corps must comply with Executive Order 12898. The Corps has determined that a proposed action or its alternatives would result in significant effects related to EJ if the proposed action or an alternative would disproportionately adversely affect an EJ community through its effects on:

- Environmental conditions such as quality of air, water, and other environmental media; degradation of aesthetics, loss of open space, and nuisance concerns such as odor, noise, and dust;
- Human health such as exposure of EJ populations to pathogens;
- Public welfare in terms of social conditions such as reduced access to certain amenities like hospitals, safe drinking water, public transportation, etc.; and
- Public welfare in terms of economic conditions such as changes in employment, income, and the cost of housing, etc.

The Corps conducted an evaluation of EJ impacts using a two-step process: as a first step, the study area was evaluated to determine whether it contains a concentration of minority and/or low-income populations. The second step includes evaluation to determine whether the proposed action would result in a disproportionately, high adverse effect on these populations.

As defined in Executive Order 12898 and the CEQ guidance, a minority population occurs where one or both of the following conditions are met within a given geographic area:

- The American Indian, Alaskan Native, Asian, Pacific Islander, Black, or Hispanic population of the affected area exceeds 50 percent; or
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

An affected geographic area is considered to consist of a low-income population (i.e. below the poverty level for purposes of this analysis) where the percentage of low-income persons:

- is at least 50 percent of the total population; or
- is meaningfully greater than the low-income population percentage in the general population or other appropriate unit of geographic analysis.

Step 1: Study Area's Minority and Low-Income Population Average Percentages

Using the USEPA EJScreen Tool, the project area was user-defined (**Figure 6**) to calculate the average percentages for EJ criteria. **Table 5** compares the average percentages for the project area, state of Florida, and U.S.

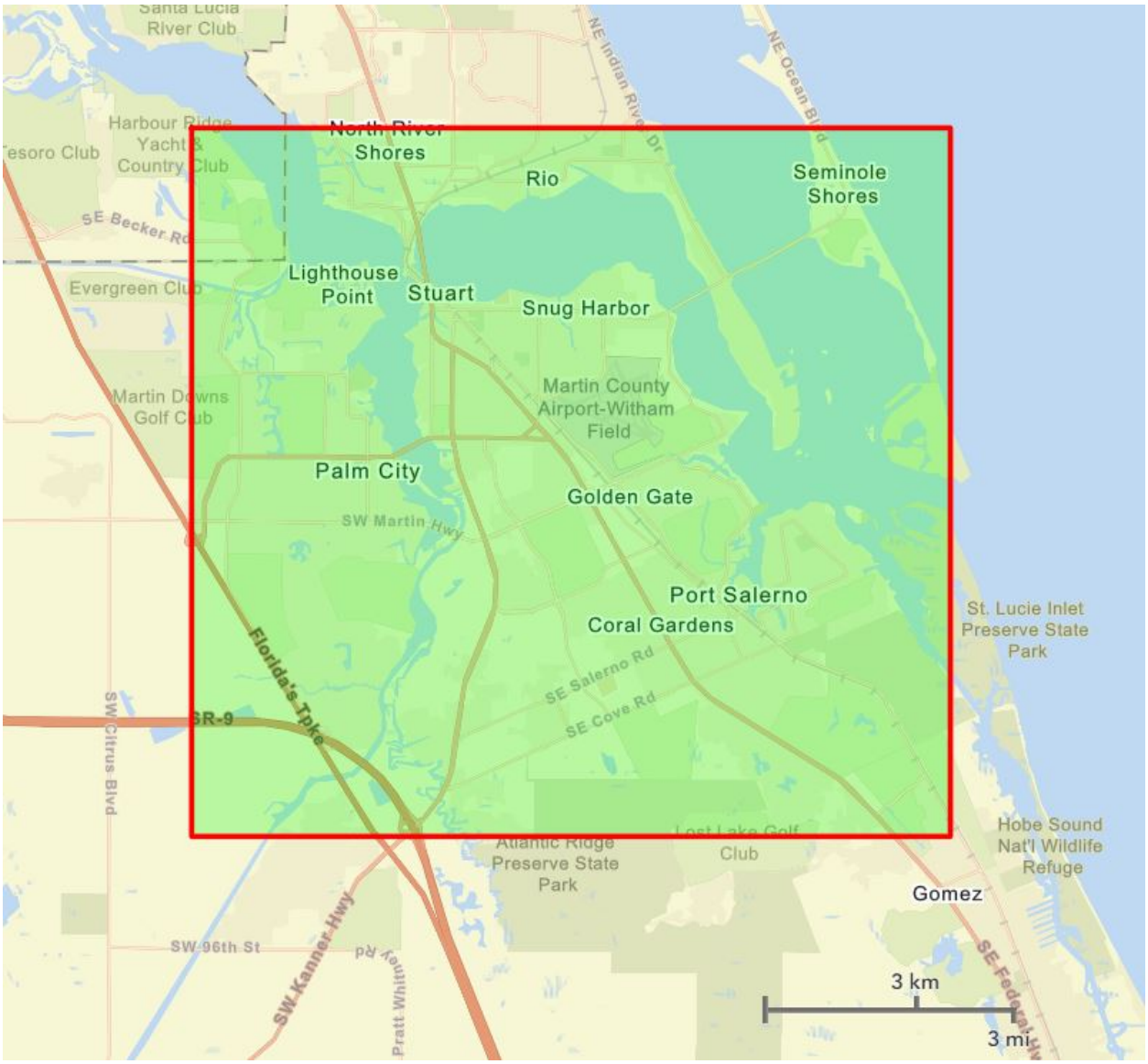


Figure 6. User defined EJ Analysis Buffer.

Table 5. USEPA EJScreen Tool Environmental Justice Criteria Percentages

	User Define Project Area %	Florida Average %	U.S. Average %
Minority Population	20%	45%	39%
Low Income Population	29%	36%	33%

Based on the information provided by the USEPA EJAssist tool, the average minority population is approximately 20% of the total population and approximately 29% of the individuals in the project area are considered below the poverty level. Therefore, the study area which comprises the Okeechobee Waterway Dredging project does not constitute an EJ community because the population percentages are below 50 percent.

Step 2: Recommended Plan's Effect on EJ Community The study area is not comprised of an EJ community.

REFERENCES

U.S. Environmental Protection Agency (USEPA). 2019. EPA EJScreen EPA'S Environmental Justice Screening and Mapping Tool (Version 2019). https://ejscreen.epa.gov/mapper/index.html?. Website accessed June 10, 2020.