

December 2018

Final Environmental Assessment

**Maintenance Dredging of the Gulf Intracoastal
Waterway (GIWW) Near Venice and Venice Inlet
Venice, Sarasota County, Florida**



U.S. Army Corps
of Engineers

JACKSONVILLE
DISTRICT



US Army Corps of Engineers
JACKSONVILLE DISTRICT

FINDING OF NO SIGNIFICANT IMPACT

MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET

VENICE, SARASOTA COUNTY, FLORIDA

The U.S. Army Corps of Engineers, Jacksonville District (USACE) has prepared an Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969, as amended (NEPA), and the White House's Council of Environmental Quality regulations to assess the environmental effects of conducting maintenance dredging of the Gulf Intracoastal Waterway (GIWW) near Venice, Florida. The dredged sediments will be placed on the beach, in the nearshore, or in an upland disposal site, as discussed in the attached document. The EA evaluates the effects of the Preferred Alternative, several reasonable alternatives, and the No Action alternative.

I have reviewed the EA for the proposed action. This Finding incorporates by reference all discussions and conclusions contained in the EA enclosed hereto. Based on information analyzed in the enclosed EA, reflecting pertinent information obtained from agencies having jurisdiction by law and/or special expertise, I conclude that the proposed action will not significantly affect the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are in summary:

- a. The Preferred Alternative is in compliance with the Endangered Species Act of 1973, as amended. The U.S. Fish and Wildlife Service (USFWS) concurred with the USACE determination the activities associated with the Preferred Alternative may adversely affect nesting sea turtles, and that the Statewide Programmatic Biological Opinion for Shore Protection Activities along the Coast of Florida (SPBO; revised March 13, 2015) applies to this project. USFWS concurred with the USACE determination that the Preferred Alternative is not likely to adversely affect the threatened piping plover, the threatened rufa red knot, the threatened Florida manatee, the endangered Eastern indigo snake, or the threatened Florida scrub-jay. USFWS's Piping Plover Programmatic

Biological Opinion (P3BO; issued May 22, 2013) applies to this project. Beach and nearshore placement of dredged materials will not adversely modify loggerhead terrestrial critical habitat. USFWS concurrence was provided to the USACE in a letter dated August 14, 2018. USACE determined that the project may adversely affect sea turtles in the water if a hopper dredge is utilized for project construction. In this case, the National Marine Fisheries Service's (NMFS) Gulf of Mexico Regional Biological Opinion (GRBO; issued November 19, 2003; revised June 24, 2005 and January 9, 2007) applies to this project.

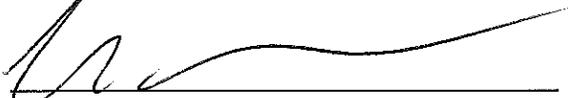
- b. This project is being coordinated with the State of Florida, and all applicable water quality standards will be met pursuant to Section 401 of the Clean Water Act. Water Quality Certification in the form of a Joint Coastal Permit will be obtained from the Florida Department of Environmental Protection (FDEP) prior to construction.
- c. The USACE has determined that the proposed project is consistent to the maximum extent practicable with the Florida Coastal Zone Management Program in accordance with Section 307 of the Coastal Zone Management Act. The State concurred with this determination in an email dated June 26, 2018. The final concurrence from the State will be issued with the FDEP Joint Coastal Permit.
- d. Dredging and placement on Venice Beach has been coordinated with the Florida State Historic Preservation Officer (SHPO) and the appropriate federally-recognized Tribes in accordance with the National Historic Preservation Act (NHPA) and consideration given under the NEPA.
- e. The proposed project has been evaluated pursuant to the Migratory Bird Treaty Act. The Jacksonville District's Migratory Bird Protection procedures will be implemented for this project. These procedures have been coordinated with the USFWS and the State of Florida.
- f. Benefits to the public will include improved navigation at the Venice Inlet and along this portion of the GIWW, restoration of habitat for protected species and other wildlife at the beach placement sites, and enhanced opportunity for recreation at the beach placement sites.

All practicable means to avoid and minimize adverse environmental effects have been incorporated into the Preferred Alternative. Measures that will be in place during construction to eliminate, reduce, or avoid adverse impacts to below the threshold of significance to fish and wildlife resources include the following:

- Dredging and placement activities will occur within the authorized and permitted template;
- Water-based activities will follow standard sea turtle protection measures and the terms and conditions of the NMFS GRBO;
- Water quality will be protected by adherence to the State of Florida water quality criteria;
- Dredged material placement will comply with the shoreline protection measure

- conditions of the SPBO and the P³BO issued by the USFWS; and
- Any water-based activity would follow standard manatee protection measures.

In view of the above and the attached EA, and after consideration of public and agency comments received on the project, I conclude that the Preferred Alternative would not result in a significant effect on the quality of the human environment.



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

9 Jan 2019
Date

**FINAL ENVIRONMENTAL ASSESSMENT ON
MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR
VENICE AND VENICE INLET
VENICE, SARASOTA COUNTY, FLORIDA**

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FINAL ENVIRONMENTAL ASSESSMENT
On Maintenance Dredging of the Gulf Intracoastal Waterway
Near Venice and Venice Inlet
Venice, Sarasota County, Florida

1 PROJECT PURPOSE AND NEED

The federal action being evaluated in this document is periodic maintenance dredging of the Gulf Intracoastal Waterway (GIWW) and Venice Inlet within the Congressionally authorized project at Venice, Sarasota County, Florida, consistent with the Council on Environmental Quality (CEQ) regulations that define federal actions to include those actions “subject to Federal control and responsibility” (40 CFR 1508.18).

1.1 PROJECT AUTHORITY

1.1.1 Gulf Intracoastal Waterway: Caloosahatchee River to Anclote River

The GIWW from the Caloosahatchee River to the Anclote River, which includes the area near Venice, Florida, was authorized by Section 2 of the River and Harbor Act of 1945 (PL 79-14) in accordance with House Document Number 371, 76th Congress. Channel alignment (“route”) modifications were authorized by the River and Harbor Acts of 1948 (PL 80-858), 1950 (PL 81-516) and 1954 (PL 83-780).

The authorization directed the U.S. Army Corps of Engineers (USACE) to construct and to maintain 160 miles of Intracoastal Waterway to ensure safe and operable navigation to a depth of nine feet plus two feet of over depth Mean Lower Low Water (MLLW). The waterway construction began in 1960 and was completed in 1967. The project winds through Manatee, Sarasota, Charlotte, Lee, and Pinellas Counties, Florida, and includes the federally-maintained Venice Inlet (also known as Casey’s Pass). The West Coast Inland Navigation District (WCIND) is the non-Federal sponsor for the proposed maintenance dredging of the Venice Inlet and the GIWW near Venice.

1.2 PROJECT LOCATION

The USACE is proposing to conduct maintenance dredging in Sarasota County near Venice, Florida within an approximately 5-mile stretch of the GIWW and within Venice Inlet. Venice Inlet, formerly known as Casey’s Pass, is located on Florida’s west coast with Venice Beach to the south and Casey Key to the north. It is one of several tidal connections that link the Gulf of Mexico and the GIWW. The inlet is located approximately 13 miles south of Sarasota, and is situated at the confluence of Lyons Bay, Dona Bay, Roberts Bay, and Little Sarasota Bay (**Figure 1-1: Study Area**).

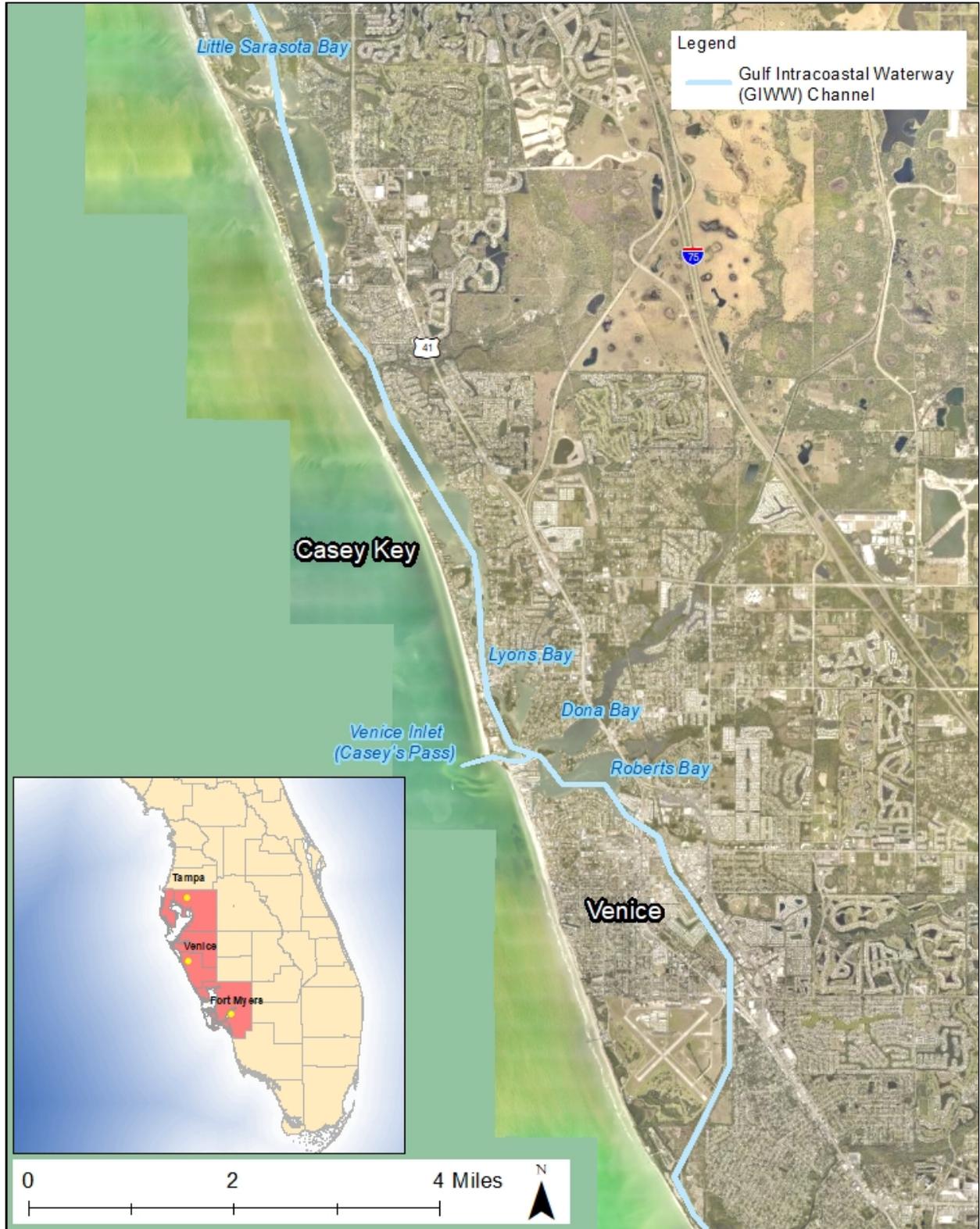


Figure 1-1: Study Area

MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET
 ENVIRONMENTAL ASSESSMENT

1.3 PROJECT PURPOSE AND NEED

The purpose of the project is to perform periodic maintenance dredging along approximately five miles of the GIWW near Venice and Venice Inlet (**Figure 1-2: Project Area**). The need for the project is driven by the accumulation of sediment, commonly referred to as shoaling, which has restricted the width of portions of the GIWW and inlet channel and reduced their depths. Current velocities and the post-channelization increase in the tidal prism through Venice Inlet have resulted in inlet channel scour, growth of ebb shoal volumes, higher erosion rates on beaches adjacent to the inlet and Snake Island and shoaling of interior channels including the GIWW in the vicinity of the Venice Inlet flood shoal (Humiston & Moore 2008). Limited maintenance dredging has been conducted in the project area since the original construction of the GIWW in the 1960s, with the latest dredge event occurring in 2010 near Snake Island and the Venice Inlet (Taylor Engineering 2017). The USACE conducted bathymetric surveys in 2016 and 2018 that indicate approximately 75,000 cubic yards (cy) of in-situ material has accumulated in the project area.

Of the four counties in which the GIWW is located, Sarasota County has experienced the highest shoaling volumes. The historic and projected shoaling rate within the GIWW for Sarasota County is approximately 8,000 cy/year, or approximately 115,000 cy of material projected over the next 15 years; however, the frequency of major storms impacting the area could result in increased shoaling (Taylor Engineering 2017). The accumulation of sediment hinders safe and efficient vessel navigation. Thus, periodic maintenance dredging is required to remove the accumulated sediments and maintain the GIWW and Venice Inlet at their federally authorized depth and width.

1.4 AGENCY GOAL OR OBJECTIVE

Periodic maintenance dredging of the Venice Inlet and the GIWW near Venice will meet the USACE's primary objective to maintain safe and efficient navigation through the waterway and inlet. Beneficial reuse of dredged material can also contribute to the following objectives:

- Reduce expected storm damages through beach placement of dredged materials;
- Maintain suitable habitat for nesting sea turtles, invertebrate species, and shorebirds on beaches;
- Maintain commerce associated with beach recreation in Sarasota County; and
- Beneficially use beach-quality material in the most cost-effective and environmentally sustainable manner possible to supplement the ongoing shore protection project at Venice Beach.



Figure 1-2: Project Area

**MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET
ENVIRONMENTAL ASSESSMENT**

1.5 RELATED ENVIRONMENTAL DOCUMENTS

Related National Environmental Policy Act (NEPA), design, and planning reports for the Maintenance Dredging of the GIWW near Venice and Venice Inlet, Sarasota County, FL project include the following documents:

- Venice Inlet Management Study Implementation Plan. FDEP. 1998.
- Final EA and FONSI, Maintenance Dredging of the Venice Inlet, Venice, Florida. USACE. March 1998.
- Hard Bottom Assessment for the City of Venice (Florida) Beach Nourishment Project. Coastal Tech. October 2003.
- Dredging Volume Projections for Gulf Intracoastal Waterway. Taylor Engineering. 2003.
- Regional Model for Sarasota Bay and Case Studies of Longboat Pass and Venice Inlet, Humiston & Moore Engineers. December 2008.
- Habitat Analysis of Four Proposed Borrow Areas Near Venice Beach, Sarasota County, Florida (Final Report). Prepared for G.E.C., Inc. and the U.S. Army Corps of Engineers, Jacksonville District by Dial Cordy and Associates, Inc. 2011.
- Flood Shoal Sand Trap, Venice Inlet. Humiston & Moore Engineers. June 2012.
- Venice Beach Hurricane and Storm Damage Reduction Drawings. Coastal Tech. November 2013.
- Final EA and FONSI, Beach Nourishment, Hurricane and Storm Damage Reduction Project, Venice Beach. USACE. July 2014.
- Dredging Volume Projections for Gulf Intracoastal Waterway (Draft). Taylor Engineering. December 2017.

1.6 DECISIONS TO BE MADE

The decision to be made upon completion of this Environmental Assessment (EA) is whether the proposed periodic maintenance dredging of the GIWW near Venice and areas within the Venice Inlet would result in significant environmental effects on the natural and human environment at the project location. The need for mitigation measures or best management practices (BMPs) to reduce any potentially adverse effects, particularly in regards to associated activities, is also a decision to be made. If no significant impacts are identified during the NEPA process, the USACE will make the decision to sign the Finding of No Significant Impact (FONSI) and move forward with the Preferred Alternative. If significant impacts are identified, the USACE will decide to implement mitigation measures to reduce the impacts to a lower-than-significant threshold, proceed with the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS), or not implement the Preferred Alternative.

1.7 SCOPING AND ISSUES

The USACE held two scoping meetings to present information about and solicit public and agency comments on the proposed project. The first scoping meeting was held on January 24th, 2018 in Bradenton, Florida and the second meeting was held on January 25th, 2018 in Venice, Florida. Input received by the public and agencies during the scoping process helped inform the USACE on the various issues to be evaluated in this EA. Please refer to Chapter 7, Public Involvement, for additional information on public outreach and involvement efforts.

1.7.1 ISSUES EVALUATED IN DETAIL

The following issues were identified as relevant to the proposed action and alternatives, and appropriate for detailed evaluation in this EA.

- Soils/Sediment Characteristics
- Threatened and Endangered Species
- Fish and Wildlife Resources
- Essential Fish Habitat
- Coastal Barrier Resources
- Water Quality
- Hazardous, Toxic and Radioactive Waste
- Air Quality
- Noise
- Aesthetics
- Recreation
- Navigation
- Cultural Resources
- Native Americans
- Invasive Species

1.7.2 PUBLIC INTEREST FACTORS

While USACE does not process and issue permits for its own activities, pursuant to 33 CFR 336.1, USACE authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including public notice, opportunity for public hearing, and application of the section 404(b)(1) guidelines. As part of its review, the Corps evaluates the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. All factors that may be relevant to the proposed action must be considered, including the cumulative effects thereof. These factors may include:

- Conservation
- Economics
- Aesthetics
- General Environmental Concerns

- Wetlands
- Historic Properties
- Fish and Wildlife Values
- Flood Hazards
- Flood Plain Values
- Land Use
- Navigation
- Shore Erosion and Accretion
- Recreation
- Water Supply and Conservation
- Water Quality
- Energy Needs
- Safety
- Mineral Needs
- Consideration of Property Ownership
- Needs and Welfare of the People

1.7.3 ISSUES ELIMINATED FROM DETAILED ANALYSIS

The following issues were eliminated from detailed analysis because they were not considered important and/or relevant to the proposed action and alternatives:

- Transportation
- Water Supply and Conservation
- Socioeconomics
- Urban Quality
- Solid Waste
- Energy Requirements and Conservation
- Natural, Scientific or Depletable Resources
- Food and Fiber Production
- Reuse and Conservation Potential

1.7.4 IMPACT MEASUREMENT

An interdisciplinary team used a systematic approach to analyze the affected area, to estimate the probable environmental effects, and to prepare the EA. This effort included methods such as a literature search, geographic information systems (GIS) data, coordination with agencies having expertise in particular areas, on-site field investigations, presence/absence determinations, and best professional judgment.

1.8 PERMITS, LICENSES, AND ENTITLEMENTS

The following state permits have been issued by the Florida Department of Environmental Protection (FDEP) or are the subject of a pending application, and will constitute water quality certification in accordance with Section 401 of the Clean Water Act:

FDEP Permit #0211217-005-JC - Venice Beach Nourishment

The City of Venice and the USACE obtained this Joint Coastal Permit from the FDEP in 2014. This permit allows for placement of material (fines content \leq 5%) on approximately 3.2 miles of Venice

Beach from four offshore borrow sources. This permit expires in 2029. For purposes of this EA, this placement area is referred to as the Venice Beach Nourishment Area consistent with the FDEP permit nomenclature. The use of this beneficial reuse area for the proposed project under this existing permit would require a permit modification to allow for placement of suitable material dredged from Venice Inlet and the GIWW near Venice.

FDEP Permits #0298106-002-JC and -005-JN - Venice Inlet Flood Shoal Impoundment Basin and Snake Island Stabilization

The West Coast Inland Navigation District (WCIND) obtained the original Joint Coastal Permit (002-JC) from the FDEP in 2013. This permit allowed for the creation of an impoundment basin within the flood shoal region of Venice Inlet and the stabilization of Snake Island with terminal groins and placement of dredged material. Dredged material from the impoundment basin could be placed within the Beach Fill Placement Area (fines content $\leq 10\%$), just south of the Venice Inlet, at the Snake Island Stabilization Area (no fines content restriction), or at an additional nearshore disposal area for dredged sediment (fines content $\leq 20\%$). The WCIND obtained a modification (-005-JN) to the original permit in 2017 extending the expiration of the original permit to 2028 and including additional provisions related to the placement of material from the dredging activities. The use of these permitted disposal areas for the proposed project would require a permit modification to allow for placement of suitable material dredged from Venice Inlet and the GIWW near Venice.

FDEP Application for Joint Coastal Permit, Maintenance Dredging Venice Inlet and GIWW, FDEP Application No.: 0364028-001-JC (2018 Application – Ongoing)

The USACE is applying for a new Joint Coastal Permit for the proposed project that allows for placement of suitable material from the periodic maintenance dredging events at Venice Inlet and the GIWW located near the City of Venice onto a portion of the Venice Beach Nourishment Area.

2 ALTERNATIVES

The alternatives section is the heart of this EA. This section describes in detail the No Action Alternative, the proposed action, and other reasonable alternatives that were studied in detail. Based on the information and analysis presented in sections on the Affected Environment and Environmental Effects, this alternatives section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decision-maker and the public.

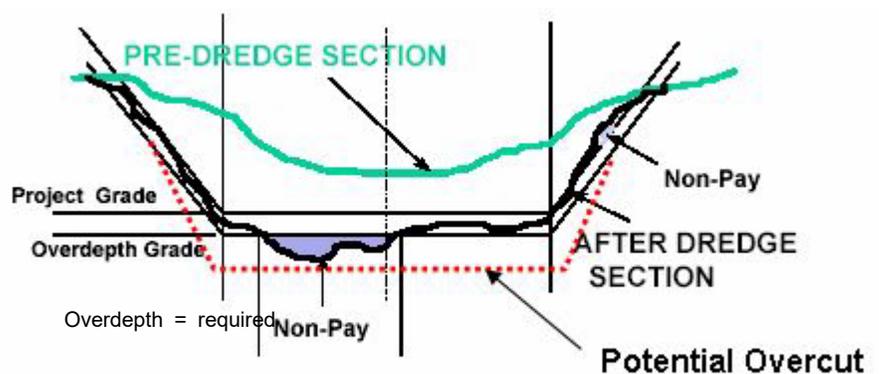
2.1 DESCRIPTION OF ALTERNATIVES

2.1.1 Type of Dredging Equipment

The USACE does not normally specify the type of dredging equipment to be used. This decision is generally left to dredging industry vendors to offer the most appropriate and competitive equipment available at the time. Nevertheless, 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, and the wave-energy environment. 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 Management*.

Required, Allowable, and Over-cut Beyond the Project Depth or Width

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.

Use of a Drag Bar

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 (and possibly less hazardous to sea turtles than additional hopper dredging).

Transport of Dredged Material

Dredged material is typically transferred to placement areas by barge and/or through hydraulic pumping, depending on the distance and location of the placement areas in relation to the dredging site. Depending on the distance between the dredge site and placement area, booster pumps and/or scows may be used to facilitate transport of material. The typical distance for cost effective transport of material is approximately 6 miles. Alternatively, placement in an Ocean Dredged Material Placement Site (ODMDS) typically requires the use of hopper dredges or hopper scows for transport of dredged material.

Upland Placement of Dredged Material

Placement of dredged material in an upland placement area typically requires the construction of a berm/dike to contain the material and allow for the collection and removal of water from the sediments, commonly referred to as dewatering. Water can be discharged back into the adjacent waterways consistent with associated state agency permits issued under the Clean Water Act (CWA) that authorize such releases.

2.1.2 NO ACTION ALTERNATIVE (STATUS QUO)

Under the No Action Alternative, the USACE would discontinue maintenance dredging of the federal navigation channels at Venice Inlet and the GIWW near Venice as authorized by the GIWW: Caloosahatchee River to Anclote River project. This alternative would also preclude the placement of dredged material from Venice Inlet and the GIWW near Venice into the beach

placement area identified in Section 2.1.4 and/or the upland placement area identified in Section 2.1.3.

2.1.3 DREDGING WITH UPLAND PLACEMENT (ALTERNATIVE A)

Maintenance dredging within the GIWW would occur between Cut-S11 and Cut-S21, and within Venice Inlet between Cut-1 and Cut-4. A total of 75,000 cy of shoaling material (68,000 cy in the GIWW and 7,000 cy in the Venice Inlet) has been identified in the most recent bathymetric surveys performed by the USACE. A portion of the shoaling material would be dredged during the 2018 dredge event. Dredging activities will maintain the authorized depth of 9 feet plus 2 feet of over depth MLLW. Future periodic maintenance dredging is expected to occur every 10-15 years with an estimated 75,000 cy to 100,000 cy of sediment removed per event; however, all dredging frequencies and volumes may vary due to storm-induced shoaling and are subject to appropriated funds. Also, project features may potentially be prioritized if resources do not allow the maintenance of the entire project.

The USACE proposes to use an upland placement area for disposal of dredged material (**Figure 2-1: Upland Placement Area**). The upland placement area (also known as S-WCIND-1) is a WCIND-owned parcel that was created in the 1960s as a dredged material disposal site during the construction of the GIWW: Caloosahatchee River to Anclote River project. Within the upland placement area, the WCIND has approximately 285,000 cy of dredged material capacity, assuming an approximately 26-acre basin with a 12-ft dike. The construction of the required dike and other features required to use this parcel as a dredged material management area is included as part of this alternative, and the effects associated with construction are analyzed in this document. The dredged volume capacities of the site are sufficient for the 2018 and subsequent dredging events. The USACE would hydraulically pump dredged material from the project area to the placement area.



Figure 2-1: Upland Placement Area

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2.1.4 Dredging with Upland and Beach Placement (Alternative B)

Periodic maintenance dredging of the Venice Inlet and the GIWW near Venice would occur as described in Section 2.1.3. Dredged material would be placed in an approved upland placement area adjacent to the GIWW as described in Section 2.1.3; however, depending on the quality of the sediment and economic feasibility, dredged material may also be placed on Venice Beach (*Figure 2-2: Venice Beach Placement Area*). Wherever feasible, USACE would prioritize beneficial reuse (beach placement on Venice Beach) of dredged sediment over upland placement.

2.2 ISSUES AND BASIS FOR CHOICE

As mentioned in Section 1.3, Project Purpose and Need, shoaling has occurred in the Venice Inlet and within the GIWW near Venice and reduced the width and depth of the federally maintained channel, thus hindering safe and efficient navigation. As a result, periodic dredging is necessary to maintain the authorized depth and width of the federal channel. Placement of dredged material from the project would be based on several factors including cost effectiveness, remaining capacity for placement areas, and the sediment characteristics of the dredged material.

2.3 ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION

The use of an ODMDS was considered but not fully evaluated as an alternative disposal option because of the prohibitive distance of the nearest ODMDS from the project area. The nearest ODMDS is the Tampa ODMDS, which is approximately 48 miles from the project area. The distance makes its use cost prohibitive versus the use of upland and/or beach placement sites located near the project area.



Figure 2-2: Venice Beach Placement Area

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2.4 COMPARISON OF ALTERNATIVES

Table 2-1: Summary of Direct and Indirect Impacts lists alternatives considered and summarizes the major features and consequences of the alternatives considered (see Section 4, Environmental Effects for a more detailed discussion of effects of alternatives).

2.5 PREFERRED ALTERNATIVE

2.6 THE PREFERRED ALTERNATIVE IS PERIODIC MAINTENANCE DREDGING WITH UPLAND AND BEACH PLACEMENT (ALTERNATIVE B), WITH PRIORITY GIVEN TO BEACH PLACEMENT ASSUMING THE DREDGED MATERIAL IS SUITABLE AND THEY ARE ECONOMICALLY FEASIBLE. THE PREFERRED ALTERNATIVE IS ALSO THE LEAST COST ENVIRONMENTALLY ACCEPTABLE ALTERNATIVE. IN CONSIDERATION OF APPLICABLE PUBLIC INTEREST FACTORS LISTED IN 33 CFR SECTION 320.4, USACE HAS DETERMINED THAT THE PREFERRED ALTERNATIVE IS IN THE PUBLIC INTEREST. IN SUMMARY, THE PREFERRED ALTERNATIVE WOULD MAINTAIN THE AUTHORIZED DEPTH AND WIDTH OF THE FEDERAL CHANNEL FOR NAVIGATION PURPOSES. DREDGED MATERIAL WOULD BE UTILIZED IN A BENEFICIAL MANNER (BEACH PLACEMENT) AS DESCRIBED IN SECTION 2.1. IMPACTS TO APPLICABLE PUBLIC INTEREST FACTORS ASSOCIATED WITH THE PREFERRED ALTERNATIVE WERE CONSIDERED, AND THESE IMPACTS ARE SUMMARIZED IN TABLE 2-1. SECTION 4, ENVIRONMENTAL EFFECTS, PROVIDES A MORE DETAILED DISCUSSION OF ALTERNATIVES AND THEIR EFFECTS, INCLUDING CUMULATIVE EFFECTS. SECTION 4 ALSO DISCUSSES MEASURES TO AVOID OR MINIMIZE ENVIRONMENTAL EFFECTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE. MITIGATION

Mitigation and environmental commitments that will be used by the USACE and/or its contractors are described in Section 4.21, Environmental Commitments.

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Table 2-1: Summary of Direct and Indirect Impacts

	No Action Alternative <i>Status Quo</i>	Alternative A <i>Dredging with Upland Placement</i>	Alternative B (Preferred Alternative) <i>Dredging with Upland and Beach Placement</i>
Soils/Sediment Characteristics	No adverse effects are anticipated.	No adverse effects are anticipated.	No adverse effects are anticipated.
Threatened and Endangered Species	Long-term, minor, and localized adverse effect to sea turtles and migratory shorebirds due to the loss of beach habitat from coastal processes.	Potential for temporary, localized adverse effect to sea turtles in the water column if a hopper dredge is used during project construction. Potential for temporary, minor, localized effect to sea turtles and Florida manatee due to in-water activities. Potential for temporary, minor, localized adverse effect to Eastern indigo snake, and Florida scrub-jay due to upland placement of dredged material. Appropriate measures would be implemented to ensure the safety and protection of these species.	Potential for temporary, localized adverse effect to sea turtles in the water column if a hopper dredge is used during project construction. Potential for temporary, minor, localized adverse effect to nesting sea turtles with declines in sea turtle nesting for one to two years post-beach placement. Loggerhead terrestrial critical habitat would not be adversely modified. Potential for temporary, minor, localized effect to Florida manatee due to in-water activities. Potential for temporary, minor, localized adverse effect to piping plover and red knot (overwintering and foraging habitat) due to beach placement of dredged material on publicly-owned beaches with unimpeded coastal processes. Potential for temporary, minor, localized adverse effect to Eastern indigo snake, and Florida scrub-jay due to upland placement of dredged material. Appropriate measures would be implemented to ensure the safety and protection of these species. Placement of dredged material within beach placement sites would enhance or restore habitat in the short-term.

Table 2-1: Summary of Direct and Indirect Impacts

	No Action Alternative <i>Status Quo</i>	Alternative A <i>Dredging with Upland Placement</i>	Alternative B (Preferred Alternative) <i>Dredging with Upland and Beach Placement</i>
Fish and Wildlife Resources	Long-term, minor, and localized adverse effect to migratory shorebirds due to the loss of beach habitat from coastal processes.	Potential direct, minor adverse impact to fishery resources due to injury or entrainment from dredging operations. Potential for temporary, minor, localized, and indirect adverse effect to fish species due to decreased water quality (turbidity). Potential for temporary, minor, localized, and indirect adverse effect to terrestrial mammals and reptiles due to construction activities in upland placement areas.	Potential direct, minor adverse impact to fishery resources due to injury or entrainment from dredging operations. Potential for temporary, minor, localized, and indirect adverse effect to fish species due to decreased water quality (turbidity). Potential for temporary, minor, localized, and indirect adverse effect to terrestrial mammals and reptiles due to construction activities in upland placement areas. Potential for short to long-term, localized, indirect beneficial effect to migratory shorebirds with the creation of beach habitat (nesting). Temporary adverse effect to nesting shore birds in beach placement areas if beach placement occurs during the summer months.
Essential Fish Habitat	Ephemeral nearshore hardbottom exposure may be more stable with increasing beach erosion. No adverse effects are anticipated.	Temporary, minor, localized, and direct adverse effect to non-vegetated bottoms and benthic habitat from dredging operations. Temporary, minor, localized, and indirect effect (decreased water quality - turbidity) on managed species, seagrasses, mangrove wetlands, live bottoms (oysters), and water column associated in the vicinity of dredging operations.	Temporary, minor, localized, and direct adverse effect to non-vegetated bottoms and benthic habitat from dredging operations and placement of dredged material at beach placement sites. Temporary, minor, localized, and indirect effect (decreased water quality - turbidity) on managed species, seagrasses, mangrove wetlands, live bottoms (oysters), and water column associated in the vicinity of dredging operations and beach placement sites.

Table 2-1: Summary of Direct and Indirect Impacts

	No Action Alternative <i>Status Quo</i>	Alternative A <i>Dredging with Upland Placement</i>	Alternative B (Preferred Alternative) <i>Dredging with Upland and Beach Placement</i>
Coastal Barrier Resources	Long-term, minor, and localized adverse effect to OPA P21AP due to the loss of beach habitat from coastal processes.	Long-term, minor, and localized adverse effect to OPA P21AP due to the loss of beach habitat from coastal processes.	Potential long-term, minor, and localized beneficial effect to OPA P21AP if used for beach placement.
Water Quality	No adverse effects are anticipated.	Temporary, minor, and localized adverse effect to water quality due to turbidity from dredging operations.	Temporary, minor, and localized adverse effect to water quality due to turbidity from dredging and placement operations.
Hazardous, Toxic and Radioactive Waste	No adverse effects are anticipated.	No adverse effects are anticipated.	No adverse effects are anticipated.
Air Quality	No adverse effects are anticipated.	Temporary, minor, and localized adverse effect on air quality, including the potential for unpleasant odor associated with exhaust emissions.	Temporary, minor, and localized adverse effect on air quality, including the potential for unpleasant odor associated with exhaust emissions.
Noise	No adverse effects are anticipated.	Temporary, minor, and localized adverse effect to residents and tourists in the vicinity of work areas from dredging and construction equipment.	Temporary, minor, and localized adverse effect to residents and tourists in the vicinity of work areas from dredging and construction equipment.
Aesthetics	Long-term, minor, and localized adverse effect to aesthetics due to the loss of beach habitat from coastal processes.	Long-term, minor, and localized adverse effect to aesthetics due to the loss of beach habitat from coastal processes. Temporary, minor, and localized adverse effect to aesthetics due to the presence of noise generated by construction equipment located within the waterways and along the pipeline corridors.	Temporary, minor, and localized adverse effect to aesthetics due to the presence of noise generated by construction equipment located within the waterways, on the beaches, and along the pipeline corridors. Short to long-term, localized beneficial effect to aesthetics due to the creation of beach habitat.

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Table 2-1: Summary of Direct and Indirect Impacts

	No Action Alternative <i>Status Quo</i>	Alternative A <i>Dredging with Upland Placement</i>	Alternative B (Preferred Alternative) <i>Dredging with Upland and Beach Placement</i>
Recreation	Long-term, minor, and localized adverse effect in recreational uses of the beach as it erodes, and within the waterways as the channels shallow and narrow.	Temporary, minor, and localized adverse effect to recreation along the GIWW (Legacy Trail) from pipeline placement and construction and operation of dredging equipment. Long-term, localized beneficial effect to recreation with provision of safe and efficient navigation.	Temporary, minor, and localized adverse effect to recreation along the GIWW (Legacy Trail) from pipeline placement and construction and operation of dredging equipment. Long-term, localized beneficial effect to recreation with preservation of beach and provision of safe and efficient navigation.
Navigation	Potential long-term, major, and localized adverse effect to navigation and public safety with shallowing and narrowing of Venice Inlet and GIWW channels.	Temporary, minor, and localized adverse effect to navigation during dredging operations; however, periodic maintenance dredging would result in a long-term, major beneficial effect with provision of safe and efficient navigation.	Temporary, minor, and localized adverse effect to navigation during dredging operations; however, periodic maintenance dredging would result in a long-term, major beneficial effect with provision of safe and efficient navigation.
Cultural Resources	No adverse effect.	No adverse effects. All significant anomalies within the dredge area of potential effects (APE) and archaeological sites in upland placement areas will be avoided.	No adverse effects. All significant anomalies within the dredge APE and archaeological sites in upland placement areas will be avoided.
Native Americans	No adverse effect.	No adverse effect.	No adverse effect.
Invasive Species	Minor adverse effect to native plant and wildlife species from continued presence of invasive species.	Potential for short-term, minor, and localized adverse effect from propagation of Brazilian peppertree into disturbed areas within upland placement areas.	Potential for short-term, minor, and localized adverse effect from propagation of Brazilian peppertree into disturbed areas within upland placement areas.

MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET

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3 AFFECTED ENVIRONMENT

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if any of the alternatives were 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 base line conditions for determining the environmental impacts of the proposed action and reasonable alternatives.

3.1 SOILS/SEDIMENT CHARACTERISTICS

3.1.1 Dredged Material Characteristics

The Florida Administrative Code (F.A.C), 62B-41.007(2) (k), defines acceptable quality of dredged material for beach placement. The dredged sediment must be free of foreign matter, not result in cementation of the beach, and the grain size must be compatible with the beach environment. The material needs to be mostly sand-sized, with minimal larger pieces and minimal clay and silt particles. Grain size is determined by passing a sample of the material through a series of sieves, the openings of which decrease in size as the material passes through. To be usable for beach or nearshore placement, no more than 5 percent of the sample can be retained on a #4 sieve (opening size 4.75 mm). At the silt/clay end, for beach placement, no more than 10 percent can pass the #230 sieve (opening size 0.063 mm); and for nearshore placement, no more than 20 percent can pass the #230 sieve.

To determine the disposition of dredged material, in January 2018, samples at areas of shoaling were taken at 11 locations in the Venice Inlet and the GIWW (**Figure 3-1: Locations of Sediment Sampling**). Forty grain size analyses were performed on material from the 11 borings. The material consisted primarily of silica sand with some sand-size shell fragments, with color ranging from light brown to gray. For all samples except two from the Venice Inlet, less than 2 percent was retained on the #4 sieve. Twenty-nine of the 42 samples met the criteria for beach placement. Of the remaining 13 samples, 4 met the criteria for nearshore placement. The remaining material consisted of silt, clay and silty sand. In general, the material near the Venice Inlet and the north end of the Venice GIWW channel consisted of sand with few fines. Material with higher fines percent was found further south in the GIWW channel. Similar sampling and sediment analysis of shoaled areas would occur prior to each dredge event to identify its suitability for beach placement options.



Figure 3-1: Locations of Sediment Sampling

**MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET
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3.1.2 Soil/Sediment Characteristics at Potential Placement Areas

As part of a WCIND investigation for beach placement of dredged material at Venice Beach (FDEP Permit #0298106-002-JC), eight samples of beach sand north and south of the Venice Inlet were collected and analyzed in 2010 (Humiston & Moore 2010). Four of the samples were taken on Venice Beach within the area of potential beach placement for the current project. While Venice Beach is also the placement area for the ongoing WCIND project, samples were also collected on Casey Key north of Venice Inlet because they were thought to be more representative of native beach material. The Venice Beach samples were thought to be from previous beach nourishment. For the Venice Beach samples, an average of less than one percent of the material was retained on the #4 sieve, and an average of 4.7 percent of the material passed the #230 sieve. For the Casey Key samples, an average of less than one percent of the material was retained on the #4 sieve, and an average of 0.6 percent of the material passed the #230 sieve. Wet Munsell colors were reported as 10YR 5/1 and 10YR 6/1 for Venice Beach and 10YR 7/1 for Casey Key Beach.

3.2 THREATENED AND ENDANGERED SPECIES

There are several federally listed threatened and endangered species, including one candidate species, that can potentially be found in the study area (**Table 3-1. Protected Species Potentially Found in the Study Area**).

Table 3-1: Protected Species Potentially Found in the Study Area

Common Name	Scientific Name	Federal Status
hawksbill turtle	<i>Eretmochelys imbricata</i>	Endangered
Kemp's ridley turtle	<i>Lepidochelys kempii</i>	Endangered
green turtle	<i>Chelonia mydas</i>	Threatened
leatherback turtle	<i>Dermochelys coriacea</i>	Endangered
loggerhead turtle	<i>Caretta</i>	Threatened
Florida manatee	<i>Trichechus manatus latirostris</i>	Threatened
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	Threatened
smalltooth sawfish	<i>Pristis pectinata</i>	Endangered
piping plover (wintering)	<i>Charadrius melodus</i>	Threatened
rufa red knot (wintering)	<i>Calidris canutus rufa</i>	Threatened
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	Threatened
Eastern indigo snake	<i>Drymarchon corais couperi</i>	Threatened
gopher tortoise	<i>Gopherus polyphemus</i>	Candidate

3.2.1 Sea Turtles

Five species of sea turtles are found in the Gulf of Mexico. These species include the leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricate*), green (*Chelonia mydas*), loggerhead (*Caretta caretta*), and Kemp's Ridley (*Lepidochelys kempii*).

Loggerhead sea turtles are found in temperate and subtropical waters of the world. They feed in coastal bays, estuaries, and in shallow water along the continental shelves of the Atlantic, Pacific, and Indian Oceans. Loggerhead turtles occur throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian oceans and are widely distributed within their range. They can be found hundreds of miles offshore or inshore in bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers (Conant et al. 2009). Loggerheads primarily feed on mollusks, crustaceans, fish, and other marine animals. Feeding areas often include coral reefs, rocky areas, and shipwrecks. Adult loggerheads may migrate considerable distances between foraging areas and nesting beaches. Loggerheads reach sexual maturity at about 35 years of age. Critical habitat for this species exists along the nearshore (nearshore reproductive) and beach placement areas (nesting) within the study area (**Figure 3-2: Threatened and Endangered Species Critical Habitat**).

Green turtles are found in all temperate and tropical waters around the world and stay mainly near the coastline and around islands. Green turtles are found in shallow flats and seagrass meadows during the day and return to scattered rock ledges, oyster beds, and coral reefs during the evening (FFWCC 2010). In the U.S. Atlantic waters, green turtles are found from Texas to Massachusetts, the U.S. Virgin Islands, and Puerto Rico. Green turtles are generally found over shallow flats, seagrasses, and algae areas inside bays and inlets. Resting areas include rocky bottoms, oyster, worm, and coral reefs. Post-hatchling pelagic-stage turtles may be omnivorous. Adult turtles are herbivores and consume algae and seagrasses. Critical habitat consists of waters surrounding Culebra Island, Puerto Rico. No critical habitat is present within the study area.

Leatherbacks, the most widely distributed of the sea turtles, are found throughout the Atlantic, Pacific, and Indian oceans, including areas near Alaska and Labrador. Leatherback turtles are highly migratory and pelagic and can be found at depths more than 3,000 feet. Because of their ability to regulate their body temperature, they can be found in deeper water than other species of sea turtles and can be active in water below 40 F. Leatherbacks primarily feed on jellyfish, but also consume sea urchins, squid, crustaceans, tunicates, fish, blue-green algae, and floating seaweed. In the Gulf of Mexico, leatherbacks are frequently associated with cabbage head *Stomolophus* and *Aurelia* jellyfish. The distribution and food habits of post-hatchling and juvenile leatherbacks are unknown, although they may be pelagic and associate with Sargassum weed. Critical habitat is designated in the U.S. Virgin Islands. No critical habitat is present within the study area.



Figure 3-2: Threatened and Endangered Species Critical Habitat

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Kemp's ridley turtles inhabit shallow nearshore and inshore waters of the northern Gulf of Mexico, particularly in Texas and Louisiana. During winter, turtles in the northern Gulf may travel to deeper water (NMFS and USFWS 1992).

Kemp's ridleys are often found in waterbodies associated with salt marshes. Kemp's ridley nesting is essentially limited to the beaches of the western Gulf of Mexico, primarily in Tamaulipas, Mexico. In the US, nesting occurs primarily in Texas (especially Padre Island National Seashore), and occasionally in Florida, Alabama, Georgia, South Carolina and North Carolina (NMSF and USFWS 2013a). Neonatal Kemp's ridleys feed on Sargassum and infauna or other epipelagic species. Post-pelagic diets include various items such as mollusks, sea horses, cownose rays, jellyfish, crabs, tunicates and fish. Live bottom (sessile invertebrates attached to hard substrate) has been identified as a preferred habitat of neritic juveniles in the coastal waters of western Florida (NMFS and USFWS 2013a). Hatchlings may become entrained in Gulf of Mexico eddies and dispersed by oceanic surface currents, then enter coastal shallow water habitats when they reach about 20 cm in length. No critical habitat has been designated (USFWS 2006).

Hawksbill turtles occur in tropical and subtropical seas of the Atlantic, Pacific, and Indian oceans. In the continental U.S., hawksbills have been found along the Gulf of Mexico and along the eastern seaboard as far north as Massachusetts, though are rare north of Florida. Hawksbill turtles are frequently found along rocky areas, coral reefs, shallow coastal areas, lagoons or oceanic islands, and narrow creeks and passes. Seagrass beds sustain hawksbill foraging aggregations comparable to reef habitat and may become more important as coral reefs decline (Bjorndal and Bolten 2010, as cited in NMFS and USFWS 2013b). Post-hatchlings are pelagic and occupy convergence zones, floating among Sargassum and debris and may eat fish eggs, Sargassum, and debris (NMFS and USFWS 1993). Hawksbill sea turtles feed primarily on sponges once they transition to a benthic existence. Critical habitat has been designated at Isla Mona, Culebra Island, Cayo Norte, and Island Culebrita, as well as the waters surrounding the islands of Mona and Monita, all in Puerto Rico (NMFS and USFWS 2013b). No critical habitat is present within the study area.

3.2.1.1 Nesting Habitat

Three species of sea turtles are known to nest in the project area: loggerhead, green, and Kemp's ridley. The loggerhead makes up the majority of sea turtle nests at Venice Beach, but greens and Kemp's ridleys also nest there (**Table 3-2. Sea Turtle Nesting Data for Venice Beaches, 2010-2017**).

Table 3-2: Sea Turtle Nesting Data for Venice Beaches, 2010-2017

Sea turtle nesting data for Venice Beaches (Sarasota County, FL). Data courtesy of the FWC Fish and Wildlife Research Institute, Statewide Nesting Beach Survey Program. Source: FWC/FWRI Statewide Nesting Beach Survey Program Database as of 23 January 2018.

YEAR	SURVEY START DATE	SURVEY END DATE	LOGGERHEAD				GREEN TURTLE				KEMP'S RIDLEY			
			NEST	FALSE CRAWL	FIRST NEST DATE	LAST NEST DATE	NEST	FALSE CRAWL	FIRST NEST DATE	LAST NEST DATE	NEST	FALSE CRAWL	FIRST NEST DATE	LAST NEST DATE
2010	5/1/10	9/18/10	215	280	5/4/10	8/27/10	1	1	6/15/10	6/15/10	0	0		
2011	5/1/11	9/8/11	268	261	5/4/11	8/17/11	0	0			0	0		
2012	5/1/12	9/26/12	424	277	4/25/12	8/14/12	0	0			0	0		
2013	5/1/13	9/26/13	316	208	5/8/13	9/12/13	1	0	7/31/13	7/31/13	0	0		
2014	5/1/14	9/30/14	359	275	5/6/14	8/25/14	0	0			1	0	5/9/14	5/9/14
2015	5/1/15	10/7/15	255	442	4/27/15	8/10/15	1	1	7/1/15	7/1/15	0	0		
2016	5/1/16	9/30/16	638	824	5/4/16	8/24/16	0	0			0	0		
2017	4/15/17	10/11/17	549	607	4/30/17	8/13/17	4	2	7/5/17	7/31/17	0	0		

3.2.1.2 Offshore Habitat

All five sea turtle species found in the Gulf of Mexico waters could utilize the waters surrounding the nearshore area, and green turtles can be found in estuarine waters. Sea turtles are known to forage on benthic invertebrates at hardground habitats (see Section 3.4.1, Essential Fish Habitat - Habitat Types).

3.2.2 Florida Manatee

The Florida manatee (*Trichechus manatus latirostris*) is a subspecies of the West Indian manatee (*Trichechus manatus*) and can be found in tropical and subtropical coastal waters of the southeastern United States, the Gulf of Mexico, and the Caribbean Sea (Lefebvre and O'Shea 1995), including waters within the study area. Manatees are a sub-tropical species and are cold intolerant. In Florida, they prefer warm-water sites during the winter, only leaving to feed during warming trends. When temperatures drop, manatees congregate near warm water sites, such as natural springs, power plants, and deep canals. Florida manatees are found in freshwater, brackish, and marine environments, including coastal tidal rivers and streams, mangrove swamps, salt marshes, freshwater springs, and vegetated bottoms. Manatees are herbivores and feed on aquatic vegetation. Preferred feeding areas in coastal and riverine habitats appear to be shallow seagrass beds near deep channels. Primary threats include watercraft-related strikes, entanglement in fishing lines and crab pot lines, exposure to cold, and red tide (USFWS 2007).

Manatee counts from winter aerial surveys conducted by the FFWCC along the west coast of Florida ranged from 1,403 to 3,132 from 2007 to 2018, with the low count in 2007 and the high in 2017 (FFWCC 2018a). The highest concentrations of manatees along Florida's Gulf coast are found in Citrus, Levy, Lee, and Collier counties (Ackerman 1995). The Florida manatee is known to occur in the study area. The closest manatee critical habitat is located to the north in the

Manatee River near Tampa Bay (**Figure 3-2: Threatened and Endangered Species Critical Habitat**).

3.2.3 Smalltooth Sawfish

The smalltooth sawfish, one of seven sawfish species, is an elasmobranch, in the same group as the sharks, skates, and rays. It is a tropical marine and estuarine fish that has been reported to be circumtropically distributed. Sawfish inhabit shallow coastal waters of tropical seas and estuaries and are generally found in nearshore shallow waters and in estuaries and mouths of rivers. Encounter data have reported sawfish primarily over mud (61 percent), sand (11 percent), seagrass (10 percent), and limestone (75 percent) (Poulakis and Seitz 2004), and mangroves, seagrasses and the shoreline (Simpfendorfer and Wiley 2005). Smaller sawfish have also been encountered more frequently in shallower water, whereas larger sawfish occur regularly at depths greater than 32 feet (Poulakis and Seitz 2004; Simpfendorfer and Wiley 2005). River mouths in southwest Florida have been the location of many of the encounters (Simpfendorfer and Wiley 2005).

Smalltooth sawfish are found in peninsular Florida and are typically found off the extreme southern portion of the state. The current distribution is centered in the Everglades National Park, including Florida Bay. They have been historically caught as bycatch in commercial and recreational fisheries throughout their historic range; however, such bycatch is now rare due to population declines and population extirpations (Simpfendorfer 2000). According to the National Sawfish Encounter Database (NSED), the majority of the Florida encounters with smalltooth sawfish during 2010-2011 have been in Southwest Florida counties, primarily in Monroe (164), Lee (192), Collier (45), and Charlotte (45). There were three encounters with sawfish in Manatee County and only one encounter in Sarasota County during 2010-2011 (Florida Museum of Natural History 2018). As such, the study area is located in the northern limit of the smalltooth sawfish habitat.

Designated critical habitat for the smalltooth sawfish includes the Charlotte Harbor estuary and the Ten Thousand Islands/Everglades Unit along the southwestern coast of Florida between Charlotte Harbor and Florida Bay, all of which are located south of Sarasota County and the study area (**Figure 3-2: Threatened and Endangered Species Critical Habitat**).

3.2.4 Piping Plover

The piping plover (*Charadrius melodus*) is a small shorebird, approximately seven inches long, that is listed as a federally threatened species. The plover, which spends up to 10 months of its annual cycle on migration and wintering grounds, typically from mid-July to mid-May, overwinters along the Gulf Coast of Florida's beaches (USFWS 2015a). Preferred coastal habitat

includes sand spits, small islands, tidal flats, shoals (usually flood delta tides), and sandbars that are often associated with inlets. Sandy mud flat, ephemeral pools, seasonally emergent seagrass beds, mud/sand flats with scattered oysters, and overwash fans are considered primary foraging habitat (USFWS 2015a). Several studies have identified wrack as an important component of roosting habitat for non-breeding piping plovers (USFWS 2015a). In southwest Florida, Lott et al (2009) found approximately 75% of foraging piping plovers on intertidal substrates with bay beaches (bay shorelines as opposed to ocean-facing beaches) as the most common landform used by foraging piping plovers (USFWS 2015a). Almost 90% of observations of roosting piping plovers at ten coastal sites in southwest Florida were on inlet shorelines (Lott et al 2009 as cited in USFWS 2015a). There is no designated critical habitat within the study area. The beach placement areas are approximately 28 miles northwest of piping plover critical habitat unit FL-22, Cayo Costa, and approximately 36 miles southeast of critical habitat unit FL-21, Egmont Key (**Figure 3-2: Threatened and Endangered Species Critical Habitat**).

3.2.5 Rufa Red Knot

The red knot was listed as a threatened species under the Endangered Species Act in 2014. The Gulf Coast of Florida is one of the most important wintering sites for the *rufa* subspecies of the red knot (*Calidris canutus rufa*). The red knot nests in the summers in Canada and the Great Lakes region, and winters in South America. Some individuals overwinter along the Gulf Coast, and others use it as a stopover location to build their energy stores for the remainder of the migration to points further south. Although critical habitat has not yet been designated for the species, the project area contains suitable habitat for the red knot. Data from the eBird database indicate that they are most often found along the Sarasota County beaches from mid-August until mid-March (Sullivan *et al.* 2009; **Figure 3-3: Red Knot Abundance - Sarasota County, Florida; Figure 3-4: Red Knot Average Counts – Sarasota County, Florida**).

3.2.6 Florida Scrub-Jay

The Florida scrub-jay (*Aphelocoma coerulescens*) is listed as a federally threatened species. The home range of the Florida scrub-jay is limited to peninsular Florida and their habitat includes low (~4-6 ft.), sparse oak scrub and sand pine scrub over well-drained, sandy soils (Hipes *et al.* 2001). The nesting season occurs between March and June, and nests are constructed approximately 3 to 10 feet above the ground in scrubby oaks. They are a non-migratory species and spend their entire life span in the same area (FFWCC 2018b). While there is no designated critical habitat for the Florida scrub-jay, there are numerous reported sightings adjacent to the Upland Placement Area #2 and other locations within the study area (**Figure 3-5: Florida Scrub Jay Reported Sightings – Venice, Florida**).

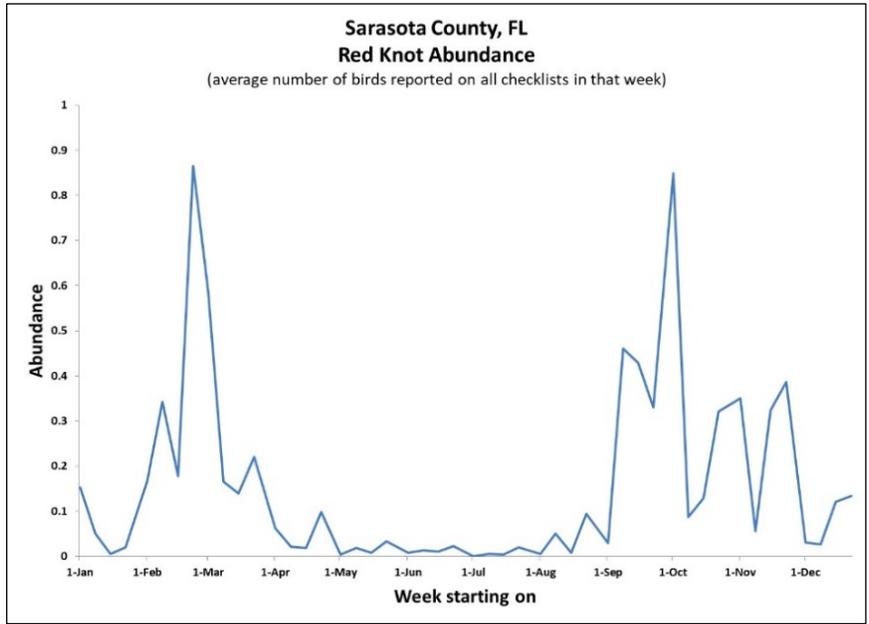


Figure 3-3: Red Knot Occurrences - Sarasota County, Florida

Source: <https://ebird.org/barchart?byr=1900&eyr=2018&bmo=1&emo=12&r=US-FL-115&spp=redkno>

Red knot abundance in the project area by week from 1900-2018. Abundance is the average number of birds reported on all checklists within a specified date range and region. Image provided by eBird (www.ebird.org) and created February 22, 2018.

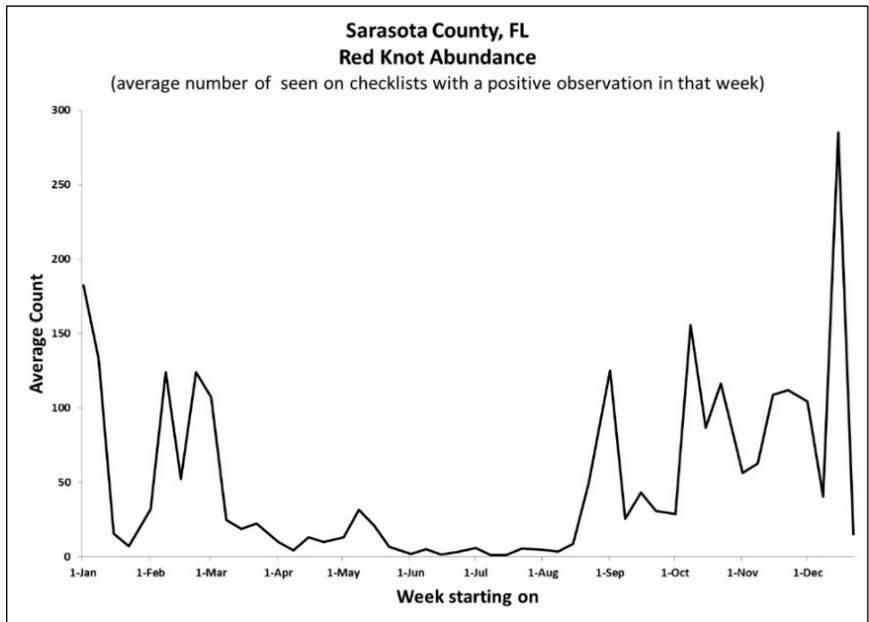


Figure 3-4: Red Knot Average Counts - Sarasota County, Florida

Source: <https://ebird.org/barchart?byr=1900&eyr=2018&bmo=1&emo=12&r=US-FL-115&spp=redkno>

Average red knot counts in the project area by week from 1900-2018. "Average Count" is the average number of birds seen on eBird checklists with a positive observation for the species within a specified date range and region. Image provided by eBird (www.ebird.org) and created February 22, 2018.

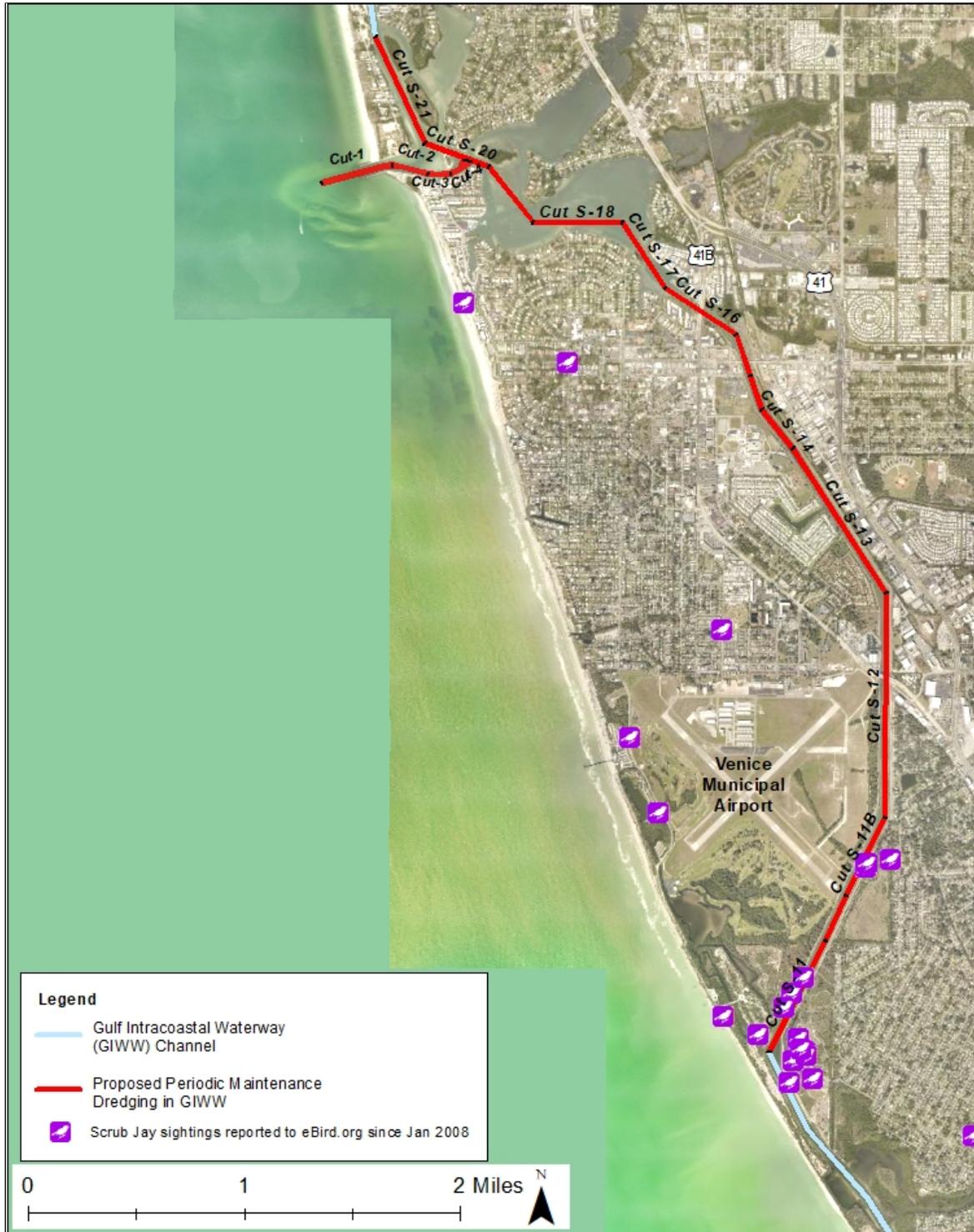


Figure 3-5: Florida Scrub Jay Reported Sightings – Venice, Florida
 Source: Scrub Jay sightings reported from January 1, 2008 - March 26, 2018. (eBird Basic Dataset. Version: EBD_relMar-2018. Cornell Lab of Ornithology, Ithaca, New York. March 2018.)

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3.2.7 Eastern Indigo Snake

The eastern indigo snake (*Drymarchon corais couperi*) is listed as a federally threatened species. The historic home range of the eastern indigo snake includes Florida, southern Alabama, and southern Georgia. While they can be found in most habitats in Florida, the eastern indigo snake most commonly inhabits upland areas and is known frequently to occupy gopher tortoise burrows. The nesting season occurs between May and August, and nests are usually located inside gopher tortoise burrows (FFWCC 2018c). Eastern indigo snakes may potentially inhabit the upland placement areas; however, there is no designated critical habitat in the study area.

3.2.8 Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is currently a candidate for listing as an endangered or threatened species by the USFWS in the southeast region east of Mobile, AL, and the Tombigee River (USFWS 2018a). The historic home range of the gopher tortoise includes upland habitats in Alabama, Florida, Georgia, Louisiana, Mississippi, and South Carolina, including sandhill, pine flatwoods, scrub, scrubby flatwoods, dry prairies, xeric hammock, and coastal dunes.

The gopher tortoise is a deep burrowing reptile species and considered to be a keystone species, as they share their burrows with more than 350 other species. The nesting season for gopher tortoises occurs between mid-May and mid-June, and nests are located within the burrow mounds (FFWCC 2018d). Gopher tortoises potentially inhabit upland portions of the project area, including upland placement areas. As a candidate species within the study area, no critical habitat has been designated for the gopher tortoise.

3.3 FISH AND WILDLIFE RESOURCES

This section contains a brief description of the fish and wildlife found in the vicinity of the Venice Beach shoreline, GIWW, and upland placement areas. It does not include species discussed in Section 3.2, Threatened and Endangered Species.

3.3.1 Marine Mammals

The marine mammals of the Gulf of Mexico are represented by members of the taxonomic order Cetacea, which is divided into the suborders *Mysticeti* (i.e., baleen whales) and *Odontoceti* (i.e., toothed whales), as well as the order *Sirenia*, which includes the manatee. Within the Gulf of Mexico, there are 28 species of cetaceans (7 *mysticete* and 21 *odontocete* species) and 1 *sirenian* species, the Florida manatee (discussed in greater detail in Section 3.2; Jefferson *et al.* 1992; Davis *et al.* 2000).

The NMSF estimated a 2015 northern Gulf of Mexico sperm whale population of 763, with a minimum of 560, with insufficient data to determine a trend for the northern Gulf of Mexico

sperm whale stock (NMSF 2015a). The baleen whales are considered rare or extralimital in the Gulf (Würsig *et al.* 2000). Bottlenose dolphins (*Tursiops truncatus*) and Atlantic spotted dolphins (*Stenella frontalis*) are common in shallow Gulf waters (up to approximately 656 ft [200 m] deep). Bottlenose dolphins are frequently observed in the study area and are a common inhabitant of the continental shelf and upper slope waters of the northern Gulf of Mexico. Bottlenose dolphins are opportunistic feeders, taking a wide variety of fishes, cephalopods, and shrimp (Davis and Fargion 1996; Jefferson and Schiro 1997; Wells and Scott 1999; Gimenez *et al.* 2017). The Atlantic spotted dolphin is endemic to the Atlantic Ocean, including the Gulf of Mexico, in tropical to temperate waters (Perrin *et al.* 1987, 1994; Perrin 2002, as cited in NatureServe 2017). They are known to feed on a wide variety of fishes, cephalopods, and benthic invertebrates (Leatherwood and Reeves 1983; Jefferson *et al.* 1993; Perrin *et al.* 1994; NMFS 2015b). In the Gulf of Mexico, they are commonly found in continental shelf waters less than approximately 800 ft (250 m) in depth (NMFS 2015b).

3.3.2 Fish

The Venice Inlet and surrounding estuarine and nearshore waters support a variety of fish species, including important game and commercial species such as redfish (*Sciaenops ocellatus*), snook (*Centropomus undecimalis*), sea trout (*Cynoscion sp.*), southern flounder, Florida pompano, and mullet (*Mugil cephalus*). Further offshore from the study area, the West Florida Shelf is an important spawning and larval nursery ground for many taxa of fishes (Houde and Chitty 1976; Lyczkowski-Shultz *et al.* 2004).

Fishes observed around hard bottom features off Venice Beach during a 2003 hardbottom survey consisted of common hard bottom taxa such as grunts (*Haemulon plumieri*, *H. aurolineatum*, *Orthopristis chrysoptera*), snappers (*Lutjanus griseus*), porgies (*Diplodus holbrooki*), mojarras (*Eucinostomus spp.*) and sea basses (*Mycteroperca microlepis* and *Diplectrum formosum*). Sand or coarse sand/shell fragment bottoms supported species typical of these habitats including lizardfishes (*Synodus spp.*), sea robins (*Prionotus scitulus*), and flatfishes (*Paralichthys albigutta*) (Coastal Tech 2003).

3.3.3 Terrestrial Mammals

Common mammal species that can be found in the study area include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), Eastern cottontail (*Sylvilagus floridanus*), and Eastern gray squirrel (*Sciurus carolinensis*) (SWFWMD 2018).

3.3.4 Birds

Federal legal protection of birds falls under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. §703-712) and the U.S. Endangered Species Act (ESA) (16 U.S.C. Chapter 35). The Gulf of Mexico Avian Monitoring Network, a network of avian scientists, land managers and decisions makers, reports that hundreds of species and millions of individual birds are supported by barrier islands, beaches, marshes, coastal forests and open ocean across the Gulf (GoMAMN 2017). All birds listed in the Gulf studies are protected under the MBTA, including members of the seabird guild, which represents a wide range of species dependent on the resources of the pelagic zone in the Gulf of Mexico. Much of their time is spent in or over water, and they are capable of staying far from land for long periods. Most species in this guild are colonial nesters that leave the nest to venture far from natal areas. Some of the seabirds that spend significant portions of their life cycle offshore may occur in the project area, such as the magnificent frigatebird (*Fregata magnificens*), greater shearwater (*Puffinus gravis*), sooty shearwater (*P. griseus*), Audubon's shearwater (*P. lherminieri*), manx shearwater (*P. puffinus*), masked booby (*Sula dactylatra*), northern gannet (*Morus bassanus*), Wilson's storm-petrel (*Oceanites oceanicus*), and band-rumped storm-petrel (*Oceanodroma castro*). Other seabirds such as gulls and terns, pelicans, and cormorants divide their time more or less equally between offshore and coastal waters (Ehrlich *et al.* 1988) and may occur in the project area. Wading and shorebirds observed in the study area during a site visit in February 2018 included sanderling (*Calidris alba*), willet (*Tringa semipalmata*), royal tern (*Thalasseus maximus*), brown pelican (*Pelecanus occidentalis*), roseate spoonbill (*Platalea ajaja*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), herring gull (*Larus smithsonianus*), ring billed gull (*Larus delawarensis*), and white ibis (*Eudocimus albus*). Shorebirds such as American oystercatcher (*Haematopus palliatus*), snowy plover (*Charadrius nivosus*), and Wilson's plover (*Charadrius wilsonia*) may use beaches within the study area as nesting habitat during the breeding season.

The west Florida coast also serves as a principal route of the Atlantic Flyway for more than 60 migratory landbird species. Many of the birds that breed east of the Allegheny Mountains move southward in fall, through northwestern Florida, crossing the Gulf to the coastal regions of central Mexico where they follow a land route for the remainder of the journey to Cuba or Central and South America (Lincoln *et al.* 1998). Landbird migrants utilize a variety of habitats, including shrub and forested habitats within the upland placement areas and coastal shoreline, to feed and rest during their migration. In addition, some landbird migrants stop to rest on dredges or boats during storm events and high winds.

3.4 ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA; 16 U.S.C. §§1801 *et seq.*) outlines the Secretary of Commerce and Fishery Management Council authority and

responsibilities for the protection of essential fish habitat (EFH). The MSFCMA specifies that each Federal agency shall consult with the Secretary with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat identified under the MSFCMA. EFH is defined in the MSFCMA as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” 50 CFR. Part 600, Subpart J establishes guidelines to assist the Regional Fishery Management Councils and the Secretary in the description and identification of EFH in fishery management plans (FMPs), including identification of adverse effects from both fishing and non-fishing activities on EFH, and identification of actions required to conserve and enhance EFH. The regulation promotes the protection, conservation, and enhancement of EFH. The definition of EFH may include habitat for individual species or an assemblage of species, whichever is appropriate within each FMP. This EA is prepared consistent with the Finding between the USACE, Jacksonville District and NMFS Southeast Regional Office regarding the coordination of EFH consultation requirements with NEPA (NMFS 1999).

3.4.1 Habitat Types

The study area is located within Eco-Region 1: South Florida and is within the nearshore and estuarine habitat zones (GMFMC 2016). Pursuant to the MSFCMA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), the Gulf of Mexico Fisheries Management Council (GMFMC 1998) has designated marine areas of submerged aquatic vegetation, mangrove wetlands, live bottoms (e.g., hard bottoms, oyster reefs), non-vegetated bottoms (e.g., sand/shell), and water column associated (WCA) within the study area as EFH (**Figure 3-6: Essential Fish Habitat in the Study Area**).

3.4.1.1 Submerged Aquatic Vegetation

Four species of seagrasses are common in the study area including widgeon grass (*Ruppia maritima*), manatee grass (*Syringodium filiforme*), shoal grass (*Halodule wrightii*), and turtlegrass (*Thalassia testudinum*). Seagrass beds are important to estuarine productivity as they provide nursery habitat for juvenile fish and crustaceans, provide a food source for manatees and turtles, and provide a substrate for growth of algal epiphytes that serve as food for fish and crustaceans.



Figure 3-6: Essential Fish Habitat in the Study Area

Source: Seagrass (2016) from Southwest Florida Water Management District (obtained from <https://data-swfwmd.opendata.arcgis.com/datasets/seagrass-in-2016> on February 15, 2018). Oyster Beds data from Florida Fish and Wildlife Conservation Commission (obtained from <http://geodata.myfwc.com/datasets/oyster-beds-in-florida> on March 23, 2018). Mangrove data from Florida Fish and Wildlife Conservation Commission (obtained from <http://geodata.myfwc.com/datasets/mangrove-habitat-in-florida> on March 23, 2018)

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The documented acreage of seagrass in Roberts Bay and Dona Bay in 1948 was 133 acres, but with coastal development and resulting decreases in water quality, the seagrass acreage fell to as little as 47 acres in 1988 (USF 2016a). Increasing seagrass coverage trends have occurred since 1982 in response to improved management of nitrogen loadings and increasing water clarity, with the exception of the 1997–1998 El Niño event, which resulted in increased rainfall, stormwater runoff, and nutrient loadings (Dawes et.al 2004). Based on measurements of seagrass performed in 2016 by the Southwest Florida Water Management District (SWFWMD), there was a slight increase in total seagrass acreage from 99 to 101 acres within Roberts Bay and Dona Bay between 2014 and 2016 (USF 2016a).

SWFWMD produces a biannual coverage of seagrasses in their jurisdictional area based on analysis of aerial photography. The coverage is minimally groundtruthed to help verify the methods associated with the photographic analysis. The 2016 SWFWMD seagrass coverage map indicated the presence of both patchy and contiguous seagrass beds within the study area (**Figure 3-6: Essential Fish Habitat in the Study Area**). The location of the majority of seagrasses appears to be in shallow water (<1 m) landward of the current channel side slopes, and there does not appear to be documented seagrasses along channel side slopes or within the navigation channels or beach placement areas; however, there are several locations where aerial surveys identified seagrasses in close proximity to the GIWW channel (USF 2016a).

3.4.1.2 Mangrove Wetlands

Red mangrove (*Rhizophora mangle*) grows along the edge of the shoreline and can be easily distinguished from other plant and tree species by tangled, reddish prop roots. These prop roots originate from the trunk with roots growing downward from the branches and can extend three feet (1 m) or more above the surface of the soil. The interconnected web of mangrove prop roots provides important refugia and nursery habitat for numerous species, including penaeid shrimp and other managed species. Red mangrove was identified in several areas of the study area including Roberts Bay and along the GIWW, primarily near the Business Hwy 41 Bridge; however, no mangroves were observed along the channel side slopes or within beach placement areas (SRS 2018).

3.4.1.3 Hard Bottoms

Hard bottoms (hardgrounds) provide substrate for benthic organisms, crevices where organisms can seek protection, and foraging habitat for a number of aquatic species. Hardgrounds can be of various types, artificial or natural, such as reefs, with high and/or low relief, and can be of any shape. Hardgrounds in the nearshore waters of Southwest Florida can generally consist of mixed benthic communities of epifaunal organisms such as algae, sponges, octocorals, stony corals,

hydroids, anemones, barnacles, bryozoans, decapods crustaceans, and gastropods. Many of these organisms attach directly to the substrate.

Revetments along the GIWW and rip rap associated with the Venice Inlet jetty provide substrate that can support mixed benthic communities and provide forage habitat for fish, crustaceans, and turtles. In addition, a 1992 survey identified hard bottoms located in the study area to the southwest of the proposed Nearshore Disposal Area (Continental Shelf 2003); however, there are no known hard bottoms within the navigation channels or beach placement areas. Based on the 2003 survey of the nearshore environment within the study area, it was found that emergent hard bottom biota consisted of algae, sponges, octocorals, *scleractinian* corals, and tunicates. Algal cover was dominated by red (*Gracilaria* spp.) and green (*Caulerpa* spp.) algae and reached 100% in some areas. Commonly observed sponges were orange *Cliona* sp., *Cliona celata*, *Cinachyrella* sp., and *Placospongia* sp. The survey documented octocorals over most hard bottom areas, and the highest relief sites supported the densest aggregations of flat blade (*Pterogorgia* sp.) and sea plume (*Pseudopterogorgia* sp.) taxa. Lastly, conspicuous *scleractinian* corals observed on hard bottom were *Solenastrea hyades* and *Siderastrea* sp. (Continental Shelf 2003). All hardgrounds identified in previous surveys are located outside of the equilibrium toe-of-fill of the beach placement area (or have been previously mitigated as part of the Federal Venice Beach Erosion Control Project).

3.4.1.4 Oyster Reefs

Based on 2016 surveys, there are various patches of oyster reefs (~0.41 acres) and oyster clumps (~0.03 acres) in close proximity to the GIWW, primarily in the vicinity of the Business Hwy 41 bridge over the GIWW and in Roberts Bay. There are no mapped oyster reefs or clumps within the navigation channels or beach placement areas (USF 2016b).

3.4.1.5 Non-Vegetated Bottoms

Non-vegetated bottoms can include soft bottoms, such as tidal mud flats, and sand/shell bottoms, both of which are prevalent in coastal Southwest Florida and the study area in particular. The project area associated with beach placement is primarily non-vegetated bottom (sand/shell), while areas near the GIWW and in Roberts Bay primarily contain soft bottoms. Macroinvertebrates commonly found in soft-bottom marine habitat within Florida include annelids, a variety of mollusks, including oysters, arthropods, sponges and polyps (Hoffman and Olsen 1982). More specifically, 2003 surveys of the nearshore environment within the study area found that the most conspicuous motile invertebrates in sand areas were the sand dollar (*Mellita tenuis*) and the nine-arm seastars (*Luidia senegalensis*), while coarse sediment/shell fragment substrates supported a similar group of motile and sessile invertebrates such as the octocoral *Lophogorgia* sp. (Continental Shelf 2003).

3.4.1.6 Water Column Associated (WCA)

Water column associated EFH connects all habitat types and is critical for fish and animal movement between other habitats. It allows sunlight to reach aquatic plants and algae, facilitates the delivery of oxygen and other essential dissolved nutrients to aquatic plants and animals, and provides a medium for all aquatic organisms to live. WCA can be subdivided into two categories, both of which are found in the study area: marine water column and estuarine water column. The beach placement area is classified as marine WCA and the navigation channels and associated estuarine waters are classified as estuarine WCA.

3.4.2 Federally Managed Species

The study area contains habitat designated as EFH for 31 managed species or species groups (Table 3-3. Summary of EFH Managed Species).

Table 3-3: Summary of EFH Managed Species

Species	Scientific Name	Young of Year or Neonate	Juveniles	Adults
Coral Species		X	X	X
Shrimp Fishery				
pink shrimp	<i>Farfantepenaeus duorarum</i>	X	X	X
Stone Crab Fishery				
Florida stone crab	<i>Menippe mercenaria</i>	X	X	X
Spiny Lobster Fishery				
spiny lobster	<i>Panulirus argus</i>	X	X	X
Red Drum Fishery				
red drum	<i>Sciaenops ocellatus</i>	X	X	X
Reef Fish Fishery				
gray triggerfish	<i>Balistes caprisucus</i>	X	X	X
greater amberjack	<i>Seriola dumerili</i>		X	X
lesser amberjack	<i>S. fasciata</i>	X		
gag grouper	<i>Mycteroperca microlepis</i>	X	X	X
red grouper	<i>Epinephelus morio</i>	X	X	X
scamp grouper	<i>M. phenax</i>		X	X
yellowfin grouper	<i>M. venenosa</i>		X	X
black grouper	<i>M. bonaci</i>		X	X
gray snapper	<i>Lutjanus griseus</i>	X	X	X
lane snapper	<i>L. synagris</i>	X	X	X
red snapper	<i>L. campechanus</i>		X	X
yellowtail snapper	<i>Ocyurus chrysurus</i>	X	X	X

Table 3-3: Summary of EFH Managed Species

Species	Scientific Name	Young of Year or Neonate	Juveniles	Adults
cubreria snapper	<i>L. cyanopterus</i>	X	X	X
hogfish	<i>Lachnolaimus maximus</i>	X	X	X
Coastal Migratory Pelagic Fishery				
cobia	<i>Rachycentron canadum</i>	X	X	X
king mackerel	<i>Scomberomorus cavalla</i>		X	X
Spanish mackerel	<i>S. maculatus</i>	X	X	X
Highly Migratory Pelagic Fishery				
bull shark	<i>Carcharinus leucas</i>		X	X
blacktip shark	<i>C. limbatus</i>	X	X	X
great hammerhead shark	<i>Sphyrna. mokarran</i>	X	X	X
lemon shark	<i>Negaprion brevirostris</i>			X
sandbar shark	<i>C. plumbeus</i>			X
nurse shark	<i>Ginglymostoma cirratum</i>		X	X
tiger shark	<i>Galeocerdo cuvieri</i>		X	X
Atlantic sharpnose shark	<i>Rhizoprionodon terraenovae</i>		X	X
blacknose shark	<i>C. acronotus</i>	X	X	X
bonnethead shark	<i>S. tiburo</i>	X	X	X

The managed species include coral and three species of crustaceans from the *Shrimp Fishery Management Plan*, the *Stone Crab Fishery Management Plan*, and the *Spiny Lobster Fishery Management Plan*, as well as 28 species of fishes from the *Red Drum*, *Reef Fish*, *Coastal Migratory*, and *Highly Migratory Fishery Management Plans* (GMFMC 2016; NMFS 2018). The Gulf of Mexico in this region also provides essential forage, cover, and nursery habitats for other species that are commercially and recreationally important such as the blue crab (*Callinectes sapidus*), flounder (*Paralichthys spp.*), and mullet (*Mugil spp.*). There are no Habitat Areas of Particular Concern (HAPCs) located within or near the study area.

3.5 COASTAL BARRIER RESOURCES

The Coastal Barrier Resources Act (CBRA) of 1982 (16 U.S.C. §§3501 *et. seq.*), as amended by the Coastal Barrier Improvement Act of 1990 (CBIA) (PL 101-591) limits Federally-subsidized development within CBRA Units to minimize the loss of human life by discouraging development in high risk areas, to reduce wasteful expenditures of Federal resources, and to protect the natural resources associated with coastal barriers. Enacted under the CBRA, the John H. Chafee Coastal Barrier Resources System is a collection of specific units of land and associated aquatic

habitats that serve as barriers protecting the Atlantic, Gulf, and Great Lakes coasts. The CBRS currently includes 585 System units, which comprise nearly 1.4 million acres of land and associated aquatic habitat, and 277 "otherwise protected areas" (OPAs), a category of coastal barriers already held for conservation purposes that include an additional 2.1 million acres of land and associated aquatic habitat (USFWS 2018b).

The CBIA provides development goals for undeveloped coastal property held in public ownership (e.g., OPAs), including wildlife refuges, parks, and other lands set aside for conservation. These public lands are excluded from most of the CBRA restrictions, although they are prohibited from receiving federal flood insurance for new structures.

There are two OPAs within the study area: Venice Inlet (FL-71P) and Manasota Key (P21AP) (**Table 3-4. List of CBRA Units in the Study Area; Figure 3-7: CBRA Units in the Study Area**).

Table 3-4. List of CBRA Units in the Study Area

Unit Number	Name	CBRS Unit Type	Acreage
FL-71P	Venice Inlet	Otherwise Protected Area	123.4
P21AP	Manasota Key	Otherwise Protected Area	719.1

Source: https://www.fws.gov/ecological-services/habitat-conservation/cbra/maps/a/SWFL_Stakeholder_12-086A.pdf and <https://www.fws.gov/ecological-services/habitat-conservation/cbra/maps/a/12-085A.pdf>

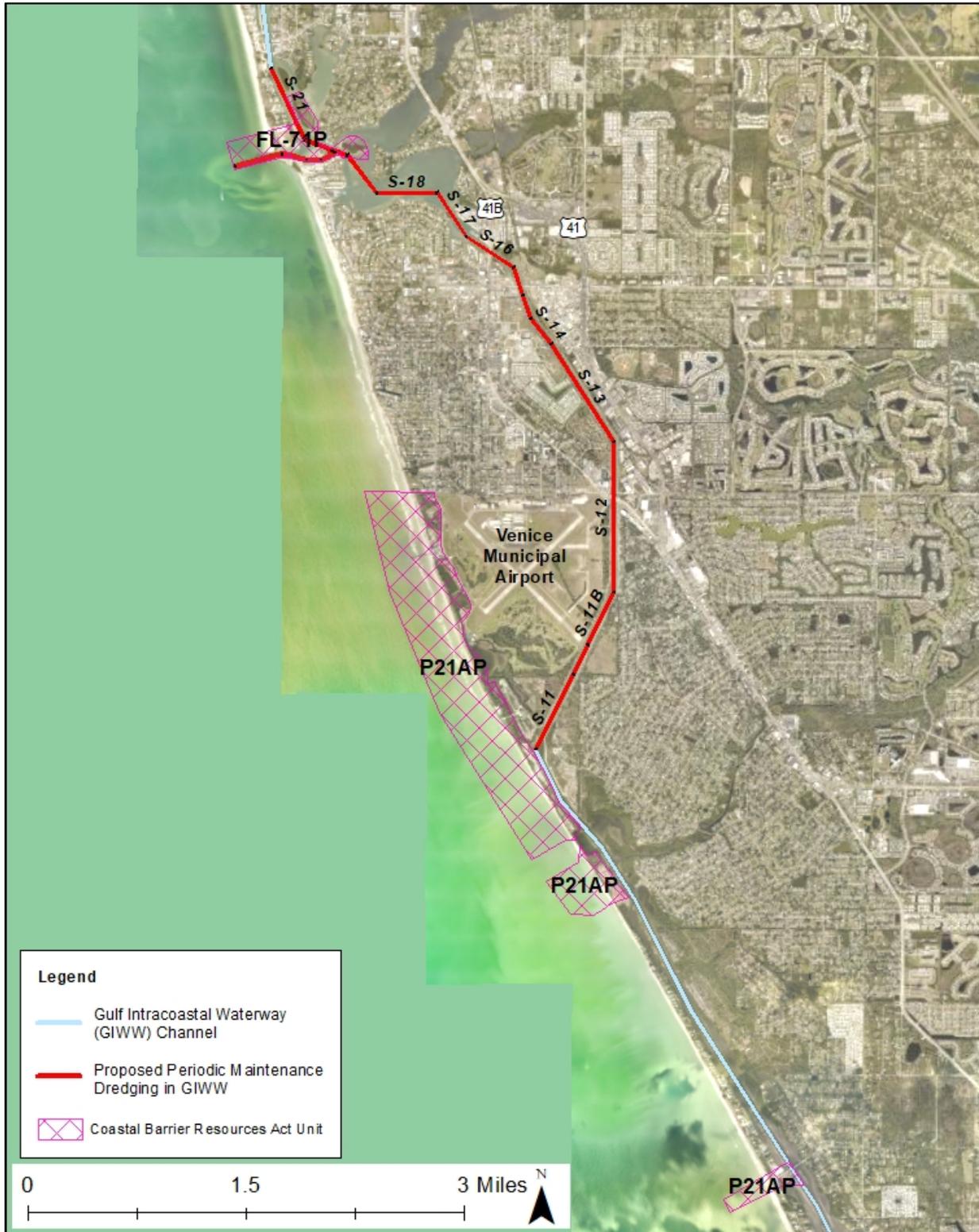


Figure 3-7: CBRA Units in the Study Area

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3.6 WATER QUALITY

The Florida Administrative Code (F.A.C.), Section 62-302.400, Classification of Surface Waters, Usage, Reclassification, designates five classes for state surface waters according to designated uses:

- CLASS I, Potable Water Supplies
- CLASS II, Shellfish Propagation or Harvesting
- CLASS III, Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife
- CLASS IV, Agricultural Water Supplies
- CLASS V, Navigation, Utility and Industrial Use

Class I has the most stringent requirements, while Class V has the least stringent. The State of Florida lists the study areas waters as Class III, which is suitable for recreation and the propagation and management of fish and wildlife.

The FDEP, through F.A.C Section 62-302.700, Special Protection, Outstanding Florida Waters, Outstanding National Resource Waters, has identified numerous state surface waters as Outstanding Florida Waters (OFW). These waters are worthy of special protection because of natural attributes, and their designation is also intended to protect existing good water quality. The FDEP has designated areas of the Sarasota Bay estuarine system as OFW; specifically, portions of the study area north of the U.S. Highway Business Route 41 bridge over the GIWW in Venice, including Venice Inlet, Dona Bay, Roberts Bay, and Lyons Bay (**Figure 3-8: Outstanding Florida Waters in the Study Area**).

Turbidity levels within the project area, specifically Venice Inlet, have been documented during previous dredge events. For example, during one tidal cycle in 2010, turbidity at the dredge site from the 2/18/10, 1400 Ebb tide was measured by WCIND at 34.7 Nephelometric Turbidity Units (NTUs) and the 2/19/10, 0930 Flood tide was measured at 23.5 NTUs. The difference in background turbidity during the tidal cycle was 11.2 NTUs, which represents the natural variability at the channel over one tidal cycle.

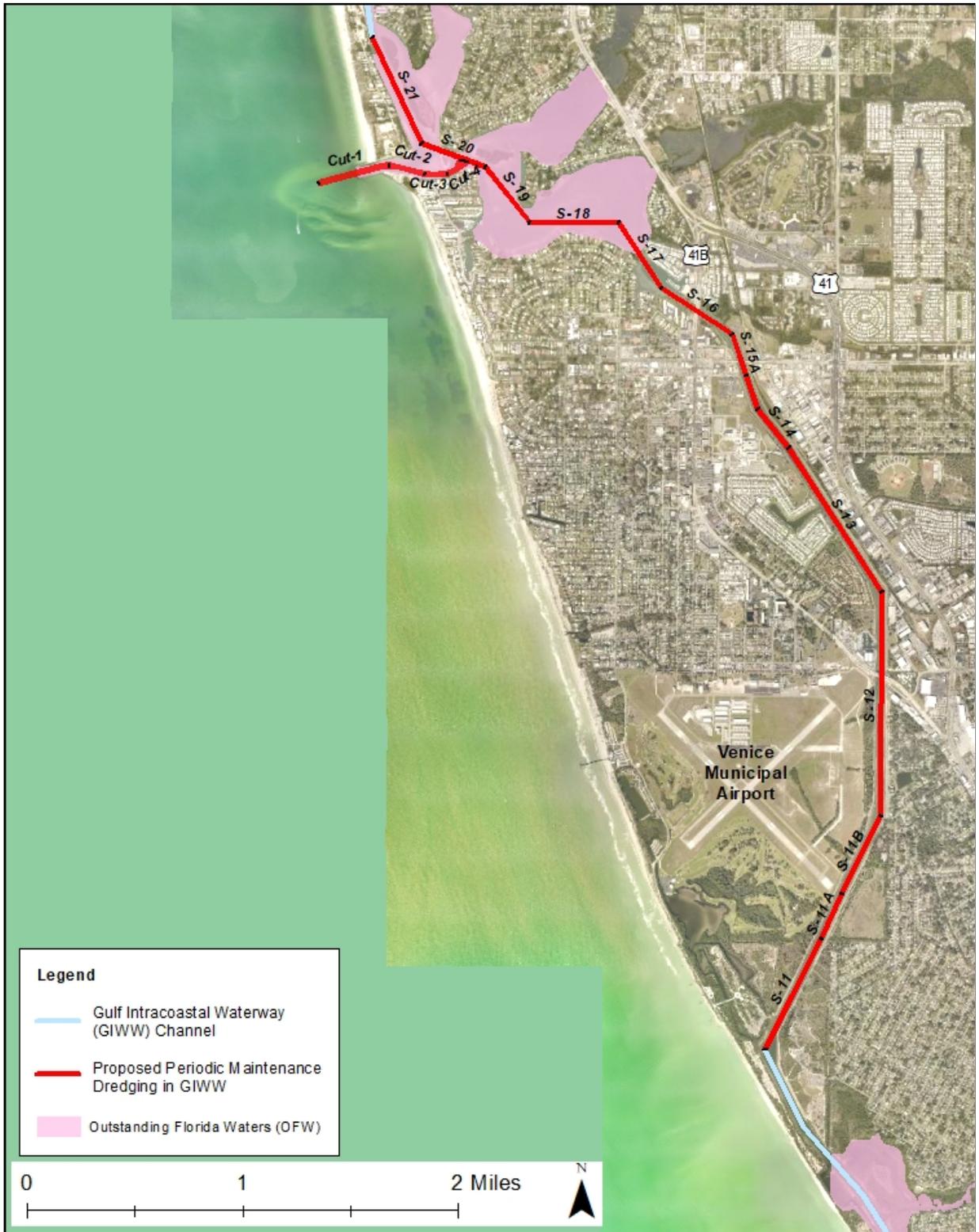


Figure 3-8: Outstanding Florida Waters in the Study Area

MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET
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3.7 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

The definition of Hazardous, Toxic and Radioactive Waste (HTRW) according to the USACE Engineering Regulation (ER) 1165-2-132, Water Resources Policies and Authorities for Hazardous, Toxic and Radioactive Waste Guidance for Civil Works Projects, 26 June 1992 reads as follows:

Except for dredged material and sediments beneath navigable waters proposed for dredging, for purposes of this guidance, HTRW includes any material listed as a "hazardous substance" under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq (CERCLA). (See 42 U.S.C. 9601(14).) Hazardous substances regulated under CERCLA include "hazardous wastes" under Sec. 3001 of the Resource Conservation and Recovery Act, 42 U.S.C. 6921 et seq (RCRA); "hazardous substances" identified under Section 311 of the Clean Water Act, 33 U.S.C. 1321, "toxic pollutants" designated under Section 307 of the Clean Water Act, 33 U.S.C. 1317, "hazardous air pollutants" designated under Section 112 of the Clean Air Act, 42 U.S.C. 7412; and "imminently hazardous chemical substances or mixtures" on which EPA has taken action under Section 7 of the Toxic Substance Control Act, 15 U.S.C. 2606; these do not include petroleum or natural gas unless already included in the above categories. (See 42 U.S.C. 9601(14).)

Underground Storage Tanks (USTs) are federally regulated under 40 CFR Part 280, which includes technical standards and corrective action requirements for owner and operators of USTs.

The coastline within the project area and the GIWW near Venice are located adjacent to predominantly residential, commercial, and recreational areas. The project area contains high-energy littoral zones and the materials used for nourishment contain particles with large grain sizes that do not normally absorb contaminants. There are no known contaminated sediments to be dredged as part of the proposed project.

There is an active Superfund site in the study area; however, it is not on the National Priorities List (NPL), which means the USEPA does not consider it one of the nation's most hazardous waste sites. A Superfund site is any land in the United States that has been contaminated by hazardous waste and identified by the USEPA as a candidate for cleanup because it poses a risk to human health and/or the environment. An active site is a non-archived Superfund site at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted under the Superfund/CERCLA program. Precision Plating and Anodizing is the superfund site located at 401 Substation Rd, Venice, FL 34292, approximately 0.2 from the GIWW channel (**Figure 3-9: Superfund and Brownfield Sites within the Study Area**). This Superfund site (#FLD059397844) is under a State-Lead Cleanup (USEPA 2018a).



Figure 3-9: Superfund and Brownfield Sites within the Study Area

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The USEPA also identified a Brownfield site (#147261) within the study area. A Brownfield site is a property whose expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. The 11.74-acre Former Ringling Property is located at 1401 Ringling Drive, Venice, FL 34285, and it is located approximately 0.2 miles from the GIWW channel (**Figure 3-9: Superfund and Brownfield Sites within the Study Area**). A Phase I Environmental Site Assessment (ESA) that was completed in 2012 revealed recognized environmental conditions (RECs) associated with the property (suspected USTs, documented asbestos and lead-based paint in structure), as well as off-site REC's (automotive repair facilities on adjacent properties). A more detailed Phase 2 ESA that was completed in 2013 revealed no REC impacts to soil or groundwater above regulatory criteria, with the exception of a benzo(a)pyrene (BaP) exceedance in a shallow soil sample collected on-site. The impact was found to be a de minimus condition that was likely related to anthropological activities (nearby roadway improvements and the area being historically used for unpaved parking). As such, no additional assessment was recommended. The Phase II ESA also included a final asbestos survey to provide the required documentation for the anticipated demolition of the primary arena structure to allow redevelopment of the property (USEPA 2018b).

3.8 AIR QUALITY

Ambient air quality along coastal Sarasota County is generally good due to prevalent ocean breezes from the northeast through the southeast. Coastal development and the popularity of the beaches area contribute to the presence of motorized vehicles and vessels in the study area at any given time. The usually present sea breezes along the Venice Beach shoreline readily disperse airborne pollutants. A review of USEPA data indicates that Sarasota County is in attainment status for all of the criteria pollutants associated with National Ambient Air Quality Standards under the Clean Air Act.

3.9 NOISE

Noise is defined as unwanted sound and, in the context of protecting public health and welfare, implies potential effects on the human and natural environment. Noise is a significant concern associated with construction, dredging, and transportation activities and projects. Ambient noise levels within a given region may fluctuate over time because of variations in intensity and abundance of noise sources. The degree of disturbance or annoyance of unwanted sound depends on: (1) the amount and nature of intruding noise; (2) the relationship between the background noise and the intruding noise; and (3) the type of activity occurring at the location where the noise is heard. Human response to noise varies from individual to individual and is dependent on the ambient environment in which the noise is perceived. Wind, temperature, and other conditions can change the sound volume perceived at distances from the noise source.

The magnitude of noise is described by its sound pressure. A logarithmic scale is used to relate sound pressure to a common reference level, as the range of sound pressure varies greatly. This is called the decibel (dB) and a weighted decibel scale is often used in environmental noise measurements (weighted-A decibel scale or dBA). This scale emphasizes the frequency range to which the human ear is most susceptible. A 70-dBA sound level can be moderately loud, as in an indoor vacuum cleaner, a 120 dBA can be uncomfortably loud, as in a military jet takeoff at 50 feet, and a 40-dBA sound level can be very quiet and is the lowest limit of urban ambient sound.

Noise is administered under the Noise Control Act of 1972, as amended (42 U.S.C. §4901-4918). The EPA has also established noise guidelines recommending noise limits for indoor and outdoor noise activities. Under these guidelines, an average noise level over a 24-hour period of 70 A-weighted decibels (dBA) is listed as the threshold for hearing noise between 65 and 75 dBA is generally acceptable, and noise exceeding 75 dBA is unacceptable in all situations. Noise monitoring and impacts are typically evaluated by the local government.

Ambient noise in the study area is generated by a broad range of sources, both anthropogenic and natural. Potential sources of anthropogenic sound include commercial and recreational waterborne traffic, construction activities, aircraft activity to and from the Venice Municipal Airport, and land-based vehicular traffic. Natural sound sources include breaking surf, wind, and precipitation. Noise levels are typical of the marine and beach environments, and ambient noise levels in the project area are low to moderate. No ambient noise monitoring appears to have been conducted in the project area; consequently, no quantitative data on noise levels within the project area are available for analysis.

3.10 AESTHETICS

The study area possesses visually pleasing attributes, including the waters and beaches of the Gulf of Mexico along Venice Beach, and fringing mangroves, vegetated islands, and mudflats adjacent to portions of the GIWW near Venice. The majority of the beaches and land fronting the GIWW near Venice is heavily developed with single and multi-story commercial and residential buildings; however, green space and county parks/beaches are located along stretches of the waterfronts. Severe beach erosion, such as that which is occurring within the project area, can eventually lead to an aesthetically unappealing beach habitat.

3.11 RECREATION

Sarasota County is a heavily populated county and a major tourist destination. During fiscal year 2017, approximately 1.22 million visitors stayed in paid lodging, and these visitors generated an economic impact of approximately \$1.94 billion to Sarasota County (Visit Sarasota County 2017). Beaches that can be accessed by the general public are heavily used year-round, while beaches

adjacent to condominiums, apartments, and hotels may have more restricted use. Several Sarasota County Parks and Beaches are located along Venice Beach within the study area, such as Humphris Park, South Brohard Beach Park, and Caspersen Beach. The 12-mile long Legacy Trail, a paved linear rail corridor, is located adjacent to the GIWW near Venice (**Figure 3-10: Recreation Areas and Parks within the Study Area**).

The beach placement site is used by local interests and tourists for typical beach-related activities, including swimming, sunbathing, bird watching, jogging, fishing, etc. Public access to the upland placement areas is prohibited; therefore, there are no recreation opportunities (e.g., bird watching) at these locations without permission and access from the WCIND.

3.12 NAVIGATION

Navigation in the project area is generally limited to watercraft used for commercial enterprises (e.g., deep-sea fishing and other charters) and recreational activities (fishing, sailing, jet skiing, pleasure boating, etc.). Numerous marinas and boat launches are located within coastal Sarasota County and along the GIWW near Venice.

3.13 CULTURAL RESOURCES

The earliest widely accepted date of occupation by aboriginal inhabitants of Florida dates from around 12,500 years ago, and new evidence suggests that people were present in the region even earlier. This earliest cultural period, called the Paleo-Indian period, lasted until about 7500 B.C. Few Paleo-Indian archeological sites are recorded in south Florida; however, two of these sites are located within 15 miles of the project area at Warm Mineral Springs and Little Salt Springs in Sarasota County. In addition, several Paleo-Indian to transitional Archaic projectile points have been recorded in the Venice area (Almy 1985). At the time of their occupation, these sites would have been located well inland of the coast due to sea levels that were 40 to 80 meters lower than those at present day. During this period, the continental shelves were exposed, and the Florida peninsula encompassed an area approximately twice the current size of the state Florida. Gradual sea level rise which occurred between about 10,000 years ago to 6,000 years ago resulted in the submergence of many terrestrial archaeological sites along the Gulf Coast.



Figure 3-10: Recreation Areas and Parks within the Study Area

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During the Archaic period (ca. 7500 B.C.-ca. 500 B.C.), prehistoric people exploited a wider range of resources and may have led a more sedentary existence than earlier periods. Most Archaic period archeological sites recorded in the Florida Master Site File (FMSF) are clustered along the Atlantic and Gulf coasts, near the Caloosahatchee River and along old remnant lake shorelines. Sea levels continued to rise until reaching approximate modern levels during this period. The stabilization of sea levels resulted in the formation of estuaries where Archaic period populations heavily exploited coastal resources. Large prehistoric Archaic period shell rings have been identified on coastal sites including Bonita Bay and Horr's Island in southwest Florida (Russo 2006).

Two Late Archaic cultures are generally archaeologically recognized in South Florida; the Orange culture and the Glades Archaic cultures. The Orange culture is recognized for using a distinctive type of pottery manufactured using fiber temper. While most widely known from northeast Florida, Orange culture sites are recognized along the southeast coast. Site types generally consist of middens composed of oyster and coquina shell along the coasts and freshwater pond snail along the inland rivers and streams. The Archaic traditions eventually developed into the unique cultural affiliations identified temporally as Orange, Manasota, Weeden Island, and Safety Harbor.

European exploration of the southwest Florida began in the sixteenth century. The earliest recorded historic maritime activity in the vicinity of Sarasota County dates to 1521, when Ponce de Leon led an attempt to establish a Spanish colony in the vicinity of Charlotte Harbor. This early attempt at settlement was repulsed by the Calusa. Later, other explorers including Panfilio de Narvaez, and Hernando de Soto landed much further north of Venice near present day Tampa Bay. Pedro Menéndez de Avilés made brief attempt to establish a Spanish mission to the Calusa in 1567; however, the attempt was abandoned by 1569. In 1763, the Spanish relinquished control of Florida to the British in a settlement following the Seven Years War. The area remained relatively unsettled by Europeans.

The earliest reported U.S. territorial presence within the vicinity of the project is denoted by an 1840s survey by Army Captain John Casey. Casey's Pass is named after him. The area remained sparsely settled between the Seminole Wars and the Civil War. It was not until after the Civil War that a small community was established, and in 1888, the name Venice was adopted. In 1915, the Sarasota-Venice Company filed a plat for the town of Venice which showed un-improved lots at the Seaboard Air Line Railway terminus (Lydecker et al. 2011). The town continued to develop in the early twentieth century. In 1925, the Brotherhood of Locomotive Engineers (BLE) revived the previously unsuccessful attempts at developing the town. By 1926, the BLE had begun construction of many of the Mediterranean Revival style homes that marked a short-lived real

estate boom that collapsed by 1929. The fortunes of the town began to turn around during World War II when the army took over the airport for the Venice Army Air Base. After the war, many servicemen who were stationed in the area returned and began a period of slow but continued growth.

The Gulf Coast of Florida has been explored by warships, trading vessels, submarines and pleasure craft since the Age of Exploration until the present. While no shipwrecks are recorded in the vicinity of the project area, the potential for their presence both along the coast and offshore exists. The potential exists for both prehistoric and historic cultural resources to occur within the project area and submerged prehistoric sites been identified within and adjacent to the project area.

3.13.1 Gulf Inland Waterway

In 1895, Congress appropriated \$5,000 for the dredging of a 5 by 100-foot channel from Tampa to Sarasota Bay to provide for the movement of people and commerce. In 1896, the USACE was authorized to begin dredging a 3 by 75-foot navigation channel from Sarasota to Casey's Pass. At that time, Casey's Pass was located approximately ½ mile north of the current Venice Inlet. Twelve years later the navigation channel was extended to the town of Venice. During the 1907 dredge event, the southern end of Bay Point was bisected, which separated it from the mainland, creating Rattlesnake Island. This island was originally called Turner Key, after the Elisha Turner family who resided in a house-boat on the shore of the Island between 1920 and 1932 (Arnall 1995).

In 1960, dredging began on a five-mile passage inland of the City of Venice, connecting Lemon Bay with the original route from Venice to Sarasota. Between 1962 and 1965, the channel was deepened and widened to 9 by 100 feet from Tampa Bay to Venice. In 1965, the Venice channel improvements were completed through Lemon Bay to Red Lake, and in 1967, the inland route between Red Lake and Roberts Bay was completed (Antonini *et al.* 2002). It was during the 1960s dredging that Snake Island was cut again, further reducing its size. After the 1960s dredging, erosion continued to reduce the size of the island. The closure of Midnight pass in the 1980s may have accelerated the erosion of Snake Island.

3.13.2 Previous Cultural Resource Investigations

A number of previous terrestrial and submerged cultural resource investigations have been completed in the vicinity of the proposed project area. The following describes the results of some of the most relevant surveys.

In 1985, the Venice Historical Survey Committee completed a limited terrestrial survey of selected areas within the City of Venice, Florida. The results of the survey were described in a

report titled *An Archaeological Survey of Selected Portions of the City of Venice, Florida*. The investigators examined a number of areas located along the beach and along the GIWW on the east side of the airport, the Circus Bridge, and near the proposed upland disposal location for this project (Almy 1985). The survey consisted of a desktop review of existing sources to create a predictive model to stratify the City of Venice into three probability zones. The field methodology primarily consisted of pedestrian survey supplemented with occasional judgmental shovel test pit excavations when landowners' approval was granted. A related architectural and historical investigation titled *Historical and Architectural Study of the City of Venice, Florida* was focused on recording historic buildings within the town.

In 1997, Tidewater Atlantic Research (TAR) conducted a sidescan and magnetometer survey in the Venice nearshore vicinity in support of an artificial reef construction project. TAR identified one sonar target with characteristics of non-magnetic debris which were not considered significant (Watts 1997).

In 2000, New South and Associates conducted an archaeological site evaluation of 8SO2336 as part of a Feasibility Study of the Sarasota Bay Restoration Project conducted by the USACE and sponsored by WCIND (Koski and Peres 2001). The purpose of the study was to locate, document, and assess the significance of all cultural resources and evaluate 8SO2336 for eligibility for inclusion on the NRHP. The site is a prehistoric shell midden, habitation, and specialized procurement and processing site located within approximately 20 meters of the previously dredged navigation channel. The site contains intact segments of shell midden which extend underwater. The site dates from the Manasota period (A.D. 400-800) through the Safety Harbor period (A.D. 800-1500), with the largest component from the Safety Harbor period occupation. Small historic period components dating from the First Spanish Period (1513-1763) through the twentieth century were also identified. Prehistoric burial resources were identified on the site. In 2001, the site was determined eligible for listing on the NRHP.

In 2007, TAR returned to the offshore area to conduct an additional remote-sensing survey of five proposed mitigation reef sites off of the coast of Venice. The results of the survey were reported in a report titled *A Submerged Cultural Resources Remote-Sensing Survey of Five Proposed Mitigation Reef Sites Located off Venice Beach, Sarasota County, Florida*. Within the five small areas they investigated, TAR identified a single magnetic anomaly which was inconsistent with shipwreck material (Watts 2007).

In 2011, Panamerican Consultants, Inc. conducted a magnetometer, sidescan sonar, subbottom profiler, multibeam bathymetry survey which included shoreline shovel testing along a 3.2-mile length of the Venice shoreline (Lydecker et al. 2011). The survey was titled *Sarasota Beach Erosion Control Cultural Resources Survey: Remote Sensing Survey of Four Offshore Borrow Areas*,

Nearshore and Shoreline Survey, Sarasota County, Florida, and was completed in preparation for a beach nourishment project between range monuments R115 and R134. The survey identified 76 magnetic anomalies, 22 sidescan sonar targets, and 1,134 subbottom impedance contrast features. Analysis of the data that Panamerican collected indicated that most of the magnetic anomalies were produced from identifiable and non-significant sources, including crab traps, modern vessels, and small single source anomalies. Six unknown anomalies were suggestive of potentially significant cultural resources. Sidescan sonar data indicates that the majority of the 22 acoustic targets area were produced by artificial reefs and modern debris. Four sidescan targets had characteristics suggestive of potentially significant resources. These targets were combined into six target clusters. The 1,134 impedance contrasts were mapped within the survey area. There are four areas of complex subbottom returns indicating potential paleo-landscape settings and the potential for submerged prehistoric cultural resources. There were no cultural resources identified in the 229 shovel tests that were excavated along the beach.

In 2015, LG2 Environmental Solutions conducted archaeological monitoring of the Snake Island Stabilization Project. This project documented the removal of Australian pine stumps. Installation of protective geotech fabric, three rock groin stabilization structures, and the transport of sand from two nearby impoundment basins to the island to provide stabilization and protection of the eroding portions of the island. The work was also designed to protect archaeological site 8SO2336. During the monitoring project archaeologists collected variety of artifacts including prehistoric ceramics, faunal remains, chert and other lithics, shell tools, features, and historic artifacts including a wooden barrel.

In 2016, Southeastern Archaeological Research, Inc. (SEARCH) completed investigations of the submerged targets that were identified by Panamerican in 2011. This investigation was documented in their report entitled *Archaeological Diver Identification of Remote Sensing Anomalies in Hillsborough, Pinellas, and Sarasota Counties, Florida. Counties, Florida* (Krivor 2016). The portion of the report investigation targets in Sarasota County adjacent to Venice investigated Targets C23, M75, M66, and SP4. Investigations of Target C23/M75 identified a polypropylene line on the seafloor extending into the sand. The buried section of the polypropylene line extended deeper than the divers could investigate. The magnetic signature is likely a buried crab pot and was not considered significant. Target M66 was refined into two separate relatively small anomalies (M66a and M66b). During the diver investigation metal detectors and hand probes were unable to locate the targets suggesting that they were buried. Based on the low, small signatures, the targets were interpreted as buried crab pots or possibly metal associated with previous construction activities in the area (Krivor 2016). Target SB4 was described as an exposed or buried paleolandscape. The diver investigation revealed an exposed limestone hard bottom between five and six feet in height, covered with numerous corals and

sponges attached. None of the targets investigated within the project vicinity were considered cultural significant.

3.13.3 Shoreline Sand Operations Area

The Florida Master Site File (FMSF) indicates that 19 previously recorded archaeological sites are located within 0.5-miles of the proposed dredge locations and disposal areas. Only one of these sites has been evaluated and determined eligible for listing on the National Register of Historic Places (NRHP). Of these, only four previously identified archeological sites are located within or adjacent to proposed dredge locations and potential dredge material placement areas on the GIWW (Sites 8SO24, 8SO26, 8SO441, and 8SO2336). Two sites (8SO24 and 8SO26) date from the Archaic period (10,500 Years Before Present [YBP]) and one extends into the Safety Harbor Period (1000 to 500 YBP). Portions of both sites are inundated and burial resources were reported at both sites. Neither site has been evaluated for eligibility for listing on the NRHP by the State Historic Preservation Officer (SHPO).

The Gory Site (8SO24) was identified in 1969 based on surface collections that were recovered after the dredging of the GIWW. FMSF forms indicate that the site was mostly covered by approximately 8 feet of fill from the newly created GIWW but that deposits were estimated between 4 and 6 feet in depth. The forms go on to indicate that the original ground surface was visible along the banks of the fresh cut. Artifacts recovered included sand and clay-tempered pottery, Archaic stemmed points, bird points, and net sinkers reportedly often washes out of the banks of the canal. The USACE reportedly placed a number of large limestone boulders along parts of the shoreline of the GIWW in the vicinity of the site which may have eliminated the erosion problem. The site form also indicates that burial resources were identified from the site.

The Venice Beach Site (8SO26) is a prehistoric site with Archaic and Manasota midden components located adjacent to beach and reportedly eroding into the Gulf of Mexico (Lydecker et al. 2011). The site was first recorded in 1973 and reportedly contained burial resources. Multiple investigations by Ruppe (1980) and Koski (1985) identified portions of the site in which some components survived extending into the water. Ruppe (1980) described the site as a complex of shell middens and at least two mounds situated on the beach in which the terrestrial portions of the site were destroyed by the construction of condominiums, homes, motels, and streets. In 1988, Koski conducted additional investigations approximately 400 meters south of Ruppe's investigation and identified four submerged cultural features including three oval pits containing fish bones, ash, and ceramic sherds. The fourth set of features contained a configuration of 53 wooden posts oriented vertically, one of which was dated to 1700 BP +/-70 (Lydecker et al. 2011).

Site David Jr. Site (8SO441) is a small Archaic period prehistoric site located on the GIWW near Hatchette Creek and Roberts Bay. Local residents recovered a coral Archaic stemmed projectile point and a PPK. The site was reported as destroyed by ACI, Consulting (Almy 1985).

Site SO2336 is located within approximately 20 meters of the inlet dredge channel. The site is a prehistoric shell midden, habitation, and specialized procurement and processing site that was investigated in 2000 (Koski and Peres 2001). The site contains intact segments of shell midden which extend underwater. The site dates from the Manasota (A.D. 400-800) period through the Safety Harbor (A.D. 800-1500) period with the largest part of the component consisting of Safety Harbor period. Small historic period components dating from the First Spanish Period (1513-1763) through the twentieth century were also identified. Prehistoric burial resources were identified on the site. In 2001, the site was determined eligible for listing on the NRHP.

3.13.4 Nearshore Sand Operations Area

In 2011, a submerged cultural resource survey identified four targets within a 3.2-mile long by 1000-foot wide survey area (Lydecker et al. 2011). Subsequent diver investigations in 2016 indicated that none of these targets were significant cultural resources (Krivor 2016). Based on this investigation, no historic properties are recorded within the proposed beach placement areas. Components of 8SO26 are located along the beach targeted for placement. To investigate the possibility that the site could extend offshore, a shovel test pit survey was conducted parallel to the site along the beach (Lydecker et al. 2011). This investigation yielded no artifacts.

The P-47 Thunderbolt wreckage site (8SO6954), is the remnant of a P-47 Thunderbolt (6-RE) aircraft. It reportedly crashed into the Gulf of Mexico in October 1943 after taking off from Venice Army Air Field. The pilot was uninjured and swam to shore from the crash site (FMSF). This site is over 50 years of age and has not been evaluated by SHPO for eligibility for listing on the NRHP.

3.14 NATIVE AMERICANS

No portion of the proposed action is located within or adjacent to known Native American-owned lands, reservation lands, or Traditional Cultural Properties; however, Native American groups have lived throughout the region as evidenced by the presence of prehistoric archaeological sites adjacent to the project (e.g., Snake Island), and their descendants continue to live within the State of Florida and throughout the United States. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. §306101 et. seq.) obligations regarding USACE Trust Responsibilities to federally-recognized Native American Tribes, and in consideration of the Burial Resources Agreement between USACE and the Seminole Tribe of Florida, consultation with Native American tribes having ancestral ties to this region, including the Seminole Tribe of

Florida, the Seminole Nation of Oklahoma, Thlopthlocco Tribal Town, and the Miccosukee Tribe of Indians of Florida is complete for the preferred alternative.

3.15 INVASIVE SPECIES

Several invasive plant and animal species have been recorded within the study area. The predominate invasive plant species include Australian pine (*Casuarina equisetifolia* L.) and Brazilian peppertree (*Schinus terebinthifolia* Raddi), and black spiny-tailed iguana (*Ctenosaura similis*) is the predominate invasive animal species (SWCISMA 2018).

Australian pine is a deciduous tree that occurs in coastal habitats, and its presence was visually observed adjacent to the GIWW near Venice, as well as along portions of Venice Beach and the proposed upland placement areas. Brazilian peppertree invades a variety of habitats and forms dense thickets that displace native vegetation. It was observed in multiple locations within upland placement area #2 (SRS, 2018). Black spiny-tailed iguana has been recorded along the southern stretch of the GIWW near Venice. Among other issues associated with this invasive species, the iguana feeds on the same native plants as the gopher tortoise, can displace the tortoise from burrows, and has been documented to eat juvenile gopher tortoise (Avery, *et.al.* 2014).

4 ENVIRONMENTAL EFFECTS

This chapter is the scientific and analytic basis for the comparisons of the alternatives (see **Table 2-1: Summary of Direct and Indirect Impacts**). The following analysis includes anticipated changes to the existing environment including direct, indirect, and cumulative effects:

- **Direct effects** – Direct effects are caused by a proposed action and occur at the same time and place (40 CFR 1508.8). Direct impacts may have both beneficial and adverse effects.
- **Indirect effects** – Indirect effects are caused by a proposed action but occur later in time or are farther removed in distance but still reasonably likely to occur. Indirect effects may include growth inducing effects and other effects related to “induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR 1508.8).
- **Cumulative effects** – Cumulative effects are additive or indirect effects that would result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR 1508.7).

Direct and indirect impacts of the proposed project and alternatives are further evaluated for each resource in relation to context, duration, intensity, type, and potential to occur:

- **Context** (limited, local, or regional)
- **Duration** (temporary, short-term, long-term, or permanent)
- **Intensity** (negligible, minor, moderate, major, No Effect, No Adverse Effect, Adverse Affect)
- **Type** (beneficial or adverse)
- **Potential to occur** (unlikely, possible, or probable)

In the introduction for each resource section, the reader is provided a brief description of the methodology used for assessing and evaluating potential impacts. Each resource section used the following definitions related to the duration of potential impacts:

- **Temporary** = Up to 3 months
- **Short-Term** = Up to 1 year
- **Long-Term** = More than 1+ years

4.1 SOILS/SEDIMENT CHARACTERISTICS

Impacts to soils/sediment characteristics were evaluated using data from on-site technical investigations and best professional judgment.

4.1.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, there would be no adverse effects on native sediment characteristics in the project area.

4.1.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

There would be no adverse effect on native sediment characteristics within the navigation channels as a result of dredging activities; however, there would be a minor and localized change to existing sediment characteristics within the beach placement site and upland placement area once compatible dredged material is placed at these locations. All placed material will be compatible with the existing material present in the placement areas. Placement of sand on the beach will help to mitigate for beach erosion.

4.1.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Impacts to soils/sediment characteristics would be similar to those identified under the Preferred Alternative, except that no material would be placed in beach areas and the benefits of placement in those areas would not be realized.

4.2 THREATENED AND ENDANGERED SPECIES

Impacts to threatened and endangered species were evaluated by coordination with the USFWS and NMFS through the use of programmatic biological opinions on maintenance dredging activities, literature search, geographic information systems (GIS) data, presence/absence determinations, and best professional judgment.

4.2.1 NO ACTION ALTERNATIVE (Status Quo)

The No Action Alternative would result in continuing beach erosion and loss of nesting habitat. This loss would adversely affect sea turtle nesting habitat, and may impact piping plover and red knot as these species compete for the remaining beach area with humans. Intertidal foraging habitat area would remain relatively constant, although it would shift spatially as the beach eroded.

4.2.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

4.2.2.1 Sea Turtles

USACE has determined that beach placement activities may affect, and are likely to adversely affect, nesting sea turtles. Beach placement of dredged materials will not adversely modify loggerhead terrestrial critical habitat. The USACE has determined that the proposed activities fall within the scope of the USFWS Statewide Programmatic Biological Opinion (2011; rev. 2015). The USACE has coordinated with USFWS in a letter dated April 25, 2018 and finalized coordination in a letter dated August 14, 2018.

USACE has determined that dredging activities conducted with a hopper dredge may affect, and are likely to adversely affect, swimming sea turtles. All other dredging activities are not likely to adversely affect swimming sea turtles. In addition, beach placement activities are not likely to adversely modify loggerhead nearshore reproductive critical habitat. The USACE determined that the project activities fall within the scope of the NMFS Gulf of Mexico Regional Biological Opinion (2003; rev. 2005 and 2007).

4.2.2.1.1 Nesting Habitat

As the Preferred Alternative proposes to place sand on the beach, the USACE has determined that it may affect nesting sea turtles. Typically, nesting outcomes for sea turtles are adversely impacted during the first one to two years following construction, but they return to pre-construction conditions after the placed sediment equilibrates and the shoreline returns to a more natural slope. The construction of a wider beach ensures that sufficient beach habitat is available for female turtles to nest following the initial one to two-year equilibration period, and nests are less likely to be washed out during large storm events. There are a number of potential effects to nesting sea turtles that may occur if there are changes in the beach sediment characteristics following nourishment. Scarp development could hinder turtles from accessing suitable nesting habitat. Sand compaction could make excavating a nest difficult. Changes in sand color or sand chemistry could affect the viability and sex ratio of a clutch (Mrosofsky and Provancha, 1989; Hays *et al.*, 2001; Wood and Bjorndal, 2000). To ensure that placement of dredged material on the beach does not adversely affect nesting sea turtles or loggerhead critical habitat, only compatible sand would be used.

The USACE will ensure that sediment placed on the beach is compatible with existing sediments, which will minimize adverse effects of beach placement. The sand grain size and color must meet specific criteria to prevent compaction and to help ensure its acceptability by nesting turtles. Geotechnical surveys will be conducted of the shoaled material to ensure that sand is suitable for placement on the beach. During sand placement activities, daily surveys for escarpments will

be conducted, and a final survey will be conducted immediately after project completion. Any escarpments that may interfere with sea turtle nesting will be leveled to the natural beach contour prior to turtle nesting season. Such escarpments found during nesting season will be leveled as soon as practicable without interfering with turtle nesting. Sand compaction testing will be conducted in areas impacted by beach placement activities. If the testing indicates tilling is needed, tilling to a depth of up to 36 inches will be conducted prior to contractor demobilization. With the inclusion of these measures to survey, monitor, and mitigate possible sediment effects associated with the proposed project, and in light of the additional sea turtle mitigation measures identified in Section 4.21, Environmental Commitments, the effects outlined above are unlikely to occur or will be minimal in scope.

4.2.2.1.2 Offshore Habitat

Only loggerhead, green, hawksbill, and Kemp's ridley sea turtles are vulnerable to being taken by the use of hopper dredges to maintain navigation channels (NMFS 2003). To minimize the risk to these sea turtles, if a hopper dredge is used, standard sea turtle protection conditions will be implemented such as draghead deflectors, inflow screens, and monitoring of the operation by qualified personnel.

There are seagrasses located adjacent to the GIWW near Venice. The project will adhere to all turtle safety precautions outlined in the 2003 GRBO, as well as implement the NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions during project construction.

4.2.2.2 Florida Manatee

Manatees typically use nearshore waters for migration, and their movements may be affected by the presence of in-water construction equipment. The USACE and its contractors will abide by the 2011 Standard Manatee Conditions for In-Water Work to ensure no adverse effects occur to any manatees that may venture into the project area during construction activities. For example, siltation or turbidity barriers (if used) shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. With adherence to the manatee protocols identified in Section 4.21, Environmental Commitments, the USACE determines that the proposed project may affect, but is not likely to adversely affect, the Florida manatee.

4.2.2.3 Smalltooth Sawfish

Smalltooth sawfish are rarely encountered in the study area and Sarasota Bay and have an affinity for shallow, estuarine waters. In light of the rarity of the species in the study area and the USACE's implementation of the NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions during project construction, the USACE has determined that the proposed project is not likely to

adversely affect the smalltooth sawfish. Any effects on this species are anticipated to be so insignificant as to be discountable.

4.2.2.4 Piping Plover and Rufa Red Knot

The USACE has determined that the proposed project may affect, and is likely to adversely affect, piping plover and rufa red knot during beach placement activities in publicly-owned lands where coastal processes are unimpeded. For those parts of Venice Beach where the shoreline contains jetties and rip-rap and/or where the beach is heavily frequented by recreationists, the proposed project is not likely to adversely affect piping plover or rufa red knot. The USACE has determined that the minimization measures, Reasonable and Prudent Measures, and Terms and Conditions in the USFWS Piping Plover Programmatic Biological Opinion, or P³BO (USFWS 2013), are applicable to the project and has requested concurrence from USFWS in a letter dated April 25, 2018. In this letter, the USACE also requested concurrence with their determination that placement at the north end of the beach placement area (immediately south of Venice Inlet) is not likely to adversely affect the rufa red knot, which was listed after the issuance of the P³BO. Although the USFWS has not designated critical habitat for the rufa red knot, some portions of Sarasota County are known to provide important habitat for this species. The Final Rule listing the rufa red knot, published December 11, 2014, notes that “beach nourishment can be beneficial or detrimental to red knot habitat, though any negative effects are mostly considered to be short-term (79 FR 73707).” The USACE received USFWS concurrence in a letter dated August 14, 2018.

4.2.2.5 Florida Scrub-Jay

Construction activities associated with the use of the upland placement areas have the potential to affect the Florida scrub-jay in light of its known occurrences in the study area. Pre-construction surveys for the scrub-jay will be conducted to identify any nesting activity and family groups living within the project area. If no nesting activity or family groups are identified, and with on-site monitoring during construction activities, the USACE has determined that the proposed project may affect, but is not likely to adversely affect, the Florida scrub-jay; however, if nesting activity and/or family groups are discovered during the pre-construction survey, the USACE has determined that the proposed project may adversely affect the Florida scrub-jay and appropriate mitigation will be conducted in consultation with the USFWS.

4.2.2.6 Eastern Indigo Snake

Construction activities associated with the use of the upland placement areas have the potential to affect the Eastern indigo snake, which is known to occur in the study area and may occur in the project area in light of the presence of gopher tortoise burrows. Pre-construction surveys for the snake will be conducted and monitoring during construction activities will occur. With the

implementation of pre-construction surveys and with on-site monitoring during construction activities, the USACE has determined that the proposed project may affect, but is not likely to adversely affect, the Eastern indigo snake; however, if individuals are discovered during the pre-construction survey, the USACE has determined that the proposed project may adversely affect the Eastern indigo snake and appropriate mitigation will be conducted in consultation with the USFWS.

4.2.2.7 Gopher Tortoise

Construction activities associated with the use of the upland placement areas have the potential to adversely affect the gopher tortoise in light of its known occurrences in the study area and project area. Pre-construction surveys for the tortoise will be conducted and the property owner will obtain the appropriate authorizations to relocate individuals to a suitable on- or off-site location if discovered. Furthermore, the USACE will require on-site monitoring during construction activities to minimize any potential effect to the gopher tortoise.

4.2.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Impacts to threatened and endangered species would be similar to those identified under the Preferred Alternative, except that potential effects (both beneficial and adverse) associated with beach placement would not occur.

4.3 FISH AND WILDLIFE RESOURCES

Effects to fish and wildlife resources were evaluated through literature search and best professional judgment.

4.3.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, there would be no adverse effects to fish and wildlife resources with the exception that continued beach erosion within the study area would reduce available foraging, nesting, and overwintering habitat for several resident and migratory shorebird species such as sanderling and willet, resulting in a long-term, minor, and localized adverse impact.

4.3.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

4.3.2.1 Marine Mammals

Dredging and placement of material at beach placement sites are not likely to have a direct, adverse effect on the majority of non-listed marine mammal species as these species are highly mobile and can vacate areas at the commencement of construction activities. Moreover, vessels associated with dredging and placement activities are slow moving and are not likely to strike marine mammals such as bottlenose dolphin. In the April 25, 2005 notice in the Federal Register

(70FR 21174) for the issuance of an Incidental Harassment Authorization (IHA) for Small Takes of Marine Mammals Incidental to Specified Activities; Port of Miami Construction Project (Phase II), NMFS stated: *According to the Corps, bottlenose dolphins and other marine mammals have not been documented as being directly affected by dredging activities and therefore the Corps does not anticipate any incidental harassment of bottlenose dolphins by dredging.* Potential impacts to, and measures to protect, the Florida manatee are outlined in Sections 4.2 and 4.21, respectively.

4.3.2.2 Fish

The potential for injury or entrainment due to dredging would most likely affect demersal species (those living close to the sea floor). Moreover, dredging and placement of dredged material on the beach may affect foraging habitat and feeding success of managed species and their prey due to temporary turbidity and loss of benthic organisms. For example, resuspended materials may interfere with the diversity and concentration of phytoplankton and zooplankton, and therefore could affect foraging success and patterns of schooling fishes and other grazers that comprise prey for managed species. Notwithstanding these potential temporary, minor adverse impacts, adjacent fish habitat is available for feeding activity, and foraging patterns would be expected to return to normal at the end of dredging and placement activities. In addition, measures taken to reduce turbidity, with the attendant monitoring, sampling, and allowable maximum turbidity levels, will help minimize effects of turbidity.

4.3.2.3 Terrestrial Mammals

Construction of a containment berm/dike and subsequent placement of dredged material in the upland placement areas may result in a temporary, minor, and localized adverse effect to wildlife species as existing open, grassy, and scrub habitat is converted to a dredged material placement site. In addition, certain species may be temporarily displaced during placement operations; however, after the conclusion of periodic maintenance dredging activities, terrestrial wildlife would re-enter the area and inhabit impacted areas within the upland placement areas.

4.3.2.4 Birds

Placement of dredged material on the beach is the activity most likely to impact birds, including migratory shorebirds and seabirds. Shorebird activity along beaches within the study area can include nesting, feeding, resting, and over-wintering. In general, migratory shorebirds may be affected by human disturbance, domestic animals (dogs and cats), and wildlife (raccoons, foxes, predatory birds, territorial birds, ghost crabs, fire ants, etc.). While most of these disturbances to migratory shorebirds are not the result of beach placement, some temporary effects to nesting and wintering birds may occur depending on the timing of the beach placement activities. Measures taken during beach placement to reduce adverse effects to migratory shorebirds

include monitoring daily for shorebird nests during construction and establishing buffer zones around the nest to protect them from construction activities. Beneficial effects of beach placement include the protection and maintenance of foraging, resting and nesting habitat for these and other species.

The dredging activity and placement of dredged material on the beach may attract seabirds and shorebirds to the area and temporarily increase foraging activity as benthic organisms are more easily visible and accessible; however, in the short-term, studies have shown that there was no significant change in the mean seabird and shorebird abundance after beach nourishment events, and that seabird feeding activity declined significantly after replenishment. Overall, there was no strong evidence that shorebird feeding activity was altered by replenishment (Grippio *et al.* 2007).

Vision has been shown to be an important component in the foraging activity of a number of seabird species (Essink 1999; Garthe *et al.* 2000; Gaston 2004; Thaxter *et al.* 2010). As a result, water clarity may play an important role in the foraging success of these, and other, species. Therefore, it is likely that the changes to water clarity resulting from the suspension of sediments during dredging operations and the placement of sediment on the beach would have an indirect, temporary, and localized adverse effect on the foraging capabilities of some species; however, mobility of the seabirds and the availability of abundant foraging areas adjacent to the project area would minimize any potential adverse effect.

4.3.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Placement of dredged material at the upland site may provide temporary nesting habitat for shorebirds, such as killdeer. Other effects to fish and wildlife resources from dredging activities would be similar to those identified under the Preferred Alternative, except that potential effects (both beneficial and adverse) associated with beach placement would not occur.

4.4 ESSENTIAL FISH HABITAT ASSESSMENT

The proposed project description is in Section 2.1.4, Dredging with Upland and Beach Placement (Preferred Alternative), while a description of “existing conditions” of EFH, federally managed fisheries, and associate species such as major prey species, including affected life history stages, is in Section 3.4, Essential Fish Habitat. The following subsections describe the individual and cumulative effects of the proposed action and alternatives on EFH, federally managed fisheries, and associate species such as major prey species, including affected life history stages. This NEPA document will satisfy the coordination requirement for EFH under the Magnuson-Stevens Fisheries Conservation and Management Act (see Section 5.9).

Marine areas of submerged aquatic vegetation, mangrove wetlands, live bottoms (e.g., hard bottoms, oyster reefs), non-vegetated bottoms (e.g., sand/shell), and water column associated (WCA) within the study area have been designated as EFH. Impacts to EFH were estimated through coordination with NMFS, literature search, geographic information systems (GIS) data, on-site field investigations, presence/absence determinations, and best professional judgment.

4.4.1 NO ACTION ALTERNATIVE (Status Quo)

Increased erosion in the project area could expose additional ephemeral nearshore hardbottom habitat as sand erodes and the shoreline moves landward, resulting in a beneficial effect on this resource. Otherwise, the No Action Alternative would have no effects on essential fish habitat in the project area.

4.4.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

Direct, adverse effects to seagrasses are not anticipated because all occurrences of seagrasses are located outside of the dredging footprint. In addition, the dredging contractor will be prohibited from anchoring in, placing pipe on, or otherwise directly impacting seagrass (see Section 4.21). Seagrass beds are temporally and spatially ephemeral. Based on the latest 2016 SWFWMD mapping for patchy and continuous seagrasses and for oyster reefs in the study area, the USACE will identify areas where benthic resources may exist and be impacted by construction activities prior to each dredge event. As appropriate, USACE will conduct pre-construction benthic resource surveys during the seagrass growing season (June – September) to document the extent of seagrass beds and other benthic resources immediately before construction. These pre-construction surveys will help in developing a turbidity monitoring plan for the project. There is the potential for indirect, temporary and localized adverse effect to seagrasses from increased turbidity levels within the mixing zone; however, the USACE contractor will monitor turbidity levels during dredging and placement activities to ensure compliance with State water quality standards. If monitoring during construction suggests that turbidity or dredging may have impacted benthic resources, USACE will conduct post-construction surveys to assess any potential impact.

Direct, adverse effects to mangrove wetlands are not anticipated because all occurrences of mangroves are located outside of the dredging footprint. The pipelines installed to access the upland placement areas would be sited to avoid impacts to mangrove habitat located along the riprap. As with seagrasses, there is the potential for indirect, temporary and localized adverse effect to mangroves from increased turbidity levels within the mixing zone; however, proposed turbidity monitoring for compliance with State water quality standards will minimize the adverse, indirect effect.

Direct or indirect effects to hardbottoms are not anticipated because all occurrences are located outside the dredging footprint, as well as outside of the mixing zones for turbidity. Pre-construction surveys with diver verification will be conducted along any proposed underwater pipeline corridors prior to initiation of construction activities. Any impacts to hardbottom resources within the pipeline and staging areas from dredging equipment placement would be determined from the before and after construction surveys, and appropriate mitigation would be provided as necessary.

Dredging and placement of dredged material at the beach placement area would result in a temporary, direct, and localized minor adverse effect to non-vegetated bottoms and benthic habitat; however, effects to benthic infaunal and epifaunal communities would be considered relatively minimal both spatially and temporally. Infaunal communities in particular have very high reproductive potential and recruitment. Adjacent areas that have not been impacted would provide a source for recruitment to the impacted areas. Studies have shown a relatively short recovery time for infaunal communities following dredging (Wilber and Clark 2007). Succession of post-dredging infaunal communities should begin within days following dredging. This initial settlement usually consists of pelagic larval recruits settling within the impact area. Later recruitment from adjacent non-impacted areas will be more gradual and would involve less opportunistic species. It is highly likely that infaunal communities would be re-established within one to two years after dredging ends (Vivan *et.al.* 2009).

The water column is used for foraging, spawning, and migration. Adverse effects to the water column may have localized effects on marine species. Injury or entrainment due to dredging would most likely affect demersal species (those living close to the sea floor) and less mobile species, such as shellfish. Dredging may temporarily affect foraging habitat and feeding success of managed species and their prey due to turbidity and loss of benthic organisms. For example, resuspended materials may interfere with the diversity and concentration of phytoplankton and zooplankton, and therefore could affect foraging success and patterns of schooling fishes and other grazers that comprise prey for managed species. During dredging and placement operations, adjacent similar habitat is available for feeding and foraging patterns would be expected to return to normal at the end of dredging activities. Other potential adverse effects include behavioral alterations due to sound, light, and structure, and changes to soft bottom bathymetry in the shoal areas during dredging.

4.4.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

The pipelines installed to access the upland placement areas would be sited to avoid impacts to mangrove habitat located along the riprap. Effects to EFH from dredging activities and the use

of pipeline corridor to upland placement areas would be similar to those identified under the Preferred Alternative.

4.5 COASTAL BARRIER RESOURCES

Impacts to coastal barrier resources were evaluated using literature search, geographic information systems (GIS) data, and best professional judgment.

4.5.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, beach erosion would continue in OPA P21AP and result in a long-term, minor, and localized adverse effect.

4.5.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

The proposed project does not include the construction of structures that would require Federal Flood Insurance; therefore, Federal expenditures for the proposed project are not restricted in units FL-71P or P21AP. Periodic maintenance dredging would not adversely affect these two OPAs; rather, placement of compatible dredged material along portions of Venice Beach would provide a potential short to long-term, minor, and localized beneficial effect to OPA P21AP.

4.5.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Impacts to coastal barrier resources would be the same as those identified under the No Action Alternative. There would be no adverse effects as a result of periodic maintenance dredging and disposal within upland placement areas.

4.6 WATER QUALITY

Water quality impacts were evaluated using literature search and best professional judgment.

4.6.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, there would be no effect on water quality in the study area.

4.6.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

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 and during beach placement of material. 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 beach placement site. If turbidity levels exceed compliance standards, the USACE

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. Any return water from the use of upland placement areas will meet applicable water quality standards. Water quality certification will be obtained prior to the commencement of any periodic maintenance dredging activities associated with this EA.

The USACE 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.

4.6.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Periodic maintenance dredging activities within the Venice Inlet and GIWW near Venice would result in similar water quality effects as identified under the Preferred Alternative; however, the geographic extent of the temporary and minor adverse water quality effect from increased turbidity would be limited to the dredge site because placement of dredged material would occur in uplands. As with the Preferred Alternative, any return water from upland placement activities would be monitored and in compliance with water quality standards.

4.7 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

Hazardous, toxic, and radioactive waste (HTRW) impacts were evaluated using literature search, geographic information systems (GIS) data, and best professional judgment.

4.7.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, there would be no HTRW effects in the study area.

4.7.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

There is a documented Superfund site and a Brownfield site within the study area, both of which are located approximately 0.2 miles from the GIWW where periodic maintenance dredging may occur. The Superfund site is under a State-Lead Cleanup, and there is no indication that contaminants from the site have migrated to the project area. In 2013, a Phase 2 ESA was completed at the Brownfield site that revealed the absence of impacts to soil or groundwater above regulatory criteria with the exception of a BaP exceedance in a shallow soil sample collected on-site. The impact was found to be a de minimus condition that was likely related to anthropogenic activities (nearby roadway improvements and the area being historically used for unpaved parking). As such, no additional assessment was recommended for the Brownfield site. Periodic maintenance dredging within the Venice Inlet or GIWW near Venice is not anticipated to encounter contaminants in any of the dredged sediments.

Accidental spills and releases of waste/fuel, although remote, are possible. The USACE and/or its contractor will implement a spill contingency plan that contains measures to prevent oil, fuel, or other hazardous and toxic substances from entering the air or water. All wastes and refuse generated by project construction would be removed and properly disposed. If an HTRW issue were to be discovered during construction and operation activities, the USACE would comply with all applicable state and federal regulations and guidance to ensure the issue would be addressed and resolved. Compliance with USEPA Vessel General Permits would be ensured, as applicable.

4.7.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

HTRW effects would be similar to those identified under the Preferred Alternative.

4.8 AIR QUALITY

Impacts to air quality were evaluated based on literature search and best professional judgment.

4.8.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, there would be no effect on the air quality of the study area.

4.8.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

Exhaust emissions from vehicles, vessels, and construction equipment associated with the project would have a temporary, minor, and localized adverse effect on air quality, including the potential for unpleasant odor associated with exhaust emissions. Exhaust emissions would likely result in a minor and localized increase in concentrations of NO_x (nitrogen oxides), SO₂, CO, VOCs, and PM. Emissions associated with the dredge plant would likely provide the largest contribution to the inventory; however, the total proposed project emissions would represent an extremely minor percentage of the existing point and nonpoint and mobile source emissions in Sarasota County. Prevailing offshore winds would quickly disperse any pollutant released into the atmosphere from the project area. Greenhouse gas emissions would minimally affect global emissions or total United States emissions.

The proposed project is exempt from the Clean Air Act (CAA) conformity requirements because it is not located in a Federal nonattainment area or maintenance area [FAC 62-204.340 (1-4)]. Emissions from off-road equipment and marine vessels are controlled at the federal level, through standards for engine and motor manufacturers (40 CFR Parts 1037 to 1074). The proposed project does not require air quality permits.

4.8.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Air quality effects would be similar to those identified under the Preferred Alternative.

4.9 NOISE

Noise impacts were evaluated using literature search, geographic information systems (GIS) data, presence/absence determinations, and best professional judgment.

4.9.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, there would not be any effect on noise levels in the project area. Existing ambient noise levels in the study area resulting from residential and commercial activities, construction activities, and vehicular traffic would persist.

4.9.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

Dredging can result in underwater noise that can affect marine mammals, sea turtles, and fishes. Possible effects of dredging noise can vary depending on a variety of internal and external factors, and can be divided into masking (obscuring of sounds of interest by interfering sounds, generally at similar frequencies), response, discomfort, hearing loss, and injury (MALSF 2009). Deeper water operations may propagate sound over greater distances than those in confined nearshore areas (Hildebrand 2004). Noise associated with dredging activities can be placed into five categories:

- 1. Collection noise** – The noise generated from the collection of material from the sea-floor; for example, the scraping of the buckets on a bucket ladder dredge or the operation of the drag head. This noise is dependent on the structure of the sea floor and the type of dredge used.
- 2. Pump noise** – The noise from the pump driving the suction through the pipe.
- 3. Transport noise** – The noise of the material being lifted from the sea floor to the dredge and pumped through a pipeline to the beach. For trailing suction hopper and cutter suction dredges, this would be the noise of the material as it passes up the suction pipe. For clamshell dredges, it would be the sound of the crane dropping/lifting the bucket.
- 4. Deposition noise** – This noise is associated with the placement of the material within the barge or hopper.
- 5. Ship/machinery noise** – The noise associated with the dredging ship itself. For stationary dredges, the primary source will be the onboard machinery. Mobile dredges will also have propeller and thruster noise (MALSF 2009).

Field investigations have been undertaken to characterize underwater sounds typical of bucket, hydraulic cutterhead, and hopper dredging operations (Dickerson *et al.* 2001). Preliminary findings indicate that cutterhead dredging operations are relatively quiet as compared to other dredging operations in aquatic environments. Hopper dredges produce somewhat more intense

sounds similar to those generated by vessels of comparable size. Bucket dredges create a more complex spectrum of sounds, very different than either cutterhead or hopper dredges. Hopper dredge noises consist of a combination of sounds emitted from two relatively continuous sources: engine and propeller noise similar to that of large commercial vessels, and sounds of dragheads moving in contact with the substrate. The intensity, periodicity, and spectra of emitted sounds differ greatly among dredge types. Components of underwater sounds produced by each type are influenced by a host of factors including substrate type, geomorphology of the waterway, site-specific hydrodynamic conditions, equipment maintenance status, and skill of the dredge plant operator (Dickerson *et al.* 2001).

Noise generated by construction activities may result in a temporary, minor, and localized adverse effect to residents adjacent to the GIWW as well as those who recreate on the paved 12-mile Legacy Trail next to the project area. In addition, noise generated from construction equipment used to construct a containment dike/berm within an upland placement area may also result in a temporary, minor, and localized adverse effect; however, noise generated from these activities is not expected to be too noticeable over ambient noise levels within the project area in light of existing boat and vehicular traffic, as well as residential and commercial activities.

Additionally, construction activities along the beach during dredged material placement, and noise generated from pipelines and/or booster pumps that transport dredged material to the placement areas, may result in a temporary, minor, and localized adverse effect to residents and/or tourists; however, the increase in noise generated from project activities would likely not be too noticeable over ambient noise from wind and wave action. Once periodic maintenance dredging and placement have concluded, noise levels will drop back to background levels within the project area. There is no expectation of adverse effects to the natural environment as a result of construction-related noise.

Best management practices that may be used to reduce noise produced by equipment include:

- Using standard equipment with noise control devices (e.g., mufflers) that meet manufacturers' specifications;
- Using quiet equipment (i.e., equipment designed with noise control elements)
- Installing portable barriers to shield compressors and other small stationary equipment where necessary;
- Identify any noise-sensitive receptors, such as residential areas, churches, schools, recreation areas, etc., that might be disturbed by construction noise and notify them in advance of upcoming work; and
- Respond immediately to complaints raised by nearby residents.

4.9.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Noise effects would be similar to those identified under the Preferred Alternative with the exception that there would not be any noise effects from periodic placement activities that would affect residents or tourists on Venice Beach.

4.10 AESTHETICS

Effects to aesthetics were evaluated using best professional judgment.

4.10.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, there would be a long-term, minor, and localized adverse effect to aesthetics due to the loss of beach habitat from coastal processes.

4.10.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

There would be a temporary, minor, and localized adverse effect to aesthetics in the project area due to the presence of construction equipment located within the waterways, on the beaches, and along the pipeline corridors where dredged material is pumped from in-water dredging operations to the beach and/or upland placement areas; however, there would be a short to long-term, localized beneficial effect to aesthetics due to the beach habitat that would be maintained after beach placement of material.

4.10.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Effects to aesthetics from periodic maintenance dredging activities within Venice Inlet and the GIWW near Venice would be the same as those identified under the Preferred Alternative; however, the adverse effect to aesthetics from a loss of beach habitat would continue as identified under the No Action Alternative.

4.11 RECREATION

Effects to recreation were evaluated using best professional judgment.

4.11.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, recreation activities by watercraft within the Venice Inlet and GIWW near Venice would be adversely affected in the long-term as a result of continued shoaling and the narrowing of the waterways, thus interfering with safe and efficient navigation within the channels. In addition, continued erosion from coastal processes would deplete sand resources along beaches within the project area, thus limiting the physical space and associated recreational opportunities for sunbathing, walking, and other land-based activities common in beach environments. The loss of recreational opportunities at these beach locations would result

in a long-term, minor, and localized adverse effect as some residents and tourists would visit other nearby beaches to recreate.

4.11.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

Recreational watercraft would experience a temporary, minor adverse effect as a result of the presence of dredging equipment within the Venice Inlet and GIWW near Venice; however, there would be a long-term, localized beneficial effect to watercraft recreation after the periodic maintenance dredging of the Federal channels to their authorized widths and depths. Similarly, placement of beach-compatible sediment along Venice Beach would result in a temporary, minor, and localized adverse effect to recreation as certain areas would be closed to the public during construction activities; however, the placement of dredged material would re-establish a larger physical footprint along portions of the beach environment within the project area and result in a short to long-term, localized beneficial effect. Recreational uses along beaches would increase with the Preferred Alternative due to the increased opportunity for activities such as sunbathing, walking, surfing, and other recreational activities common in beach environments. There would be a temporary, minor, and localized adverse effect to recreational fishing along the Venice Inlet during dredging operations in the inlet channel as fishing opportunities would likely be curtailed by loss of access to the revetments and/or disrupted by the displacement of target fish species by underwater dredging activities. Lastly, if the upland placement areas are used, there would be a temporary, minor, and localized adverse effect to recreational users of the paved 12-mile long Legacy Trail as a result of the placement of a pipeline across the trail to transport the dredged material into the placement area.

4.11.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Effects to watercraft recreation would be similar to those identified under the Preferred Alternative as a result of improved navigation within Venice Inlet and the GIWW near Venice. In light of upland placement of dredged material, recreation opportunities and uses along Venice Beach would be similar to those identified under the No Action Alternative.

4.12 NAVIGATION

Effects to navigation were evaluated using literature review and best professional judgment.

4.12.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, shoaling would continue within the navigation channels and result in a shallowing of the Venice Inlet and portions of the GIWW near Venice. The shallowing of the channels would in turn restrict the navigability for recreational and commercial watercraft using the waterways resulting in a potential long-term, major, and localized adverse effect to navigation. Because vessels would tend to use the center of the channel, shoaling at the sides

could also result in a narrowing of the channels, which would affect public safety by increasing the potential for collisions.

4.12.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

Periodic maintenance dredging of sediment within the Federally-maintained waterways would result in a long-term, major beneficial effect to safe and efficient navigation; however, there could be a temporary, minor, and localized adverse effect to navigation during dredging operations from the presence of in-water construction equipment.

There are existing aids to navigation that will be affected by routine maintenance dredging of the GIWW and adjacent inlets. Temporary relocation of the U.S. Coast Guard (USCG) aids to navigation (ATONs) that mark the channel will be required to complete maintenance dredging of these waterways. In addition, there may also be a need for the permanent removal and re-installation of new aids to navigation along the GIWW and adjacent inlets. The USCG is responsible for installing, relocating, and removing the aids to navigation. Due to chronic shoaling issues, the USACE may elect to realign stretches of the GIWW to best available water in cooperation with the U.S. Coast Guard (USCG). In these cases, the USCG ATONs that mark the channel would be moved to mark the adjusted channel. In areas undergoing maintenance dredging, ATONs may be temporarily relocated along the Federal channel. They would typically be relocated within 50 feet of the channel to accommodate the dredge activity, and then replaced back on station afterwards. The USCG will assess whether movement of the ATONs falls under USCG NEPA Categorical Exclusion 23, which includes actions performed as a part of the USCG operations and the Aids to Navigation Program to carry out statutory authority in the area of establishment of floating and minor fixed aids to navigation, prior to conducting ATON relocation activities (USCG 2000).

4.12.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Effects to navigation would be similar to those identified under the Preferred Alternative.

4.13 CULTURAL RESOURCES

One historic property (8SO2336) and several unevaluated archaeological sites are located within or adjacent to the preferred alternative. Based on this information, USACE contracted Panamerican Consultants, Inc. (PCI), to complete a submerged cultural resource survey of Venice Inlet (Cuts C-1 through C-4), a portion of the GIWW (Cuts S-9 through S-20), and a terrestrial survey of the proposed 31-acre future DMMA. This investigation identified no historic properties within the dredge area of potential effects (APE) and is documented in the PCI report titled *Gulf Inland Waterway Federal Navigation Project Submerged and Terrestrial Cultural Resources Survey Sarasota County, Florida* (James et al. 2018).

4.13.1 NO ACTION ALTERNATIVE (Status Quo)

The No Action Alternative would have no effect to cultural resources listed or eligible for listing in the NRHP.

4.13.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

The Preferred Alternative poses no adverse effect to cultural resources listed or eligible for listing in the NRHP. Placement of dredged material on Venice Beach would provide additional protection to historic and potential historic properties and help protect them from continued erosional effects. Pursuant to Section 106 of the NHPA, the Corp's determination of no adverse effect to historic properties for the Preferred Alternative was coordinated with the Florida SHPO, the Miccosukee Tribe of Indians of Florida, the Seminole Nation of Oklahoma, the Seminole Tribe of Florida, and the Thlopthlocco Tribal Town of Oklahoma by letters dated April 24 and July 3, 2018. In a letter dated August 8, 2018 the Florida SHPO concurred with the USACE determination of no adverse effects to historic properties within the dredge area conditional to avoiding archaeological site 8SO2336 and the remaining upland portions of site 8SO24 (DHR Project File: 2018-2084-E).

4.13.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Dredging with upland placement would have no effect to cultural resources listed or eligible for listing in the NRHP. Dredging and upland placement has been coordinated with the Florida SHPO and the appropriate federally-recognized Tribes in accordance with Section 106 of the NHPA. The SHPO concurred with the Corp's determination of no adverse effect in a letter dated August 8, 2018.

4.14 NATIVE AMERICANS

No portion of the proposed action is located within or adjacent to known Native American-owned lands, reservation lands, or Traditional Cultural Properties. However, Native American groups have lived throughout the region as evidenced by the presence of prehistoric archaeological sites near the project area, and their descendants continue to live within the State of Florida and throughout the United States. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. §306101 et seq.), 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, the Corps' coordinated consultation with the appropriate federally-recognized tribes on April 24 and July 3 and September 15, 2018 (Appendix D – Pertinent Correspondence).

4.14.1 NO ACTION ALTERNATIVE (Status Quo)

The No Action Alternative would have no effect on Native Americans.

4.14.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

The Preferred Alternative is not likely to affect Native Americans. The Preferred Alternative has been coordinated with the Miccosukee Tribe of Indians of Florida, the Seminole Nation of Oklahoma, the Seminole Tribe of Florida, and the Thlopthlocco Tribal Town of Oklahoma.

4.14.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

Dredging with upland placement is unlikely to affect Native Americans. Consultation with the Miccosukee Tribe of Indians of Florida, the Seminole Nation of Oklahoma, the Seminole Tribe of Florida, and the Thlopthlocco Tribal Town of Oklahoma is complete.

4.15 INVASIVE SPECIES

Effects of the project on invasive species were evaluated based on a literature search, geographic information systems (GIS) data, on-site field investigations, presence/absence determinations, and best professional judgment.

4.15.1 NO ACTION ALTERNATIVE (Status Quo)

Under the No Action Alternative, invasive species such as Brazilian peppertree, Australian pine, and black spiny-tailed iguana would persist in upland locations of the study area and continue to represent a long-term, minor, and localized adverse effect to native vegetation and terrestrial species, such as the gopher tortoise, until current and/or future efforts are completed to eradicate the invasive and noxious species from the study area.

4.15.2 DREDGING WITH UPLAND AND BEACH PLACEMENT (Preferred Alternative)

In-water maintenance dredging activities and placement of dredged material on beaches would have no adverse effect on the presence and/or distribution of terrestrial invasive and noxious species within the study area. Construction of a containment berm(s) and use of the upland placement areas for dredged material may provide areas of disturbed habitat where Brazilian peppertree could propagate, thus resulting in a short-term, minor, and localized adverse effect. Best management practices to thoroughly clean construction equipment and vehicles would prevent the transportation of both marine and terrestrial invasive and noxious species to and from the study area.

4.15.3 DREDGING WITH UPLAND PLACEMENT (Alternative A)

The environmental effects associated with invasive species would be similar to those identified under the Preferred Alternative.

4.16 CUMULATIVE IMPACTS

Cumulative effects are defined in 40 CFR §1508.7 as those effects that result 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

Cumulative environmental effects for the proposed project were assessed in accordance with guidance provided by the President’s Council on Environmental Quality (CEQ). A six-step process was followed to assess cumulative effects on resources affected by the Maintenance Dredging of the GIWW near Venice and Areas within Venice Inlet project. The first step was to identify which resources to consider in the analysis. All impacts on affected resources can be called cumulative; however, according to CEQ guidance, *“the role of the analysis is to narrow the focus of the cumulative effects analysis to important issues of national, regional, or local significance.”* In addition to this relevancy criterion, only those resources expected to be directly or indirectly affected by the project as well as by other actions within the same geographic scope and time frame were chosen for the analysis. Based on these criteria, the following resources were identified as target resources for the cumulative effects analysis: threatened and endangered species, fish and wildlife resources, essential fish habitat, water quality, and cultural resources.

The next steps of the cumulative effects analysis included:

- Defining the study area for each resource.
- Describing the historical context and existing condition of each resource. Descriptions are summarized from more detailed descriptions in Section 3.0 of this report.
- Summarizing the direct and indirect effects of each alternative on each identified resource. Environmental effects of each alternative are presented in more detail in Chapter 4.0 of this EA.
- Identifying the accumulated effects on each resource from the proposed action and other actions.
- Summarizing the magnitude of the cumulative effects of the projects and actions on the affected resources.

The geographic scope of this analysis includes Venice, Florida and the immediately adjacent Gulf of Mexico environment. Past actions in the study area have included, but are not limited to, the original construction of the GIWW and Venice Inlet, construction of recreational and commercial infrastructure, dredging activities within the Venice Inlet and portions of the GIWW and subsequent beneficial use of dredged material for beach placement and restoration of Snake Island, and recreational and commercial waterborne traffic within the waterways and nearshore environment. In addition to future periodic maintenance dredging and placement of dredged

material associated with the proposed action, other reasonable foreseeable future actions within the study area may include additional, permitted dredging activities and beneficial use of dredged material, construction of new and/or redevelopment of existing residential and commercial infrastructure, and recreational and commercial waterborne traffic. **Table 4-1: Cumulative Impacts** summarizes the impact of cumulative actions by identifying the past, present, and reasonably foreseeable future condition of the various resources which are directly or indirectly impacted by the with-project and without-project condition (the difference being the incremental impact of the project).

Table 4-1: Summary of Cumulative Impacts

	Past (baseline condition)	Present (existing condition)	Future Without Project	Future with Proposed Action
<i>Threatened and Endangered Species</i>	Populations were significantly greater prior to urban development in the area. Declines are primarily attributed to loss or degradation of habitat as well as other human related factors.	Education and enforcement of relevant laws have resulted in some population increases (i.e., nesting sea turtles, manatees). Habitat quality has improved in some cases due to land conservation, pollution abatement, and regulatory practices. Individuals of some species becoming increasingly rare and geographic ranges have decreased as coastal and upland habitat continues to shrink in size; coastal and upland species adversely impacted by anthropogenic activities.	Habitat alteration occurs due to sea level change; continued loss and degradation of coastal and upland habitat due to development and coastal erosion; species that utilize these areas are adversely impacted under the No Action Alternative (i.e., nesting sea turtles and Florida scrub-jay).	Habitat alteration occurs due to sea level change; continued loss and degradation of coastal and upland habitat due to development and coastal erosion; species that utilize these areas are adversely impacted (i.e., nesting sea turtles and Florida scrub-jay). The proposed work would be performed in compliance with all applicable laws and may help provide habitat for coastal species. Individuals may be temporarily affected by dredging and placement activities, though the cumulative adverse impact would be minor.
<i>Fish and Wildlife Resources</i>	Populations were significantly greater prior to urban development and associated hunting/fishing in the area. Declines are primarily attributed to loss or degradation of habitat as well as other human related factors such as decreased water quality over the past 30 years. There has been beneficial impact to species that are able to coexist with increased development and urban environment.	Habitat quality has improved in some cases due to land conservation, pollution abatement, and regulatory practices (e.g., air quality and water quality); however coastal and upland habitat continues to shrink in size; coastal and upland species adversely impacted by anthropogenic activities; fisheries stocks and habitat are impacted by anthropogenic activities.	Habitat alteration occurs due to sea level change; continued loss and degradation of coastal and upland habitat due to development and coastal erosion; fisheries stocks and habitat may be impacted by anthropogenic activities; species that utilize these areas are adversely impacted under the No Action Alternative.	Habitat alteration occurs due to sea level change; continued loss and degradation of coastal and upland habitat due to development and coastal erosion; fisheries stocks and habitat may be impacted by anthropogenic activities; species that utilize these areas are adversely impacted. Individuals may be temporarily affected by dredging and placement activities, though the cumulative adverse impact would be minor.

MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET

ENVIRONMENTAL ASSESSMENT

Table 4-1: Summary of Cumulative Impacts

	Past (baseline condition)	Present (existing condition)	Future Without Project	Future with Proposed Action
<i>Essential Fish Habitat</i>	Quality and extent of EFH were significantly greater prior to urban development in coastal and upland areas. Declines in both quality and acreage of EFH are a result of direct and indirect adverse impacts from anthropogenic activities, including previous dredging activities.	EFH habitat quality and acreage has improved in some cases due to land conservation, pollution abatement, and regulatory practices; however, EFH, fisheries stocks and habitat continue to be impacted by anthropogenic activities, including dredging activities.	Habitat alteration occurs due to sea level change; EFH, fisheries stocks and habitat continue to be impacted by anthropogenic activities, including future dredging activities, under the No Action Alternative.	Habitat alteration occurs due to sea level change; EFH, fisheries stocks and habitat continue to be impacted by anthropogenic activities, including future dredging activities; however, the cumulative adverse impact from the proposed project would be minor.
<i>Water Quality</i>	Pristine prior to urban development; significant declines in water quality due to human related factors (i.e., turbidity caused by upland runoff, septic tank leachate, industrial effluent, etc.) prior to Federal and State laws being enacted and enforced.	Some degradation due to anthropogenic actions; however, present day water quality has significantly improved due to local, State, and Federal pollution abatement programs.	No anticipated change to present condition in light of local, State, and Federal pollution abatement programs; no known projects in the vicinity that would cause a decline in water quality including future dredging activities under the No Action Alternative.	No anticipated change to present condition in light of local, State, and Federal pollution abatement programs; no known projects in the vicinity that would cause a decline in water quality including future dredging activities; temporary adverse impact to water quality as a result of the proposed project but the cumulative impact would be minor.
<i>Cultural Resources</i>	Cultural resources have been degraded or lost due to development, private collecting, erosion, and other factors such as dredging activities.	Education and enforcement of relevant laws have helped identify and conserve cultural resources.	Urban development, sea level change, and coastal erosion may adversely affect some cultural resources.	Urban development, sea level change, and coastal erosion may adversely affect some cultural resources; beach placement under the proposed project would may have a beneficial effect on cultural resources by preventing shoreline erosion.

4.17 SEA LEVEL CHANGE

Sarasota County's infrastructure is vulnerable to sea level change; however, this project's primary purpose is safe and efficient navigation. No changes to the authorized project or its project purpose are proposed as part of this EA. Specific Federal action for the purpose of shoreline protection within the project area would be undertaken using a separate Federal authority. A potential acceleration in sea level change may reduce the need for dredging due to naturally deepening channels. When considering this project's ancillary benefit of reducing expected storm damages through beach placement, the Preferred Alternative provides greater protection for upland infrastructure from sea level change than the No Action Alternative.

4.18 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. One example of an irreversible commitment might be the mining of a mineral resource. An irretrievable commitment of resources is one in which, due to decisions to mandate the resource for another purpose, opportunities to use or enjoy the resources as they presently exist are lost for a period of time. An example of an irretrievable loss might be where a type of vegetation is lost due to road construction.

4.18.1 IRREVERSIBLE

Other than the use of fuel, equipment and supplies and the expenditure of Federal funds, there would be no irreversible commitment of resources.

4.18.2 IRRETRIEVABLE

As littoral drift restores the sand volumes in the ebb shoals near Venice Inlet over time, and as coastal processes and tropical storm events result in shoaling within the Venice Inlet and GIWW, the Preferred Alternative would not result in an irretrievable commitment of resources.

4.19 COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES

Maintenance dredging of Venice Inlet and the GIWW will help meet various objectives of Federal, state, and local agencies by:

- ensuring safe and efficient navigation;
- assisting in the maintenance of suitable habitat for nesting sea turtles, invertebrate species, and shorebirds (if beach placement beneficial use options are pursued); and
- obtaining beach-quality material in the most cost-effective and environmentally sustainable manner possible (if beach placement beneficial use options are pursued).

4.20 UNCERTAIN, UNIQUE, OR UNKNOWN RISKS

The USACE has completed numerous sand placement projects throughout the country, including past projects in Sarasota County and other counties along the Gulf Coast of Florida. The USACE projects allow for adaptive management through extensive monitoring following placement. If monitoring shows any change in coastal dynamics from what was anticipated, future sand placement events can be modified to address any concerns. For example, in coordination with the City of Venice, the USACE will modify its approach for beach placement design and activities to ensure that the lessons learned from a recent beach placement project at Venice Beach are incorporated.

4.21 ENVIRONMENTAL COMMITMENTS

The USACE shall comply with all terms and conditions of the revised USFWS SPBO (2011; rev. 2015), the Conservation Measures included in the USFWS P³BO (2013), the NMFS GRBO (2003; rev. 2005 and 2007), and any applicable state water quality certifications for this proposed project. The P³BO conservation measures will also minimize impacts to red knots. The USACE and its contractors commit to avoiding, minimizing or mitigating for adverse effects during activities associated with the periodic maintenance dredging of the Venice Inlet and GIWW near Venice by including the following commitments in the contract specifications.

4.21.1 THREATENED AND ENDANGERED SPECIES

All construction personnel will be informed of the potential presence of protected species in the project area, their endangered status, the need for precautionary measures, and the Endangered Species Act prohibition on taking threatened or endangered species. All construction personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing manatees or marine turtles, which are protected under the Endangered Species Act.

4.21.1.1 Marine Turtles

- a) Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence will be used for sand placement on beaches.
- b) For dredged material placement in the swash zone or submerged littoral zone during the nesting and hatching season (May 1 to October 31), sand placement will be conducted at or below -3-ft of the MLLW line.
- c) All derelict concrete, metal, and coastal armoring geotextile material and other debris will be removed from the beach prior to any dredged material placement to the maximum extent practicable.

- d) Predator-proof trash receptacles shall be installed and maintained at all beach access points used for the project construction to minimize the potential for attracting predators of sea turtles.
- e) If the beach nourishment project will be conducted during the sea turtle nesting season (May 1 to October 31), surveys for nesting sea turtles will be conducted by a turtle nesting monitor with prior experience and training in these activities. If nests are constructed in the proposed area of sand placement, the eggs will be relocated to minimize sea turtle nest burial, crushing of eggs, or nest excavation.
- f) Surveys will be conducted of sand placed on the beach to determine whether compaction is occurring, and tilling will occur as necessary.
- g) Escarpment formation will be monitored and leveling will be conducted during and at the end of construction if needed to reduce the likelihood of impacting nesting and hatchling sea turtles.
- h) Construction equipment and materials will be stored in a manner that will minimize impacts to nesting and hatchling sea turtles. Staging areas will be located off the beach during sea turtle nesting season, if off-beach staging areas are available. The USACE contractor will be required to place all piping as far landward as possible without compromising dune integrity.
- i) Lighting associated with the project construction will be minimized to reduce the possibility of disrupting and disorienting nesting and hatchling sea turtles. Lighting on offshore or onshore equipment shall be minimized through reduction, shielding, lowering, and appropriate placement to light only the necessary construction area and to avoid excessive illumination of the water's surface and nesting beach while meeting all Coast Guard, EM 385-1-1, and OSHA requirements.
- j) During the sea turtle nesting season, the USACE contractor will not extend the beach fill more than 500 feet (or other agreed upon length if the turtle nesting monitor is present) between dusk and the time of completion of the following day's nesting survey to reduce the impact to emerging sea turtles and burial of new nests.
- k) Existing vegetated habitat at beach access points and along shoreline travel corridors will be protected to the maximum extent possible to ensure vehicles and equipment transport stay within the access and travel corridors.

- l) Expanded or newly created beach access points shall be restored.
- m) The USACE and its Contractor will follow the most recent NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions.
- n) For projects utilizing a hopper dredge:
 - Rigid draghead deflectors will be used and the inflow/overflow will be screened, using a standard mesh of 4-inch by 4-inch, unless other screen sizes are approved by NMFS.
 - Dredging pumps will be disengaged by the operator when the dragheads are not firmly on the bottom.
 - A NMFS-approved observers will be aboard the dredge to monitor for entrainment of protected species.
 - All requirements specific to take, relocation trawling, stranding and reporting will be done in accordance with the NMFS GRBO.

4.21.1.2 Florida Manatee

To ensure the USACE contractor and their personnel are aware of the potential presence of the manatee in the project area, their endangered status, and the need for precautionary measures, the USACE contract specifications will include the Standard Manatee Conditions for In-Water Work (FFWCC 2011). These conditions are outlined in Items *a* through *f* below. The USFWS has concluded that if these conditions are met, dredging activities are not likely to adversely affect the Florida Manatee.

- a) All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- b) All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

- c) Siltation or turbidity barriers, if used, shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- d) All on-site project personnel will be responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, will be shut down if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- e) Any collision with or injury to a manatee shall be reported immediately to the FFWCC Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the Vero Beach (1-772-562-3909), and to FFWCC at ImperiledSpecies@myFWC.com
- f) Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs shall be removed by the USACE contractor upon completion of the project. Temporary signs that have already been approved for this use by the FFWCC shall be used. One sign which reads *Caution Boaters – Watch for Manatees* will be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shutdown of in-water operations will be posted in a location prominently visible to all personnel engaged in water-related activities.

4.21.1.3 Smalltooth Sawfish

- a) The USACE and its Contractor will follow the most recent NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions.
- b) Any collision with and/or injury to a smalltooth sawfish shall be reported immediately to the NMFS Protected Resources Division (727-824-5312), the FFWCC Hotline at 1-888-404-FWCC, and the USFWS in Vero Beach (1-772-562-3909).

4.21.1.4 Florida Scrub-Jay

- a) A Florida scrub-jay survey will be conducted for upland areas prior to dredged material placement activities.
- b) Any injury to a Florida scrub-jay shall be reported immediately to the FFWCC Hotline at 1-888-404-3922. Injury should also be reported to the USFWS in Vero Beach (1-772-562-3909), and to FFWCC at ImperiledSpecies@myFWC.com

4.21.1.5 Eastern Indigo Snake

- a) Surveys will be conducted at upland areas with the potential to support Eastern indigo snakes prior to dredged material placement activities.
- b) Should an Eastern indigo snake be encountered in the area of dredge related activities or at an upland disposal site, the following actions will take place:
 - Cease clearing activities and allow the live Eastern indigo snake sufficient time to move away from the site without interference.
 - Personnel must NOT attempt to touch or handle snake due to protected status.
 - Take photographs of the snake, if possible, for identification and documentation purposes.
 - Notification to the appropriate USFWS office and the FFWCC will occur providing the location and condition of the snake.
- c) If a dead indigo snake is encountered, the following action will take place:
 - Clearing activities will cease, and notification will occur to the appropriate USFWS office and the FFWCC with the location and condition of the snake.
 - Photographs of the snake will be taken (if possible) for identification and documentation purposes.
 - The dead snake will be soaked in water and frozen for retrieval by the appropriate wildlife agency.

4.21.1.6 Gopher Tortoise

- a) Surveys will be conducted at upland areas with the potential to support gopher tortoises prior to dredged material placement activities.
- b) Should gopher tortoise be encountered in the area of dredge related activities or at an upland disposal site, work will stop immediately until the gopher tortoises can be relocated on- or off-site.

4.21.2 **Essential Fish Habitat**

- a) The project will evaluate the proposed dredge area for the presence of submerged aquatic vegetation (e.g., seagrasses) and hardbottoms prior to construction. If seagrasses are likely to be impacted by the project, pre- and post-construction surveys will be conducted. Seagrasses in the project footprint would be avoided, or a mitigation plan would be developed and coordinated with NMFS.
- b) All construction personnel will be advised that there are civil and criminal penalties for harming or destroying seagrasses.

- c) The USACE contractor will be advised not to anchor, place pipeline, or stage equipment in a manner that will cause damage to seagrasses, mangroves, or hardground habitats. Any activities that occur in seagrasses will require monitoring, and appropriate mitigation will be provided if impacts occur.
- d) Appropriate buffers around significant hard ground or bottom features will be maintained. If hardbottom/livebottom resources are present and they cannot be avoided, monitoring will occur to identify whether impacts occur. Appropriate mitigation will be provided should monitoring indicate project-related impacts.

4.21.3 Other Fish and Wildlife Resources

- a) The USACE contractor will be required to keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of fish and wildlife.

4.21.4 Migratory Birds

The USACE contractor will be informed that migratory birds are protected under the Migratory Bird Treaty Act, and that there are civil and criminal penalties for harming birds under the Act. The following measures will be implemented to ensure the protection of migratory birds:

- a) Daily monitoring of the beach placement areas for shorebird nesting will occur from April 1 through August 31.
- b) Should nesting begin within the construction area, a temporary buffer will be created around the nests and marked to avoid entry. The area will be left undisturbed until nesting is completed or terminated, and the chicks fledge.

4.21.5 Water Quality

- a) The USACE contractor will implement a spill prevention system and spill contingency plan for hazardous, toxic, or petroleum material.
- b) The USACE contractor will be responsible for ensuring that its construction methods do not result in violations of water quality standards. The USACE contractor will monitor background turbidity areas as well as turbidity at specific compliance points at the dredge location and the beach placement area. Should monitoring reveal turbidity levels above state standards, work will be suspended until turbidity levels return to levels that comply with state water quality standards.

4.21.6 Cultural Resources

- a) Underwater vessels and/or anomalies will be avoided by maintaining a 300-foot buffer surrounding each resource. Any known historic, archaeological or other cultural resource within the USACE contractor's work areas will be designated as "environmentally sensitive areas" on contract drawings or other documents. These areas will be protected and the relevant documents will be distributed only to staff with a "need to know."
- b) An "inadvertent discoveries" clause will be included in the USACE contractor specifications. Anomalies of interest would be avoided or buffered, and additional surveys and/or monitoring may be required.

4.21.7 Air

- a) All work will be conducted in accordance with all Federal emission and performance laws and standards, as applicable.
- b) The USACE contractor will be required to control particulates (such as dust) such that any air pollutions standards are not exceeded and so that the particulates do not cause a hazard or nuisance.

4.21.8 Noise

- a) Local noise ordinances will be followed, as applicable, to reduce equipment noise. The USACE contractor will be required to keep construction activities under surveillance and control to minimize damage to the environment by noise and will be required to include noise in its environmental monitoring plan. Best management practices that may be used to reduce noise produced by equipment include:
 - Using standard equipment with noise control devices (e.g., mufflers) that meet manufacturers' specifications;
 - Using quiet equipment (i.e., equipment designed with noise control elements)
 - Installing portable barriers to shield compressors and other small stationary equipment where necessary;
 - Identify any noise-sensitive receptors, such as residential areas, churches, schools, recreation areas, etc., that might be disturbed by construction noise and notify them in advance of upcoming work; and
 - Respond immediately to complaints raised by nearby residents.

4.21.9 Invasive Species

- a) The USACE contractor will thoroughly clean equipment prior to and following work on the project site to ensure that items/materials including, but not limited to, soil, vegetative

debris, eggs, mollusk larvae, seeds, and vegetative propagules are not transported from a previous work location to this project site, nor transported from this project site to another location. Prevention protocols require cleaning all equipment surfaces, including but not limited to, undercarriages, tires, and sheet metal. All equipment, including but not limited to, heavy equipment, vehicles, trailers, ATV's, and chippers must be cleaned. Smaller equipment, including, but not limited to, chainsaws, loppers, shovels, and backpack sprayers, must be cleaned and inspected to ensure they are free of eggs, vegetative debris, vegetative propagules, etc. Prevention protocols should also address clothing and personal protective equipment.

- b) Prior to the commencement of work, the USACE contractor shall complete and provide an invasive and nuisance species transfer prevention plan to the USACE for approval. This plan shall be part of the Environmental Protection Plan. The invasive and nuisance species transfer prevention plan shall identify specific transfer prevention procedures and designated cleaning sites/locations.

4.21.10 Environmental Protection Plan

The USACE contractor will prepare and implement an Environmental Protection Plan that will include the following:

- Summary of applicable environmental Federal, State and local laws, regulations, and permits; procedures to assure compliance, and corrective actions.
- Methods for protecting resources, e.g., air and water quality, fish and wildlife, soil, cultural resources, vegetation.
- List of species that require specific attention along with measures for their protection.
- Permit or license for and location of the solid waste disposal area.
- Drawings showing locations of work areas and proposed activities, material storage areas, any proposed stream crossings, temporary roads, etc.
- Environmental monitoring plan for the job site, including land, water, air and noise.
- Traffic control plan.
- Methods of protecting surface and ground water during construction activities.
- A spill prevention plan that identifies all hazardous substances to be used on the job site, requirements for storage, labeling and disposal; and actions to prevent spills.
- A spill contingency plan for hazardous, toxic, or petroleum material.
- A Recycling and Waste Management Plan.
- Invasive and nuisance species transfer protection plan.

5 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

5.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (42 U.S.C. §4321 TO §4335)

This EA was prepared to document the effects of the proposed project, and was subject to public review and comment for a 30-day period. This public coordination and environmental assessment comply with NEPA.

5.2 ENDANGERED SPECIES ACT OF 1973 (16 U.S.C. §1531 TO §1544)

The proposed project is in compliance with the Endangered Species Act of 1973, as amended, 16 U.S.C. §1531, et seq. (P.L. 93-205), which was designed to protect critically imperiled species from extinction as a "consequence of economic growth and development untempered by adequate concern and conservation." The USACE has determined that the proposed project falls under the scope of the NMFS November 19, 2003 Gulf Regional Biological Opinion (GRBO), as amended in 2005 and 2007, for federally listed marine species. As such, no additional coordination is required with NMFS for these species. The USACE has also determined that the beach placement activities associated with this project fall within the scope of the USFWS 2015 Statewide Programmatic Biological Opinion (SPBO) and the 2013 Programmatic Piping Plover (P³BO). The USACE initiated consultation with USFWS in a letter dated April 25, 2018, and they concurred with our effect determination by letter dated August 14, 2018. Consultation is complete. The project is in full compliance with the Act.

5.3 CLEAN WATER ACT OF 1972, AS AMENDED (33 U.S.C. §1251 ET SEQ.)

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Section 404(b) of the CWA (33 U.S.C. §1344(b)) requires the USEPA, in conjunction with the USACE, to promulgate Guidelines for the discharge of dredged or fill material to ensure that such proposed discharge will not result in unacceptable adverse environmental impacts to waters of the United States. Section 404(b) assigns to the USACE the responsibility for authorizing all such proposed discharges and requires application of the Guidelines in assessing the environmental acceptability of the proposed action. Under the Guidelines, the USACE is also required to examine practicable alternatives to the proposed discharge, including alternatives to placement in waters of the United States and alternatives with potentially less damaging consequences. In addition, Section 401 of the CWA (33 U.S.C. §1344) provides the State a certification role as to project compliance with applicable State water quality standards. Therefore, for placement of material on the beach, an evaluation under Section 404(b) of the CWA has been completed and is included as Appendix A. The USACE intends to obtain Section 401 water quality certification from the

FDEP through the issuance of a Joint Coastal Permit Application in association with the proposed project.

The placement of dredged material into an upland site is not regulated per se under Section 404 and 401; however, the return flow of water from an upland disposal site (“contained land disposal area”) is specifically defined as a discharge to waters of the United States under Section 404 of the CWA (33 CFR 323.2) and is therefore also subject to Section 401. Any return water from the use of upland placement areas will meet applicable water quality standards. All State water quality requirements will be met during project construction. The project will be in full compliance with the CWA.

5.4 CLEAN AIR ACT OF 1972, AS AMENDED (42 U.S.C. §7401 TO §7671Q)

The Clean Air Act (CAA) was designed to control air pollution on a national level by regulating air emissions from stationary and mobile sources. Among other things, the CAA authorizes USEPA to protect public health and public welfare by establishing National Ambient Air Quality Standards (NAAQS) for principal pollutants (“criteria pollutants”) and by establishing standards for emissions of hazardous air pollutants. Sarasota County is not designated as a nonattainment or maintenance area for any criteria pollutant and therefore USEPA’s General Conformity Rule to implement Section 176(c) of the CAA [42 U.S.C. §7506(c)] does not apply. The short-term effects from construction equipment associated with the project would not significantly affect air quality in the study area. Air quality permits would not be required for this project.

This project will be further coordinated with USEPA, and the USACE responses to USEPA’s scoping comments can be found in Section 6.5, Comments Received and Response. Correspondence from USEPA can be found in Appendix D - Pertinent Correspondence. The project is in compliance with Section 309 of the CAA (42 U.S.C. §7609).

5.5 COASTAL BARRIER RESOURCES ACT AND COASTAL BARRIER IMPROVEMENT ACT OF 1990 (16 U.S.C. §3501 TO §3510)

The CBRA and CBIA limit Federally subsidized development within the CBRA units to limit the loss of human life by discouraging development in high risk areas, to reduce wasteful expenditures of Federal resources, and to protect the natural resources associated with coastal barriers. CBIA provides development goals for undeveloped coastal property held in public ownership, including wildlife refuges, parks, and other lands set aside for conservation (“otherwise protected areas,” or OPAs). These public lands are excluded from most of the CBRA restrictions, although they are prohibited from receiving Federal Flood Insurance for new structures.

Federal monies can be spent within the CBRA units for certain activities, including (1) projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats; (2) establishment of navigation aids; (3) projects funded under the Land and Water Conservation Fund Act of 1965; (4) scientific research; (5) assistance for emergency actions essential to saving lives and the protection of property and the public health and safety, if preferred pursuant to the Disaster Relief Emergency Assistance Act and the National Flood Insurance Act and are necessary to alleviate the emergency; (6) maintenance, repair, or reconstruction, but not expansion, of publicly owned or publicly operated roads, structures, or facilities; (7) nonstructural projects for shoreline stabilization that are designed to mimic, enhance, or restore a natural stabilization system; (8) any use or facility necessary for the exploration, extraction, or transportation of energy resources; (9) maintenance or construction of improvements of existing federal navigation channels, including the disposal of dredge materials related to such projects; and (10) military activities essential to national security.

There are two OPAs in the study area (see Figure 3-7: CBRA Units in the Study Area). The proposed project does not include the construction of structures that would require Federal Flood Insurance in the area designated as an “otherwise protected area” pursuant to the CBIA; therefore, Federal expenditures for the proposed project are not restricted in this area. The USACE coordinated with the USFWS concerning the CBIA units in the project area in their letter dated April 25, 2018. USFWS noted in an email dated August 31, 2018, that they are unable to provide opinions on the applicability of the CBRA’s exemptions to a project or action at this time due to competing priorities, and that USACE may elect to proceed with actions they determine to be allowable under CBRA.

5.6 COASTAL ZONE MANAGEMENT ACT OF 1972 (16 U.S.C. §1451 TO §1466)

The Coastal Zone Management Act (CZMA) was established as a National policy to preserve, protect, develop, and where possible, restore or enhance, the resources of the Nation's coastal zone for current and future generations. The CZMA created two national programs: the National Coastal Zone Management Program (CZMP) and the National Estuarine Research Reserve System. A federal consistency determination in accordance with 15 CFR Part 930, Subpart C is included in this report as Appendix B. The USACE has determined that the project is consistent at this time with the Florida Coastal Management Plan (FCMP) concerning acquisition of Water Quality Certifications and other state authorizations. The EA and Section 404(b)(1) Evaluation was submitted to the state during the public comment period in lieu of a summary of environmental effects to show consistency with the FCMP. In a letter dated June 26, 2018, the state determined that, at this stage, the proposed federal activities are consistent with and should not compromise state water quality standards. The state's continued concurrence will be based on the activities' compliance with FCMP authorities, including federal and state monitoring

of the activities to ensure their continued conformance, and the adequate resolution of issues identified during this and subsequent regulatory reviews. The state's final concurrence of the project's consistency with the FCMP and water quality certification will be determined during the environmental permitting process, in accordance with Section 373.428, Florida Statutes. The proposed project is in compliance with the CZMA.

5.7 FISH AND WILDLIFE COORDINATION ACT OF 1958, AS AMENDED (16 U.S.C. §661 TO §666C)

The Fish and Wildlife Coordination Act (FWCA), as amended, provides the basic authority for the involvement of the U.S. Fish and Wildlife Service (USFWS) in evaluating impacts to fish and wildlife from proposed water resource development projects. The FWCA requires Federal agencies involved with such projects to first consult with the USFWS and the respective state fish and wildlife agencies regarding the potential impacts of the project on fish and wildlife resources. While the results of the consultation are not binding, the Federal agency must strongly consider input received during consultation to prevent loss or damage to wildlife resources and provide for any measures taken to mitigate such impacts. FWCA consultation for the proposed project is has been coordinated with the USFWS and is complete. This project is in full compliance with the FWCA.

5.8 MARINE MAMMAL PROTECTION ACT OF 1972 (16 U.S.C. §1361 TO §1423H)

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. The MMPA defines "take" as "the act of hunting, killing, capture, and/or harassment of any marine mammal; or, the attempt at such." The MMPA defines harassment as "any act of pursuit, torment or annoyance which has the potential to either: a. injure a marine mammal in the wild, or b. disturb a marine mammal by causing disruption of behavioral patterns, which includes, but is not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."

The USACE does not anticipate the take of any marine mammal during any activities associated with the proposed project. Should a hopper dredge be utilized, a trained, government-certified sea turtle and marine mammal observer will be stationed on the dredge during all water-related construction activities. To ensure the protection of any manatees or dolphins present in the project area, incorporation of safeguards used to avoid and/or protect these species will be implemented during dredging and placement operations (see also Sections 4.2.2.2 and 4.3.2.1). Therefore, this project is in compliance with the Act.

5.9 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT (16 U.S.C. §1801 TO §1891D)

This Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) requires preparation of an Essential Fish Habitat (EFH) Assessment and coordination with NMFS. Pursuant to the 1999 Finding between the USACE and NMFS, the USACE's Notice of Availability of this EA initiated the USACE's consultation under the MSFCMA. NMFS reviewed the EFH consultation and provided comments in an email dated June 15, 2018. USACE responded to these comments on June 19, 2018, and NMFS noted that the comments were adequately addressed in an email dated June 25, 2018. The project is in compliance with the MSFCMA.

5.10 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA) (54 U.S.C. §300101 ET SEQ.)

The National Historic Preservation Act (NHPA) was enacted to preserve historical and archaeological sites in the United States, and it created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices. The proposed project is in compliance with Section 106 of the NHPA, as amended. As part of the Corps' compliance with the requirements and consultation process contained within the NHPA implementing regulations of 36 CFR Part 800, the Corps has ensured that the proposed project is also in compliance with the Archaeological and Historic Preservation Act, as amended (PL 93-291), Archaeological Resources Protection Act (16 U.S.C. §§470aa-470mm) (PL 96-95), American Indian Religious Freedom Act (PL 95-341), Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §3001 et. seq.) and its implementing regulations, Executive Orders (EO) 11593, 13007, and 13175, the Presidential Memo of 1994 on Government to Government Relations and appropriate Florida Statutes, and the Abandoned Shipwrecks Act (43 U.S.C. §§2101-2106).

Pursuant to Section 106 of the NHPA, and in consideration of the NEPA consultation with the Florida SHPO, the Miccosukee Tribe of Indians of Florida, the Seminole Nation of Oklahoma, the Seminole Tribe of Florida, and Thlopthlocco Tribal Town of Oklahoma was coordinated on April 24, July 3, and September 15, 2018. In a letter dated August 8, 2018 the Florida SHPO concurred with the Corps' determination of no adverse effects to historic properties in the dredge area conditional to avoiding site archaeological site 8SO2336 and the remaining upland portions of site 8SO24 (DHR Project File: 2018-2084-E). Consultation with the Florida SHPO and the appropriate federally-recognized Native American Indian Tribes complete for the Preferred Alternative.

5.11 RIVERS AND HARBORS ACT OF 1899, AS AMENDED (33 U.S.C. §401 TO §467N)

The Rivers and Harbors Act of 1899 regulates the construction, excavation, or deposition of materials in, over, or under “navigable waters of the U.S.,” or any work which would affect the course, location, condition, or capacity of those waters. While the proposed project would temporarily obstruct navigable waters of the United States, the project has been subject to the public notice, public hearing, and other evaluations normally conducted for activities subject to the Act. In consideration of applicable factors listed in 33 CFR 320.4, USACE has determined the project is not contrary to public interest. As a result, the project is in compliance with this Act.

5.12 SUBMERGED LANDS ACT OF 1953 (43 U.S.C. §1301 TO §1356A)

The Submerged Lands Act of 1953 granted coastal states title to submerged navigable lands and the natural resources located within their coastal submerged lands out to three miles from their coastlines (three marine leagues for Texas and Florida’s Gulf of Mexico coastlines). The project would occur on submerged lands of the State of Florida. The project has been coordinated with the State and is in compliance with the Act.

5.13 ESTUARY PROTECTION ACT OF 1968 (16 U.S.C. §1221 TO §1226)

In the Estuary Protection Act of 1968, Congress declared that “many estuaries in the United States are rich in a variety of natural, commercial, and other resources, including environmental natural beauty, and are of immediate and potential value to the present and future generations of Americans.” This Act is intended to protect, conserve, and restore estuaries in balance with developing them to further the growth and development of the Nation. The USACE has considered the importance of estuaries in its planning, and there will be no long-term effects to the Sarasota Bay Estuary ecosystem. This project is consistent with the purposes of this Act.

5.14 WILD AND SCENIC RIVER ACT OF 1968 (16 U.S.C. §1271 TO §1287)

The Wild and Scenic River Act of 1969, among other things, declared that “certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.” No designated Wild and Scenic river reaches would be affected by the proposed project; therefore, the Act is not applicable.

5.15 ANADROMOUS FISH CONSERVATION ACT (16 U.S.C. §757A TO §757F)

The Anadromous Fish Conservation Act authorizes the Secretaries of the Interior and Commerce to enter into cooperative agreements with the States and other non-Federal interests for conservation, development, and enhancement of anadromous fish and to contribute up to 50

percent as the Federal share of the cost of carrying out such agreements. As the proposed project is not receiving funding for these purposes, and because anadromous fish species would not be affected, this Act does not apply.

5.16 MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT (16 U.S.C. §1361 TO §1447F)

The Marine Protection, Research, and Sanctuaries Act (MPRSA), also referred to as the Ocean Dumping Act, generally prohibits transportation activities by U.S. agencies or U.S.-flagged vessels for the purpose of ocean dumping and dumping of material transported from outside the United States into the U.S. territorial sea. The term "dumping" as defined in the Act (33 U.S.C. 1402) does not apply to the disposal of material for beach nourishment or to the placement of material for a purpose other than disposal (i.e. placement of rock material as an artificial reef or the construction of artificial reefs as mitigation). Therefore, the MPRSA does not apply to the proposed project. The disposal activities addressed in this EA have been evaluated under Section 404 of the Clean Water Act (see Appendix A - Section 404(b)(1) Evaluation).

5.17 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT (16 U.S.C. §703 TO §715S)

The Migratory Bird Treaty Act (MBTA) makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. The Migratory Bird Conservation Act (MBCA) provides financial support and fosters international cooperation for initiatives that will help conserve populations and habitats of neotropical migratory birds in the Western Hemisphere.

Migratory birds would be minimally affected by dredging activities at Venice Inlet and the GIWW near Venice; however, there could be temporary displacement of shorebirds during disposal of dredged material at the beach placement areas. Migratory songbirds may also be impacted during the construction of containment berms/dikes and placement of dredged material in the upland placement areas. The USACE will include its standard migratory bird protection measures in the project plans and specifications and will require the Contractor to abide by those requirements. Sand placement activities at the beach will be monitored daily during the nesting season to protect nesting migratory birds. If nesting activities occur within the construction area, appropriate buffers will be placed around nests to ensure their protection (see also Sections 3.2, 3.3, 4.2, and 4.3 of this EA). The project is in compliance with these Acts.

5.18 BALD AND GOLDEN EAGLE PROTECTION ACT, AS AMENDED (16 U.S.C. 668-668C)

The Bald and Golden Eagle Protection Act, enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle . . . [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The project would not result in the take of Bald or Golden Eagles; therefore, the project is in compliance with the Act.

5.19 FARMLAND PROTECTION POLICY ACT OF 1981 (7 U.S.C. 4201, ET SEQ.)

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. To the extent possible, the FPPA ensures that federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. No prime or unique farmland would be affected by implementation of the proposed project; therefore, the FPPA is not applicable.

5.20 UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT OF 1970 (42 U.S.C. §4601 TO §4655)

The purpose of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 is to ensure that owners of real property to be acquired for federal and federally assisted projects are treated fairly and consistently and that persons displaced as a direct result of such acquisition will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. This project does not involve any real property acquisition or the displacement of property owners or tenants. Therefore, this Act is not applicable to this project.

5.21 E.O. 11990, PROTECTION OF WETLANDS

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

5.22 E.O. 11988, FLOOD PLAIN MANAGEMENT

To comply with Executive Order 11988, the policy of the USACE is to formulate projects that, to the extent possible, avoid or minimize adverse effects associated with the use of the floodplain

and avoid inducing development in the floodplain unless there is no practicable alternative. The project shoreline (VE flood zone) is significantly developed, and further development is unlikely. Upland placement areas (AE flood zone) are surrounded by residential and commercial development, and further development of these two sites is also unlikely. Projects that involve beach nourishment are inherently located in coastal areas and are often located in Coastal High Hazard Areas (CHHA), as is the case with the proposed project. While there are potential dredged material disposal opportunities at the upland placement areas, the USACE intends to prioritize beneficial reuse of dredged material wherever and whenever possible. For the proposed project, beach placement of dredged material helps alleviate problems associated with beach erosion, including the protection of infrastructure located along this CHHA shoreline. USACE concludes that the proposed project will not result in harm to people, property, and floodplain values, and it will not induce development in the floodplain. Therefore, the project is in the public interest. For the reasons stated above, the project is in compliance with EO 11988, Floodplain Management.

5.23 E.O. 12898, ENVIRONMENTAL JUSTICE

On February 11, 1994, the President of the United States issued Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The Executive Order mandates that each Federal agency make environmental justice 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.

Any potential adverse effects of the proposed project would be more likely to temporarily affect those of higher socioeconomic status, such as large watercraft owners or those living in the coastal area surrounding the project. Beneficial effects of the project, including a wider, more sustainable public beach would benefit all members of the public who are able to obtain transportation to access the beach. The areas proposed for nourishment have sufficient public access and parking. There are no disproportionate adverse effects to minority or low-income populations resulting from the implementation of the project.

5.24 E.O. 13089, CORAL REEF PROTECTION

This Executive Order recognizes the significant ecological, social, and economic values provided by the Nation's coral reefs and the critical need to ensure that Federal agencies are implementing their authorities to protect these valuable ecosystems. Per the Executive Order, *“All Federal agencies whose actions may affect U.S. coral reef ecosystems shall (a) identify their actions that may affect U.S. coral reef ecosystems; (b) utilize their programs and authorities to protect and enhance the conditions of such ecosystems; and (c) to the extent permitted by law, ensure that*

any actions they authorize, fund, or carry out will not degrade the conditions of such ecosystems.” There are no coral reefs within the project area; therefore, this Executive Order does not apply.

5.25 E.O. 13112, INVASIVE SPECIES

This Executive Order requires, among other things, that Federal agencies take steps to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control invasive species that are established. The proposed action will require the mobilization of dredge equipment, possibly from other geographical regions, which has the potential to transport species from one region to another. Such introduction of species to new habitats can result in their out-competing native species. The benefits of the proposed project outweigh the risks associated with the very slight potential for introducing non-native species to this region.

5.26 E.O. 13186, MIGRATORY BIRDS

This Executive Order requires, among other things, a Memorandum of Understanding (MOU) between the Federal Agency and the U.S. Fish and Wildlife Service concerning migratory birds. Neither the Department of Defense MOU nor the USACE’ Draft MOU clearly address migratory birds on lands not owned or controlled by the USACE. For many USACE civil works projects, the real estate interests are provided by the non-Federal sponsor. Control and ownership of the project lands remain with a non-Federal interest. Measures to avoid the destruction of migratory birds and their eggs or hatchlings are described in a section above on the Migratory Bird Treaty Act. The USACE will include its standard migratory bird protection measures in the project plans and specifications and will require the contractor to abide by those requirements.

6 LIST OF PREPARERS

6.1 PREPARERS

This Environmental Assessment was prepared by the following personnel:

Name	Specialty	Organization
Webb Smith	NEPA	The NDN Companies
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6.2 REVIEWERS

This Environmental Assessment was reviewed by the following personnel:

Name	Specialty	Organization
Aubree G. Hershorin, Ph.D.	Ecologist	USACE
Paul Stodola	Biologist	USACE
Paul M. DeMarco	Biologist	USACE
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Steven Bartell	Biologist	SRS
Meredith Moreno	Archaeologist	USACE

7 PUBLIC INVOLVEMENT

7.1 SCOPING AND DRAFT EA

A scoping letter dated January 12, 2018 was issued for this action and included a public scoping period that ended on February 16, 2018. The USACE held two scoping meetings to present information about and solicit public and agency comments on the proposed project. The first scoping meeting was held on January 24th, 2018 in Bradenton, Florida and the second meeting was held on January 25th, 2018 in Venice, Florida. Three (3) individuals attended the scoping meeting in Bradenton and thirteen (13) individuals attended the scoping meeting in Venice. Notices for the meetings were placed in local newspapers. Input received from the public and agencies during the scoping process helped inform the USACE on the various issues to be evaluated in this EA.

The Draft EA and the Draft Finding of No Significant Impact (FONSI) were made available to the public for a 30-day comment period, which began on April 26, 2018. The scoping letter and Notice of Availability (NOA) of the Draft EA and Draft FONSI were sent to Federal, state, and local agencies and elected representatives, Tribal Nations, non-governmental organizations, and other concerned stakeholders and members of the public. A summary of the parties who received copies of the scoping letter and NOA is included in Appendix C, Mailing List. A complete list of all addresses is on file at the USACE, Jacksonville District, and will be made available upon request.

7.2 COMMENTS RECEIVED AND RESPONSE

Comments received during the scoping period and during the public review period for the Draft EA and Draft FONSI are included in **Appendix D, Pertinent Correspondence**. The USACE responses to these comments are provided below.

7.2.1 Public Scoping

The USACE received both oral and written comments during the scoping period. The USEPA, NMFS, USFWS, Sarasota Bay Watch, and a concerned member of the public submitted written comments, and the City of Venice provided oral comments.

The USEPA provided written comments regarding (1) the suitability of dredged material associated with the project for ocean disposal under the MPRSA 103 process, (2) beneficial use of dredged material for ecosystem restoration, and (3) the need for a robust cumulative impact analysis. The USACE's responses to each of these comments are provided below:

- a) The use of the Tampa Bay ODMS was dismissed from further evaluation in this EA because it is not a cost-effective placement alternative when compared to nearby upland and beach placement areas (see Section 2.4, Alternatives Eliminated from Detailed Evaluation).
- b) The selection of the Preferred Alternative reflects the USACE's preference to beneficially use dredged material, including for purposes of ecosystem restoration when economically feasible. USACE will continue to explore additional opportunities for beneficial use with the USEPA and other Federal, state, and local agencies in the future.
- c) The USACE considered the cumulative impact on a variety of resources in light of current, past, and reasonably foreseeable future dredging operations and other activities (see Section 4.16, Cumulative Impacts).

The NMFS provided written comments regarding (1) the presence of estuarine habitats in the study area that constitute essential fish habitat, and (2) the presence of Federal threatened and endangered species in the study area. The USACE's responses to each of these comments is provided below:

- a) In Section 3.4, Essential Fish Habitat and Section 4.4, Essential Fish Habitat Assessment, the USACE:
 - Identifies and describes the types of EFH and federally-managed species within the study area,
 - Analyzes the effects on these habitats and species as a result of periodic maintenance dredging activities and placement of dredged material, and
 - Identifies management actions to minimize and/or avoid impacts to EFH and managed species.
- b) In Sections 3.2 and 4.2, Threatened and Endangered Species, the USACE:
 - Identifies and describes the types of Federally listed threatened and endangered species and associated critical habitat located within the study area,
 - Analyzes the effects on these species and habitats as a result of periodic maintenance dredging activities and placement of dredged material, and
 - Identifies management actions to minimize and/or avoid impacts to these protected species.

The USFWS provided comments regarding (1) locations and previous use of upland, nearshore, and beach placement areas, (2) potential impacts to Federal threatened and endangered species and critical habitat, and (3) project compliance with existing programmatic biological opinions and other species-specific conditions. The USACE's responses to each of these comments is provided below:

- a) The USACE considered upland and beach placement locations. These locations are described in detail in Section 2.1.4, Dredging with Upland and Beach Placement (Preferred Alternative). Portions of the Venice Beach Placement Area have been recently used by the USACE, as well as the City of Venice. The upland placement area was originally used for placement of dredged material during the construction of the GIWW but has not been used since that time.
- b) The USACE has evaluated the potential impacts to Federal threatened and endangered species, and these evaluations can be found in Section 4.2 Threatened and Endangered Species.
- c) The USACE has completed coordination with the USFWS in accordance with Section 7 of the Endangered Species Act, and the project would be implemented in compliance with the 2013 USFWS Piping Plover Programmatic Biological Opinion (P³BO) and the 2015 USFWS Statewide Programmatic Biological Opinion (SPBO). In addition, the project would be implemented in compliance with the 2003 Gulf Regional Biological Opinion (GRBO) issued by NMFS (revised in 2005 and 2007). The project will adhere to all turtle safety precautions outlined in the GRBO, will implement the NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions during project construction, and will abide by the Standard Manatee Conditions for In-Water Work.

A member of the public expressed concern about dredging and placement activities and their potential impact to Snake Island. A representative from the City of Venice identified two additional locations for possible evaluation in the EA related to beneficial use of dredged material. The first is a stretch of beach immediately south of the Venice Inlet near Humphris Park, and the second is the critically-eroded Caspersen Beach. In light of this comment, the USACE will consider both areas as potential beneficial use sites for placement of dredged material for future periodic maintenance dredging activities. NEPA and Section 106 review will be conducted if these sites are identified as placement alternative candidates.

7.2.2 Draft Environmental Assessment and FONSI

The USEPA provided written comments regarding (1) programmatic biological opinions associated with threatened and endangered species, (2) the timing of Section 401 water quality certification, and (3) the timing of the CZMA final consistency determination. The USACE's responses to each of these comments are provided below:

- a) USACE included a reference in the FONSI to the programmatic biological opinions used in the evaluation of effects to threatened and endangered species, as well as a reference to completed coordination with the USFWS in a letter dated August 14, 2018 (see **Appendix D: Pertinent Correspondence**).
- b) USACE coordinated with the state regarding Section 401 water quality certification, and the state determined that, at this stage, the proposed federal activities should not compromise state water quality standards in an email dated June 26, 2018 (see **Appendix D: Pertinent Correspondence**).
- c) USACE coordinated with the state regarding a final CZMA consistency determination, and the state has determined that, at this stage, the proposed federal activities are consistent with the Florida Coastal Management Program (FCMP) in an email dated June 26, 2018 (see **Appendix D: Pertinent Correspondence**).

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**MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET
ENVIRONMENTAL ASSESSMENT**

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MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET
ENVIRONMENTAL ASSESSMENT

APPENDIX A - SECTION 404(B) EVALUATION

MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR VENICE AND VENICE INLET
ENVIRONMENTAL ASSESSMENT

**MAINTENANCE DREDGING OF THE GULF INTRACOASTAL
WATERWAY
NEAR VENICE AND VENICE INLET
Venice, Sarasota County, Florida**

SECTION 404(b) EVALUATION

I. PROJECT DESCRIPTION

A. Location

The project is located in Sarasota County within Venice Inlet and the Gulf Intracoastal Waterway (GIWW) near Venice, Florida on the Gulf Coast of Florida.

B. General Description

The proposed work consists of periodic maintenance dredging of shoal material from the Venice Inlet and an approximately 5-mile stretch of the GIWW near Venice. Placement of dredged material would occur in upland placement areas; however, wherever and whenever feasible, suitable dredged material would be beneficially used in beach placement areas along Venice Beach.

C. Authority and Purpose

The GIWW from the Caloosahatchee River to the Anclote River, which includes the area near Venice, FL, was authorized by Section 2 of the River and Harbor Act of 1945 (PL 79-14) in accordance with House Document Number 371, 76th Congress. Channel alignment (“route”) modifications were authorized by the River and Harbor Acts of 1948 (PL 80-858), 1950 (PL 81-516) and 1954 (PL 83-780). The authorization directed the U.S. Army Corps of Engineers (USACE) to construct and to maintain 160 miles of Intracoastal Waterway to ensure safe and operable navigation to a depth of nine feet plus two feet of over depth Mean Lower Low Water (MLLW). The waterway construction began in 1960 and was completed in 1967. The project winds through Pinellas, Manatee, Sarasota, Charlotte, and Lee Counties, Florida, and includes the federally-maintained Venice Inlet (also known as Casey’s Pass).

The purpose of the project is to perform periodic maintenance dredging along approximately five miles of the GIWW near Venice and areas within the Venice Inlet. The need for the project is driven by the accumulation of sediment, commonly referred to as shoaling, which has restricted the width of portions of the GIWW and inlet channel and reduced their depths. Current velocities

and the post-channelization increase in the tidal prism through Venice Inlet have resulted in inlet channel scour, growth of ebb shoal volumes, higher erosion rates on beaches adjacent to the inlet and Snake Island, and shoaling of interior channels including the GIWW in the vicinity of the Venice Inlet flood shoal. In addition, as waves generated by wind or by vessel passage reach the shoreline, the shoreline material erodes and falls to the channel bottom or is suspended within the water and deposited downstream. Other factors such as heavy rainstorms or hurricanes may cause additional sediment to enter the channels. Periodic dredging is required to remove accumulated sediments and thus maintain the channels at their authorized depth for navigation purposes.

D. General Description of Dredged or Fill Material

1) General Characteristics of Material

The fill material is predominantly silica sand with some sand-size shell fragments. Only dredged material meeting the requirements of Florida Administrative Code 62B-41.007(2)(k) will be placed on the beach. Sediment not suitable for beach placement would be deposited in the upland placement area.

2) Quantity of Material

Approximately 75,000 cubic yards may be dredged every 10-15 years; however, dredging volumes and frequency may vary due to storm induced shoaling.

3) Source of Material

The fill material will come from the Venice Inlet and GIWW near Venice.

E. Description of the Proposed Discharge Site

1) Location and Size

Fill material will be placed along Venice Beach in Sarasota County. The volume of dredged material to be used for beneficial use will depend on the degree of shoaling material that has collected within the Venice Inlet and/or GIWW near Venice, and the length of each beach placement beneficial use event would depend on the available volume of beach compatible fill.

2) Type of Site

The disposal site would be on eroded, sandy recreational beach.

3) Type of Habitat

The beach placement beneficial use sites will be eroding carbonate and quartz sand beaches. The source locations are generally characterized by sandy bottoms, though there are portions of the shoals that contain silt, clay, and silty sand.

4) *Timing and Duration of Discharge*

Dredging and disposal timing and duration will vary depending on the extent of shoaling in the project area and the availability of project funds.

F. Description of Disposal Method

Material will be excavated using a hopper, bucket, clamshell, or cutter-suction dredge. The dredged material will be transported through pipelines to the placement area. Grading will be performed at the beach using land moving equipment to achieve the desired design profile.

II. FACTUAL DETERMINATION

A. Physical Substrate Determination

1) *Substrate Elevation and Slope*

Top elevation of the construction beach fill will be consistent with past nourishment projects. The equilibrium profile for the beach fill will vary along the project beach depending on wave/current distribution of the fill material. Generally, the equilibrium berm width will be less than the constructed width with a flatter slope from the berm to the existing bottom.

2) *Sediment Type*

The sediment is predominantly silica sand with some sand-size shell fragments. Some sediment consists of silt, clay and silty sand, which would be placed at upland sites.

3) *Dredge/Fill Material Movement*

At the beach placement area, the fill material will be subject to erosion by waves with the net movement of fill material to the south (along the Gulf). No material movement is anticipated to occur at the upland sites.

4) *Physical Effects on Benthos*

The fill material would bury some benthic organisms. Most organisms in this high wave energy environment are adapted for existence in areas of considerable substrate movement, and they will be able to burrow up through the fill material. Re-colonization would occur in most cases within one year following operations.

B. Water Circulation, Fluctuation and Salinity Determination

1) *Water Column*

Dredging and placement of fill along the beach placement area will increase turbidity in the project area. Fill placement will have no long-term or significant effects, if any, on water column characteristics including salinity, water chemistry, clarity, color, odor, taste, dissolved gas levels, nutrients or eutrophication.

2) *Current Patterns and Circulation*

Currents in the project area are both tidal and longshore. Net movement of water due to the longshore current can be either northerly or southerly depending on the locations. Placement of the fill along beach placement areas will have no effect on the currents.

3) *Normal Water Level Fluctuations and Salinity Gradients*

Tides in the project area are semi-diurnal mixed. The mean range of tides in the project area is 2.6 feet (0.8m) and the spring range is 3.0 feet (0.9m). Wind set-up (piling up of water on the shoreline) has significantly more effect on seasonal and long-term water fluctuations than astronomical tides. The project will have no adverse impact to these characteristics and would not affect salinity gradients in the area.

C. Suspended Particulate/Turbidity Determinations

1) *Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site*

There will be a temporary increase in turbidity levels in the project area during dredging and placement activities. Turbidity will be temporary and localized, and no significant adverse effects are expected. State standards for turbidity will not be exceeded.

2) *Effects on the Chemical and Physical Properties of the Water Column*

(a) Light Penetration. Light penetration will decrease during discharge in the immediate area where dredged material is being deposited on the beach. This effect will be temporary and will have no adverse impact on the environment.

(b) Dissolved Oxygen. Dissolved oxygen levels will not be altered significantly by this project due to high-energy wave action and associated adequate re-aeration rates. No anoxic layers of sediment would be exposed by dredging due to the low level of organic material in the dredged material.

(c) Toxic Metals, Organics, and Pathogens. No toxic metals, organics, or pathogens will be released by the project due to the clean nature of the dredged material.

(d) Aesthetics. Aesthetic quality will be temporarily reduced during the period when work is occurring. There will be a long-term increase in aesthetic quality at beach sites once the work is completed.

3) *Effects on Biota*

(a) Primary Productivity and Photosynthesis. Primary productivity is not a recognized, significant phenomenon in the surf zone, where a temporary increased level of suspended particulates will occur. Elevated turbidity levels from resuspended beach fill may have some minor adverse impact on drifting autotrophic organisms in the immediate project area. It is anticipated that this effect will be a short-term phenomenon. Exposed intertidal rock provides a valuable attachment surface for photosynthetic algae. If these intertidal rock structures are permanently buried, these organisms and their ecological functions will be lost. Because of nearshore water exchange from tidal and wind generated currents, it is probable that photosynthetic organisms are continuously carried into and out of the project area. Therefore, no long-term adverse effects are expected.

(b) Suspension/Filter Feeders. Dredged material resuspended into the water column may contribute to the clogging of siphons of filter-feeders. This is expected to be a temporary condition. Because of high fecundity and turnover rates, rapid repopulation of these organisms is expected.

(c) Sight feeders. Elevated turbidity levels will have a short-term adverse impact on these organisms; however, these organisms are highly motile and are able to migrate into more favorable areas to fulfill their nutritional requirements.

D. Contaminant Determinations

Deposited dredged material is similar to the existing material in the surrounding areas and would not introduce, relocate, or increase contaminants in the nearshore waters.

E. Aquatic Ecosystem and Organism Determinations

The dredged material that will be placed on the beach will consist primarily of fine to medium grained sand-sized quartz that is similar enough to the existing substrate so that no effects are expected.

1) *Effects on Plankton*

Decreased light transmission caused by suspended dredged material may have a temporary adverse effect on plankton; however, this effect is expected to be minor and temporary.

2) *Effects on Benthos*

Benthic species not able to migrate from the project area would be covered by the fill material. Repopulation of benthic communities should occur within a year once operations have ceased because of their high fecundity and turnover rate.

3) *Effects on Nekton*

Direct impacts to motile organisms would be minor because of their ability to avoid adverse conditions.

4) *Effects on Aquatic Food Web*

Nearshore and beach placement activities are anticipated to have a temporary and likely insignificant impact on structures and associated organisms seaward of the project area. Non-motile organisms are quickly able to repopulate affected intertidal zones; no long-term adverse impacts to higher trophic level organisms are expected. No overall adverse effect on the food web is anticipated.

5) *Effects on Special Aquatic Sites*

(a) Sanctuaries and Refuges. There are no National and/or state refuges or parks within the project area. No county park/beaches would be impacted.

(b) Wetlands. Mangrove wetlands exist near the project area, but periodic maintenance dredging activities will not directly impact the trees or their prop roots. There will be a temporary increase in turbidity within the mixing zone where some mangrove wetlands may occur; however, there would not be any violations of any applicable State Water Quality Standards for Class III waters.

(c) Mudflats. There are tidal mudflats within the study area; however periodic maintenance dredging and placement of fill will not directly impact these features as they do not exist within or adjacent to the project area.

(d) Vegetated Shallows. Submerged aquatic vegetation (seagrass beds) are adjacent to the GIWW navigation channel, and measures will be taken to meet turbidity standards and avoid adversely affecting the seagrasses.

(e) Coral Reefs. There are no coral reefs in or immediately adjacent to the project area.

(f) Riffle and Pool Complexes. There are no riffle and pool complexes in or adjacent to the project area.

6) *Endangered and Threatened Species*

The USACE has coordinated with the U.S. Fish and Wildlife Service (USFWS) in accordance with Section 7 of the Endangered Species Act, and the project would be implemented in compliance

with the USFWS Piping Plover Programmatic Biological Opinion (P³BO) and the USFWS Statewide Programmatic Biological Opinion (SPBO). In addition, the project would be implemented in compliance with the Gulf Regional Biological Opinion (GRBO) issued by the National Marine Fisheries Service (NMFS). Sea turtle nesting may occur in the project area during the time dredging and beach placement occurs. If placement occurs during nesting season, a sea turtle nest monitoring and relocation program will be implemented to discover, mark and relocate these nests. Any sea turtle nests discovered within the beach placement area will be removed and relocated using the procedures outlined in the SPBO. Other measures outlined in the SPBO will be followed to protect nesting turtles and to ensure that the sand placement project after completion will not adversely affect the quality of the beach for use for turtle nesting. In accordance with the P³BO, measures will be taken to protect any overwintering piping plovers, as applicable. The project will adhere to all turtle safety precautions outlined in the GRBO, will implement the NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions during project construction, as applicable, and will abide by the 2011 Standard Manatee Conditions for In-Water Work. Standard safeguards would be implemented during operations to assure no adverse impacts from the project. There will be no adverse effect to designated critical habitat for any threatened or endangered species.

2) Other Wildlife

Placement of dredged material is not expected to have a long-term adverse impact on wading birds or terrestrial foraging animals. These organisms are highly motile and actively seek favorable environmental conditions for foraging and resting. Measures to protect nesting shorebirds will be implemented if beach placement occurs during nesting season.

F. Proposed Disposal Site Determinations

1) Mixing Zone Determination

Dredged material will not cause unacceptable changes in the mixing zone specified in the Water Quality Certificate in relation to depth, current velocity, direction and variability, degree of turbulence, stratification, or ambient concentrations of constituents.

2) Determination of Compliance with Applicable Water Quality Standards

The project will comply with applicable state water quality standards, which allow for a mixing zone.

3) Potential Effects on Human Use Characteristics

(a) Municipal and Private Water Supplies. No municipal or private water supplies will be impacted by the implementation of the project.

(b) Recreational and Commercial Fisheries. Recreational and commercial fisheries may be temporarily impacted by the dredging of material and the placement of the material on the beach, but these effects should be minor. No long-term effects are anticipated.

(c) Water Related Recreation. Water related recreation will be temporarily impacted during construction; however, it will be preserved and enhanced through the maintenance of safe depths for navigation and by the beneficial use of compatible sediment along the beach.

(d) Aesthetics. A temporary decrease in aesthetics will occur with the presence of dredge and earthmoving equipment. Stabilizing eroding beach will improve the aesthetics of the beach.

(e) Parks, National and Historic Monuments, National Seashores Wilderness Areas, Research Sites, and Similar Preserves. No designated sites are located in the project area.

G. Determination of Cumulative Effects on the Aquatic Ecosystem

The proposed discharge of material would have no adverse impacts that would result in degradation of the natural, cultural, or recreational resources of the project area. The project would have no incremental impacts that, when considered with past, present, and reasonably foreseeable future projects, would result in major cumulative impairment of water resources or interfere with the productivity and water quality of the existing aquatic ecosystem.

H. Determination of Secondary Effects on the Aquatic Ecosystem.

No secondary effects are anticipated.

III. FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

- A. No significant adaptations of the Section 404(b)(1) guidelines were made relative to this evaluation.
- B. Upland placement of dredged material is a practicable alternative for incompatible dredged sediment that cannot be beneficially used in beach placement areas. There are no practicable alternatives to the proposed beneficial use site that would have less adverse impact on the aquatic ecosystem.

- C. The discharge of fill materials will not cause or contribute to violations of any applicable State Water Quality Standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
- D. The disposal of dredged material on the beach will 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.
- E. There are no designated marine sanctuaries within the study area. The project is in compliance with the Marine Protection, Research, and Sanctuaries Act of 1972.
- F. The project will not degrade waters of the United States. The placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The project will not result in significant adverse effects on life stages of aquatic species and other wildlife, aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values.
- G. The composition of the dredged material would not contribute organics or pollutants to the aquatic environment. The earthmoving equipment is not expected to operate in the water (below mean low water) to minimize the potential adverse impact of hydrocarbon release into the water. All responsible precautions will be taken to prevent hazardous materials discharge from any and all activity or equipment.
- H. On the basis of the guidelines, the proposed placement site for the discharge of dredged material is specified as complying with the requirement of these guidelines with the inclusion of appropriate and practical conditions to minimize pollution.

**APPENDIX B – COASTAL ZONE MANAGEMENT
CONSISTENCY DETERMINATION**

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM FEDERAL CONSISTENCY EVALUATION PROCEDURES

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: Periodic maintenance dredging of sediment and beneficial use of compatible dredged material on beaches will not violate the intent of this chapter. The proposed plans and information associated with the proposed project will be submitted to the State in compliance with this chapter.

2. Chapters 186 and 187, State and Regional Planning and State Comprehensive Plan.

These chapters establish the State Comprehensive Plan, which 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.

3. Chapter 252, Emergency Management.

This chapter creates a State emergency management agency with 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 periodic maintenance dredging of Venice Inlet and the GIWW near Venice in order to maintain safe and efficient navigation; therefore, it would be 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 historic 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; therefore, it would comply with the intent of this chapter.

5. Chapters 259, 260, and 375, Land Acquisition for Conservation and Recreation, Greenways and Trails, Outdoor Recreation and Conservation Lands.

These chapters authorize the State to acquire land: to protect environmentally sensitive areas for conservation; and for outdoor recreation, including greenways and trails.

Response: The proposed project will not have an adverse effect on state-owned environmentally sensitive or recreational lands. It does not require land acquisition to meet the purpose and need of the project and does not interfere with the authority set forth in these chapters.

6. Chapter 258, State Parks and Preserves.

This chapter authorizes the State to manage State parks and preserves. Consistency with the 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 has no direct or indirect adverse impact on any state parks or preserves.

7. Chapter 267, Historical Resources

This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The proposed project has been coordinated with the Florida State Historic Preservation Officer. Historic preservation compliance will be completed to meet all responsibilities under Chapter 267.

8. Chapter 288, Commercial Development and Capital Improvements.

This chapter directs the State Office of Economic and Demographic Research and the Office of Program Policy Analysis and Government Accountability to evaluate existing State economic development programs (e.g. tax credits, tax refunds, sales tax exemptions, etc.) for effectiveness and value to taxpayers.

Response: This chapter is not applicable as the project does not involve any of the economic incentive programs listed in Chapter 288.

9. Chapters 334 and 339, Public Transportation.

These chapters authorize the planning and development of a safe, balanced, and efficient transportation system.

Response: The proposed periodic maintenance dredging will promote commercial and recreational navigation within the area; therefore, the proposed project is consistent with the goals of this chapter. There will be no adverse effects to public transportation systems associated with this action.

10. Chapter 370, Saltwater Fisheries.

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 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 periodic maintenance dredging and placement operations would not have a substantial adverse effect on saltwater living resources. Benthic organisms may be adversely affected by the work; however, these organisms are highly fecund and are expected to return to pre-construction levels within 6 months to one year after construction. Based on the overall impacts identified in the Environmental Assessment, the proposed project is consistent with the goals of this chapter.

11. Chapter 372, Wildlife.

This chapter establishes the Florida 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 proposed project would not have a substantial adverse effect on living land and freshwater resources. Placement operations may temporarily adversely affect wildlife, but these areas should be recolonized between dredging and placement events.

12. Chapter 373, Water Resources.

This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

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

13. Chapter 376, Pollutant Discharge Prevention and Removal.

This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: The contract specifications will prohibit the USACE and/or its contractor from dumping oil, fuel, or hazardous wastes in the work area and will require the adoption of safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required. The proposed project is consistent with the intent of this chapter.

14. Chapter 377, Energy Resources.

This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: The proposed project does not involve the exploration, drilling, or production of oil, gas, or other petroleum product; therefore, this chapter is not applicable to the proposed project.

15. Chapter 380, 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.

Response: The proposed project will not have any regional impact on resources in the area; therefore, it is consistent with the goals of this chapter.

16. Chapter 388, Mosquito Control.

This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the State.

Response: The proposed project will not further the propagation of mosquitoes or other pest arthropods; therefore, it is consistent with the goals of this chapter.

17. Chapter 403, Environmental Control.

This chapter authorizes the regulation of pollution of the air and waters of the State by the FDEP.

Response: Water quality certification from the FDEP will be required for the proposed project, but air pollution permits are not required. An Environmental Assessment addressing the proposed project effects has been prepared and will be reviewed by the appropriate resource agencies including the FDEP. Environmental protection measures will be implemented to ensure that long lasting adverse effects on water quality, air quality, or other environmental resources will not occur. The proposed 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 on-

site and on adjoining properties affected by the work. Particular attention will be given to work on or adjacent to agricultural lands.

Response: The proposed project is not located near or on agricultural lands; therefore, this chapter is not applicable to the proposed project.

APPENDIX C – MAILING LIST

**ENVIRONMENTAL ASSESSMENT
MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY NEAR
VENICE AND VENICE INLET**

Mailing List

(Sent by email or hard copy as appropriate.)

I. Federal Representatives and Agencies

US Senate

- Honorable Bill Nelson
- Honorable Marco Rubio

US House of Representatives

- Honorable Vern Buchanan – District 16
- Honorable Tom Rooney – District 17

Advisory Council of Historic Preservation

- Executive Director

Bureau of Indian Affairs

- Eastern Regional Office

Federal Emergency Management Administration

- Regional Director – Insurance and Mitigation Division
- Environmental Officer – Region 4

Gulf of Mexico Fishery Management Council

- Chairperson

National Estuary Program

- Sarasota Bay National Estuary Program
 - Mark Alderson – Executive Director
- Charlotte Harbor National Estuary Program
 - Lisa Beever – EAC Primary

National Park Service

- Superintendent’s Office – Canaveral National Seashore

NOAA/NMFS

- Protected Resource Division – Southeast Regional Office
- Ken Hollingshead – Marine Mammal Conservation Division
- David Bernhart – PRD
- Pace Wilber – Atlantic Branch Supervisor, HCD
- Miles Croom – Deputy Regional Administrator
- Steve Kokkinakis – Office of Strategic Planning
- Chief Protected Species Branch – Southeast Regional Office
- Chief Habitat Conservation Division – Southeast Regional Office
- Andy Strelcheck – Deputy Regional Administrator, Habitat Conservation Division
- Director – Southeast Fisheries Center
- David Keys – Southeast Region NEPA Coordinator
- Director of Ocean Chemistry Division – Atlantic Oceanographic and Meteorological Laboratory of NOAA
- Office of Constituent Services – NMFS Recreational Fisheries Branch
- Mark Sramek – Habitat Conservation Division, Southeast Regional Office
- Mark Thompson – Habitat Conservation Division

SEC Federal Energy Road Committee

SEC Federal Maritime Commission

- Bryant L. Vanbrakle

US Coast Guard

- Headquarter Office of Waterways Management – Oceans and Transportation Branch
- Seventh Coast Guard District
 - Rear Admiral Robert S. Branham – Commander
- St. Petersburg Sector
 - CWO3 Anthony R. Sciullo

US Department of Agriculture

- Jeffrey Schmidt – Natural Resources Conservation Service
- Maritime Office – Riviera Beach
- State Conservationist – Natural Resources Conservation Service
- Director – NRCS

US Department of Commerce

- Wilbur Ross – Secretary of Commerce
- Nancy Sutley

US Department of Housing and Urban Development

- Regional Environmental Clearance Officer

- US Department of Housing and Urban Development – Atlanta

US Department of the Interior

- Loretta Sutton – Office of Environmental Policy and Compliance

US Environmental Protection Agency

- Region 4 Water Management Division
- Environmental & Compliance Department
- Richard Harvey – South Florida Office
- Paul Gagliano – Region 4
- Christopher Militscher
- Office of Environmental Policy & Compliance – Atlanta Region

US Fish and Wildlife Service

- Larry Williams – Program Supervisor of Florida, Ecological Services Program
- Rafael Gonzalez – Chief of Staff for Florida, Ecological Services Program
- Jay Herrington – Field Supervisor, North Florida Ecological Services Office
- Project Consultation Biologist – Tampa Area
- Jeffery Howe – Biologist, Coastal Construction/Beach Projects
- Craig Aubrey – South East Field Office
- Regional Director – Atlanta

US Forest Service

- Southern Region Forester

II. State Representatives and Agencies

Florida Senate

- Honorable Greg Steube – District 23

Florida House of Representatives

- Honorable Wengay Newton – District 70
- Honorable Jim Boyd – District 71
- Honorable Julio Gonzalez – District 74

Florida Department of Agriculture and Consumer Services

Florida Department of Environmental Protection

- Noah Valenstein – Secretary
- Division of Water Resource Management

- Lainie Edwards – Administrator, BIPP
- Martin Seeling – Environmental Conservation, BIPP
- Florida Coastal Office
 - Ann Lazar – Coastal and Estuarine Land Conservation Program
 - Penny Isom – Planning Manager
 - Joanna Walczak – Coral Reef Program Manager
 - Director - Division of State Lands, Bureau of Survey and Mapping
 - Catherine M. Florko – Beach Control Erosion Program
 - Chris Stahl – State Clearinghouse
- Division of State Lands – Director

Florida Department of Transportation

- District 1 – Ft. Meyers Field Office
- David Gwyn – District 7 – District Secretary

Florida Coastal Management Program

Florida Fish and Wildlife Conservation Commission

- Thomas Graef – Director, Southwest Region
- Nancy Douglass – Migratory Bird Coordinator
- Office of Environmental Services
 - Bradley J. Hartman – Director
 - Robbin N. Trindell
- Lisa Gregg – Division of Fisheries Management

Florida Ports Council

- Doug Wheeler – President/CEO

State Historic Preservation Office

- Timothy Parson – Director, Division of Historical Resources

Southwest Florida Regional Planning Council

Southwest Florida Water Management District

- Executive Director
- Tampa Service Office

West Coast Inland Navigation District

- Justin D. McBride – Executive Director

III. City/County Representatives and Agencies

County Commissioners – Sarasota County

- Commissioner Michael Moran – District 1

- Commissioner Paul Caragiulo – District 2
- Commissioner Nancy C. Detert – District 3
- Commissioner Alan Maio – District 4
- Commissioner Charles Hines – District 5

City of Sarasota

- Alexandria Davis-Shaw, P.E. – City Engineer

City of Venice

- Edward F. Lavalley – City Manager
- Kathleen Weeden – City Engineer
- James R. Clinch – Assistant City Engineer, P.E. CFM

Greater Sarasota Chamber of Commerce

- Charlie Bailey – Board Chair
- John LaCivita – Chair Elect

Gulf Coast Latin Chamber of Commerce

- Eva Gonzalez – President and Board Chair

Sarasota County Government

- Planning and Development Services
 - John M. Ryan – Environmental Manager, Stormwater Environmental Utility
 - Laird Wreford – Manager, Environmental Protection Division
 - Rachel Herman – Manager, Environmental Protection Division
 - Matthew Osterhoudt – Director
- Environmental Services
 - General Manager
- Parks, Recreation, and Natural Resources
 - Carolyn Brown – Director

Sarasota County Public Library

- Librarian

Venice Area Chamber of Commerce

- Liz Crapet – Chair of Board
- Victoria Stultz – Chair-elect of Board

IV. Tribal Nations

Alabama Quassarte Tribal Town

- Augustine Asbury – Cultural Preservation Specialist

Kialegee Tribal Town

- Marsey Harjo – NAGPRA Representative
- Henry Harjo – Director Environmental Protection Agency

Council of Original Miccosukee Simanolee Nation Aboriginal People

- Bobby C. Billie

Miccosukee Tribe of Indians

- Craig van der Heiden – Fish and Wildlife
- Kevin Donaldson – Real Estate Services Director
- Fred Dayhoff – NAGPRA Representative
- Gene Duncan – Water Resources Director

Muscogee (Creek) Nation

- Corain Lowe-Zepeda – Tribal Historic Preservation Officer
- James Williams – Environmental Services Manager

Poarch Creek Indians

- Board of Tribal Historic Preservation Officer
- Kristi Weatherford – Environmental Director

Seminole Nation of Oklahoma

- Jennifer Johnson
- Theodore Isham – Tribal Historic Preservation Officer
- Mickey Douglas – Environmental Services Director

Seminole Tribe of Florida

- Dr. Paul Backhouse – Tribal Historic Preservation Officer
- Cherise Maples – Director of Environmental Resources

Thlopthlocco Tribal Town

- Mr. Terry Clouthier - Tribal Historic Preservation Officer

V. Non-Governmental Organizations

1000 Friends of Florida

- Victoria Tschinkel

Audubon Society

- Sarasota Audubon Society
 - Julie Byrne
- Venice Audubon Society

Boater's Coalition

- Peter Van Roelens

Conservation Foundation of the Gulf Coast

- Debi Osbourne

Defenders of Wildlife

- Florida Program Director

Ducks Unlimited

- Chuck Bohac – State Chairman

Environmental Confederation of Southwest Florida

- Allain Hale – EAC Primary

Environmental Defense Fund

- Director – Southeast Office
- Dr. Ken Lindeman

Florida Defenders of the Environment

Florida Public Interest Research Group

- Mark Ferrulo – St. Petersburg

Florida Shore and Beach Preservation Association

- Jackie Larson – Executive Director

Florida Wildlife Federation

- Manley K. Fuller – President
- Nancy Peyton

Friends of Florida State Parks

- Paula Russo – President

Mote Marine Laboratory

- Michael P. Crosby, Ph.D., FLS – President/CEO

National Wildlife Federation

- John Hammond

National Resources Defense Council

- Michael Harty

Reefkeeper International

Sarasota Bay Watch

- Dr. Larry Stults – Co-President

Save the Manatee Club

- Dr. Katie Tripp – Director of Science and Conservation

Science and Environmental Council of SW Florida

- Executive Director

Sea Turtle Conservancy

Sierra Club

- Florida Chapter
 - Mark Walters – Chair
- Florida Regional Office
 - Director
- Manatee – Sarasota Group
- National Sierra Club – Florida Regional Field Office
 - Linda Demler
- National Sierra Club – West Coast Florida Field Office
 - Cris Costello

The Nature Conservancy

- Florida Chapter
 - Robert Dendick

The Ocean Conservancy

- South Atlantic Regional Office
 - David White

UF/IFAS

Venice Area Beautification, Inc.

WMNF - FM 88.5

APPENDIX D – PERTINENT CORRESPONDENCE



United States Department of the Interior



FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

August 14, 2018

Jason A. Kirk, Colonel
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Consultation Code: 04EF2000-2018-F-0288
Date Received: April 30, 2018
Consultation Initiation Date: June 7, 2018
Project: Inlet Dredging and Sand
Placement
Applicant: U.S. Army Corps of Engineers
County: Sarasota

Dear Colonel Kirk:

This document transmits the U.S. Fish and Wildlife Service's (Service) decision document to the U.S. Army Corps of Engineers (Corps) for dredging of Venice Inlet and sand placement along up to 0.46 mile (mi) of shoreline along Venice Beach, Sarasota County, Florida (Project). The Corps determined that the Project may affect, and is likely to adversely affect the threatened North Atlantic Distinct Population Segment (DPS) of the green sea turtle (*Chelonia mydas*), the endangered hawksbill sea turtle (*Eretmochelys imbricata*), the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), the endangered leatherback sea turtle (*Dermochelys coriacea*), and the threatened Northwest Atlantic Ocean DPS of the loggerhead sea turtle (*Caretta caretta*); and may affect, but is not likely to adversely affect the threatened piping plover (*Charadrius melodus*), the threatened red knot (*Calidris canutus rufa*), terrestrial loggerhead sea turtle designated critical habitat, and the threatened West Indian manatee (*Trichechus manatus*). For the purposes of this document, the five identified sea turtles will be referred to collectively as sea turtles. This document is provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*).

The Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) share Federal jurisdiction for sea turtles under the Act. The Service has responsibility for sea turtles on the nesting beach and the NOAA Fisheries has jurisdiction for sea turtles in the marine environment. Our analysis in this document will only address activities that may impact nesting sea turtles, their nests and eggs, and hatchlings as they emerge from the nest and crawl to the sea. Please note the provisions of this consultation do not apply to sea turtles in the marine environment, such as swimming juvenile and adult sea turtles or loggerhead critical habitat in the marine environment. If applicable, you are required to consult with the NOAA Fisheries on this Project. For further information on Act compliance with the NOAA Fisheries, please contact Karla Reece, Acting Chief of the Interagency Cooperation Branch, by e-mail at karla.reece@noaa.gov or by phone at 727-824-5348.

This analysis is based on information provided in the Corps' April 25, 2018, letter and supplemental documents, and additional correspondences with the Corps. A complete record of this consultation is on file at the South Florida Ecological Services Office, Vero Beach, Florida.

Consultation History

On April 30, 2018, the Service received a letter from the Corps dated April 25, 2018, requesting initiation of formal consultation concerning the dredging of Venice Inlet and sand placement along Venice Beach.

On May 29, 2018, the Service emailed the Corps with a request for additional information which the Corps responded to later in the day.

On June 7, 2018, the Service completed their review of the proposed Project and initiated formal consultation with the Corps concerning the potential effects of the Project on nesting sea turtles, and informal consultation on piping plovers, red knots, and manatees.

DESCRIPTION OF THE PROPOSED ACTION

The Corps proposes to dredge up to 75,000 cubic yards of beach compatible material from Venice Inlet and place it along up to 0.46 mi of shoreline along Venice Beach, Sarasota County, Florida (Figure 1). The material will be dredged from all areas shallower than the authorized depth of -9 feet (ft) mean lower low water in Cuts 1-4, S-19, and S-20 (Figure 2), and placed between the Florida Department of Environmental Protection reference monuments R-116 +600 ft and R-118 +300 ft (Figure 1). The proposed berm fill profile will consist of a width of approximately 380 ft and berm crest elevation of +8.4 ft North America Vertical Datum 88. The seaward toe of fill with a slope of 1 vertical ft: 15 horizontal ft will be approximately 200 ft wide, and transition to a slope of 1 vertical ft: 30 horizontal ft for a width of approximately 130 ft (Figure 3).

Existing vegetated habitat at the staging areas, and beach access and pipeline corridors shall be protected to the maximum extent possible to minimize disturbance; therefore, impacts are not anticipated. If impacts occur, all impacted areas and vegetation will be restored to preconstruction condition and elevation. All loose debris will be removed and properly disposed of prior to sand placement.

The proposed Project will be conducted 24 hours/day, 7 days a week. Project construction is presently planned during the winter or spring of 2019, and is expected to take approximately 3 to 4 weeks to complete, taking into account adverse weather and equipment delays. The intent of the Project is to improve navigation along Venice Inlet and a portion of the Gulf Intracoastal Waterway, restore habitat for protected species along Venice Beach, and enhance recreation along the beach.

Minimization measures and exceptions

The Corps will follow and implement the Conservation Measures, Reasonable and Prudent Measures (RPMs), and the Terms and Conditions identified in the revised *Statewide Programmatic Biological Opinion* (2015-SPBO; Service 2015), and the Conservation Measures of the *Programmatic Piping Plover Biological Opinion* (P³BO; Service 2013) that apply to the Project as it applies to sea turtles and piping plovers, respectively. The P³BO Conservation Measures will also minimize effects to red knots.

To minimize impacts to manatees from the proposed Project, the Corps has agreed to follow and implement the Florida Fish and Wildlife Conservation Commission's (FWC) *Standard Manatee Conditions for In-Water Work* (FWC 2011), and the minimization measures outlined for manatees in the 2015-SPBO.

Action Area

The action area is defined as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action. The Service identifies the action area to include the sand placement template, staging areas, and beach access and pipeline corridors. The Project is located along the Gulf of Mexico, Sarasota County, Florida, at latitude 27.1129 and longitude -82.4681.

THREATENED AND ENDANGERED SPECIES

Piping plover

The Service has determined the Project's impact to non-optimal piping plover habitat is consistent with the analysis in the P³BO. As previously stated, the Corps has agreed to follow and implement the Conservation Measures outlined in the P³BO that apply to the Project. As it relates to survey guidelines defined in P³BO Conservation Measure #2, the Service approves a reduction in the survey effort, and the following revised survey guidelines can be implemented by the Corps:

1. One preconstruction winter shorebird survey will be conducted within a 10-day timeframe beginning the first Friday in February, as outlined in the Florida Shorebird Alliance's Winter Shorebird Survey (<http://www.flshorebirdalliance.org/resources/instructions-manuals.aspx>). If the February preconstruction survey is not possible, two preconstruction winter shorebird surveys will be conducted as close as possible to the February dates and at least 15 days apart, and reported to the FWC and the Service. Preconstruction surveys will not be conducted between May 16 and July 14. If piping plovers are documented during the preconstruction survey, the Service will be contacted for potential implementation of additional conservation measures prior to construction commencement.
2. The person(s) conducting the surveys must demonstrate the qualifications and ability to identify shorebird species and be able to provide the information outlined in the Winter Shorebird Survey.

Because the Project, as proposed, is consistent with the analysis for non-optimal piping plover habitat in the P³BO, the Service concurs that the Project, as proposed, may affect but is not likely

to adversely affect this species.

Red knot

Red knots may use the proposed Project area during winter and migration periods. In Florida, red knots are commonly found along sandy, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow coastal impoundments, mangrove and brackish lagoons. Red knots forage along sandy beaches during spring and fall migration throughout Florida. To date, critical habitat has not been proposed or designated for the red knot. According to our Geographic Information System database and eBird (2018), no red knots have been documented in the action area. Because suitable habitat for the red knot and piping plover is similar, minimization measures for potential effects to red knots in non-optimal habitat will be incorporated into the Project through the Corps' implementation of the Conservation Measures to reduce impacts on piping plovers for projects located in non-optimal piping plover habitat as outlined in the P³BO.

Based on the implementation of P³BO's Conservation Measures and the fact that the proposed Project area is located in non-optimal red knot habitat, the Service concurs that the Project, as proposed, may affect but is not likely to adversely affect this species.

Sea turtles

The proposed Project is located adjacent to sea turtle nesting habitat, and therefore could adversely affect nesting sea turtles, their nests, and hatchlings. The purpose of the proposed Project is to dredge Venice Inlet and place beach compatible material on up to 0.46 mi of shoreline south of the inlet. Without the restorative activities, erosion is expected to continue, potentially impacting sea turtle nesting. Consequently, the proposed Project could have beneficial effects to nesting sea turtles.

The Service has determined the Project's effects concerning inlet dredging and sand placement activities are consistent with those analyzed in the 2015-SPBO. Therefore, it is appropriate to apply the 2015-SPBO to the Project. Based on the Corps' commitment to implement the Conservation Measures, RPMs, and the Terms and Conditions identified in the 2015-SPBO that apply to the Project, the Project's take coverage for listed sea turtles is henceforth covered under the 2015-SPBO.

Terrestrial loggerhead sea turtle designated critical habitat

The Project will occur along a stretch of beach that is designated terrestrial loggerhead sea turtle critical habitat. The proposed Project may directly or indirectly impact biological and physical features of critical habitat for the NWAO DPS of the loggerhead sea turtle along approximately 0.07 mi of beach along Sarasota County. The 0.46 mi of beach along Sarasota County represents 2.85 percent of Critical Habitat Unit LOGG-T-FL-19, and 0.07 percent of all designated critical habitat in the NWAO DPS. The Service has determined the Project effects on designated terrestrial loggerhead sea turtle designated critical habitat are consistent with those analyzed in the 2015-SPBO. Based on the Applicant's commitment to implement the minimization measures, RPMs, and the Terms and Conditions identified in the 2015-SPBO that apply to the

Project, the Service concurs with the Corps' determination that the Project may affect, but is not likely to adversely affect terrestrial loggerhead sea turtle designated Critical Habitat Unit LOGG-T-FL-19.

West Indian manatee

The Project is located within the geographic range of the manatee and in the manatee consultation area, but not in an important manatee area. The Corps has agreed to follow and implement the *Standard Manatee Conditions for In-Water Work* (FWC 2011) and the minimization measures outlined for manatees in the 2015-SPBO to avoid potential effects to manatees. Based on the proposed protection measures, the Service concurs with the Corps' determination that the Project may affect, but is not likely to adversely affect the species.

REINITIATION NOTICE

This concludes consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if:

1. The amount or extent of incidental take outlined in the 2015-SPBO is exceeded. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation;
2. New information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this analysis;
3. The agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this analysis; or
4. A new species is listed or critical habitat designated that may be affected by the action.

Thank you for your cooperation in the effort to conserve fish and wildlife resources. Should you have additional questions or require clarification regarding this letter, please contact Jeff Howe at 772-469-4283.

Sincerely yours,



Roxanna Hinzman
Field Supervisor
South Florida Ecological Services Office

cc: electronic only
Corps, Jacksonville, Florida (Aubree Hershorin)
DEP, Tallahassee, Florida (Greg Garis)
EPA, West Palm Beach, Florida (Ron Miedema)
FWC, Tallahassee, Florida (FWC-CPS, Luke Davis, Nancy Douglas)
NOAA Fisheries, St. Petersburg, Florida (Dennis Klemm, Mark Sramek)
Service, St. Petersburg, Florida (Anne Marie Lauritsen)

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- U.S. Fish and Wildlife Service (Service). 2015. Statewide programmatic biological opinion to the U.S. Army Corps of Engineers (Service Log No. 41910-2011-F-0170) for shore protection activities along the coast of Florida (March 13, 2015). Jacksonville, Panama City, and Vero Beach Field Offices, Florida.

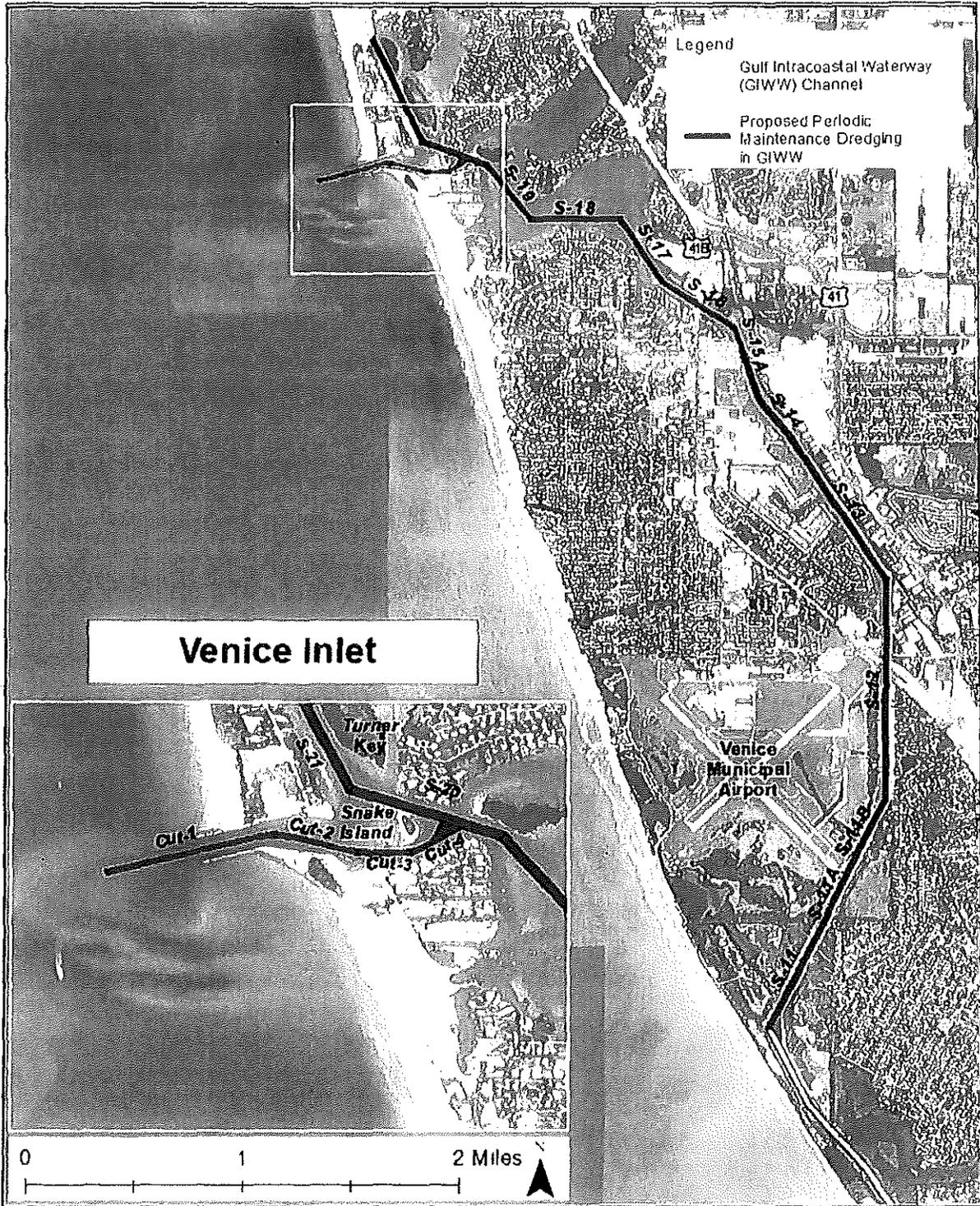


Figure 2. The portion of the Gulf Intracoastal Waterway proposed for maintenance dredging, Sarasota County, Florida.

