NATURAL RESOURCES EVALUATION

Project Development and Environment (PD&E) Study
SR A1A Over Sebastian Inlet – Bridge 880005
Bridge Replacement
Indian River County and Brevard County, Florida

Financial Project ID: 445618-1-22-02
Federal Aid Number: D420 075B
ETDM Number: 14433

PREPARED FOR

Florida Department of Transportation
District Four
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

November 2022

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MP 21.945 - MP 22.665 Roadway ID 88070000, Indian River County
MP 0.00 - MP 0.307 Roadway ID 70060000, Brevard County

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT or Department) District Four is conducting a Project Development & Environment (PD&E) Study to evaluate the replacement of the Sebastian Inlet Bridge (No. 880005) crossing the Sebastian Inlet located at the Indian River County and Brevard County boundary. The project limits extend approximately one mile along SR A1A from Mile Post (MP) 21.945 north to MP 22.665 of Roadway ID 88070000 in Indian River County continuing north from MP 0.00 north to MP 0.307 of Roadway ID 70060000 in Brevard County.

The Sebastian Inlet Bridge (bridge), also known as the James H. Pruitt Memorial Bridge, is a 1,548-feet long concrete structure constructed in 1964 to carry State Road (SR) A1A over the Sebastian Inlet (Inlet). The Inlet was created in 1919 from privately owned lands and reopened in 1923. In 1919 the Sebastian Inlet District (SID) was formed to maintain the Inlet and the submerged lands under the bridge. The fixed bridge is located within FDOT and SID right-of-way (ROW) and is adjacent to the Sebastian Inlet State Park (Park). The bridge structure and portions of the bridge approaches are located within an easement granted from the SID to the then Florida State Road Department (FSRD), now FDOT. The easement provided for construction of the bridge and all appurtenant facilities which, when constructed, became part of SR A1A for use by the public. Review of historical FSRD ROW maps, U.S. Geological Survey (USGS) maps, and SID historical documents and photographs shows SR A1A in Indian River County was acquired by the FSRD around 1961 and constructed prior to completion of the bridge. SR A1A in Brevard County was constructed with FSRD ROW between 1951 and 1956.

The purpose of this Natural Resources Evaluation (NRE) report is to evaluate potential effects to protected species, habitat including Essential Fish Habitat (EFH), and wetlands. This project has potential involvement with species under the jurisdictional purview of both the US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). The study analyzed the potential for nineteen (19) federally protected animals within the study area. Ten (10) animal species were given a **"No Effect"** determination based upon the lack of suitable habitat, while the remaining nine (9) animal species have a **"May Affect not Likely to Adversely Affect"**. Through the Florida Endangered Species Act (FESA), the Florida Fish and Wildlife Conservation Commission (FWC) has listed six (6) state protected animal and seven (7) state protected plant species which also have the potential to occur within the study area. No adverse effects are anticipated for any of these state protected animals or plants.

Wetlands and surface waters (Inlet, Atlantic Ocean) have been identified within the project study area and impacts are proposed from the bridge replacement, roadway improvements, and drainage features. The proposed improvements include impacts to approximately 0.81 acres of surface waters for bridge construction and 0.11 acres of mangroves for roadway improvements north and south of the bridge. A Uniform Mitigation Assessment Method (UMAM) functional analysis of the areas of potential impacts estimated a functional loss of 0.096 UMAM units.

EFH also occurs within the project footprint in the form of both open water and mangroves. No seagrasses, coral reefs, or other benthic resources were identified during the benthic survey performed in 2021. Impacts from the bridge pilings will occur within the open water of the Inlet, and mangrove impacts will occur from some roadway improvements and for stormwater ponds. Mitigation for impacts to mangrove wetlands is proposed for the project.

The final NRE document will be provided to the USFWS South Florida Ecological Services Office, the FWC Office of Conservation Planning Services, and the NMFS for concurrence.

1.0 PROJECT OVERVIEW

The Florida Department of Transportation (FDOT or Department) District Four is conducting a Project Development & Environment (PD&E) Study to evaluate the replacement of the Sebastian Inlet Bridge, No, 88005 crossing the Sebastian Inlet located at the Brevard County and Indian River County boundary (**Figure 1**).

The project development process, alternatives developed, and the associated social, economic, and environmental analyses follow the guidance provided in the Department's current version of the PD&E Manual and FDOT Design Manual (FDM). The project also satisfies state and federal processes and incorporates the requirements of the National Environmental Policy Act (NEPA). The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration (FHWA) and FDOT.

1.1 PROJECT DESCRIPTION

The Sebastian Inlet Bridge (bridge), also known as the James H. Pruitt Memorial Bridge, is a 1,548-feet long concrete structure constructed in 1964 to carry State Road (SR) A1A over the Sebastian Inlet (Inlet). The Inlet was created in 1918 from privately owned lands and reopened in 1923. In 1919 the Sebastian Inlet District (SID) was formed to maintain the Inlet and owns the submerged lands under the bridge. The fixed bridge is located within FDOT and SID ROW and is adjacent to the Sebastian Inlet State Park (Park). The project limits extend approximately one mile along SR A1A from Mile Post (MP) 21.945 north to MP 22.665 of Roadway ID 88070000 in Indian River County continuing north from MP 0.00 north to MP 0.307 of Roadway ID 70060000 in Brevard County.

The bridge vertical clearance is 39-feet and horizontal clearance is 150-feet between the bridge fenders. The Inlet, which is approximately 525-feet wide at the bridge, provides access for vessels between the Indian River Lagoon (Lagoon) and the Atlantic Ocean.

The existing bridge has two 12-foot travel lanes and 2-foot shoulders. Within the project limits, SR A1A has two 12-foot travel lanes. North and south of the bridge, paved shoulders are 2 to 4-feet wide. South of the bridge, shoulders are marked as designated bicycle lanes. There are currently no pedestrian or bicycle facilities located within the bridge approaches or on the bridge, creating a gap in the multimodal network along SR A1A. An 8-foot shared use path is located on the west side of SR A1A north and south of the bridge.

This project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process as project #14433. The Environmental Technical Advisory Team (ETAT) evaluated the project's effects on natural, physical, cultural, social, and economic resources. An ETDM Programming Screen Summary Report containing comments from the ETAT was published on June 3, 2020.

Figure 1: Project Location Map

The bridge has been determined eligible under Criterion C of the National Register of Historic Places (NRHP) in the area of Engineering for its high-integrity embodiment of a prestressed concrete bridge in Florida. The bridge is also situated within the Park, a Section 4(f) resource.

The project includes the evaluation of alternatives including No-Action (No-Build), Transportation Systems Management & Operations (TSM&O), Rehabilitation, and Build, replacement of the existing under deck observation/fishing piers, and the addition of bicycle and pedestrian facilities across the bridge. The underdeck observation/ fishing piers are located under the north and south portions of the bridge. Build alternatives will include evaluation of the bridge vertical clearance as required by the U.S. Coast Guard (USCG).

1.1.1 PROJECT STUDY AREA

The project study area includes the project limits of the bridge and SR A1A, as well as a 300-foot buffer outside of the ROW on both sides of the road and bridge which includes sufficient area for project alternatives and pond site alternatives. The study area is depicted on the project map (**Figure 2**).

1.2 PURPOSE AND NEED

1.2.1 PROJECT PURPOSE

The primary purpose of this project is to address the structural and functional deficiencies of the existing bridge over the Inlet. The project will also address the gap in system linkage for bicyclists and pedestrians.

1.2.2 PROJECT NEED

The bridge was inspected by FDOT District Four on November 14, 2018, following Hurricane Florence. Based on this evaluation the bridge was rated as structurally deficient with a sufficiency rating of 51.6 and a health index of 79.8. FDOT's work program requires that structurally deficient bridges, once identified, have corrective actions (repair or replacement) initiated within six years. Structurally deficient bridges are not considered unsafe for public use unless the bridge is also closed. Bridges with a health index of less than 85 require repairs or replacement.

1.2.2.1 Modal Interrelationships

There are currently no pedestrian or bicycle facilities across the bridge, creating a gap in the multimodal network along SR A1A. North and south of the bridge, SR A1A includes a separated 8-foot shared use path on the west side of the roadway. South of the Inlet, 4-foot bike lanes are marked on both side of the roadway. North of the Inlet, shoulders are 2 to 4-feet wide and not marked as bike lanes.

The *Indian River County Bicycle and Pedestrian Plan* (IRCMPO, 2015) recommends sidewalks be added on both sides of SR A1A from Windsor Boulevard to the County Line at the Inlet to supplement the existing marked bike lanes. In addition, SR A1A has been designated as a segment of the East Coast Greenway which provides a multimodal connection from Maine to Florida along the east coast of the United States.

Figure 2: Project Study Area Map

The Florida Greenway Trails System Plan (FDEP, 2018) states that the East Coast Greenway strives to provide a "high quality, safe, and motor vehicle free trail experience" for the users along the route.

1.3 ALTERNATIVE ANALYSIS

The PD&E Study considers a range of alternatives that meet the purpose and need of the project while balancing engineering requirements, environmental impacts., and public input. Project alternatives include the No-Action (No-Build), Transportation Systems Management & Operations (TSM&O), Rehabilitation, and Build Alternatives.

The development of alternatives and the associated environmental effects were evaluated according to FDOT's PD&E manual and FDM and were undertaken in a collaborative process utilizing input from the Department, stakeholders, and the study team. A comparative evaluation of the Alternatives has been evaluated using a multi-criteria qualitative and quantitative analysis as part of the PD&E Study.

1.3.1 PREVIOUS PLANNING STUDIES

FDOT performed an assessment to evaluate the feasibility of replacing the existing bridge as part of a planning level activity. The results of the feasibility study are reported in the Bridge Replacement Feasibility Report (April 2020). This study conducted evaluations to determine ROW requirements, as well as the feasibility of phased construction of a proposed bridge and the approach to maintenance of traffic during construction. Additional feasibility study activities included:

- Traffic Data
- Operational Analysis
- Benthic Survey of Inlet
- Vessel Survey
- Section 4(f) Research Memo
- Preliminary Geotechnical Review
- Feasibility Study

1.3.2 FUTURE CONDITIONS

Future traffic volumes were developed as part of the feasibility study and documented in the *Traffic Counts and Traffic Projections* report (March 2020). The growth rates were calculated based on analysis of historical traffic counts and 2040 population and employment data.

A study area growth rate of 1.0% was selected and applied to the existing (2019) Annual Average Daily Traffic (AADT) volumes to project future AADT. Future traffic volumes were computed for Opening Year (2025) and Design Year (2045) for both weekday and weekend scenarios during AM and PM peak hours. Future intersection turning movement volumes were also calculated. The alternatives evaluated in the March 2020 report included the No-Action and one Build Alternative. Since this is a bridge replacement project and the capacity along SR A1A will be maintained, future traffic volumes for both alternatives were projected to be the same.

As part of the PD&E Study, a *Project Traffic Analysis Report* (January 2020) was prepared to:

- Validate that the 2-lane capacity will sufficiently accommodate future traffic demand
- Evaluate the two intersections along the project corridor that are access points to/from the Park
- Perform safety analysis

Table 1: Evaluation Matrix

Criteria/Category		No Action Alternative	Rehabilitation Alternative	51-Feet Fixed Bridge Alignment		
				Alternative 1 (Existing)	Alternative 2 (East)	Alternative 3 (West)
PURPOSE AND NEED	Meets Purpose and Need for the Project	No	No	Yes	Yes	Yes
BRIDGE	Vertical Navigational Clearance above Mean High Water	39-feet	39-feet	51-feet	51-feet	51-feet
	Horizontal Navigational Clearance Between Fenders	150-feet	150-feet	150-feet	150-feet	150-feet
	Benefit to Marine Traffic	No Change	No Change	Yes	Yes	Yes
	Temporary Bridge Required	N/A	No	Yes	No	No
	Bridge Closure or Detour During Construction	N/A	No	No	No	No
	Life of Alternative (Estimated Years) [1]	5	15	75	75	75
TRAFFIC OPERATIONS	Benefit to Vehicular Traffic	No	No	Yes	Yes	Yes
	Evacuation / Emergency Response (Improved)	No	No	Yes	Yes	Yes
	Sebastian Inlet State Park North Entrance (Improved)	No	No	Yes	Yes	Yes
	Sebastian Inlet State Park South Entrance (Improved)	No	No	Yes	Yes	Yes
	Sebastian Inlet District North Access Road (Improved)	No	No	Yes	Yes	Yes
NATURAL RESOURCES	Impacts to Wetlands (Acres)	0	0	1.61	0.11	2.03
	Impacts to Surface Waters (Acres)	No Change	0.4	1.23	0.81	0.81
	Impacts to Species Habitat: EFH (Acres) / Beach Mice (Acres)	0	2.73 / 0.46	4.77 / 0.0	0.81 / 0.0	5.19 / 0.0
SOCIAL & CULTURAL RESOURCES	Impacts to Section 4(f) Resources (Park) (Acres)	No	No	7.14	6.1	6.96
	Potentially Eligible Archaeological Resources (Number)	0	0	1	0	1
	Eligible Historic Resources (Number)	0	1	1	1	1
	Bicycle and Pedestrian Facilities	No	No	Yes	Yes	Yes
PHYSICAL RESOURCES	Noise Receptors Impacted	0	0	0	0	1
	Contamination Sites [2]	0	0	0	0	0
	Aesthetics / Visual Changes	No	Yes	Yes	Yes	Yes
RIGHT-OF-WAY	Additional Right-of-Way Required (Acres)	0	0	6.85	5.12	6.65

Table 1: Evaluation Matrix

Criteria/Category		No Action Alternative	Rehabilitation Alternative	51-Feet Fixed Bridge Alignment		
				Alternative 1 (Existing)	Alternative 2 (East)	Alternative 3 (West)
COSTS (Dollars)	Design	0	1,479,300	6,656,900	6,217,175	6,217,175
	Bridge and Roadway Construction	0	10,362,400	94,306,700	94,306,700	94,306,700
	Temporary Bridge Construction	0	0	6,906,600	0	0
MITIGATION COSTS (Dollars)	Section 4(f) (Proposed Improvements)	0	TBD	TBD	TBD	TBD
	Wetlands	0	TBD	TBD	TBD	TBD
	Acquisition and Restoration Council (ARC)	0	TBD	TBD	TBD	TBD
	TOTAL COST	**0**	**11,841,700**	**107,870,200**	**100,523,875**	**100,523,875**

[1] FDOT policy states a structurally deficient bridge replacement be initiated within 6 years.

PRELIMINARY AND SUBJECT TO CHANGE

[2] Bridge will be evaluated for lead paint during design.

Low Medium High

1.4 SELECTION OF THE PREFERRED ALTERNATIVE

Following the January 11 and 13, 2022 Alternatives Public Workshop and as a result of the comprehensive resources evaluation, environmental and engineering studies, costs, and involvement of the public, local officials, and federal and state resource agencies, **Alternative 2 (East)** was selected as **the Preferred Alternative**.

The Preferred Alternative avoided, where possible, and minimized overall impacts to the greatest extent practicable while meeting the stated purpose and need to address the structural and functional deficiencies of the existing bridge and the gap in system linkage for bicyclists and pedestrians.

The Preferred Alternative includes a new bridge alignment that is shifted to the east of the centerline of the existing bridge. The western limit of the new bridge typical section is generally located near the western limit of the existing bridge **(Figure 3)**.

South of the bridge, the Preferred Alternative improvements include:

- Reconfiguration of the south Park entrance including the addition of an exit right turn lane
- A southbound acceleration lane from the south Park exit
- Lengthened storage of the southbound right turn lane into the Park
- Continuation of the shared use path on the west side of the bridge and roadway
- Addition of a shared use path on the east side of the bridge and roadway that extends to the public parking lot located on the east side of SR A1A
- Addition of a crosswalk crossing SR A1A at the south Park entrance

North of the bridge, the Preferred Alternative improvements include:

- Reconfiguration of the north Park entrance including the addition of an exit right turn lane
- Lengthened storage of the southbound right turn lane into the Park
- Continuation of the shared use path on the west side of the bridge and roadway
- Addition of a shared use path on the east side of the bridge and roadway terminating at the north Park entrance
- Addition of a crosswalk crossing SR A1A at the north Park entrance

All bridge improvements are located within existing FDOT ROW. Approximately 0.56 acre of ROW is required to meet current design standards for clear zone and maintenance associated with bridge approaches, roadway, Park entrances, and shared use path improvements. Additional ROW may be required for stormwater management totaling 4.56 acres.

Because the new bridge will be constructed in phases, the existing bridge will remain in place while the east portion of the new bridge is constructed. This new construction will include the shared use path, shoulder, and northbound travel lane.

Once construction of the east portion of the new bridge is completed, traffic will be diverted to the newly constructed portion of the bridge. The existing bridge will then be demolished followed by construction of the west side of the bridge completing the new bridge.

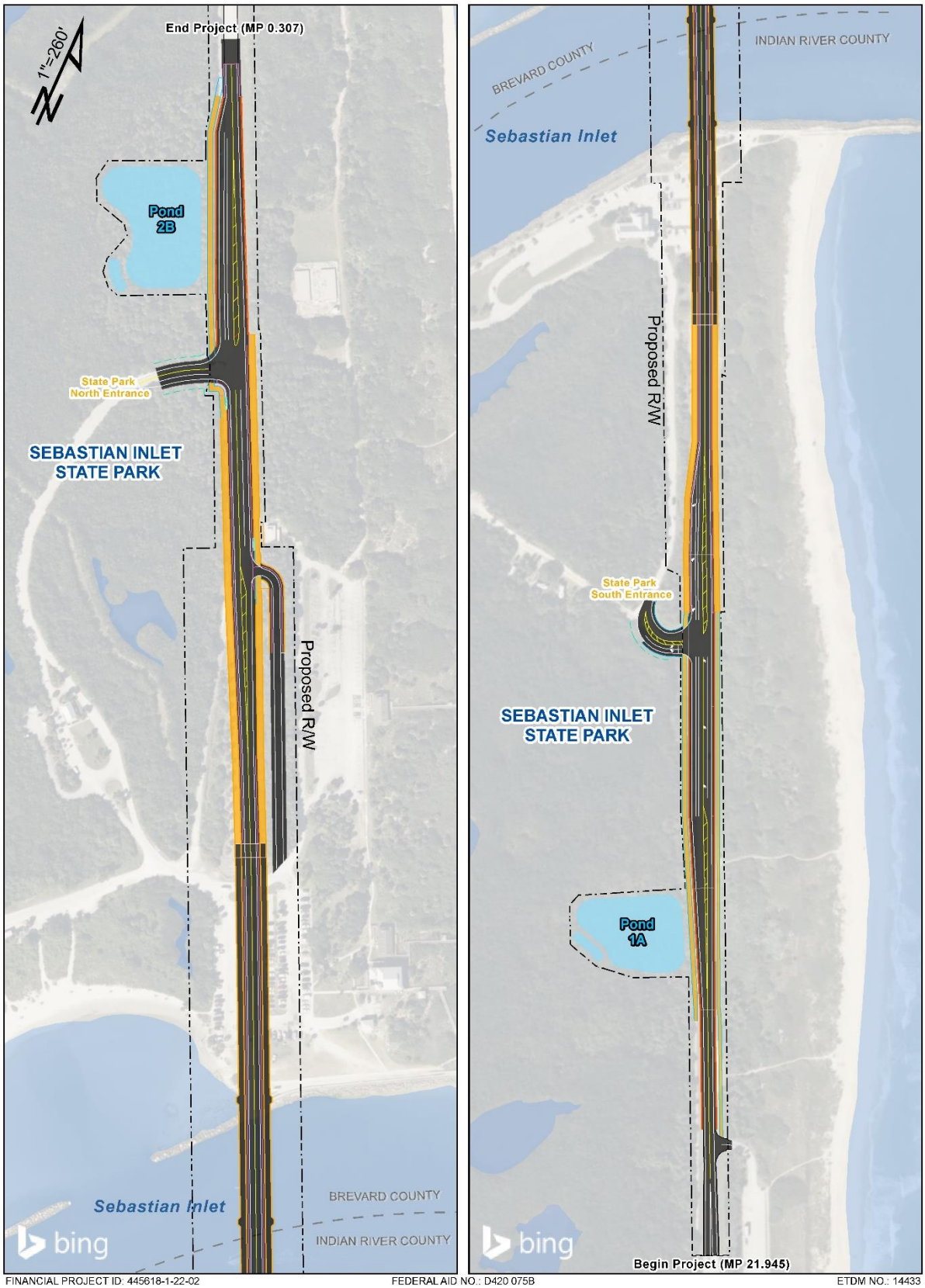


Figure 3: Preferred Alternative

2.0 EXISTING ENVIRONMENTAL RESOURCES

Assessment of the existing environmental resources began with a review of environmental data available through Geographic Information Systems (GIS) databases, generally provided by federal, state or local agencies. This data was utilized as a first step to determine the approximate locations and boundaries of existing upland and wetland communities within the project study area and potential utilization of the project study area by protected species. The existing environmental resources identified were based on data from the following agencies or GIS data warehouses, with updates and modifications based on field verifications. The information reviewed included:

- ESRI Aerials Data
- Bing Aerial Data
- U.S. Department of Agriculture (USDA), Web Soil Survey
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Geological Survey (USGS), Topographic Quadrangle Maps, 7.5-minute series.
- Northwest Florida Water Management District (NWFWMD)
- U.S. Fish and Wildlife Service: Critical Habitat and Wetlands Mapper, Open Sources GIS data
- Florida Fish and Wildlife Conservation Commission, Imperiled Species List and GIS Data
- Florida Department of Transportation (FDOT), Florida Land Use, Cover, and Forms Classification System (FLUCCS), 4th ed., January 1999.
- Project Specific Surveys, Reports and Other previously prepared information

2.1 LAND USE

The existing land use and habitat cover was developed using the Florida Land Use Cover and Forms Classification System (FLUCCS) (**Figure 4**). The data was modified to match the existing conditions within the project study area identified during field reviews, and is described below:

BEACH (181)
The beach located along the Atlantic Ocean, in the vicinity of the project, consists of sand and is available for public recreation activities. This category represents the land from the front of the primary dune to the water.

COMMUNITY RECREATIONAL FACILITIES (186)
This classification includes the Sebastian Fishing Museum, Inlet Grill & Gifts, and Inlet Bait and Tackle facilities located within the Park.

COASTAL SHRUB / BACK DUNE (322)
This classification represents a wide variety of species found in the coastal zone from the back of the dune system moving landward away from the beach. Common vegetative components include saw palmetto, yaupon, railroad vine, sea oats, sea purslane, sea grape, prickly pear, Hercules club, and small oaks.

TROPICAL HARDWOODS / MARITIME HAMMOCK (426)
This forested cover type is located farther landward of the coastal shrub and upland of the mangrove swamps. Common components include gumbo limbo, mastic, stoppers, wild lime, strangler fig, lancewood, poisonwood, sea grape, marlberry, and wild tamarind.

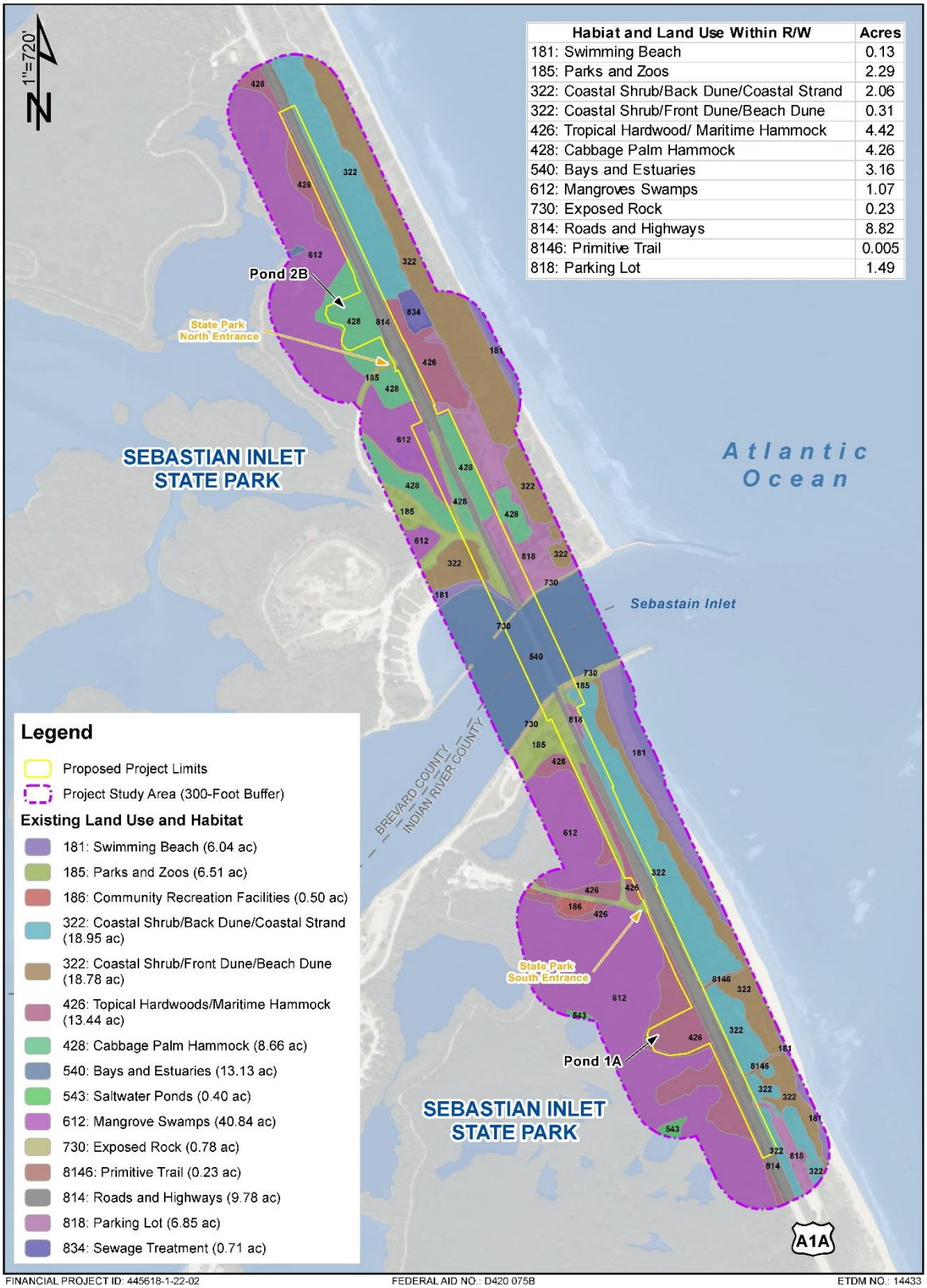


Figure 4: Project Land Use Map

CABBAGE PALM (428)
This forested community is predominantly cabbage palm and is found on sandy soils. Other species can include a wide variety of large and small hardwoods and could include some slash or longleaf pine.

BAYS AND ESTUARIES (540)

Bays and estuaries are inlets or arms of the sea that extend into land and, as such, are properly classified in this system only when they are included within the land mass of Florida. The Inlet and swimming lagoon comprise this category.

SALTWATER PONDS (543)
These features occur as inland ponds connected to the surrounding bays or estuaries via tidal fluctuations or man-made drainage features, such as a culvert, and are otherwise not connected hydraulicly. Some of these are located within the mangrove swamps where they have been cut off from the bays by roadways within the Park.

MANGROVE SWAMPS (612)
This coastal hardwood community is composed of red and/or black mangrove which is pure or predominant. Major associates include white mangrove, buttonwood, sea grape, and cabbage palm.

EXPOSED ROCK (733)
This classification consists of large riprap rock laid along the edge of the Inlet as a protective measure against erosion. It exists along the north and south sides of the Inlet and the north and south jetties that extend east into the ocean.

ROADS AND HIGHWAYS (814)
This classification includes SR A1A.

AUTO PARKING (818)
This classification includes parking lots for the Park and beach access.

SEWAGE TREATMENT (834)
This classification includes the sewage treatment facility and aeration field

2.2 SOILS

The project occurs in both Brevard and Indian River Counties, therefore, information on soil types occurring within the project study area are broken down by county (**Figure 5**).

2.2.1 BREVARD COUNTY

CANAVERAL COMPLEX, GENTLY UNDULATING (CA)

This complex consists of nearly level and gently sloping soils that are mixtures of sand and shell fragments. It is along the Atlantic Coast on narrow ridges interspersed with parallel narrow sloughs. That water table is between depths of 10 to 40 inches for 2 to 4 months a year. The natural vegetation is saw palmetto and scrub live oak on ridges and sand cord grass in sloughs.

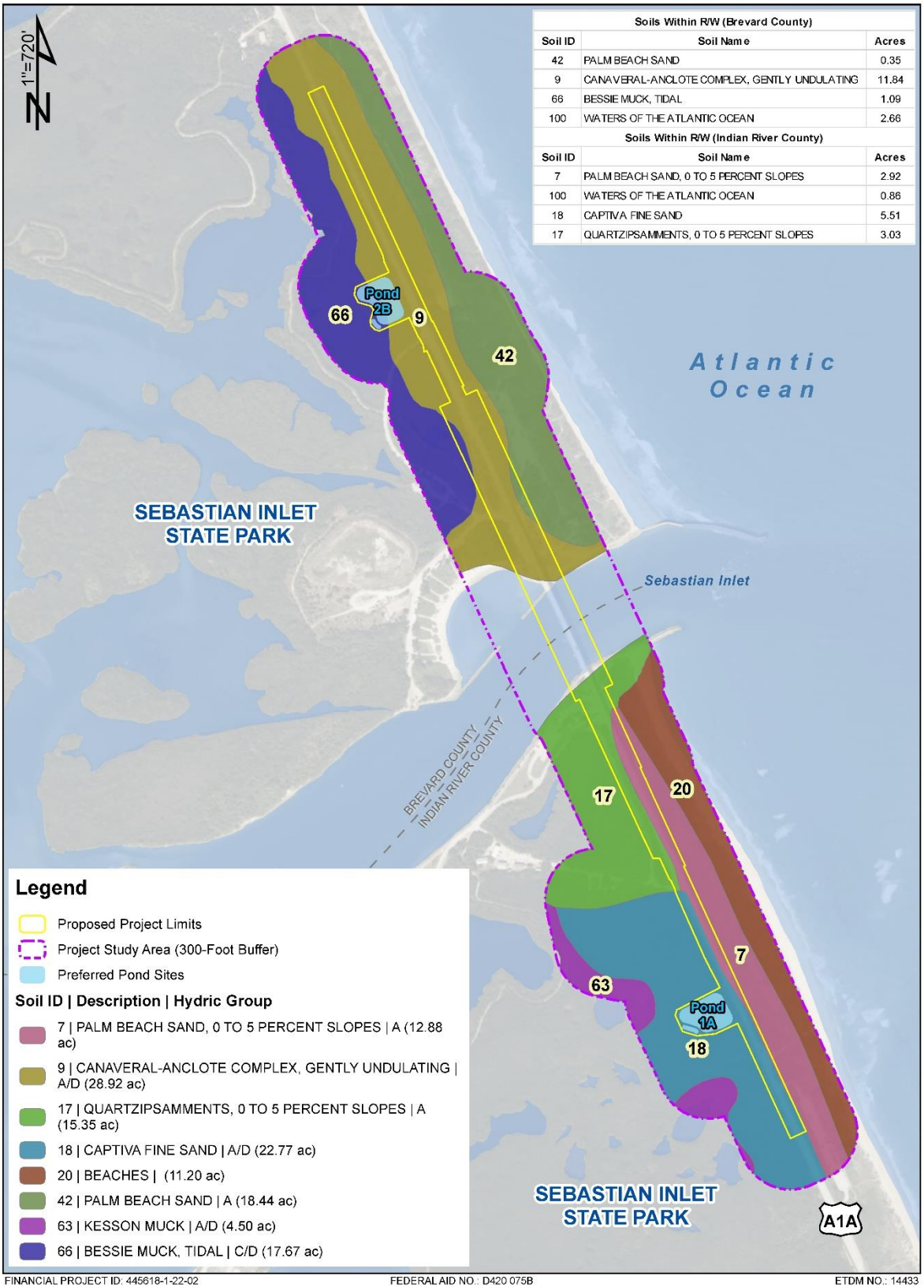


Figure 5: Project Soils Map

COASTAL BEACHES (CK)

Coastal beaches consist of narrow strips of nearly level or gently sloping sand, along the Atlantic Ocean, which is covered with salt water at daily high tides and of low dunes adjacent to the tide-washed sands. This material is a mixture of quartz sand and fragments of seashells. It is subject to movement by wind and the tide and is bare of vegetation. In places clay balls are imbedded in the sand. The only vegetation is salt-tolerant plants.

PALM BEACH SAND (PB)

This is a nearly level, gently sloping, excessively drained soil on dunelike ridges that roughly parallel the Atlantic Ocean. It consists of mixed sand and shell fragments. Slopes are from 2 to 5 percent. The water table is at a depth of more than 10 feet. Most areas are still in natural vegetation of saw palmetto, scattered cactus, scrub live oak, sea grapes, and clumps of sea oats.

TIDAL SWAMP (TS)

This consists of nearly level areas at about mean sea level that are covered with a dense, tangled growth of mangrove trees and roots. It is along the edge of the Banana and Indian Rivers and in smaller areas adjacent to salt water. The dense tangled growth of mangrove trees and roots makes investigation of this unit difficult. The soil material ranges from mixed sand and shells to organic materials. On more than half the acreage in the county low dikes have been constructed around the seaward perimeter. Artesian wells maintain a fairly constant water level within the diked areas for mosquito control and wildlife management. The water is 6 to 36 inches deep within the diked areas and brackish. Very high storm tides can overflow some of the dikes. Areas outside the dikes are generally covered with salt water during daily high tides.

2.2.2 INDIAN RIVER COUNTY

PALM BEACH SAND, 0 TO 5 % SLOPES (7)

This soil is nearly level to gently sloping and well drained to excessively drained. It is on dunelike ridges that are parallel to the coastline. The acreage mapped is in one linear unit that varies from 100 feet in width to more than 1,600 feet. This map unit is adjacent to the beach. Slopes are from 0 to 5 percent but can range from 0 to 8 percent. Permeability is very rapid, and the available water capacity is very low. It has no water table within a depth of 80 inches. The natural vegetation consists of cabbage palm, scrub oak, saw palmetto, sea grape, and prickly pear.

QUARTZIPSAMMENTS 0 TO 5 % SLOPES (17)

This soil is nearly level to gently sloping and moderately well drained to somewhat poorly drained. It consists of thick deposits of sand and mixed sand and shell fragments. This fill material is the result of earthmoving operations. The soil in this map unit is used to fill such areas as sloughs, marshes, shallow depressions, swamps, and other low-lying areas above their natural ground levels. The water table varies with the amount of fill material and artificial drainage within the map unit. In most years, it is at a depth of 24 to 36 inches below the surface of the fill for 2 to 4 months. The water table is below a depth of 40 inches during extended dry periods. The existing vegetation consists of south Florida slash pine, scattered saw palmetto, and various weeds.

CAPTIVA FINE SAND (18)

This soil is nearly level and poorly drained. It is in narrow, elongated sloughs that are between low, dunelike ridges and mangrove swamps. The mapped areas range from 10 to 200 acres. Slopes are smooth and range from 0 to 1 percent. In most years, under natural conditions, the water table is at a depth of 10 to 40 inches for 6 to 9 months or more and within a depth of 10 inches of the surface for 1 to 3 months during the wet season. In some years, the soil is covered by standing water for about 1 month. A large part of the acreage has been cleared and planted as citrus. If present, natural vegetation consists of cabbage palm, tamarind, Australian pine, wax myrtle, strangler fig, wild coffee, and leather leaf fern.

BEACHES (20)

This map unit consists of nearly level to sloping, narrow strips of tide and surf washed sands and shell fragments. Beaches range from less than 100 feet to about 300 feet in width. About half of the beach area may be flooded daily during high tides, and all of the beaches can be flooded by storm tides. Most beaches have a uniform gentle slope to the water's edge, although the shape and slope can change with every storm. Beaches are generally devoid of vegetation, although some sparse growth of sea-oats, railroad vine, or other salt-tolerant plants can occur near the landward edges. Depth to the water table is highly variable depending on the distance from the shore, elevation of the beach, and tidal conditions. Commonly, the water table ranges from a depth of 0 to 6 feet.

KESSON MUCK (63)

This soil is nearly level and very poorly drained and is frequently flooded, occurring in tidal swamps and marshes. This soil formed in thick marine deposits of sand and shell fragments. These swamps and marshes are at or near sea level and are adjacent to the Indian River. Tidal water inundates most of these areas at high tide. Some areas of this soil have been leveled off and are used as mosquito control structures. Under natural conditions, this soil is flooded during normal high tides. The native vegetation consists of red, black, and white mangroves, with sea rocket, saltwort, perennial glasswort, seashore salt grass, and seashore paspalum.

2.3 OTHER NATURAL RESOURCES AND FEATURES

The Park is located on both sides of the bridge and includes additional recreational facilities such as fishing piers and a swimming lagoon. All of the waters associated with the Park are designated as Outstanding Florida Waters (OFW). The Indian River Lagoon (IRL) is designated as an Aquatic Preserve to the west of the Inlet, though the preserve is not included in the project study area.

3.0 PROTECTED SPECIES AND HABITAT EVALUATION

In order to determine federal and/or state listed animals and plants that have the potential to occur within the project study area, site-specific data was collected and evaluated. The literature reviewed and databases searched as part of this evaluation include:

- FDOT ETDM Programming Screen Summary Report Number 14433;
- *U.S. Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12, June 2007;*

- *Florida Fish and Wildlife Conservation Commission, Florida's Endangered and Threatened Species, updated December 2018;*
- *Florida Fish and Wildlife Conservation Commission, Florida's Imperiled Species Management Plan, Amended December 2018;*
- *Florida Department of Agriculture and Consumer Services, Florida Forest Service, Florida's Federally Listed Plant Species website (*https://www.fdacs.gov/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health/Florida-Statewide-Endangered-and-Threatened-Plant-Conservation-Program/Florida-s-Federally-Listed-Plant-Species*);*
- *Florida Fish and Wildlife Conservation Commission, Eagle Nest Locator website* (https://myfwc.com/wildlifehabitats/wildlife/bald-eagle/*);*
- *Audubon Florida EagleWatch Public Nest App (https://cbop.audubon.org/conservation/about-eaglewatch-program)*
- *Florida Fish and Wildlife Conservation Commission, Wading Bird Rookeries website* (http://geodata.myfwc.com/*);*
- *U.S. Fish and Wildlife Service, Critical Habitat Portal website (*http://ecos.fws.gov/crithab*/);*
- *Florida Natural Areas Inventory (FNAI) Biodiversity Matrix Map Server (*http://www.fnai.org/biointro.cfm*);*
- *U.S. Fish and Wildlife* Service*, Information for Planning and Consultation (IPAC)*, https://ecos.fws.gov/ipac/
- *Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute Indigo Snake Occurrences in Florida;* (http://geodata.myfwc.com/*); and*
- *U.S. Fish and Wildlife Service*, Wood Stork website (https://www.fws.gov/northflorida/WoodStorks/wood-storks.htm).

While there are numerous federal laws that assist in the protection of listed species, the Endangered Species Act (ESA) serves as the guiding document for the conservation and recovery of listed animals and plants native to the United States and its territories. The ESA is administered by the Department of the Interior (USFWS), and the Commerce Department (NMFS). The USFWS has the responsibility for terrestrial and freshwater animals and plants, where the NMFS has the responsibility for mainly marine wildlife. Other federal laws protecting wildlife which may or may not also be protected by the ESA, include the Marine Mammal Protection Act, Wild Bird Conservation Act, Bald and Golden Eagle Protection Act, and Migratory Bird Treaty Act. The above laws and PD&E Manual were reviewed and utilized during the evaluation of the project study area to assess the potential involvement of federally listed species.

This evaluation also reviewed the potential for state listed animals and plants that may occur with the project study area. Chapter 379 Florida Statutes (F.S.) provides direct protection of wildlife from activities that may harm or jeopardize the species. However, section 379.2291, F.S., FESA provides the details related to the conservation and management of threatened and endangered species within Florida. The Marine Life statute (section 379.2401-379.26, F.S.) provides specific protections to marine (brackish water) species. Other chapters and sections within the F.S. which involve wildlife generally deal with habitat issues, such as The Florida Water Resource Act of 1972 (Chapter 373, F.S.).

In addition to Chapter 379F.S., the Division of Plant Industry (DPI), Florida Department of Agriculture and Consumer Services (FDACS), authorized under Rule 5B-40 of the Florida Administrative Code (F.A.C), is responsible for the regulation of endangered, threatened, and commercially exploited plants of Florida.

A benthic survey (**Appendix 4**) was conducted in June 2021 to characterize the benthic habitats and presence of federal and state listed species in the marine environment (**Section 5.0**). Terrestrial habitat

assessments were also conducted in September 2021, to identify and assess the wetland and terrestrial habitats as well as for the presence/absence of any evidence of utilization by threatened and/or endangered species. These surveys consisted of a pedestrian survey of the project study area conducted by project biologists.

3.1 FEDERALLY LISTED SPECIES

According to the findings of the preliminary desktop database review and USFWS Information for Planning and Consultation (IPaC) report (**Appendix 5**), the proposed bridge replacement occurs within the USFWS's designated Consultation Areas for the West Indian manatee (*Trichechus manatus*), Atlantic salt marsh snake (*Nerodia clarkii taeniata*), piping plover (*Charadrius melodus*), southeastern beach mouse (*Peromyscus poliontus niveiventris*), and Florida scrub jay (*Aphelocoma coerulescens*). In addition, the project is within USFWS designated critical habitat for the West Indian manatee. The project is also within the Core Foraging Area (CFA, a designated 18.6-mile radius from a known wood stork roost) of five wood stork colonies. Other listed species that could inhabit the project study area include green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), Kemp's ridley sea turtle (*Lepidochelys kempii*), hawksbill sea turtle (*Eretmochelys imbricata*), leatherback sea turtle (*Dermochelys coriacea*), smalltooth sawfish (*Pristis pectinata*), and the giant manta ray (*Manta birostris*). Finally, loggerhead sea turtle nearshore reproductive critical habitat is found just outside the Inlet to the east of the project study area.

Based on availability of suitable habitat and known species ranges, **Table 2** lists the federal and state listed species with the potential to occur within the project study area. Each species is given a rating of high, moderate, or low likelihood of occurrence as defined below.

High – Preferred habitat exists within project limits and species have been observed or reported within the project study area.

Moderate – Some preferred habitat exists within the project limits, but species have not been observed in the project study area.

Low – Preferred habitat is limited or lacking within the project limits and species have not been observed in the project study area.

Table 2: Federally Listed Species Potentially Occurring within the Project Area

Common Name	Scientific Name	Listing	Occurrence Potential
Birds			
Florida scrub jay	*Aphelocoma coerulescens*	FT	Low
Audubon's crested caracara	*Polyborus plancus*	FT	Low
bald eagle	*Haliaeetus leucocephalus*	NL	Low
wood stork	*Mycteria americana*	FT	High
piping plover	*Charadrius melodus*	FT	Low
red knot	*Calidris canutus rufa*	FT	Low
Eastern black rail	*Laterallus jamaicensis*	FT	Low
Reptiles			
Kemp's ridley sea turtle	*Lepidochelys kempii*	FE	Low

Table 2: Federally Listed Species Potentially Occurring within the Project Area			
Common Name	**Scientific Name**	**Listing**	**Occurrence Potential**
green sea turtle	*Chelonia mydas*	FT	High
loggerhead sea turtle	*Caretta caretta*	FT	High
leatherback sea turtle	*Dermochelys coriacea*	FE	Low
hawksbill sea turtle	*Eretmochelys imbricata*	FE	Low
Atlantic salt marsh snake	*Nerodia clarkii taeniata*	FT	Low
Eastern indigo snake	*Drymarchon corais couperi*	FT	Low
gopher tortoise	*Gopherus polyphemus*	CS*	High
Mammals			
Florida panther	*Puma concolor coryi*	FE	Low
West Indian manatee	*Trichechus manatus*	FT	High
Southeastern beach mouse	*Peromyscus polionotus niveiventris*	FT	Moderate
Fish			
smalltooth sawfish	*Pristis pectinata*	FE	Moderate
giant manta ray	*Manta birostris*	FE	Low

*Discussed under state-listed species

The following subset of species falls under the jurisdiction of the NMFS or USFWS. Any involvement with these species or designated critical habitat would require consultation under Section 7 of the ESA. The NRE focuses on this subset of listed species where suitable habitat is present within the study area and a moderate or high likelihood of occurrence exists. The determination of No Effect was made for the non-aquatic species listed with a low potential to occur because of the lack of suitable habitat and documented occurrences / observations made.

3.1.1 NMFS PURVIEW

Kemp's Ridley sea turtle (*Lepidochelys kempi):* The Kemp's Ridley listed as **Federally Endangered**, is the rarest sea turtle in the world. According to the Florida Fish and Wildlife Commission (FWC), this species' only major nesting beach is Rancho Nuevo on Mexico's Gulf coast; however, nesting females can be found on Florida and south Texas beaches. No potential nesting beaches are anticipated to be impacted by this project and sea turtles generally use the Inlet for passage back and forth from the Atlantic Ocean to the Lagoon and, as such, would only be found in the project area while temporarily passing through the Inlet. Therefore, the project **May Affect but is Not Likely to Adversely Affect** this species.

Green turtle (*Chelonia mydas*): Atlantic populations of green turtles are typically found in estuarine, marine coastal and oceanic waters. This species, listed as **Federally Threatened**, nests on coastal Atlantic sand beaches between Volusia and Miami-Dade counties. Juveniles are frequently found in coastal bays, inlets, lagoons and offshore reefs. Large juveniles and adults feed on seagrasses and algae. No potential nesting beaches are anticipated to be impacted by this project and sea turtles generally use the Inlet for passage back and forth from the Atlantic Ocean to the Lagoon and, as such, would only be found in the project area while temporarily passing through the Inlet. The project proposes to install only turtle safe and approved lighting for the bridge, fishing pier, and any areas where pedestrian lighting is required. Therefore, the project **May Affect but is Not Likely to Adversely Affect** this species.

Loggerhead turtle (*Caretta caretta*): The loggerhead turtle, listed as **Federally Threatened**, is found in marine coastal and oceanic waters. They nest on coastal sand beaches often near the dune line where it is sufficiently high enough to avoid inundation. Hatchlings often use offshore floating sargassum mats, and juveniles frequent coastal bays, inlets and lagoons. No potential nesting beaches are anticipated to be impacted by this project and sea turtles generally use the Inlet for passage back and forth from the Atlantic Ocean to the Lagoon and, as such, would only be found in the project area while temporarily passing through the Inlet. The project proposes to install only turtle safe and approved lighting for the bridge, fishing pier, and any areas where pedestrian lighting is required Therefore, the project **May Affect but is Not Likely to Adversely Affect** this species.

Smalltooth sawfish (*Pristis pectinata*): The smalltooth sawfish is listed as **Federally Endangered** by the USFWS but is not listed by the FWC. The smalltooth sawfish is one of two species of sawfish that inhabit coastal US waters. Sawfish species are year-round residents of peninsular Florida, with most encounters occurring in southwest Florida from Charlotte Harbor to the Florida Keys. According to the FWC, smaller individuals from 3 to 6 feet (1 to 1.8 meters) total length typically live in estuarine systems close to shore near river mouths or tidal creeks, while larger smalltooth sawfish up to 18 feet (5.5 meters) typically inhabit deeper offshore waters. Juvenile smalltooth sawfish most often inhabit brackish water within a mile of land. They can be found in a wide range of habitats, including mud bottoms, sand bottoms, oyster bars, red mangrove shorelines, docks, seawall-lined canals and piers. The smalltooth sawfish is ovoviviparous meaning the mother carries the eggs inside her until they hatch, and the young are born alive, usually in litters of 15 to 20 pups. Juveniles will travel many miles up rivers if freshwater inflow is reduced. Large smalltooth sawfish, longer than 10 feet (3 meters), are occasionally found near shore in the spring when most sawfish are born, and mating is thought to occur, but most are reported in deeper offshore waters with muddy bottoms. The substrate around the entire project study area consists of rocky rubble and clean concrete debris that has been deposited to stabilize the shoreline of the undeveloped spoil islands (no seawalls present). The same material has been used to face the seawalls at the bridge approaches and shorelines of the developed spoil islands within the project study area. Since the smalltooth sawfish prefers sandy or muddy substrates, it is not likely to be present in the immediate project study area where the bottom is mostly rocky. Therefore, the project **May Affect but is Not Likely to Adversely Affect** the smalltooth sawfish.

Giant manta ray (*Manta birostris*): The giant manta ray, listed as **Federally Threatened**, is the world's largest ray with a wingspan of up to 29 feet. They are filter feeders eating large quantities of zooplankton and are migratory with small highly fragmented populations distributed around the globe. The primary threat is as bycatch due to commercial fishing activities. Although primarily an offshore species, they can be found in productive coastlines with regular upwelling, and in estuarine waters, oceanic inlets, and within bays and intercoastal waterways. Although the work in the water for the bridge replacement will involve some in-water activity, with the inclusion of the standard in-water conditions for manatees, sea turtles and sawfish, and the use of the Protected Species Construction Conditions, NOAA Fisheries Southeast Regional Office, the project **May Affect but is Not Likely to Adversely Affect** the giant manta ray.

3.1.2 USFWS PURVIEW

West Indian manatee (*Trichechus manatus*): Manatees, listed as **Federally Threatened**, are herbivorous marine mammals found in marine, estuarine, and freshwater environments. Manatees have large bodies with paired flippers and a round, paddle-shaped tail. They are typically grey in color and

occasionally spotted with barnacles or colored by patches of green or red algae. The muzzle is heavily whiskered and coarse, single hairs are sparsely distributed throughout the body. The manatee typically inhabits coastal waters, bays and rivers. They require warm-water refugia during cold weather and can frequently be observed in large groups gathered in the effluent of cooling facilities at such times. The manatee is wide ranging during warmer months and restricted to springs and other warm-water areas during the winter. It can be found in any coastal or estuarine waters but is most common in peninsular Florida. This project occurs within an area where manatees are frequently observed traveling to and from Warm Water Aggregation Areas, foraging and aggregation areas. This species is also Federally protected under the Marine Mammal Protection Act. Manatees were observed within the Inlet during the benthic survey and are known to frequent the area. According to The Corps of Engineers, Jacksonville District, and The State of Florida Effect Determination Key for the Manatee in Florida (April 2013), (**Appendix 7**) the project (A) is located in waters accessible to manatees, (B) is other than the activities listed, (C) is located in an Important Manatee Area, (D) does not include dredging, (G) does not provide new access for watercraft, (N) does not impact submerged aquatic vegetation, emergent vegetation, and impacts to mangroves will have insignificant, discountable, or no effect on the manatee, (O) elects to follow standard manatee conditions for in-water work and requirements, as appropriate for the proposed activity, and (P) is other than a repair or rehabilitation of a multi-slip facility, residential dock facility, shoreline stabilization, or dredging, and does not provide new access for watercraft or improve existing access to allow increased watercraft usage, the project **May Affect but is Not Likely to Adversely Affect** the manatee.

Wood stork (*Mycteria americana*): Wood storks, listed as **Federally Threatened**, are large, long-legged wading birds with overall white plumage except for black primary and secondary wing feathers and a short black tail. Wood storks generally feed on small freshwater fish and nest primarily in cypress swamps of the Everglades. According to the USFWS, small fish from 1 to 6 inches long provide this bird's primary diet. Wood storks capture their prey by a specialized technique known as grope-feeding or tacto-location, and often forage in water 6 to 10 inches deep or less, where a stork would be able to stand and probe with its bill partly open. Wood storks' core foraging area is defined by the USFWS as 18.6 miles from their nesting site for south Florida colonies. While the species has been known to use thermals to soar as far as 80 miles from nesting to feeding areas, this project is not located within the core foraging area of an active nesting colony according to the USFWS's map of Wood Stork Nesting Colonies and Core Foraging Areas Active Within 2006-2015 in Florida. A wood stork was observed foraging in the shallows of the swimming lagoon during one of the field surveys conducted during this project. According to the Corps of Engineers Programmatic Key for the Wood Stork in South Florida (May 2010), (**Appendix 7**) the project (A) impacts Suitable Foraging Habitat (SFH) at a location greater than 0.47 miles from a colony site, (B) impacts to SFH is greater in scope than one half acre, (C) is not within 18.6 miles of a colony site, and (D) impacts have been avoided and minimized to the extent practicable and compensation for unavoidable impacts is proposed in accordance with CWA section 404b(1) guidelines, the project **May Affect but is Not Likely to Adversely Affect** the wood stork.

Southeastern beach mouse (*Peromyscus polionotus niveiventris*): The Southeastern beach mouse, listed as **Federally Threatened**, is the largest beach mouse and the only species that digs an extensive burrow. The mice are semi-fossorial and use these burrows as a place to rest, escape from predators, have and care for young, and hold limited food caches. They typically have both an entrance tunnel and escape tunnel in addition to the nest chamber. They are usually located along the sloping side of a dune at the base of a shrub or clump of grass. Beach mice inhabit primary dunes, secondary dunes, and interior scrub dunes or coastal strand which provide a more stable level of food resources. The sea oat

zone of primary dunes is considered essential habitat for this mouse on the Atlantic Coast. Beach mice have been documented anecdotally within the limits of the Park south of the Inlet, though no formal data on surveys have been received from Park management. The preferred alternative anticipates an impact of 15 – 20 feet of ROW into the low shrubs and woody vegetation along the side of the road. Because the project is not impacting any areas within the dune system or other potential areas of habitat, the project **May Affect but is Not Likely to Adversely Affect** the southeastern beach mouse.

Atlantic salt marsh snake (*Nerodia clarkia taeniata*): The Atlantic salt marsh snake, listed as **Federally Threatened**, is a smallish (< 2.5 feet in length) water snake that inhabits saltmarsh tidal flats as well as black mangroves along the coast of Volusia and Indian River counties. It is a slender heavily keeled water snake with a pattern of stripes that are variously broken into blotches. They feed on small fish in shallow water and are most active at night during periods of low tide. Although some potential suitable habitat exists within the project study area, no saltmarshes, tidal flats, or areas of black mangrove monoculture are present. Because the probability of encountering this snake in the project area is low, the project **May Affect but is Not Likely to Adversely Affect** this species.

3.1.3 ADDITIONAL SPECIES NOTE

The bridge currently has bird flight diverters installed to deter birds in flight from vehicles traveling over the bridge. After coordination with resource agencies, the bridge replacement project is proposing the inclusion of flight diverters on the new bridge to provide the same service.

3.2 CRITICAL HABITAT

The project is within the USFWS's designated critical habitat for the West Indian Manatee, and adjacent to an area of critical habitat for the loggerhead sea turtle. The project does not extend into the areas designated as critical habitat for the loggerhead sea turtle and no impacts are anticipated. The bridge is located within the designated manatee critical habitat though the only impacts will likely come from the substructure and fender system. Construction techniques will be required to follow standard in-water work practices and any Special Provisions for manatees, sea turtles, and smalltooth sawfish. The work practices/provisions will be followed for pile driving activities and use of construction barges, if required and will not result in any significant impacts to the critical habitat.

3.3 STATE LISTED SPECIES

State protected species were also considered per Chapter 379 F.S. which provides the direct protection of wildlife from activities that may harm or jeopardize the species. Section 379.2291, F.S., otherwise known as the FESA, provides the details related to the conservation and management of threatened and endangered species within Florida. Additionally, the FESA states that all federally listed species are also considered state-listed species.

After a search of available databases including the FWC Wildlife Observations GIS Database, Florida's Endangered and Threatened Species List (2018), and the Florida's Imperiled Species Management Plan (2016-2026), six state-listed wildlife species and seven state-listed plant species (Regulated Plant Index from Chapter 5B-40.0055 F.A.C.) which have the potential to occur within Brevard and Indian River Counties were considered (**Table 3**).

Table 3: State Listed Species Potentially Occurring within the Project Area			
Common Name	**Scientific Name**	**Listing**	**Occurrence Potential**
Birds			
black skimmer	*Rynchops niger*	ST	Low
little blue heron	*Egretta caerulea*	ST	Moderate
reddish egret	*Egretta rufescens*	ST	Moderate
roseate spoonbill	*Platalea ajaja*	ST	Moderate
tricolor heron	*Egretta tricolor*	ST	Moderate
Reptiles			
gopher tortoise	*Gopherus polyphemus*	ST	High
Plants			
West Coast prickly apple	*Harrisia gracilis*	SE	Low
red stopper	*Eugenia rhombia*	SE	Low
beach star	*Remirea maritima*	SE	Low
inkberry	*Scaevola plumeri*	ST	Low
Curtiss' hoary pea	*Tephrosia angustissima*	SE	Low
sea lavender	*Tournefortia gnaphalodes*	SE	Low
coastal vervain	*Verbena maritima*	SE	Low

For the black skimmer and state listed plants, a determination of No Effect was made for the non-aquatic species listed with a low potential to occur because of the lack of suitable habitat and documented occurrences / observations made. Should any state-listed plants be identified prior to construction, coordination with FDACS will occur to address potential measures for avoiding impacts or relocation of the plants.

Gopher Tortoise (*Gopherus polyphemus*): This medium-sized land tortoise is listed as ***threatened*** by the FWC. The gopher tortoise prefers areas of well-drained loose soils that support adequate low-growing herbs. Tortoises are most often found in xeric oak, sandhills, dry pine flatwoods, scrub habitats as well as old fields, pastures and roadsides. Gopher tortoise burrows also provide refuge and home to numerous species (burrow commensals), including listed species, which are either partially or wholly reliant upon the burrow. Numerous gopher tortoise burrows were identified within the project study area during field review **(Figure 6)**.

Figure 6: Listed Species Occurrences Map

Within 90 days prior to construction, surveys for gopher tortoises will be conducted within 100% of all available gopher tortoise habitats identified within 25 feet of the project corridor. The surveys for gopher tortoises will be conducted in conformance with the FWC guidelines by an Authorized Gopher Tortoise Agent. All gopher tortoise burrows that are found within the project corridor will be excavated in accordance with a conservation permit by FWC. Based on this, FDOT has determined **no adverse effect is** anticipated for the gopher tortoise.

Roseate spoonbill (*Ajaja ajaja*): This large pink and white wading bird with a flat, spoon-like bill is listed as ***threatened*** by the FWC. The roseate spoonbill prefers both fresh and saltwater foraging habitats such as shallow water of variable salinity, marine tidal flats and ponds, coastal marshes, mangrove-dominated inlets and pools, and freshwater sloughs and marshes. This species nests on coastal islands, in Brazilian pepper on man-made dredge spoil islands near foraging habitat, and sometimes in willow heads at freshwater sites. The roseate spoonbill typically nests in wading bird colonies with other multiple other species. There is foraging habitat for this species within the project corridor; however, there is limited potential for nesting habitat.

No direct observations of the roseate spoonbill were made during field reviews of the project corridor. There is an abundance of foraging habitat, and the proposed project is not anticipated to cause a significant loss to wetland habitat and therefore will likely have no effect on the roseate spoonbill. The FDOT has determined that **no adverse effect is anticipated for this species.**

Little blue heron (*Egretta caerulea*): This medium-sized, slate-blue, wading bird is listed as ***threatened*** by the FWC. The plumage of first year immature birds is white. The little blue heron prefers both fresh and saltwater habitats such as fresh- and saltwater mudflats and marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps. In Florida, the little blue-heron breeds in colonies from February to September.

Protection and buffers of nesting habitat is the primary protection objective for this species. There are no known wading bird colonies located near the project study area. As such, the FDOT has determined that **no adverse effect is anticipated for this species.**

Tricolored heron (*Egretta tricolor*): This medium-sized, two-toned, wading bird is listed as ***threatened*** by the FWC. A medium-small slim heron, mostly dark slate-blue on head, neck, upper wings and upper body. Identifiable features for this bird include the purplish chest, a white belly and undertail. Adults exhibit yellow-brown plumes across the lower back. Immature birds are reddish-brown on the head, neck and wings. The tricolored heron prefers both fresh- and saltwater habitats such as fresh- and saltwater marshes and mudflats, brackish marshes, coastal beaches, mangrove swamps, hardwood and cypress swamps, and wet prairies.

No tricolored herons were observed during field reviews although habitat is available within the study area. Protection and buffers of nesting habitat is the primary protection objective for this species. There are no known wading bird colonies located near the project study area. As such, the FDOT has determined that **no adverse effect is anticipated for this species.**

Reddish egret (*Egretta rufescens*): The reddish egret is a medium sized heron listed as ***threatened*** by FWC that forages in shallow salt-water areas along the coast. They are distinct with their reddish and

steel gray coloration and foraging behavior of racing back and forth, opening and shutting their wings, and stirring up sediment with their feet in pursuit of small fish. The commonly nest on mangrove islands in association with pelicans, other herons, and spoonbills. There are no wading bird colonies located near the project study area, and therefore FDOT has determined that **no adverse effect is anticipated** for this species.

4.0 WETLAND AND SURFACE WATERS EVALUATION

The enactment of Executive Order 11990 (EO11990), entitled "Protection of Wetlands", in furtherance of the National Environmental Policy Act of 1969, as amended (42 U.S.C 4321 et seq), established a national policy stating that federal agencies or actions authorized by federal agencies must attempt "to 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".

Similarly, the State of Florida, through Article II, Section 7 of the State Constitution states "It shall be the policy of the state to conserve and protect its natural resources and scenic beauty. Adequate provision shall be made by law for the abatement of air and water pollution and of excessive and unnecessary noise and for the conservation and protection of natural resources." The Florida Water Resource Act, F.S. Ch 373 (Florida Water Resource Act of 1972) was implemented to carry out the policies of the State Constitution, providing the authority and responsibility of this act to the Florida Department of Environmental Protection (FDEP) and Water Management Districts to be regulated by the environmental resource permit program. In accordance with EO11990 and state regulations the evaluation of the wetlands within the project study area was conducted to identify, map, and enumerate the potential impacts to wetlands and surface waters that may be associated with the construction of this project. This section provides a discussion of the initial data collection, methods used for demarcation of the wetlands and surface waters, and the identified resources within the project study area.

Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. §1344.

The proposed bridge replacement project has the potential to impact natural freshwater and marine wetlands (**Figure 7**); therefore, the project study area was reviewed for the presence of wetlands and any proposed impacts to wetlands were analyzed using the UMAM.

A wetland field review of the project study area was completed in September 2021 by biologists familiar with south Florida animals and plants and all documented wetland boundaries were delineated in accordance with the *U.S. Army Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1), Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plan Region (ERDC/ED TR-10-20)* and *Chapter 62-340 of the Florida Administrative Code, Delineation of the Landward Extent of Wetlands and Surface Waters*.

Two wetland types were identified within the project study area: Bays and Estuaries and Mangrove Swamp.

4.1.1 BAYS AND ESTUARIES (FLUCFS 540)

Bays and estuaries are inlets or arms of the sea that extend into the land and, as such, are properly classified in this system only when they are included within the land mass of Florida. In this case, the Inlet was created from privately owned lands and connects to the IRL system to the west. This area also includes a swimming lagoon on the west side of the Inlet. The Inlet is salt water and there is an extremely heavy current present. Due to the current and hard bottom conditions, there is no benthic vegetation present.

4.1.2 MANGROVE SWAMPS (FLUCFCS 612)

Mangrove swamps are a coastal hardwood community composed of red mangrove (*Rhizophora mangle*) and/or black mangrove (*Avicennia germinans*) which are pure or predominant. Other major associates include white mangrove (*Laguncularia racemose*), buttonwood *(Conocarpus erectus*), cabbage palm (*Sabal palmetto*), and sea grape (Coccoloba uvifera). Mangrove swamps are located along the western side of SR A1A throughout the project study area.

4.2 WETLAND IMPACTS

Proposed impacts to wetlands are from the project for the realignment of the SID access road to the haul site for dredged sand, at the two preferred pond sites, and the realignment of the south park entrances. Approximately 0.11 acres of impacts are proposed to mangrove areas.

Impacts to the Inlet are also anticipated although they are generally minor and not subject to mitigation since the bridge is elevated well above the water level and the pilings and fender system have a very small footprint. Approximately 0.81 acres of impacts result from the footprint of the bridge deck. **Figure 7** depicts the locations of wetlands and surface waters impacts.

The UMAM was developed to establish a consistent assessment method to determine the amount of mitigation needed to offset adverse impacts to wetlands. It is designed to assess the functions provided by wetlands, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset these functional losses. This method is also used to determine the degree of improvement in ecological value created by mitigation activities.

The UMAM assessment includes a Qualitative Characterization (Part 1) as well as a Quantitative Assessment and Scoring (Part 2) (**Appendix 8**). An overall assessment of the wetlands that occur within the project study area was undertaken to provide an estimate of quality as well as mitigation needs. A UMAM assessment of the surface water impacts was not undertaken as impacts to these systems do not typically require mitigation.

The mangroves are of high quality and perform an important functional role for the ecosystem. The UMAM score reflects this high quality, and the 0.11 acres results in a functional loss of 0.096 UMAM units. Appropriate mitigation to offset these impacts will be provided via credits from an approved mitigation bank serving Basin 22 such as CGW or Basin 22 MB which both currently have credits, or via projects providing restoration at the Indian River Lagoon Preserve State Park which the Department has participated in the past to offset impacts.

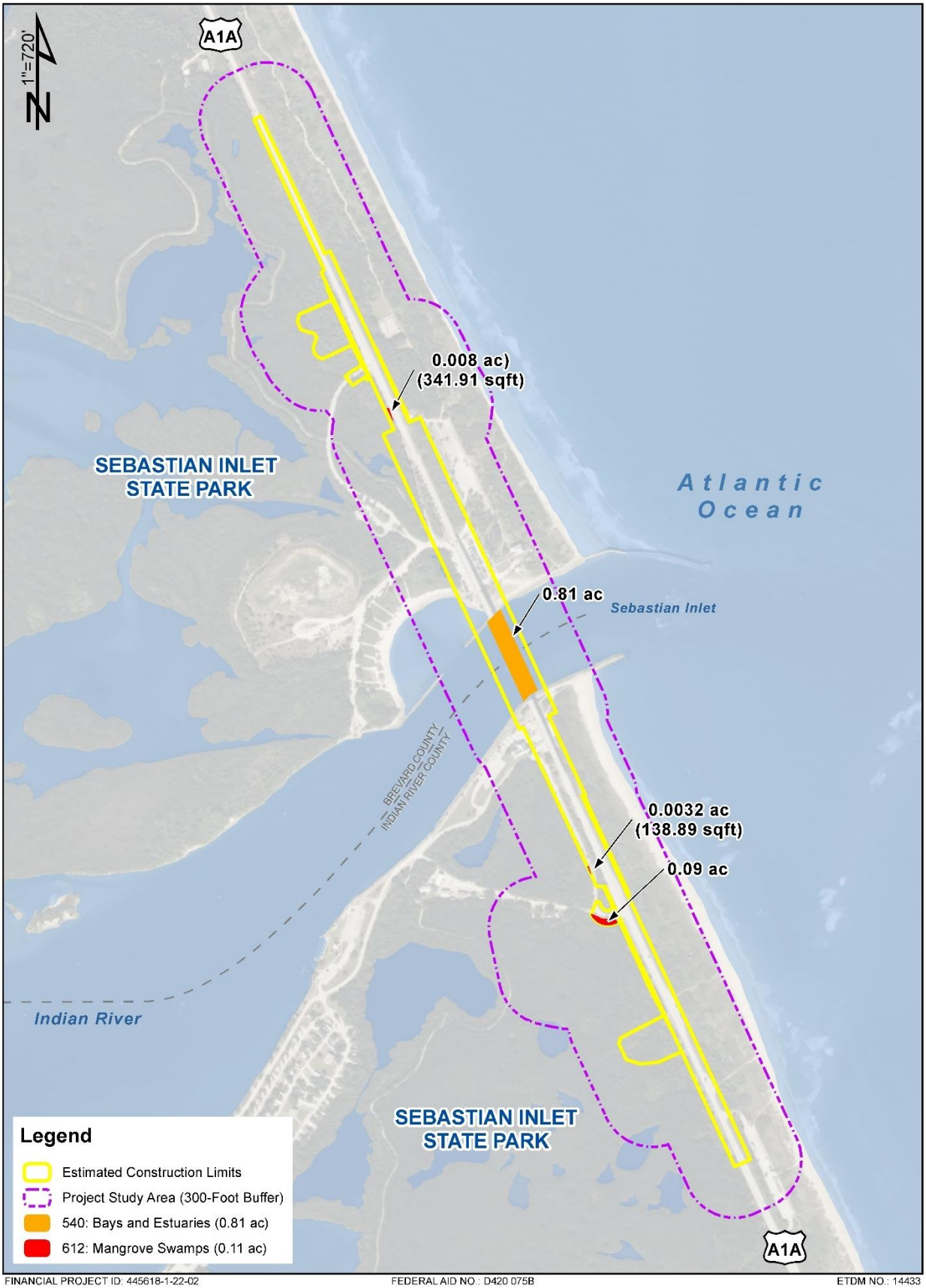


Figure 7: Direct Wetland Impact Map

4.2.1 INDIRECT IMPACTS

Indirect wetland impacts are possible in areas adjacent to direct wetland impacts. The use of buffers or retaining walls can eliminate these impacts in some instances. For this project, it is anticipated that some minor indirect impacts (secondary impacts) will occur from the roadway improvements and stormwater management ponds. The exact amount will be calculated during the permitting phase of the project.

4.2.2 CUMULATIVE IMPACTS

In accordance with the State of Florida's established cumulative impact requirements (subsections 373.414(8)(a), F.S., 40C-4.301 (3), F.A.C., and 12.28, ERP A.H.) the wetland impacts associated with this project will be offset within the same regulatory mitigation basin (Indian River Basin - 22) therefore meeting cumulative impact criteria.

4.2.3 AVOIDANCE AND MINIMIZATION OF WETLAND IMPACTS

Avoidance and minimization measures are intended to avoid and/or reduce the adverse impacts of an action to wetlands and surface waters, which can include aquatic dependent wildlife and their habitat. During this PD&E Study, surveys were conducted to identify potential wetlands and wildlife concerns within the project study area. However, since the concept of the project is to replace an existing bridge along SR A1A, there is no opportunity to look for alternative sites for the project. The location of the existing wetlands in relationship to the bridge and roadway cannot be changed.

The concept alternatives studied are developed to meet design criteria that will meet the purpose and need for the project within the limits of the project area. Engineering and design principles have been utilized during alternatives development to avoid or minimize wetland impacts to the greatest extent possible including:

- Locating stormwater pond boundaries along wetland boundaries
- Using mechanical stabilized earth (MSE) walls in place of fill to reduce the footprint of the proposed improvements
- Relocating the SID haul road to the east side of SR A1A
- Utilizing Value Engineering Study recommendations to minimize impacts

With the coastal strand and beach dunes on the east side of SR A1A, there is little option other than to incur some impacts to wetlands for this project. The design will be further refined, and impacts will continue to be minimized, as the project moves forward. The preferred alternative for this project was chosen based upon the evaluation of all potential impacts, including wetlands.

5.0 ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act [(MSFCMA), (16 USC 1801 et seq. Public Law 104-208), (Act)] reflects the Secretary of Commerce (Secretary) and Fishery Management Council's authority and responsibilities for the protection of essential fishery habitat. The Act 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 (EFH) identified under this Act. EFH is defined by the Act as "…those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Three fishery management councils - the Gulf of Mexico, South Atlantic, and U.S. Caribbean - are responsible for identifying EFH for federally managed species in the southeast United States. Also, highly migratory species, such as tunas, billfish, and sharks, are managed by NMFS and have EFH designations in these areas of the Southeast as well. Federal agencies are required to consult with NMFS when their activities, including permits and licenses they issue, may adversely affect EFH and respond to NMFS recommendations for protecting and conserving EFH. NMFS must also include measures to minimize the adverse effects of fishing gear and fishing activities on EFH as well.

In accordance with the MSFCMA and Part 2, Chapter 17, Essential Fish Habitat of the FDOT PD&E Manual, an assessment for EFH was conducted for the project area. Comments provided in the ETDM screening indicating that EFH was present was the source to begin the analysis.

The Inlet connects the IRL with the waters of the Atlantic Ocean and is used by a variety of marine life entering or leaving the IRL. The IRL and the waters of the Park are also designated as an Outstanding Florida Water as well as an Aquatic Preserve. Within the project study area, the Inlet has the potential to support protected marine resources, such as seagrasses and corals, provide habitat for threatened and/or endangered species, and contain EFH for species within federally managed fisheries. The NMFS commented during the ETDM screening for the project that seagrass, mangroves, sand/shell bottom, oysters, hardbottom, and worm reef may occur at the project site. These habitats are considered EFH with mangrove, hardbottom, worm reef, and seagrass being considered Habitat Areas of Particular Concern (HAPCs). HAPCs are defined as specific subsets of EFH that provide critically important ecological functions or are especially vulnerable to degradation. These areas are designated higher protection and impacts to HAPCs would require mitigation and NMFS approval through EFH consultation. Fisheries Management Plans (FMPs) may designate a specific habitat area/type as an HAPC based on ecological importance, susceptibility to human-induced environmental degradation, susceptibility to stress from development, or rarity of the habitat type.

Federally managed fishery species associated with mangrove and seagrass habitat include postlarval, juvenile, and adult gray, lane and schoolmaster snappers; juvenile goliath grouper and mutton snapper; and adult white grunt. Seagrass is habitat for members of the snapper -grouper complex and postlarval, juvenile, and subadult stages of penaeid shrimp. Federally managed fishery species associated with sand and shell bottom habitat include postlarval, juvenile, and subadult stages of penaeid shrimp; and members of the snapper-grouper complex. The inlet and worm reef habitats are EFH and HAPC for coastal migratory pelagic species such as king mackerel, and Spanish mackerel.

The seagrass and mangroves are part of a habitat complex that supports a diverse community of fish and invertebrates, including recreationally and commercially important reef, migratory, and pelagic fish. Seagrass and mangroves also benefit fishery resources by providing important nursery and forage habitat. Seagrass provides important water quality maintenance functions (such as pollution uptake), stabilize sediments, attenuate wave action, and produce and export detritus (decaying organic material), which is an important component of marine and estuarine food chains. Mangroves in the project study area indirectly support fishery habitat by controlling runoff and turbidity and by stabilizing sediment.

As the project has the potential to impact protected marine resources and EFH, a benthic resource survey was conducted to determine the presence/absence, along with the general limits of any natural resources and identify existing EFH located within the project study area. A previous survey of the project study area was performed in 2019, and the 2021 survey effort sought to verify the conditions documented from the 2019 survey as well as provide any pertinent updates on resources present.

The NMFS EFH mapper tool did not identify any distinct EFH within the Inlet. However, based on the results of the benthic survey, EFH is present in the project study area for species within the following fisheries which are federally managed by the South Atlantic Fisheries Management Council (SAFMC) and identified within **Table 4** below.

- Snapper-Grouper Complex
- Penaeid Shrimp
- Spiny Lobster
- Coastal Migratory Pelagics
- Red Drum
- Coral, Coral Reefs and Live/Hardbottom

Table 4: Potential EFH within the Sebastian Inlet Project Area

Habitat Type	FMP
Unconsolidated Bottom	Red drum, Snapper grouper, Spiny lobster
Live/hardbottom	Snapper-Grouper, Spiny Lobster
Shallow subtidal bottom	Spiny Lobster
Sponges	Spiny Lobster
Algal communities (*Laurencia*)	Spiny Lobster
All coastal inlets	Coastal Migratory Pelagics

The SAFMC has identified several HAPCs which may occur in the project study area including mangroves, coral, worm reef, and seagrass habitat. The benthic survey was undertaken in part to identify if any HAPCs were present.

The benthic survey was completed within the scientific seagrass survey window on June 4, 2021, during incoming and outgoing tidal cycles. The Inlet experiences extremely high velocity currents which can peak at 9-ft/sec; therefore, slack tides were utilized to the greatest extent to complete this survey. The benthic substrate within the survey area is primarily rocky hard-bottom with scattered patches of sand with shell fragments. No seagrasses, worm reef, or corals were documented on the bottom substrate or any of the bridge pilings. Sparse to moderate coverage of sponges and algae were found along the rip-rap shorelines, rocky benthic substrate, and the in-water bridge pilings. This survey found a greater assortment of sponge and algal diversity on the northern rip-rap shoreline than the southern rip-rap shoreline. One individual smooth star coral (*Solenastrea bournoni*) was identified on the rip-rap shoreline to the northwest of the existing bridge.

The rocky hard-bottom with scattered sand is generally consistent along the shallow shoreline areas of the survey limits. The Inlet gradually slopes toward the navigational channel from the rip-rap shorelines.

Depths at the shorelines range from 4 to 8-feet reaching depths from 12 to18-feet deep within the navigational channel. Benthic substrate within the navigational channel changes to a barer sand and shell fragment substrate that did not contain any marine resources. No seagrasses, listed coral species, or any other threatened or endangered benthic species were observed within the survey area. Several manatees, which are known to utilize the Inlet, were seen swimming out into the Atlantic Ocean during the survey. Mangroves occur throughout the Park and are numerous within the project study area, though they do not occur in areas adjacent to the Inlet within the project study area but are found upslope within the wetlands of the Park and near the roadways.

The areas of EFH identified only include rocky hard bottom with scattered patches of sand within the inlet at the bridge and mangroves that exist throughout the Park. Direct adverse effects to the rocky hard bottom would occur with the placement of piles for the new bridge and fender system, and to mangroves in those areas where improvements to approaches and Park entrances are proposed. Due to the extreme current in the Inlet, it is unlikely that any impacts to managed species will occur during the construction of the new bridge, and any unanticipated impacts would be expected to naturally recover post construction. The bridge deck will occur over 0.81 acres of the Inlet though with the height of the bridge and lack of submerged resources, this will not be much of a direct impact. Impacts to mangroves are very minor (0.11 acres), and these areas adjacent to roads already provide suboptimal habitat for the larval and juvenile stages of managed species that would utilize them. Mitigation to offset impacts to mangroves is proposed according to the functional analysis conducted assessing the wetland qualities (UMAM score of 0.096). Because of this, FDOT has determined that **potential adverse effects to EFH are minimal.**

Indirect/secondary impacts from the project may include generated turbidity and sedimentation resulting from existing bridge demolition, pile driving, and bridge construction However, these temporary impacts would be limited to only during project construction and minimized to the greatest extent utilizing Best Management Practices (BMPs). The following avoidance and minimization measures are recommended for this project:

- Implement BMPs to control project generated turbidity and sedimentation in accordance with the current edition of FDOT's *Standard Specifications for Road and Bridge Construction*.
- Adhere to the *Standard Manatee Conditions for In-Water Work* (**Appendix 9**), FDOT Manatee Special Provision for Construction SP000070104-4, as well as the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (**Appendix 10**)
- Adhere to the Protected Species Construction Conditions, NOAA Fisheries Southeast Regional Office (**Appendix 11**)
- Utilize the ramp up or vibratory installation methodology for pile driving to warn and allow any listed species to vacate the area
- Utilize sound diminishing measures (such as wood blocks) to minimize potential noise impacts from pile driving
- Continue to review prudent avoidance and minimization measures during final design, permitting and project construction

6.0 ANTICIPATED PERMITS

The FDOT anticipates the following permits will be required for the proposed replacement of the Sebastian Inlet Bridge No. 880005:

- Section 404 Nationwide Permit (NWP) or Standard Permit from the USACE
- Section 408 review from the USACE
- Bridge Permit USCG
- Environmental Resource Permit (ERP) and Coastal Construction Control Line permit (CCCL) from FDEP

7.0 AGENCY COORDINATION

An ETDM screening was conducted, as a part of the FDOT PD&E Study for this project which produced feedback from regulatory and service agencies identifying and documenting the potential impacts to features/resources under each agencies' purview. Comments were received from representatives of the NMFS, USFWS, FWC, SJRWMD, FDEP, and the USACE.

Additional coordination also included the FDEP, who is responsible for the day-to-day operations of Park, and staff from FWC and FDEP regarding the southeastern beach mouse.

Coordination with USFWS and FFWCC was also conducted in relation to the bird diverters that are currently on the bridge structure. Based upon this coordination, new bird diverters will be incorporated into the replacement bridge.

8.0 CONCLUSION

The FDOT District Four is conducting a PD&E Study to evaluate the replacement of the Sebastian Inlet Bridge (No. 880005) crossing the Inlet located at the Brevard County and Indian River County boundary. The bridge is known as the James H. Pruitt Memorial Bridge.

The alternatives developed during this PD&E Study, and the associated social, economic, and environmental analyses evaluated, were completed according to the requirements of the National Environmental Policy Act (NEPA) and the current edition of FDOT's PD&E Manual, to receive Location and Design Concept Acceptance (LDCA). The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration (FHWA) and FDOT.

Impacts to wetlands and surface waters are proposed by the project for the replacement of the bridge, associated improvements to SR A1A, drainage facilities, and improvements to the Park entrances and access road. Approximately 0.81 acres of impacts to the Inlet are proposed from the new bridge, and 0.11 acres of impacts to mangroves from proposed roadway improvements north and south of the bridge. Mitigation will be provided to offset the impacts and identified as a project commitment.

Benthic resources are limited to sponge colonization on the hardbottom substrate throughout the Inlet and those colonizing the large rip-rap boulders. No listed species of coral was observed as only one individual smooth star coral (*Solenastrea bournoni*) was identified on the rip-rap shoreline to the northwest of the existing bridge. No seagrasses were documented within the project study area as the primarily rocky-hardbottom substrate, coupled with the high velocity current, likely precludes seagrasses from colonizing and establishing this area. Minor impacts to existing marine resources, mainly encrusting sponges and algae, may occur from the construction of the project which includes the removal of the existing bridge (and associated in-water structures). However, the existing rip-rap shoreline is not anticipated to be impacted and is to remain. Additionally, any proposed replacement bridge will include similar in-water structures that would be anticipated to provide analogous marine habitat post construction. The biota along the rip-rap shoreline would be largely unimpacted by this project and, therefore would be expected to subsist and provide for continued natural recruitment. As such, a similar benthic community would be anticipated to naturally re-establish in the project area post construction.

Impacts to potential habitat for listed species is not anticipated to be significant, with all species receiving No Effect or May Affect Not Likely to Adversely Affect Determinations. Impacts to suitable foraging habitat for wood storks is offset within the proposed mitigation for wetland impacts. No other impacts are anticipated.

Protection of West Indian manatees and swimming sea turtles during project construction will be accomplished through the implementation of *Standard Manatee Conditions for In-Water Work* (**Appendix 9**), and *Sea Turtle and Smalltooth Sawfish Construction Conditions* (**Appendix 10**). If any of the free-swimming species are found within the project study area during construction, the animal would be given the space and time required to leave the area per State and Federal regulations.

No mangroves are present within the Inlet adjacent to the existing bridge, though mangroves occur throughout the Park. No seagrasses were documented within the project study area, and only one (1) individual stony coral was observed. The rip-rap, rocky-hardbottom, and bare sand substrates documented in the survey area provide EFH for species within several FMPs, including spiny lobster, snapper and grouper, migratory pelagics, red drum, and penaeid shrimp. Minor impacts/disturbance to these EFHs may occur from the proposed bridge replacement project; however as discussed, these habitats would be expected to naturally recover post construction. Therefore, it is anticipated that this project will result in ***minimal*** impacts to EFH.

Indirect/secondary impacts from project may include generated turbidity and sedimentation resulting from existing bridge demolition, pile driving, and bridge construction However, these temporary impacts would be limited to only during project construction and minimized to the greatest extent utilizing Best Management Practices (BMPs). The following avoidance and minimization measures are recommended for this project:

- Implement BMPs to control project generated turbidity and sedimentation in accordance with the current edition of FDOT's *Standard Specifications for Road and Bridge Construction*.
- Continue to review prudent avoidance and minimization measures during final design, permitting and project construction.
- Adhere to the *Standard Manatee Conditions for In-Water Work* (**Appendix 9**), FDOT Manatee Special Provision for Construction SP000070104-4, as well as the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (**Appendix 10**)

- Adhere to the Protected Species Construction Conditions, NOAA Fisheries Southeast Regional Office (**Appendix 11**). Utilize the ramp up or vibratory installation methodology for pile driving to warn and allow any listed species to vacate the area
- Utilize sound diminishing measures (such as wood blocks) to minimize potential noise impacts from pile driving

Project Commitments

FDOT commits to the following:

- FDOT will initiate consultation with NMFS in relation to EFH impacts from the project. Any measures that result from the consultation will be included as either implementation measures or commitments for the project.
- FDOT will install flight diverters on the replacement bridge to protect birds and provide a safer bridge crossing for motorists and pedestrians.
- FDOT will ensure that mitigation proposed for wetland impacts within wood stork Suitable Foraging Habitat will adhere to the requirements of the USACE and USFWS.

Agency Coordination

FDOT will initiate coordination with the USFWS and FFWCC in relation to the potential for listed species by submitting this NRE for review and concurrence. FDOT will also initiate coordination with NMFS for impacts to listed species and EFH. Continued coordination with both FDEP and USACE will occur during the permitting process for this project. Additional coordination with ARC will continue in relation to the potential use of land within the State Park.

Appendix 1
Benthic Survey Report

Stantec

MEMORANDUM

To:	Binod Basnet, PE Project Manager FDOT District Four	**From:**	George Burke Senior Environmental Scientist
Date:	July 8, 2021		
Project:	Project Development & Environment Study SR A1A Over Sebastian Inlet – Bridge 880005 Bridge Replacement Indian River County and Brevard County		
FPID No.:	445618-1-22-02		
SUBJECT:	BENTHIC SURVEY TECHNICAL MEMORANDM		

1. Introduction and Background

The Florida Department of Transportation (FDOT or Department) District Four is conducting a Project Development & Environment (PD&E) Study to evaluate the replacement of the Sebastian Inlet Bridge (No. 880005) crossing the Sebastian Inlet located at the Indian River County and Brevard County boundary.

The Sebastian Inlet Bridge (Bridge), constructed in 1964, is a 1,548-foot long concrete structure with two-lanes carrying State Road (SR) A1A over the Sebastian Inlet at the Indian River and Brevard County boundary. The Bridge is located within FDOT and Sebastian Inlet District (SID) right-of-way (ROW) and is adjacent to the Sebastian Inlet State Park. The project limits extend approximately 0.95 miles from Mile Post 22.050 of Roadway ID 88070000 south of the Bridge in Indian River County north to Mile Post 0.300 of Roadway ID 70060000 in Brevard County.

The primary purpose of this project is to address the structural and functional deficiencies of the existing Bridge and the gap in system linkage for bicyclists and pedestrians. The project includes the evaluation of Build and Rehabilitation alternatives of the bridge against the No Build alternative, replacement of the existing under deck observation/fishing piers, and the addition of bicycle and pedestrian facilities across the bridge.

The Sebastian Inlet connects the Indian River Lagoon with the waters of the Atlantic Ocean and is used by a variety of marine life entering or leaving the Lagoon. Within the project area, the Sebastian Inlet has the potential to support protected marine resources, such as seagrasses and corals, provide habitat for threatened and/or endangered species, and contain Essential Fish Habitat (EFH) for species within federally managed fisheries. As the project has the potential to impact protected marine resources and EFH, the FDOT tasked Stantec to perform a benthic resource survey to determine the presence/absence, along with the general limits of any natural resources and identify existing EFH located within the project area. A previous survey of the project area was performed in 2019 and this survey effort sought to verify the conditions documented from the 2019 survey as well as provide any pertinent updates on resources present.

The purpose of this memorandum is to provide the results of the benthic survey performed on June 4, 2021 adjacent to and underneath SR A1A Bridge No. 880005 over the Sebastian Inlet (see **Attachment 1: Project Location Map**). The memo includes recommendations for avoidance and minimization measures and the

FDOT

results of this survey will be used in the development of the Natural Resources Evaluation (NRE) document for this PD&E study. The NRE is anticipated to be the basis for coordination with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) during Section 7 and EFH Consultation for the project.

2. Benthic Survey Methods and Limits

The benthic survey covered the limits of the existing Bridge easement which extends 120-feet east and west from the centerline of SR A1A. Bridge replacement alternatives will be evaluated within the easement. The benthic survey area of potential effect (APE) included the existing Bridge in-water structures and the area that extends 100-feet east and west from the existing bridge footprint. This 100-foot buffer accounts for potential direct impacts from bridge removal and replacement work as well as any indirect impacts (i.e., downstream turbidity, shading from barge staging) during project construction. Therefore, the benthic survey effort focused on the existing bridge in-water structures and footprint and included an additional 100-foot buffer area on the east and west sides of the bridge, where feasible (see **Attachment 2. Benthic Survey Methods Map)**.

A desktop review of the project area was performed prior to the field survey using both the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the National Oceanographic and Atmospheric Administration (NOAA) NMFS EFH Mapper to determine which listed species have the potential to occur within the project area, as well as which federally managed fisheries may have EFH in the project area.

This survey was conducted on June 4, 2021 during both the incoming and outgoing tidal cycles within the science-based seagrass survey window to accommodate the Johnson's seagrass (*Halophila johnsonii*) growing season and period of maximum abundance between the dates of June 1st and September 30th (NOAA NMFS, 2010). The survey was performed by Stantec biologists utilizing SCUBA and snorkeling (aka free diving) equipment. Transects were used to document conditions in the Sebastian Inlet which began at existing pilings and extended out 100-feet perpendicular to the bridge edge (See **Attachment 2**). Due to the dangerous high velocity current in the Sebastian Inlet, 100-feet lead-line transects were deployed and retrieved from the dive boat with buoys attached at the end points of the line. Due to safety concerns with the swift current and boat traffic, transects were not performed within the navigational channel area; as such, this area was spot checked via reconnaissance swims by the divers using free diving gear. Two (2) biologist using SCUBA equipment began each transect at the bridge pilings and surveyed the existing benthic conditions on each side of the transect line. Observations and data including depth, benthic substrate, and observed natural resources were recorded using underwater photography. The locations of any observed protected resources were documented and marked by cross referencing approximate diver positions on aerial photograph datasheets using a sub-meter accurate, Trimble RNSS 1 Receiver (a Global Positioning System (GPS) device). Finally, all observed resources were mapped and overlaid onto a project aerial using ESRI ArcGIS (See **Attachment 3: Benthic Survey Results Map**).

3. Results

The desktop review determined that the project area is within the USFWS designated consultation area for the West Indian manatee (*Trichechus manatus*), Atlantic salt marsh snake (*Nerodia clarkii taeniata*), piping plover (*Charadrius melodus*), and scrub jay (*Aphelocoma coerulescens*). In addition, the project is within the USFWS designated critical habitat for the West Indian manatee (*Trichechus manatus*). The project is not within the designated critical habitat for Johnson's seagrass (*H. johnsonii*); however, it is within the species range and portions of the Sebastian Inlet (located east of the project bridge within the Indian River Lagoon) have been designated by the NMFS as critical habitat for this species; therefore, this seagrass has the potential to be present within the survey area.

The NMFS EFH mapper tool did not identify any distinct EFH within the Sebastian Inlet. The project area does have the potential to contain EFH for species within the following fisheries which are federally managed by the South Atlantic Fisheries Management Council (SAFMC):

- Snapper-Grouper Complex
- Penaeid Shrimp
- Spiny Lobster
- Coastal Migratory Pelagics
- Red Drum
- Coral, Coral Reefs and Live/Hardbottom

The SAFMC has identified several Habitat Areas of Particular Concern (HAPCs) which may occur in the project area including mangroves, coral, and seagrass habitat. HAPCs are defined as specific subsets of EFH that provide critically important ecological functions or are especially vulnerable to degradation. These areas are designated higher protection and impacts to HAPCs would require mitigation and NMFS approval through EFH consultation. Fisheries Management Plans (FMPs) may designate a specific habitat area/type as an HAPC based on ecological importance, susceptibility to human-induced environmental degradation, susceptibility to stress from development, or rarity of the habitat type. Examples of HAPCs include coral reefs, seagrass beds, and coastal mangrove habitat. No seagrasses or mangroves were documented within the project area and only one stony coral was identified. Subsequently, it was determined that the project area does not contain any HAPCs identified in any FMPs.

The benthic survey of the project area was completed within the scientific seagrass survey window on June 4, 2021 during incoming and outgoing tidal cycles. The Sebastian Inlet experiences extremely high velocity currents which can get up to 9-ft/sec; therefore, slack tides were utilized to the greatest extent to complete this survey. The benthic substrate within the survey area is primarily rocky hard-bottom with scattered patches of sand with shell fragments. No seagrasses or corals were documented on the bottom substrate or any of the bridge pilings. Sparse to moderate coverage of sponges and algae were found along the rip-rap shorelines, rocky benthic substrate, and the in-water bridge pilings. This survey found a greater assortment of sponge and algal diversity on the northern rip-rap shoreline than the southern rip-rap shoreline. One individual smooth star coral (*Solenastrea bournoni*) was identified on the rip-rap shoreline

to the northwest of the existing bridge (See **Attachment 3**). A complete list of all marine species documented during this survey is included in **Table 1**.

The rocky hard-bottom with scattered sand is generally consistent along the shallow shoreline areas of the survey limits. Fishing lures, hooks and lead weights were observed throughout these areas as well. The Sebastian Inlet gradually slopes toward the navigational channel from the rip-rap shorelines. Depths at the shorelines range from 4-8 feet reaching depths from 12-18-ft deep within the navigational channel. Benthic substrate within the navigational channel changes to a barer sand and shell fragment substrate that did not contain any marine resources. No Johnson's seagrass, listed coral species, or any other threatened or endangered benthic species were observed within the survey area. Several manatees (*Trichechus manatus*) which are known to utilize the Sebastian Inlet, were seen swimming out into the Atlantic Ocean during the survey. Additional details on the observed benthic conditions in the project area are presented in **Attachment 4. Representative Photographs**.

Table 1. Species Observed During Benthic Survey

FISH	
Common Name	**Species Name**
sheepshead	*Archosargus probatocephalus*
queen angelfish	Snapper-Grouper, Red Drum
snapper	Corals, Spiny Lobster
barracuda	Snapper-Grouper, Red Drum
schoolmaster	Corals, Spiny Lobster
Atlantic red-lip blenny	*Ophioblennius atlanticus*
sergeant major	*Abudefduf saxatilis*
Atlantic porkfish	*Anisotremus virginicus*
French Grunt	*Haemulon flavolineatum*
tidal spray crab	*Plagusia depressa*
Mammals	
Common Name	**Species Name**
common bottlenose dolphin	*Tursiops truncatus*
West Indian manatee	*Trichechus manatus*
Coral and Sponges	
Common Name	**Species Name**
smooth star coral	*Solenastrea bournoni*
red boring sponge	*Dragmacidon sp.*
sponge	*Lissodendoryx sigmata*
blue tube sponge	*Haliclona caerulea*
fire coral	*Millepora alcicornis*
sponge	*Mycale sp.*
Marine Algae	

Table 1. Species Observed During Benthic Survey

FISH	
Common Name	**Species Name**
Common Name	**Species Name**
flat green feather algae	*Caulerpa mexicana*
brown macroalgae	*Dictyota cervicornis*
green feather algae	*Caulerpa sertulariodes*
sea grape green algae	*Caulerpa racemosa*
barnacle	*Cirripedia spp.*
mermaid's fan seaweed	Genus *Padina*

4. Conclusions and Recommendations

The Sebastian Inlet experiences some of the highest velocity currents of any inlets in Florida which has given this inlet a reputation as one of the most dangerous on the Atlantic Seaboard. This intense current is likely a significant contributing factor to the lack of observed marine resources within the project area around the existing bridge. The rip-rap which lines the northern and southern shorelines of the Sebastian Inlet diminishes this current to an extent and it was within these areas that the majority of the benthic resources were observed. The results of this survey were consistent with the 2019 survey, which included limited sponge colonization on the hardbottom substrate throughout the Sebastian Inlet and the majority of identified benthic resources being documented colonizing the large rip-rap boulders. No listed species of coral was observed as only one individual smooth star coral (*Solenastrea bournoni*) was identified on the rip-rap shoreline to the northwest of the existing bridge. Limited sponge colonization, consisting primarily of red boring sponges (*Dragmacidon* sp.), was documented on the hardbottom substrate throughout much of the Sebastian Inlet. No seagrasses, including Johnson's seagrass, were documented within the project area as the primarily rocky-hardbottom substrate, coupled with the high velocity current, likely precludes seagrasses from colonizing and establishing this area.

The Sebastian Inlet's rip-rap shorelines and existing bridge structure provides hard-substrate for encrusting organisms to adhere to and provides habitat for a variety of crustaceans, fish, mammals and other marine life. Minor impacts to existing marine resources, mainly encrusting sponges and algae, may occur from the construction of the project which includes the removal of the existing bridge (and associated in-water structures). However, the existing rip-rap shoreline is not anticipated to be impacted and is to remain. Additionally, any proposed replacement bridge will include similar in-water structures that would be anticipated to provide analogous marine habitat post construction. The biota along the rip-rap shoreline would be largely unimpacted by this project and, therefore would be expected to subsist and provide for continued natural recruitment. As such, a similar benthic community would be anticipated to naturally re-establish in the project area post construction. Protection of West Indian manatees, swimming sea turtles, and smalltooth sawfish (*Pristis pecinata*) during project construction will be accomplished through the implementation of *Standard Manatee Conditions for In-Water Work*, and *Sea Turtle and Smalltooth Sawfish Construction Conditions*. If any of the free-swimming species are found within the project area during

construction, the animal would be given the space and time required to leave the area per State and Federal regulations.

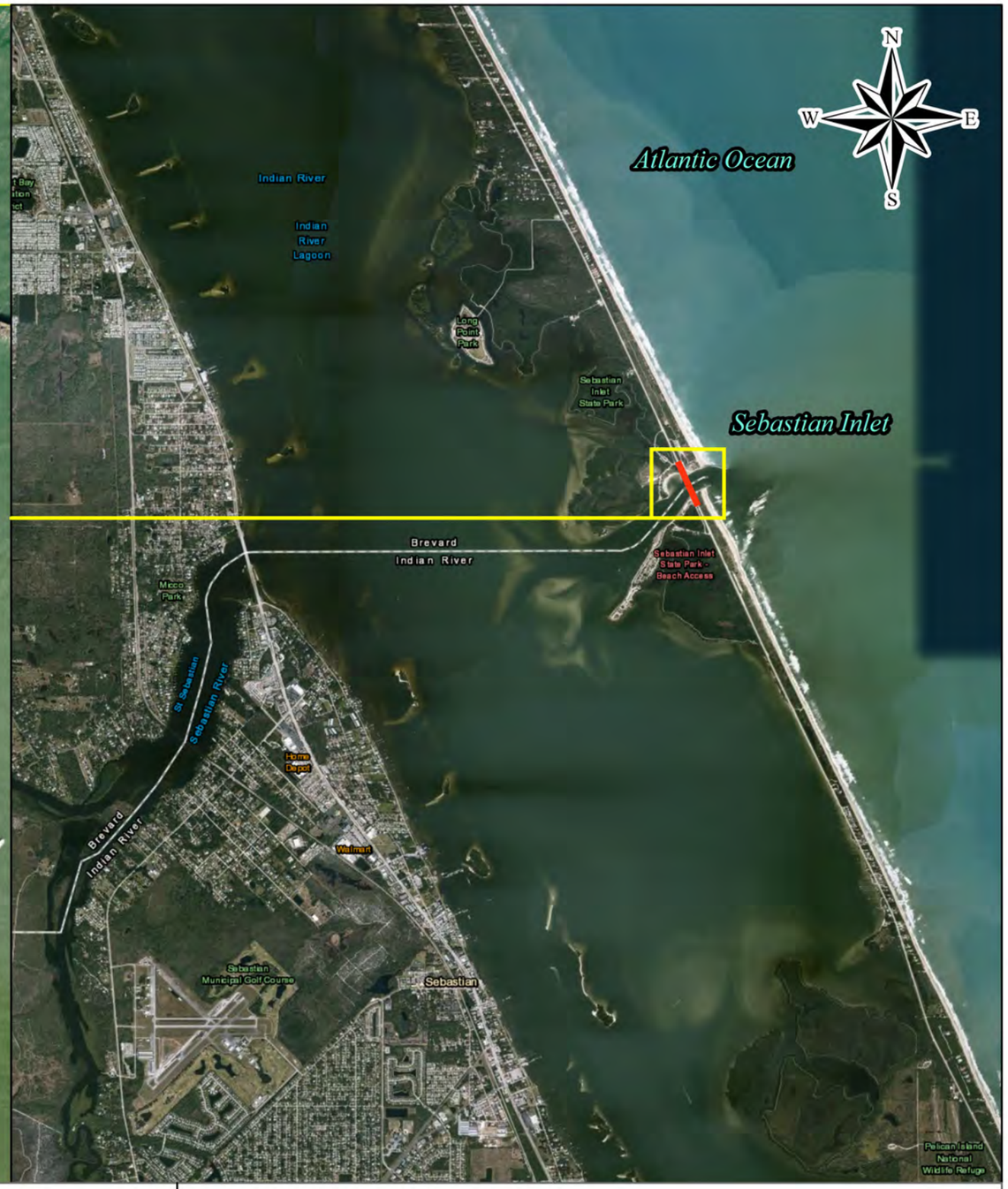
No HAPCs were identified within the project area; therefore, no HAPCs are anticipated to be impacted by the proposed project. No mangroves are present within the Sebastian Inlet adjacent to the existing bridge, no seagrasses were documented within the project area, and only one (1) individual stony coral was observed. The rip-rap, rocky-hardbottom, and bare sand substrates documented in the survey area provide EFH for species within several FMPs, including spiny lobster, snapper and grouper, migratory pelagics, red drum, and penaeid shrimp. Minor impacts/disturbance to these EFHs may occur from the proposed bridge replacement project; however as discussed, these habitats would be expected to naturally recover post construction. Therefore, it is anticipated that this project will result in ***minimal*** impacts to EFH.

Indirect/secondary impacts from project may include generated turbidity and sedimentation resulting from existing bridge demolition, pile driving, and bridge construction However, these temporary impacts would be limited to only during project construction and minimized to the greatest extent utilizing Best Management Practices (BMPs). The following avoidance and minimization measures are recommended for this project:

- Implement BMPs to control project generated turbidity and sedimentation in accordance with the current edition of FDOT's *Standard Specifications for Road and Bridge Construction*.
- Adhere to the *Standard Manatee Conditions for In-Water Work*, as well as the *Sea Turtle and Smalltooth Sawfish Construction Conditions*
- Utilize the ramp up or vibratory installation methodology for pile driving to warn and allow any listed species to vacate the area
- Utilize sound diminishing measures (such as wood blocks) to minimize potential noise impacts from pile driving
- No blasting or any explosives will be used in the removal of any bridge structures.
- Continue to review prudent avoidance and minimization measures during final design, permitting and project construction.

With these avoidance and minimization measures in place, this project is anticipated to result in ***minimal*** impacts to EFH and ***no adverse impacts*** to any threatened or endangered species.

ATTACHMENT 1
Project Location Map



FDOT

Project Development and Environment (PD&E) Study
SR-A1A over Sebastian Inlet Bridge 880005
Indian River County and Brevard County, Florida

Project Location Map

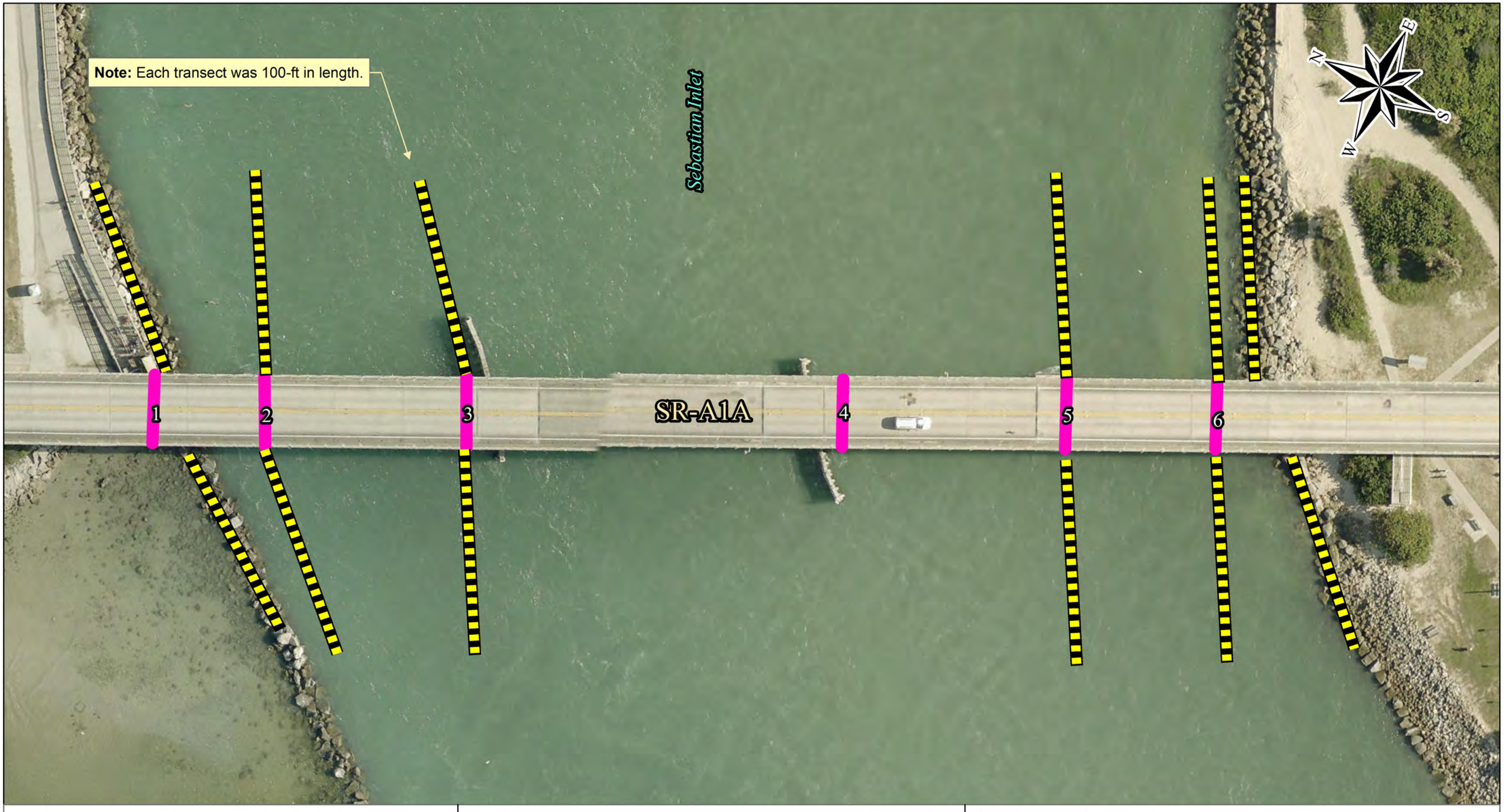
Legend

Project Location

Feet

0 250 500 1,000

ATTACHMENT 2
Benthic Survey Methodology Map



Florida Department of Transportation
District 4
3400 W Commercial Blvd
Fort Lauderdale, FL, 33309

Project Development and Environment (PD&E) Study
SR-A1A over Sebastian Inlet Bridge 880005
Indian River and Brevard Counties, Florida

Benthic Survey Methods Map

Legend

Survey Transects — Bridge Pilings

0 50 100 200 Feet

ATTACHMENT 3
Benthic Survey Results Map

Note: Sparse to moderate coverage of marine sponges and macroalgae were observed in the shallower areas within and adjacent to the rip-rap shorelines. Coverage and species diversity was greater along the northern rip-rap shoreline as compared to the southern shoreline. The middle of the inlet deepens around the navigational channel and the substrate transitions from primarily rocky-bottom with scattered sand and shell fragment patches, to a more barren, sandy-bottom, void of benthic resources. One coral (*S. bournoni*) was observed along the rip-rap. No seagrasses or other protected benthic resources were documented in the survey area.

FDOT

Project Development and Environment (PD&E) Study
SR-A1A over Sebastian Inlet Bridge 880005
Indian River County and Brevard County, Florida

Benthic Survey Results Map

Legend

- Barren Sandy Substrate
- Sparse to Moderate Sponge & Algal Coverage
- Stony Coral
- Bridge Pilings

0 125 250 500 Feet

ATTACHMENT 4
Representative Photographs

Representative Photographs

Photograph No.: 1

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows the project bridge looking east towards the Atlantic Ocean. This inlet experiences extremely high velocity current during tidal interchanges making it unlikely to support seagrasses or corals in the areas adjacent to the bridge.

Representative Photographs

Photograph No.: 2

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows the northern rip-rap shoreline underneath the project bridge over the Sebastian Inlet.

Representative Photographs

Photograph No.: 3

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows a large red ball sponge/red boring sponge, *Dragmacidon sp.*, that was observed throughout much of the survey area. These ranged in size from smaller than a fist and larger as shown here within the rip-rap shoreline on the northern shore.

Representative Photographs

Photograph No.: 4

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows some green feather alga, *Caulerpa sertularioides* along with some sea grape *Caulerpa racemosa* observed within the rip rap shoreline habitat.

Representative Photographs

Photograph No.: 5

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows the general algal and sponge community and typical coverage observed within the northern rip-rap shoreline of the survey area.

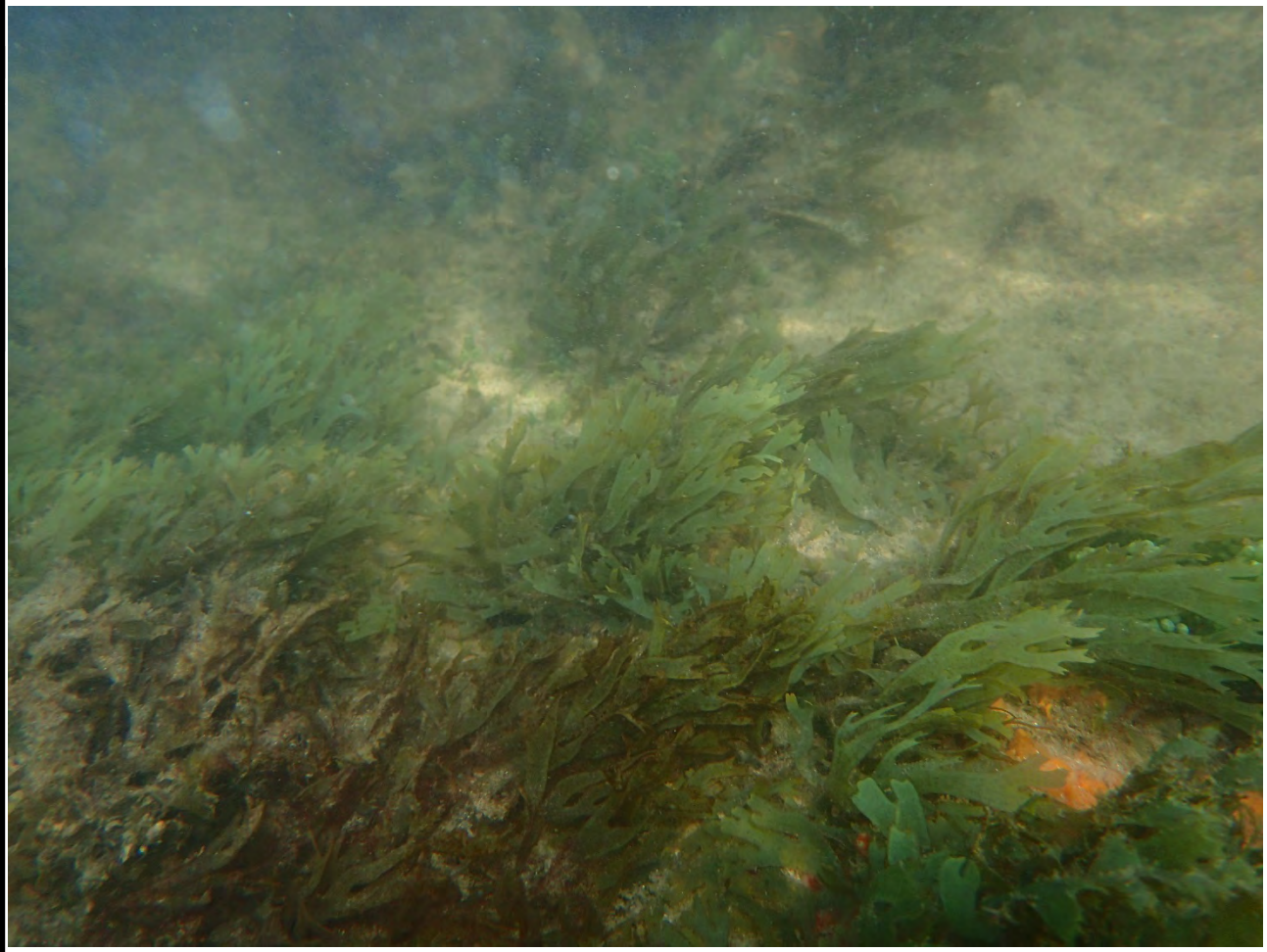
Representative Photographs

Photograph No.: 6

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows some brown macroalgae, *Dictyota cervicornis*, observed just off of the northern rip-rap shoreline just east of the existing bridge.



Representative Photographs

Photograph No.: 7

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows some mermaid's fan seaweed, Genus *Padina*, that was observed along the northern rip-rap shoreline. Additionally, some flat green feather alga *Caulerpa mexicana*.

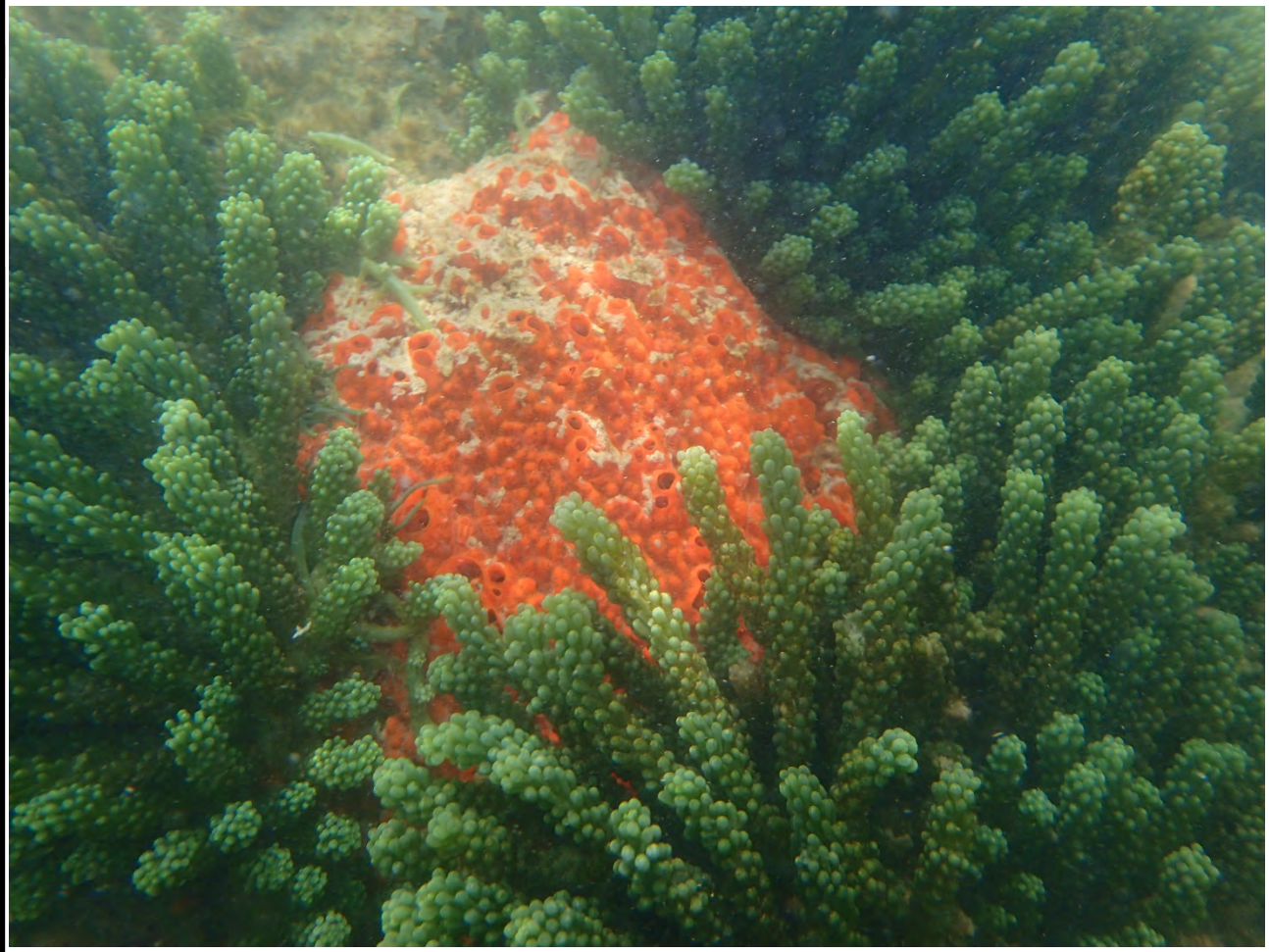
Representative Photographs

Photograph No.: 8

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows some sea grape green algae, *Caulerpa racemosa*, that was observed within the northern rip-rap shoreline.



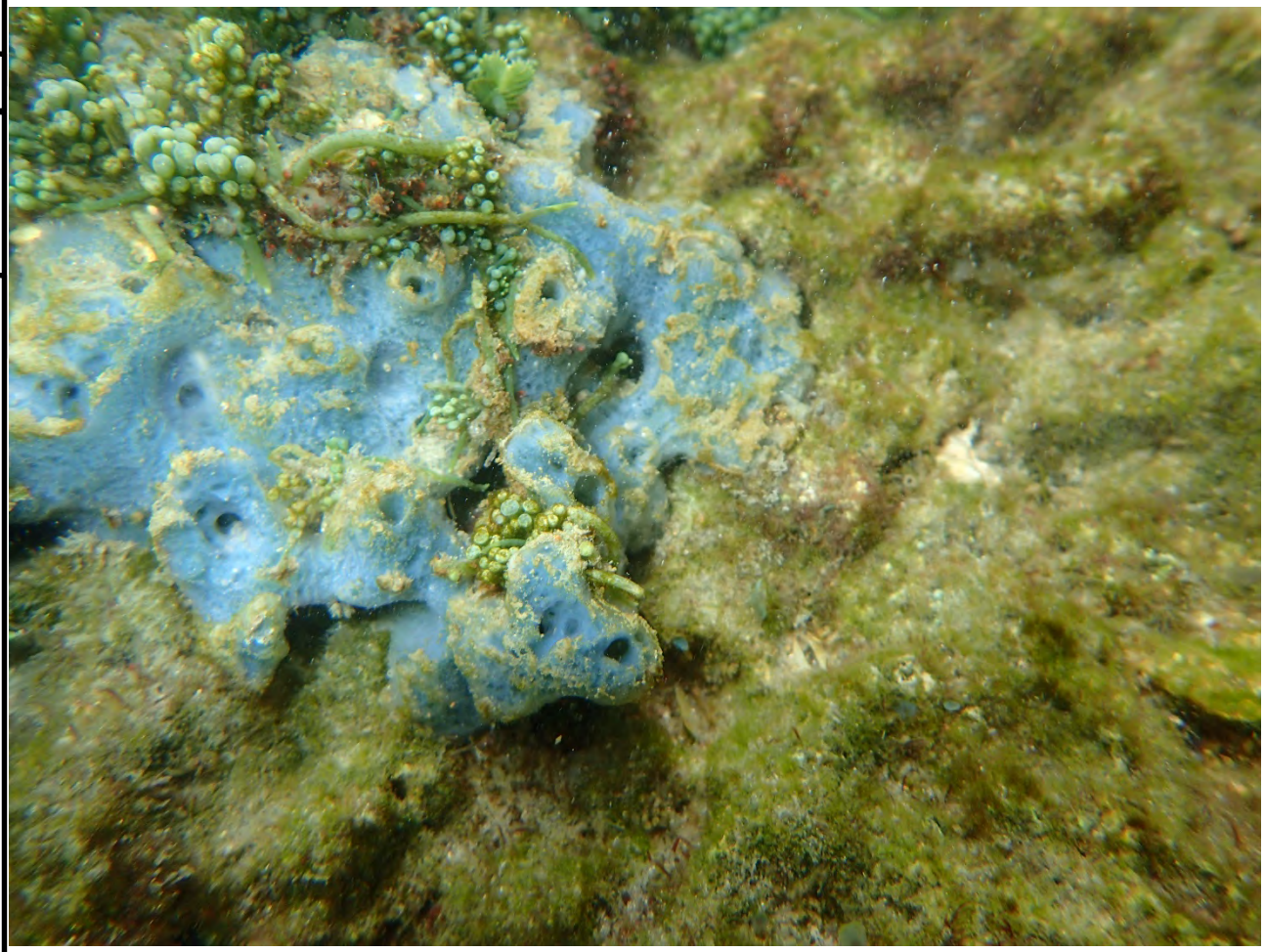
Representative Photographs

Photograph No.: 9

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows a blue tube sponge, *Haliclona caerulea*, that was observed throughout much of the survey area.



Representative Photographs

Photograph No.: 10

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows a sheepshead (*Archosargus probatocephalus*) utilizing the rip-rap shoreline habitat.

Representative Photographs

Photograph No.: 11

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows a sponge, *Lissodendoryx sigmata*, observed utilizing the rip-rap shoreline habitat.

Representative Photographs

Photograph No.: 12

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows a tidal spray crab, *Plagusia depressa*, utilizing the rip-rap shoreline habitat within the survey area.

Representative Photographs

Photograph No.: 13

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows the observed sponge, algal and barnacle coverage on the existing bridge piling. No corals were observed on any of the in-water bridge structures.

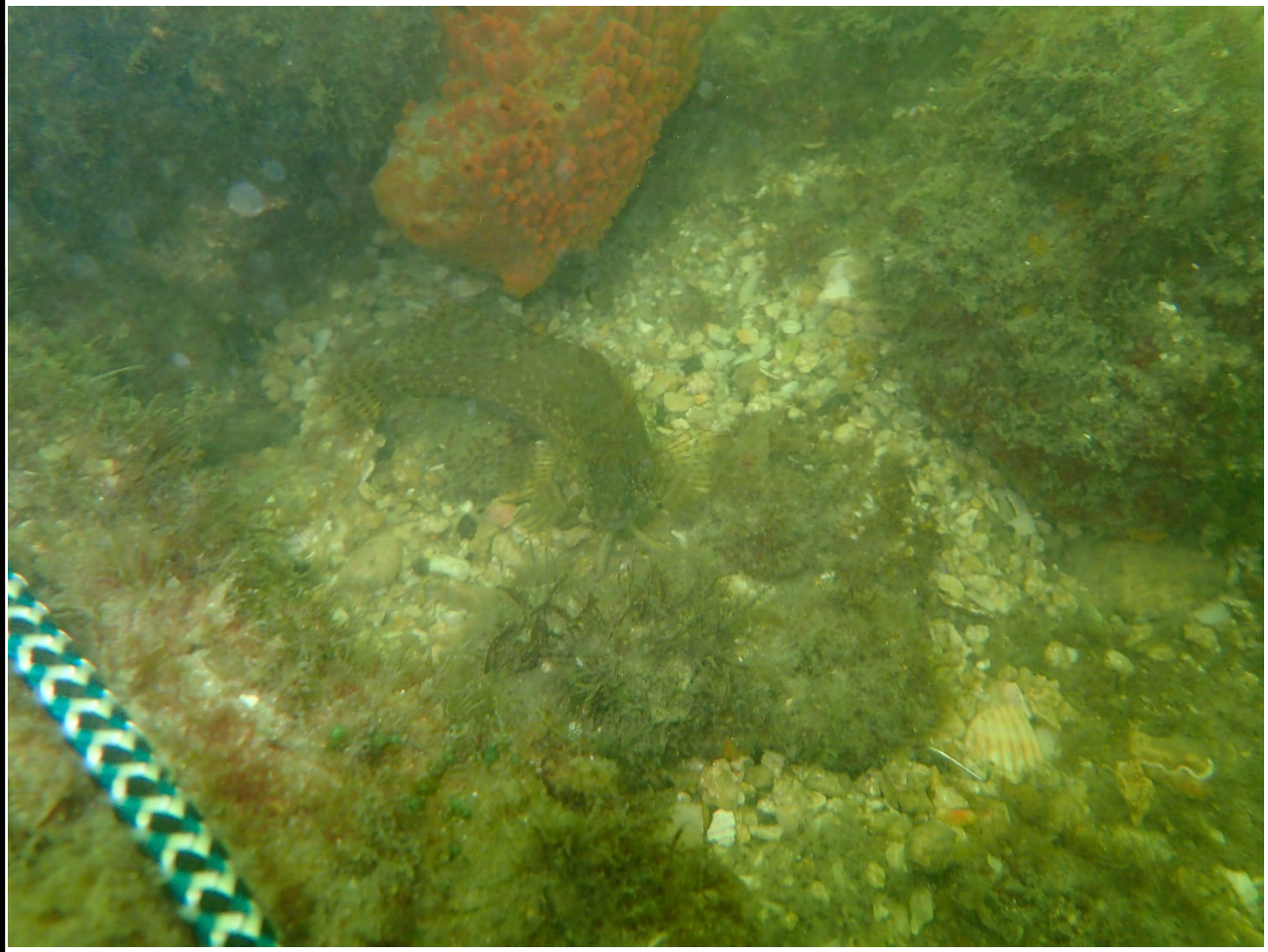
Representative Photographs

Photograph No.: 14

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows a hairy blenny, *Labrisomus nuchipinnis*, that was observed along a transect within the survey area.



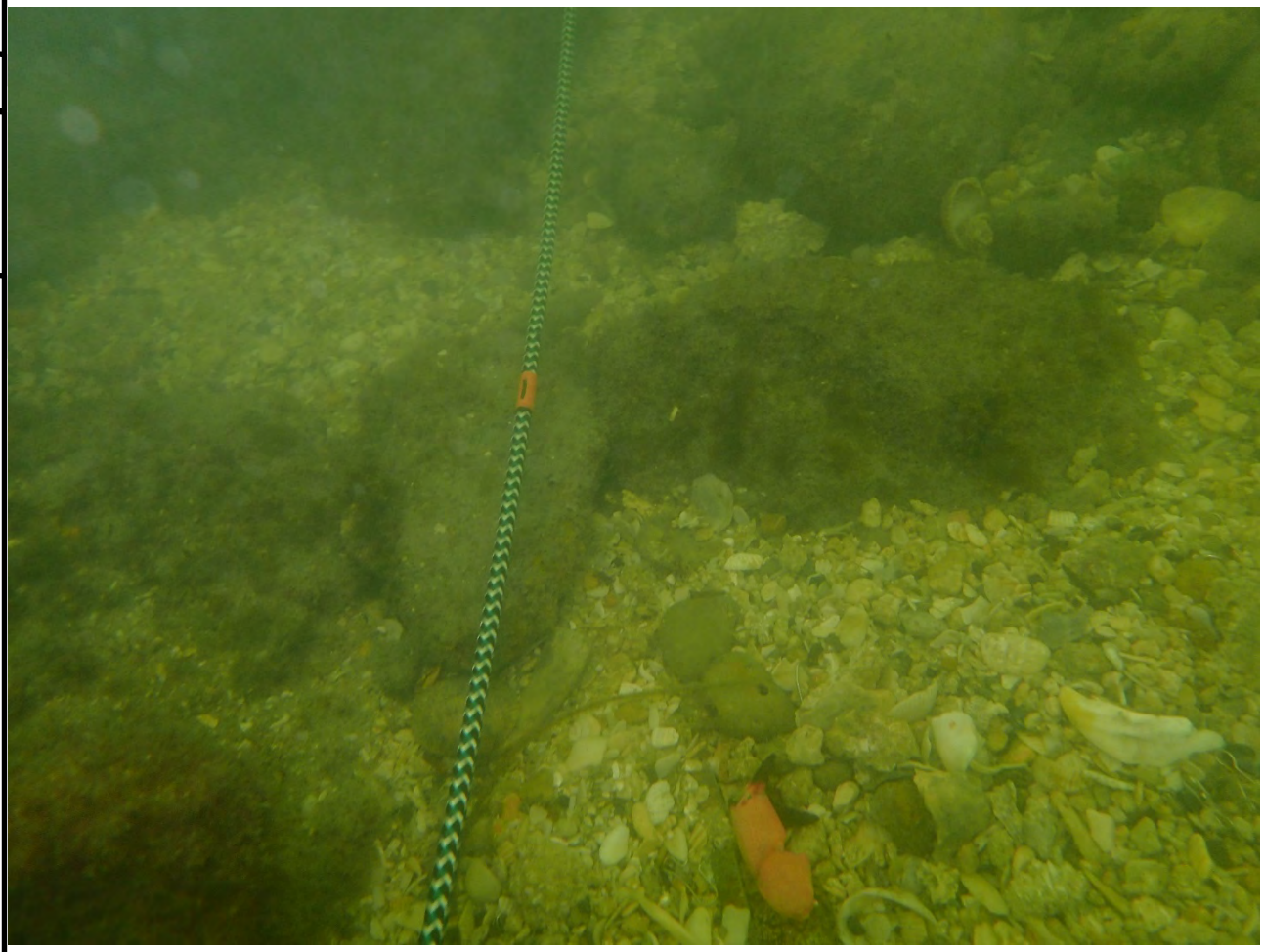
Representative Photographs

Photograph No.: 15

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows the shell substrate along the rocky bottom benthic conditions observed within the northern area of the survey.



Representative Photographs

Photograph No.: 16

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows some fire coral, *Millepora alcicornis*, colonizing the rip-rap shoreline.

Representative Photographs

Photograph No.: 17

Date: June 4, 2021

Location: SR A1A Bridge 880005 Over Sebastian Inlet, Indian River County and Brevard County, FL

Notes: The photograph shows a smooth star coral, *Solenastrea bournoni*, colonizing the rip-rap shoreline. This coral appears to be bleaching as the majority of this individual has turned white.

Appendix 2
Information for Planning and Conservation (IPaC) Report

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Brevard and Indian River counties, Florida

Local offices

North Florida Ecological Services Field Office

(904) 731-3336
(904) 731-3045

7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517

South Florida Ecological Services Field Office

(772) 562-3909

(772) 562-4288

1339 20th Street
Vero Beach, FL 32960-3559

http://fws.gov/verobeach

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Florida Panther Puma (=Felis) concolor coryi — Endangered
Wherever found
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/1763

Puma (=mountain Lion) Puma (=Felis) concolor (all subsp. except coryi) — SAT
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/6049

Southeastern Beach Mouse Peromyscus polionotus niveiventris — Threatened
Wherever found
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/3951

West Indian Manatee Trichechus manatus — Threatened
Marine mammal
Wherever found
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
http://ecos.fws.gov/ecp/species/4469

Birds

NAME	STATUS

Audubon's Crested Caracara Polyborus plancus audubonii — Threatened
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/8250

Eastern Black Rail Laterallus jamaicensis ssp. jamaicensis — Threatened
Wherever found
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/10477

Florida Scrub-jay Aphelocoma coerulescens — Threatened
Wherever found
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/6174

Piping Plover Charadrius melodus — Threatened
There is **final** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/6039

Red Knot Calidris canutus rufa — Threatened
Wherever found
There is **proposed** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/1864

Whooping Crane Grus americana — EXPN
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/758

Wood Stork Mycteria americana — Threatened
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/8477

Reptiles

NAME	STATUS

American Alligator Alligator mississippiensis — SAT
Wherever found
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/776

American Crocodile Crocodylus acutus — Threatened
There is **final** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/6604

Atlantic Salt Marsh Snake Nerodia clarkii taeniata — Threatened
Wherever found
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/7729

Eastern Indigo Snake Drymarchon corais couperi — Threatened
Wherever found
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/646

Gopher Tortoise Gopherus polyphemus — Candidate
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/6994

Green Sea Turtle Chelonia mydas — Threatened
There is **final** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/6199

Hawksbill Sea Turtle Eretmochelys imbricata — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/3656

Leatherback Sea Turtle Dermochelys coriacea — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
http://ecos.fws.gov/ecp/species/1493

Loggerhead Sea Turtle Caretta caretta — Threatened
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
http://ecos.fws.gov/ecp/species/1110

Insects

NAME	STATUS
Miami Blue Butterfly Cyclargus (=Hemiargus) thomasi bethunebakeri Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/3797	Endangered

Flowering Plants

NAME	STATUS
Carter's Mustard Warea carteri Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/5583	Endangered
Fragrant Prickly-apple Cereus eriophorus var. fragrans Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/982	Endangered
Lakela's Mint Dicerandra immaculata Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/6390	Endangered

Lewton's Polygala Polygala lewtonii Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/6688	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Loggerhead Sea Turtle Caretta caretta http://ecos.fws.gov/ecp/species/1110#crithab	Final
West Indian Manatee Trichechus manatus http://ecos.fws.gov/ecp/species/4469#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on

this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
American Kestrel Falco sparverius paulus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA http://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
American Oystercatcher Haematopus palliatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. http://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Black Skimmer Rynchops niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15

Great Blue Heron Ardea herodias occidentalis — Breeds Jan 1 to Dec 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Gull-billed Tern Gelochelidon nilotica — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
http://ecos.fws.gov/ecp/species/9501

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
http://ecos.fws.gov/ecp/species/9679

Magnificent Frigatebird Fregata magnificens — Breeds Oct 1 to Apr 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Prairie Warbler Dendroica discolor — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Reddish Egret Egretta rufescens — Breeds Mar 1 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
http://ecos.fws.gov/ecp/species/7617

Ruddy Turnstone Arenaria interpres morinella — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
http://ecos.fws.gov/ecp/species/9480

Willet Tringa semipalmata — Breeds Apr 20 to Aug 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wilson's Plover Charadrius wilsonia — Breeds Apr 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

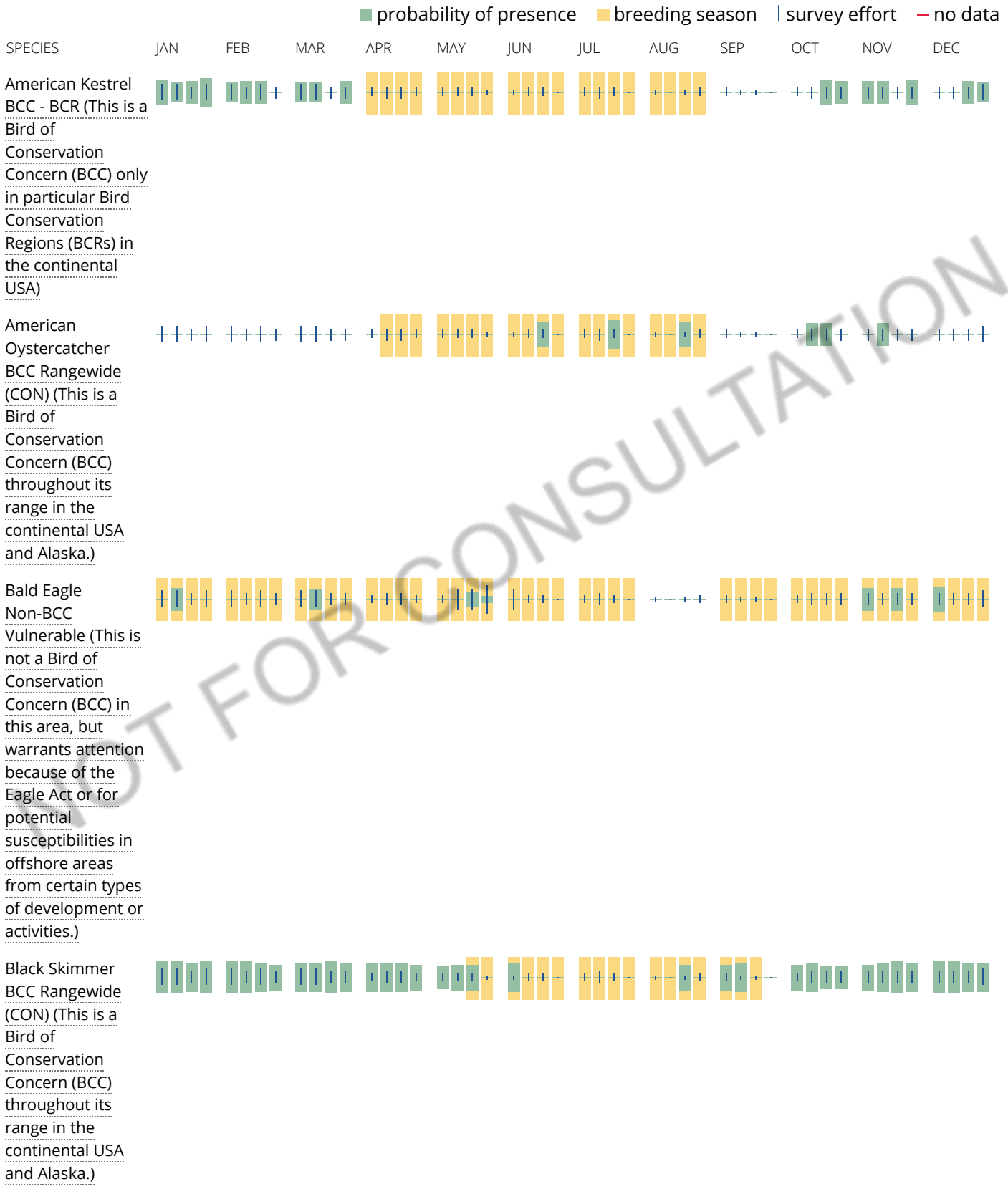
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

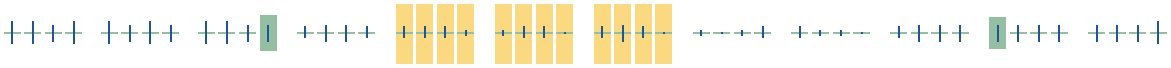
Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Great Blue Heron BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

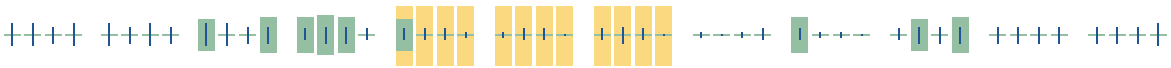
Gull-billed Tern BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Magnificent Frigatebird BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Prairie Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Red-headed Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

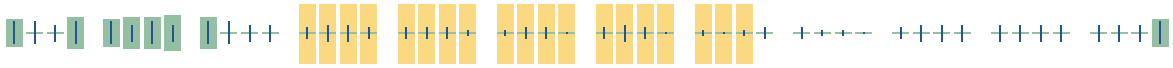
Reddish Egret BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Ruddy Turnstone BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Short-billed Dowitcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wilson's Plover BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Marine mammals

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take (to harass, hunt, capture, kill, or attempt to harass, hunt, capture or kill) of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

1. The Endangered Species Act (ESA) of 1973.
2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following marine mammals under the responsibility of the U.S. Fish and Wildlife Service are potentially affected by activities in this location:

NAME

West Indian Manatee *Trichechus manatus*
http://ecos.fws.gov/ecp/species/4469

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

- M1UBL
- E1UBL
- E1ABL

ESTUARINE AND MARINE WETLAND

- E2SS3Pd
- E2SS1Pd
- E2FO1P
- E2SS3N

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix 3

U.S. Army Corps of Engineers, Jacksonville District and The State of Florida Effect Determination Key for the Manatee in Florida

United States Department of the Interior

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

April 25, 2013

Donald W. Kinard
Chief, Regulatory Division
U.S. Army Corps of Engineers
701 San Marco Boulevard, Room 372
Jacksonville, Florida 32207-8175

Dear Mr. Kinard:

This letter acknowledges the U.S. Fish and Wildlife Service's (Service) receipt of your April 12, 2013, letter requesting concurrence on the U.S. Army Corps of Engineers' (Corps) implementation of the revised Manatee Key and its enclosures dated April 2013. This letter represents the Service's views on the potential effects of the proposed action in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (MMPA) (16 U.S.C. 1361 *et seq.*). For future reference, we have assigned this concurrence letter to Service Consultation Code 2013-I-0151.

The Manatee Key is a tool that has been used by the Corps' Regulatory Division since 1992 to assist in making its effect determinations, as required under 50 CFR 402.14(a), on permit applications for in-water activities such as, but not limited to, maintenance dredging, the placement of fill material for shoreline stabilization, the construction or placement of other in-water structures, as well as the construction of docks, marinas, boat ramps, boat slips, dry storage or any other watercraft access structures or facilities. Your agency has determined utilization of the 2013 Manatee Key, and its enclosures, to review projects in waters accessible to the endangered West Indian manatee (*Trichechus manatus*) may affect, but is not likely to adversely affect the manatee or its designated critical habitat.

Since July 2011, the Service has worked closely with the Corps and the Florida Fish and Wildlife Conservation Commission (FWC) on revising the March 2011 version of the Manatee Key and its associated maps. Minor changes to the March 2011 Manatee Key were made to ensure consistency with the manatee programmatic consultation co-developed by the Corps and the Service in cooperation with the FWC.

For all new or expanding multi-slip facilities located in a county with a State-approved MPP in place that reach a "may affect, not likely to adversely affect" determination using the 2013 Manatee Key, the Service concurs with these determinations and no further consultation with the Service is necessary.

For all applications to construct residential dock facilities that reach a "may affect, not likely to adversely affect" determination using the 2013 Manatee Key, the Service concurs with these determinations and no further consultation with the Service is necessary. As such, the Service will not receive permit applications from the Corps for these types of facilities.

For those counties with a watercraft-related mortality rate that averages less than one dead manatee a year, we conclude take is not reasonably certain to occur as a result of new or expanding watercraft access facilities in these counties. Therefore, for multi-slip facilities proposed to be built or expanded in those counties that reach a "may affect, not likely to adversely affect" determination using the 2013 Manatee Key, the Service concurs with these effect determinations and no further consultation with the Service is necessary.

For all applications to repair or replace existing multi-slip facilities that do not provide new watercraft access and reach a "may affect, not likely to adversely affect" determination using the 2013 Manatee Key, the Service concurs with these determinations. As such, the Service will not receive permit applications from the Corps for these types of existing facilities since they were covered by the Service's March 17, 2011, consultation on the 2011 Manatee Key.

All other future applications for multi-slip facilities reaching a "may affect, not likely to adversely affect" determination using the 2013 Manatee Key will be forwarded to the Service for concurrence. The Corps agreed to forward to the Service those applications that are consistent with the Manatee Key.

All culverts 8 inches to 8 feet in diameter must be grated to prevent manatee entrapment. To effectively prevent manatee access, grates must be permanently fixed, spaced a maximum of 8 inches apart (may be less for culverts smaller than 16 inches in diameter) and may be installed diagonally, horizontally, or vertically. Culverts less than 8 inches or greater than 8 feet in diameter are exempt from this requirement. If new culverts and/or the maintenance or modification of existing culverts are grated as described above, the determination of "may affect, not likely to adversely affect" is appropriate and no further consultation with the Service is necessary.

We have examined the April 2013 version of the Manatee Key and its enclosures and agree with its structure and content. Currently, the FWC does not require implementation of the signage component of the standard construction conditions for in-water work for the State's review of the permit application. However, the Corps and the Service will require applicants to implement the signage component of the standard construction conditions for any in-water work authorized by a Department of the Army permit. Therefore, except as noted above, for all future applications reviewed with the April 2013 version of the Manatee Key in which the Corps reaches a "may affect, not likely to adversely affect" determination with respect to the manatee and/or its designated critical habitat, the Service hereby concurs with those determinations in accordance with 50 CFR 402.14(b)1. As such, the March 2011 version of the Manatee Key and its associated maps, as well as other earlier versions of the Manatee Key, are no longer applicable.

The Service does not anticipate the proposed action will result in the incidental take of manatees. Furthermore, the Service is not including an incidental take authorization for marine mammals at this time because the incidental take of marine mammals is not expected to occur and has not been authorized under section 101(a)(5) of the MMPA and/or its 1994 Amendments. Following issuance of such regulations or authorizations, the Service may reinitiate consultation to include an incidental take statement for marine mammals, if deemed appropriate.

This concurrence letter fulfills the requirements of section 7 of the Act and no further action is required. If modifications are made to the Manatee Key, if additional information involving potential effects to listed species becomes available, or if a new species is listed or new critical habitat is designated that may be affected by the project, then reinitiation of consultation may be necessary.

This concurrence letter represents the collective assessment of the April 2013 version of the Manatee Key and its enclosures from the Service's three field offices in Florida: Panama City, North Florida, and South Florida. If you have any questions or concerns about this consultation, please feel free to contact Kalani Cairns at 772-469-4240.

Sincerely yours,

Larry Williams
State Supervisor

cc: electronic copy only
Corps, Jacksonville, Florida (Stuart Santos)
Service, Atlanta, Georgia (Jack Arnold)
Service, Jacksonville, Florida (Dawn Jennings)
Service, Panama City, Florida (Don Imm)

THE CORPS OF ENGINEERS, JACKSONVILLE DISTRICT, AND THE STATE OF FLORIDA EFFECT DETERMINATION KEY FOR THE MANATEE IN FLORIDA
April 2013

Purpose and background of the key

The purpose of this document is to provide guidance to improve the review of permit applications by U.S. Army Corps of Engineers' (Corps) Project Managers in the Regulatory Division regarding the potential effects of proposed projects on the endangered West Indian manatee (*Trichechus manatus*) in Florida, and by the Florida Department of Environmental Protection or its authorized designee or Water Management District, for evaluating projects under the State Programmatic General Permit (SPGP) or any other Programmatic General Permits that the Corps may issue for administration by the above agencies. Such guidance is contained in the following dichotomous key. The key applies to permit applications for in-water activities such as, but not limited to: (1) dredging [new or maintenance dredging of not more than 50,000 cubic yards], placement of fill material for shoreline stabilization, and construction/placement of other in-water structures as well as (2) construction of docks, marinas, boat ramps and associated trailer parking spaces, boat slips, dry storage or any other watercraft access structures or facilities.

At a certain step in the key, the user is referred to graphics depicting important manatee areas or areas with inadequate protection. The maps can be downloaded from the Corps' web page at http://www.saj.usace.army.mil/Missions/Regulatory/SourceBook.aspx. We intend to utilize the most recent depiction of these areas, so should these areas be modified by statute, rule, ordinance and/or other legal mandate or authorization, we will modify the graphical depictions accordingly. These areas may be shaded or otherwise differentiated for identification on the maps.

Explanatory footnotes are provided in the key and must be closely followed whenever encountered.

Scope of the key

This key should only be used in the review of permit applications for effect determinations on manatees and should not be used for other listed species or for other aquatic resources such as Essential Fish Habitat (EFH). Corps Project Managers should ensure that consideration of the project's effects on any other listed species and/or on EFH is performed independently. This key may be used to evaluate applications for all types of State of Florida (State Programmatic General Permits, noticed general permits, standard general permits, submerged lands leases, conceptual and individual permits) and Department of the Army (standard permits, letters of permission, nationwide permits, and regional general permits) permits and authorizations. The final effect determination will be based on the project location and description; the potential effects to manatees, manatee habitat, and/or manatee critical habitat; and any measures (such as project components, standard construction precautions, or special conditions included in the authorization) to avoid or minimize effects to manatees or manatee critical habitat. Projects that key to a "may affect" determination equate to "likely to adversely affect" situations, and those projects should not be processed under the SPGP or any other programmatic general permit. For

all “may affect” determinations, Corps Project Managers shall refer to the Manatee Programmatic Biological Opinion, dated March 21, 2011, for guidance on eliminating or minimizing potential adverse effects resulting from the proposed project. If unable to resolve the adverse effects, the Corps may refer the applicant to the U.S. Fish and Wildlife Service (Service) for further assistance in attempting to revise the proposed project to a “may affect, not likely to adversely affect” level. The Service will coordinate with the Florida Fish and Wildlife Conservation Commission (FWC) and the counties, as appropriate. Projects that provide new access for watercraft and key to “may affect, not likely to adversely affect” may or may not need to be reviewed individually by the Service.

MANATEE KEY
Florida[1]
April 2013

The key is not designed to be used by the Corps' Regulatory Division for making their effect determinations for dredging projects greater than 50,000 cubic yards, the Corps' Planning Division in making their effect determinations for civil works projects or by the Corps' Regulatory Division for making their effect determinations for projects of the same relative scope as civil works projects. These types of activities must be evaluated by the Corps independently of the key.

A. Project is not located in waters accessible to manatees and does not directly or indirectly affect manatees (see Glossary).....*No effect*

Project is located in waters accessible to manatees **or** directly or indirectly affects manatees ..... B

B. Project consists of one or more of the following activities, all of which are *May affect*:

1. blasting or other detonation activity for channel deepening and/or widening, geotechnical surveys or exploration, bridge removal, movies, military shows, special events, etc.;

2. installation of structures which could restrict or act as a barrier to manatees;

3. new or changes to existing warm or fresh water discharges from industrial sites, power plants, or natural springs or artesian wells (but only if the new or proposed change in discharge requires a Corps permit to accomplish the work);

4. installation of new culverts and/or maintenance or modification of existing culverts (where the culverts are 8 inches to 8 feet in diameter, ungrated and in waters accessible, or potentially accessible, to manatees)[2];

5. mechanical dredging from a floating platform, barge or structure[3] that restricts manatee access to less than half the width of the waterway;

6. creation of new slips or change in use of existing slips, even those located in a county with a State-approved Manatee Protection Plan (MPP) in place and the number of slips is less than the MPP threshold, to accommodate docking for repeat use vessels, (*e.g.*, water taxis, tour boats, gambling boats, etc; or slips or structures that are not civil works projects, but are frequently used to moor large vessels (>100') for shipping and/or freight purposes; does not include slips used for docking at boat sales or repair facilities or loading/unloading at dry stack storage facilities and boat ramps); [Note: For projects within Bay, Dixie, Escambia, Franklin, Gilchrist, Gulf, Hernando, Jefferson, Lafayette, Monroe (south of Craig Key), Nassau, Okaloosa, Okeechobee, Santa Rosa, Suwannee, Taylor, Wakulla or Walton County, the reviewer should proceed to Couplet C.]

7. any type of in-water activity in a Warm Water Aggregation Area (WWAA) or No Entry Area (see Glossary and accompanying Maps[4]); [Note: For residential docking facilities in a Warm Water Aggregation Area that is not a Federal manatee sanctuary or No Entry Area, the reviewer should proceed to couplet C.]

8. creation or expansion of canals, basins or other artificial shoreline and/or the connection of such features to navigable waters of the U.S.; [Note: For projects proposing a single residential dock, the reviewer should proceed to couplet C; otherwise, project is a *May Affect*.]

9. installation of temporary structures (docks, buoys, etc.) utilized for special events such as boat races, boat shows, military shows, etc., but only when consultation with the U.S. Coast Guard and FWS has not occurred; [Note: See programmatic consultation with the U.S. Coast Guard on manatees dated May 10, 2010.].

Project is other than the activities listed above C

C. Project is located in an Important Manatee Area (IMA) (see Glossary and accompanying Maps[4]) ..... D

Project is not located in an Important Manatee Area (IMA) (see Glossary and accompanying Maps[4]) ..... G

D. Project includes dredging of less than 50,000 cubic yards ..... E

Project does not include dredging ..... G

E. Project is for dredging a residential dock facility or is a land-based dredging operation ..... N

Project not as above ..... F

F. Project proponent **does not elect** to follow all dredging protocols described on the maps for the respective IMA in which the project is proposed ..... *May affect*

Project proponent **elects** to follow all dredging protocols described on the maps for the respective IMA in which the project is proposed ..... G

G. Project provides new[5] access for watercraft, *e.g.*, docks or piers, marinas, boat ramps and associated trailer parking spaces, new dredging, boat lifts, pilings, floats, floating docks, floating vessel platforms, boat slips, dry storage, mooring buoys, or other watercraft access (residential boat lifts, pilings, floating docks, and floating vessel platforms installed in existing slips are not considered new access) or improvements allowing increased watercraft usage ..... H

Project does not provide new[5] access for watercraft, *e.g.*, bulkheads, seawalls, riprap, maintenance dredging, boardwalks and/or the maintenance (repair or rehabilitation) of currently serviceable watercraft access structures provided all of the following are met: (1) the number of slips is not increased; (2) the number of existing slips is not in question; and (3) the improvements do not allow increased watercraft usage ..... N

H. Project is located in the Braden River Area of Inadequate Protection (Manatee County) (see Glossary and accompanying AIP Map[4])
..... *May affect*

Project is not located in the Braden River Area of Inadequate Protection (Manatee County) (see Glossary and accompanying AIP Map[4]) I

I. Project is for a multi-slip facility (see Glossary) ..... J

Project is for a residential dock facility or is for dredging (see Glossary) ..... N

J. Project is located in a county that currently has a State-approved MPP in place (BREVARD, BROWARD, CITRUS, CLAY, COLLIER, DUVAL, INDIAN RIVER, LEE, MARTIN, MIAMI-DADE, PALM BEACH, ST. LUCIE, SARASOTA, VOLUSIA) or shares contiguous waters with a county having a State-approved MPP in place (LAKE, MARION, SEMINOLE)[6] ..... K

Project is located in a county not required to have a State-approved MPP L

K. Project has been developed or modified to be consistent with the county's State-approved MPP **and** has been verified by a FWC review (or FWS review if project is exempt from State permitting) **or** the number of slips is below the MPP threshold ..... N

Project has not been reviewed by the FWC or FWS **or** has been reviewed by the FWC or FWS **and** determined that the project is not consistent with the county's State-approved MPP ..... *May affect*

L. Project is located in one of the following counties: CHARLOTTE, DESOTO[7], FLAGLER, GLADES, HENDRY, HILLSBOROUGH, LEVY, MANATEE, MONROE[7], PASCO[7], PINELLAS ..... M

Project is located in one of the following counties: BAY, DIXIE, ESCAMBIA, FRANKLIN, GILCHRIST, GULF, HERNANDO, JEFFERSON, LAFAYETTE, MONROE (south of Craig Key), NASSAU, OKALOOSA, OKEECHOBEE, PUTNAM, SANTA ROSA, ST. JOHNS, SUWANNEE, TAYLOR, WAKULLA, WALTON ..... N

M. The number of slips does not exceed the residential dock density threshold (see Glossary) ..... N

The number of slips exceeds the residential dock density threshold (see Glossary) ..... *May affect*

N. Project impacts to submerged aquatic vegetation[8], emergent vegetation or mangrove will have beneficial, insignificant, discountable[9] or no effects on the manatee[10] ..... O

Project impacts to submerged aquatic vegetation[8], emergent vegetation or mangrove may adversely affect the manatee[10] ..... *May affect*

O. Project proponent **elects** to follow standard manatee conditions for in-water work[11] and requirements, as appropriate for the proposed activity, prescribed on the maps[4] ..... P

Project proponent **does not elect** to follow standard manatee conditions for in-water work[11] and appropriate requirements prescribed on the maps[4] ..... *May affect*

P. If project is for a new or expanding[5] multi-slip facility and is located in a county with a State-approved MPP in place **or** in Bay, Dixie, Escambia, Franklin, Gilchrist, Gulf, Hernando, Jefferson, Lafayette, Monroe (south of Craig Key), Nassau, Okaloosa, Okeechobee, Putnam, St. Johns, Santa Rosa, Suwannee, Taylor, Wakulla or Walton County, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary.

If project is for a new or expanding[5] multi-slip facility and is located in Charlotte, Desoto, Flagler, Glades, Hendry, Hillsborough, Levy, Manatee, Monroe (north of Craig Key), Pasco, or Pinellas County, further consultation with the Service is necessary for "*May affect, not likely to adversely affect*" determinations.

If project is for repair or rehabilitation of a multi-slip facility and is located in an Important Manatee Area, further consultation with the Service is necessary for "*May affect, not likely to adversely affect*" determinations. If project is for repair or rehabilitation of a multi-slip facility and: (1) is not located in an Important Manatee Area; (2) the number of slips is not increased; (3) the number of existing slips is not in question; and (4) the improvements to the existing watercraft access structures do not allow increased watercraft usage, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary.

If project is a residential dock facility, shoreline stabilization, or dredging, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary. Note: For residential dock facilities located in a Warm Water Aggregation Area or in a No Entry area, seasonal restrictions may apply. See footnote 4 below for maps showing restrictions.

If project is other than repair or rehabilitation of a multi-slip facility, a new[5] multi-slip facility, residential dock facility, shoreline stabilization, or dredging, and does not provide new[5] access for watercraft or

improve an existing access to allow increased watercraft usage, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary.

[1] On the St. Mary's River, this key is only applicable to those areas that are within the geographical limits of the State of Florida.

[2] All culverts 8 inches to 8 feet in diameter must be grated to prevent manatee entrapment. To effectively prevent manatee access, grates must be permanently fixed, spaced a maximum of 8 inches apart (may be less for culverts smaller than 16 inches in diameter) and may be installed diagonally, horizontally or vertically. For new culverts, grates must be attached prior to installation of the culverts. Culverts less than 8 inches or greater than 8 feet in diameter are exempt from this requirement. If new culverts and/or the maintenance or modification of existing culverts are grated as described above, the determination of "*May affect, not likely to adversely affect*" is appropriate[11] and no further consultation with the Service is necessary.

[3] If the project proponent agrees to follow the standard manatee conditions for in-water work as well as any special conditions appropriate for the proposed activity, further consultation with the Service is necessary for "*May affect, not likely to adversely affect*" determinations. These special conditions may include, but are not limited to, the use of dedicated observers (see Glossary for definition of dedicated observers), dredging during specific months (warm weather months vs cold weather months), dredging during daylight hours only, adjusting the number of dredging days, does not preclude or discourage manatee egress/ingress with turbidity curtains or other barriers that span the width of the waterway, etc.

[4] Areas of Inadequate Protection (AIPs), Important Manatee Areas (IMAs), Warm Water Aggregation Areas (WWAAs) and No Entry Areas are identified on these maps and defined in the Glossary for the purposes of this key. These maps can be viewed on the Corps' web page. If projects are located in a No Entry Area, special permits may be required from FWC in order to access these areas (please refer to Chapter 68C-22 F.A.C. for boundaries; maps are also available at FWC's web page).

[5] New access for watercraft is the addition or improvement of structures such as, but not limited to, docks or piers, marinas, boat ramps and associated trailer parking spaces, boat lifts, pilings, floats, floating docks, floating vessel platforms, (maintenance dredging, residential boat lifts, pilings, floating docks, and floating vessel platforms installed in existing slips are not considered new access), boat slips, dry storage, mooring buoys, new dredging, etc., that facilitates the addition of watercraft to, and/or increases watercraft usage in, waters accessible to manatees. The repair or rehabilitation of any type of currently serviceable watercraft access structure is not considered new access provided all of the following are met: (1) the number of slips is not increased; (2) the number of existing slips is not in question; and (3) the improvements to the existing watercraft access structures do not result in increased watercraft usage.

[6] Projects proposed within the St. Johns River portion of Lake, Marion, and Seminole counties and contiguous with Volusia County shall be evaluated using the Volusia County MPP.

[7] For projects proposed within the following areas: the Peace River in DeSoto County; all areas north of Craig Key in Monroe County, and the Anclote and Pithlachascotee Rivers in Pasco County, proceed to Couplet M. For all other locations in DeSoto, Monroe (south of Craig Key) and Pasco Counties, proceed to couplet N.

[8] Where the presence of the referenced vegetation is confirmed within the area affected by docks and other piling-supported minor structures and the reviewer has concluded that the impacts to SAV, marsh or mangroves would not adversely affect the manatee or its critical habitat, proceed to couplet O.

Where the presence of the referenced vegetation is confirmed within the area affected by docks and other piling-supported minor structures and the reviewer has concluded that the impacts to SAV, marsh or mangroves would adversely affect the manatee or its critical habitat, the applicant can elect to avoid/minimize impacts to that vegetation. In that instance, where impacts are unavoidable and the applicant elects to abide by or employ construction techniques that exceed the criteria in the following documents, the reviewer should conclude that the impacts to SAV, marsh or mangroves would not adversely affect the manatee or its critical habitat and proceed to couplet O.

- "Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat," prepared jointly by the U.S. Army Corps of Engineers and the National Marine Fisheries Service (August 2001) [refer to the Corps' web page], and

- "Key for Construction Conditions for Docks or Other Minor Structures Constructed in or over Johnson's seagrass (*Halophila johnsonii*)," prepared jointly by the National Marine Fisheries Service and U.S. Army Corps of Engineers (October 2002), for those projects within the known range of Johnson's seagrass occurrence (Sebastian Inlet to central Biscayne Bay in the lagoon systems on the east coast of Florida) [refer to the Corps' web page],

Where the presence of the referenced vegetation is confirmed within the area affected by docks and other piling-supported minor structures and the reviewer has concluded that the impacts to SAV, marsh or mangroves would adversely affect the manatee or its critical habitat, and the applicant does not elect to follow the above Guidelines, the Corps will need to request formal consultation on the manatee with the Service as *May affect*.

For activities other than docks and other piling-supported minor structures proposed in SAV, marsh, or mangroves (*e.g.*, new dredging, placement of riprap, bulkheads, etc.), if the reviewer determines the impacts to the SAV, marsh or mangroves will not adversely affect the manatee or its critical habitat, proceed to couplet O, otherwise the Corps will need to request formal consultation on the manatee with the Service as *May affect*.

[9] See Glossary, under "is not likely to adversely affect."

[10] Federal reviewers, when making your effects determination, consider effects to manatee designated critical habitat pursuant to section 7(a)(2) of the Endangered Species Act. State reviewers, when making your effects determination, consider effects to manatee habitat within the entire State of Florida, pursuant to Chapter 370.12(2)(b) Florida Statutes.

[11] See the Corps' web page for manatee construction conditions. At this time, manatee construction precautions c and f are not required in the following Florida counties: Bay, Escambia, Franklin, Gilchrist, Gulf, Jefferson, Lafayette, Okaloosa, Santa Rosa, Suwannee, and Walton.

[12] By letter dated April 25, 2013, the Corps received the Service's concurrence with "*May affect, not likely to adversely affect*" determinations made pursuant to this key for the following activities: (1) selected non-watercraft access projects; (2) watercraft-access projects that are residential dock facilities, excluding those located in the Braden River AIP; (3) launching facilities solely for kayaks and canoes, and (4) new or expanding multi-slip facilities located in Bay, Dixie, Escambia, Franklin, Gilchrist, Gulf, Hernando, Jefferson, Lafayette, Monroe (south of Craig Key), Nassau, Okaloosa, Okeechobee, Santa Rosa, Suwannee, Taylor, Wakulla or Walton County.

Additionally, in the same letter dated April 25, 2013, the Corps received the Service's concurrence for "*May affect, not likely to adversely affect*" determinations specifically made pursuant to Couplet G of the key for the repair or rehabilitation of currently serviceable multi-slip watercraft access structures provided all of the following are met: (1) the project is not located in an IMA, (2) the number of slips is not increased; (3) the number of existing slips is not in question; and (4) the improvements to the existing watercraft access structures do not allow increased watercraft usage. Upon receipt of such a programmatic concurrence, no further consultation with the Service for these projects is required.

GLOSSARY

Areas of inadequate protection (AIP) – Areas within counties as shown on the maps where the Service has determined that measures intended to protect manatees from the reasonable certainty of watercraft-related take are inadequate. Inadequate protection may be the result of the absence of manatee or other watercraft speed zones, insufficiency of existing speed zones, deficient speed zone signage, or the absence or insufficiency of speed zone enforcement.

Boat slip – A space on land or in or over the water, other than on residential land, that is intended and/or actively used to hold a stationary watercraft or its trailer, and for which intention and/or use is confirmed by legal authorization or other documentary evidence. Examples of boat slips include, but are not limited to, docks or piers, marinas, boat ramps and associated trailer parking spaces, boat lifts, floats, floating docks, pilings, boat davits, dry storage, etc.

Critical habitat – For listed species, this consists of: (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (ESA), on which are found those physical or biological features (constituent elements) (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the ESA, upon a determination by the Secretary that such areas are essential for the conservation of the species. Designated critical habitats are described in 50 CFR 17 and 50 CFR 226.

Currently serviceable – Currently, serviceable means usable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects – The direct or immediate effects of the project on the species or its habitat.

Dredging – For the purposes of this key, the term dredging refers to all in-water work associated with dredging operations, including mobilization and demobilization activities that occur in water or require vessels.

Emergent vegetation – Rooted emergent vascular macrophytes such as, but not limited to, cordgrass (*Spartina alterniflora and S. patens*), needle rush (J*uncus roemerianus*), swamp sawgrass (*Cladium mariscoides*), saltwort (*Batis maritima*), saltgrass (*Distichlis spicata*), and glasswort (*Salicornia virginica*) found in coastal salt marsh-related habitats (tidal marsh, salt marsh, brackish marsh, coastal marsh, coastal wetlands, tidal wetlands).

Formal consultation – A process between the Services and a Federal agency or applicant that: (1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's written request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion and incidental take statement by either of the Services. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed

action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR 402.02, 50 CFR 402.14]

Important manatee areas (IMA) – Areas within certain counties where increased densities of manatees occur due to the proximity of warm water discharges, freshwater discharges, natural springs and other habitat features that are attractive to manatees. These areas are heavily utilized for feeding, transiting, mating, calving, nursing or resting as indicated by aerial survey data, mortality data and telemetry data. Some of these areas may be federally-designated sanctuaries or state-designated "seasonal no entry" zones. Maps depicting important manatee areas and any accompanying text may contain a reference to these areas and their special requirements. Projects proposed within these areas must address their special requirements.

Indirect effects – Those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur. Examples of indirect effects include, but are not limited to, changes in water flow, water temperature, water quality (*e.g.*, salinity, pH, turbidity, nutrients, chemistry), prop dredging of seagrasses, and manatee watercraft injury and mortality. Indirect effects also include watercraft access developments in waters not currently accessible to manatees, but watercraft access can, is, or may be planned to waters accessible to manatees by the addition of a boat lift or the removal of a dike or plug.

Informal consultation – A process that includes all discussions and correspondence between the Services and a Federal agency or designated non-Federal representative, prior to formal consultation, to determine whether a proposed Federal action may affect listed species or critical habitat. This process allows the Federal agency to utilize the Services' expertise to evaluate the agency's assessment of potential effects or to suggest possible modifications to the proposed action which could avoid potentially adverse effects. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR 402.02, 50 CFR 402.13]

In-water activity – Any type of activity used to construct/repair/replace any type of in-water structure or fill; the act of dredging.

In-water structures – watercraft access structures – Docks or piers, marinas, boat ramps, boat slips, boat lifts, floats, floating docks, pilings (depending on use), boat davits, etc.

In-water structures – other than watercraft access structures – Bulkheads, seawalls, riprap, groins, boardwalks, pilings (depending on use), etc.

Is likely to adversely affect – The appropriate finding in a biological assessment (or conclusion during informal consultation) if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial (see definition of "is not likely to adversely affect"). An "is likely to adversely affect" determination requires the initiation of formal consultation under section 7 of the ESA.

Is not likely to adversely affect – The appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. **Discountable effects** are those extremely unlikely to occur. **Insignificant effects** relate to the size of the impact and should never reach the scale where take occurs. **Beneficial effects** are contemporaneous positive effects without any adverse effects to the species. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects or (2) expect discountable effects to occur.

Manatee Protection Plan (MPP) – A manatee protection plan (MPP) is a comprehensive planning document that addresses the long-term protection of the Florida manatee through law enforcement, education, boat facility siting, and habitat protection initiatives. Although MPPs are primarily developed by the counties, the plans are the product of extensive coordination and cooperation between the local governments, the FWC, the Service, and other interested parties.

Manatee Protection Plan thresholds – The smallest size of a multi-slip facility addressed under the purview of a Manatee Protection Plan (MPP). For most MPPs, this threshold is five slips or more. For Brevard, Clay, Citrus, and Volusia County MPPs, this threshold is three slips or more.

Mangroves – Rooted emergent trees along a shoreline that, for the purposes of this key, include red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*) and white mangrove (*Laguncularia racemosa*).

May affect – The appropriate conclusion when a proposed action may pose <u>any</u> effects on listed species or designated critical habitat. When the Federal agency proposing the action determines that a "may affect" situation exists, then they must either request the Services to initiate formal consultation or seek written concurrence from the Services that the action "is not likely to adversely affect" listed species. For the purpose of this key, all "may affect" determinations equate to "likely to adversely affect" and Corps Project Managers should request the Service to initiate formal consultation on the manatee or designated critical habitat. **No effect** – the appropriate conclusion when the action agency determines its proposed action will not affect a listed species or designated critical habitat.

Multi-slip facility – Multi-slip facilities include commercial marinas, private multi-family docks, boat ramps and associated trailer parking spaces, dry storage facilities and any other similar structures or activities that provide access to the water for multiple (five slips or more, except in Brevard, Clay, Citrus, and Volusia counties where it is three slips or more) watercraft. In some instances, the Corps and the Service may elect to review multiple residential dock facilities as a multi-slip facility.

New access for watercraft – New dredging and the addition, expansion or improvement of structures such as, but not limited to, docks or piers, marinas, boat ramps and associated trailer parking spaces, boat lifts, pilings, floats, floating docks, floating vessel platforms, (residential boat lifts, pilings, floats, and floating vessel platforms installed in existing slips are not considered new access), boat slips, dry storage, mooring buoys, etc., that facilitates the addition of watercraft to, and/or increases watercraft usage in, waters accessible to manatees.

Observers – During dredging and other in-water operations within manatee accessible waters, the standard manatee construction conditions require all on-site project personnel to watch for manatees to ensure that those standard manatee construction conditions are met. Within important manatee areas (IMA) and under special circumstances, heightened observation is needed. **Dedicated Observers** are those having some prior experience in manatee observation, are dedicated only for this task, and must be someone other than the dredge and equipment operators/mechanics. **Approved Observers** are dedicated observers who also must be approved by the Service (if Federal permits are involved) and the FWC (if state permits are involved), prior to work commencement. Approved observers typically have significant and often project-specific observational experience. Documentation on prior experience must be submitted to these agencies for approval and must be submitted a minimum of 30 days prior to work commencement. When dedicated or approved observers are required, observers must be on site during all in-water activities, and be equipped with polarized sunglasses to aid in manatee observation. For prolonged in-water operations, multiple observers may be needed to perform observation in shifts to reduce fatigue (recommended shift length is no longer than six hours). Additional information concerning observer approval can be found at FWC's web page.

Residential boat lift – A boat lift installed on a residential dock facility.

Residential dock density ratio threshold – The residential dock density ratio threshold is used in the evaluation of multi-slip projects in some counties without a State-approved Manatee Protection Plan and is consistent with 1 boat slip per 100 linear feet of shoreline (1:100) owned by the applicant.

Residential dock facility – A residential dock facility means a private residential dock which is used for private, recreational or leisure purposes for single-family or multi-family residences designed to moor no more than four vessels (except in Brevard, Clay, Citrus, and Volusia counties which allow only two vessels). This also includes normal appurtenances such as residential boat lifts, boat shelters with open sides, stairways, walkways, mooring pilings, dolphins, etc. In some instances, the Corps and the Service may elect to review multiple residential dock facilities as a multi-slip facility.

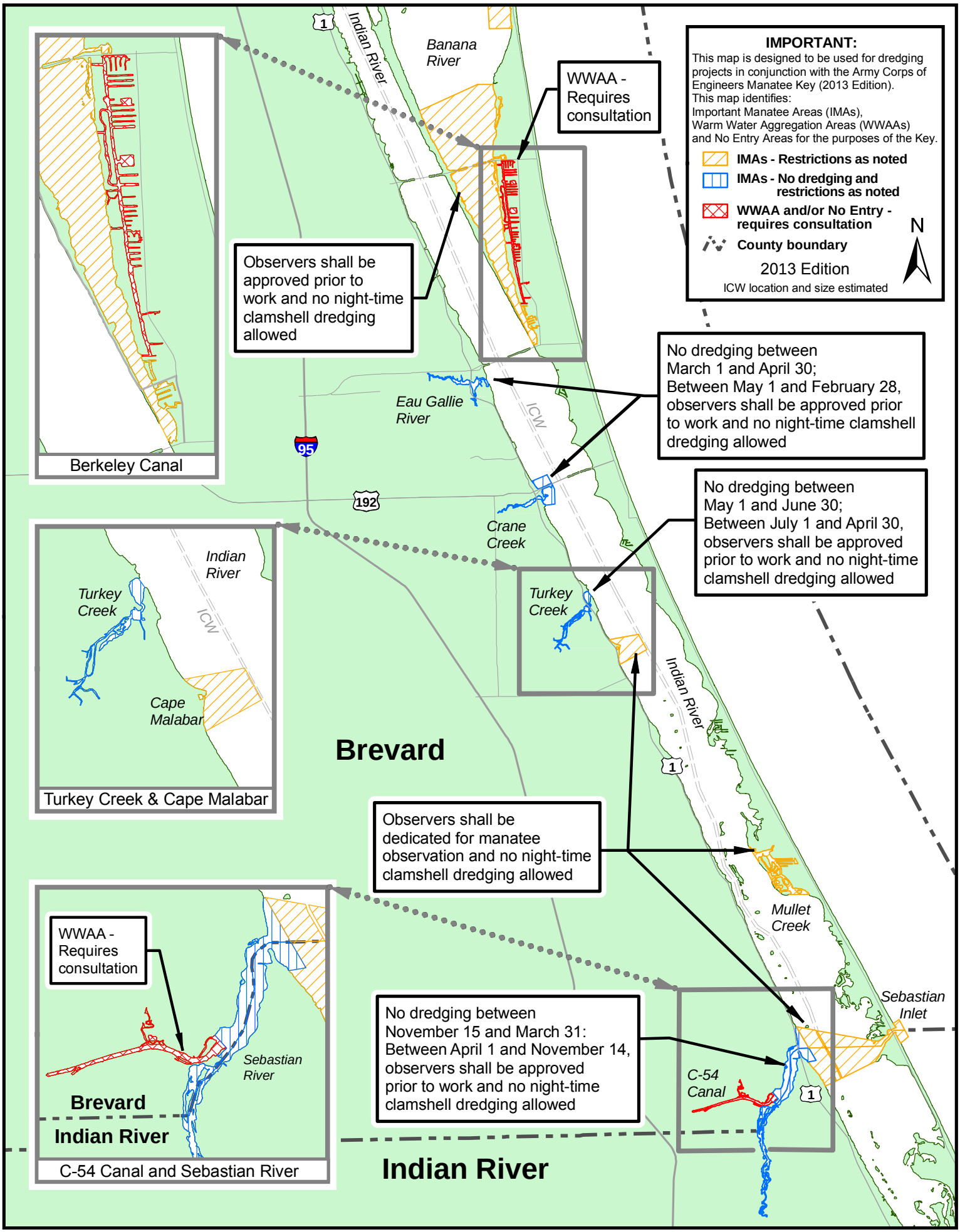
Submerged aquatic vegetation (SAV) – Rooted, submerged, aquatic plants such as, but not limited to, shoal grass (*Halodule wrightii*), paddle grass (*Halophila decipiens*), star grass (*Halophila engelmanni*), Johnson's seagrass (*Halophila johnsonii*), sago pondweed (*Potamogeton pectinatus*), clasping-leaved pondweed (*Potamogeton perfoliatus*), widgeon grass (*Ruppia maritima*), manatee grass (*Syringodium filiforme*), turtle grass (*Thalassia testudinum*), tapegrass (*Vallisneria americana*), and horned pondweed (*Zannichellia palustris*).

Warm Water Aggregation Areas (WWAAs) and **No Entry Areas** – Areas within certain counties where increased densities of manatees occur due to the proximity of artificial or natural warm water discharges or springs and are considered necessary for survival. Some of these areas may be federally-designated manatee sanctuaries or state-designated seasonal "no entry" manatee protection zones. Projects proposed within these areas may require consultation in order to offset expected adverse impacts. In addition, special permits may be required from the FWC in order to access these areas.

Watercraft access structures – Docks or piers, marinas, boat ramps and associated trailer parking spaces, boat slips, boat lifts, floats, floating docks, pilings, boat davits, dry storage, etc.

Waters accessible to manatees – Although most waters of the State of Florida are accessible to the manatee, there are some areas such as landlocked lakes that are not. There are also some weirs, salinity control structures and locks that may preclude manatees from accessing water bodies. If there is any question about accessibility, contact the Service or the FWC.

Brevard County - South



Appendix 4

U.S. Army Corps of Engineers Programmatic Key for the Wood Stork in South Florida (May 2010)

United States Department of the Interior

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

May 18, 2010

Donnie Kinard
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Jacksonville District Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 41420-2007-FA-1494
Service Consultation Code: 41420-2007-I-0964
Subject: South Florida Programmatic Concurrence
Species: Wood Stork

Dear Mr. Kinard:

This letter addresses minor errors identified in our January 25, 2010, wood stork key and as such, supplants the previous key. The key criteria and wood stork biomass foraging assessment methodology have not been affected by these minor revisions.

The Fish and Wildlife Service's (Service) South Florida Ecological Services Office (SFESO) and the U.S. Army Corps of Engineers Jacksonville District (Corps) have been working together to streamline the consultation process for federally listed species associated with the Corps' wetland permitting program. The Service provided letters to the Corps dated March 23, 2007, and October 18, 2007, in response to a request for a multi-county programmatic concurrence with a criteria-based determination of "may affect, not likely to adversely affect" (NLAA) for the threatened eastern indigo snake (*Drymarchon corais couperi*) and the endangered wood stork (*Mycteria americana*) for projects involving freshwater wetland impacts within specified Florida counties. In our letters, we provided effect determination keys for these two federally listed species, with specific criteria for the Service to concur with a determination of NLAA.

The Service has revisited these keys recently and believes new information provides cause to revise these keys. Specifically, the new information relates to foraging efficiencies and prey base assessments for the wood stork and permitting requirements for the eastern indigo snake. This letter addresses the wood stork key and is submitted 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 eastern indigo snake key will be provided in a separate letter.

Wood stork

Habitat

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically construct their nests in medium to tall

trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water (Ogden 1991, 1996; Rodgers et al. 1996). Successful colonies are those that have limited human disturbance and low exposure to land-based predators. Nesting colonies protected from land-based predators are characterized as those surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle. These colonies have water depths between 0.9 and 1.5 meters (3 and 5 feet) during the breeding season.

Successful nesting generally involves combinations of average or above-average rainfall during the summer rainy season and an absence of unusually rainy or cold weather during the winter-spring breeding season (Kahl 1964; Rodgers et al. 1987). This pattern produces widespread and prolonged flooding of summer marshes, which maximize production of freshwater fishes, followed by steady drying that concentrate fish during the season when storks nest (Kahl 1964). Successful nesting colonies are those that have a large number of foraging sites. To maintain a wide range of foraging sites, a variety of wetland types should be present, with both short and long hydroperiods. The Service (1999) describes a short hydroperiod as a 1 to 5-month wet/dry cycle, and a long hydroperiod as greater than 5 months. During the wet season, wood storks generally feed in the shallow water of the short-hydroperiod wetlands and in coastal habitats during low tide. During the dry season, foraging shifts to longer hydroperiod interior wetlands as they progressively dry-down (though usually retaining some surface water throughout the dry season).

Wood storks occur in a wide variety of wetland habitats. Typical foraging sites for the wood stork include freshwater marshes and stock ponds, shallow, seasonally flooded roadside and agricultural ditches, narrow tidal creeks and shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Through tactolocation, or grope feeding, wood storks in south Florida feed almost exclusively on fish between 2 and 25 centimeters [cm] (1 and 10 inches) in length (Ogden et al. 1976). Good foraging conditions are characterized by water that is relatively calm, uncluttered by dense thickets of aquatic vegetation, and having a water depth between 5 and 38 cm (5 and 15 inches) deep, although wood storks may forage in other wetlands. Ideally, preferred foraging wetlands would include a mosaic of emergent and shallow open-water areas. The emergent component provides nursery habitat for small fish, frogs, and other aquatic prey and the shallow, open-water areas provide sites for concentration of the prey during seasonal dry-down of the wetland.

Conservation Measures

The Service routinely concurs with the Corps' "may affect, not likely to adversely affect" determination for individual project effects to the wood stork when project effects are insignificant due to scope or location, or if assurances are given that wetland impacts have been avoided, minimized, and adequately compensated such that there is no net loss in foraging potential. We utilize our *Habitat Management Guidelines for the Wood Stork in the Southeast Region* (Service 1990) (Enclosure 1) (HMG) in project evaluation. The HMG is currently under review and once final will replace the enclosed HMG. There is no designated critical habitat for the wood stork.

The SFESO recognizes a 29.9 kilometer [km] (18.6-mile) core foraging area (CFA) around all known wood stork colonies in south Florida. Enclosure 2 (to be updated as necessary) provides locations of colonies and their CFAs in south Florida that have been documented as active within the last 10 years. The Service believes loss of suitable wetlands within these CFAs may reduce foraging opportunities for the wood stork. To minimize adverse effects to the wood stork, we recommend compensation be provided for impacts to foraging habitat. The compensation should consider wetland type, location, function, and value (hydrology, vegetation, prey utilization) to ensure that wetland functions lost due to the project are adequately offset. Wetlands offered as compensation should be of the same hydroperiod and located within the CFAs of the affected wood stork colonies. The Service may accept, under special circumstances, wetland compensation located outside the CFAs of the affected wood stork nesting colonies. On occasion, wetland credits purchased from a "Service Approved" mitigation bank located outside the CFAs could be acceptable to the Service, depending on location of impacted wetlands relative to the permitted service area of the bank, and whether or not the bank has wetlands having the same hydroperiod as the impacted wetland.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing the Wood Stork Effect Determination Key below. If the use of this key results in a Corps determination of "no effect" for a particular project, the Service supports this determination. If the use of this Key results in a determination of NLAA, the Service concurs with this determination[1]. This Key is subject to revisitation as the Corps and Service deem necessary.

The Key is as follows:

A. Project within 0.76 km (0.47 mile)[2] of an active colony site[3] ..... "*may affect*[4]"

Project impacts Suitable Foraging Habitat (SFH)[5] at a location greater than 0.76 km (0.47 mile) from a colony site..... ....."*go to* B"

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[1] With an outcome of "no effect" or "NLAA" as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

[2] Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mi).

[3] An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

[4] Consultation may be concluded informally or formally depending on project impacts.

[5] Suitable foraging habitat (SFH) includes wetlands that typically have shallow-open water areas that are relatively calm and have a permanent or seasonal water depth between 5 to 38 cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural ditches, seasonally flooded pastures, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

Project does not affect SFH……..…..*"no effect[1]".*

B. Project impact to SFH is less than 0.20 hectare (one-half acre)[6]……..……*NLAA[1]"*

Project impact to SFH is greater in scope than 0.20 hectare (one-half acre)....……*go to* C

C. Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony site ……..…….…….…..……*go to* D

Project impacts to SFH within the CFA of a colony site …….…..…...…….*go to* E

D. Project impacts to SFH have been avoided and minimized to the extent practicable; compensation (Service approved mitigation bank or as provided in accordance with Mitigation Rule 33 CFR Part 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines; and habitat compensation replaces the foraging value matching the hydroperiod[7] of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance[8]…….. *NLAA[1]"*

Project not as above.……... *"may affect[4]"*

E. Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the HMG; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod[7] of the wetlands affected, and provides foraging value similar

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[6] On an individual basis, SFH impacts to wetlands less than 0.20 hectare (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide ranging species, and individually, habitat change from impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

[7] Several researchers (Flemming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) than long hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these short hydroperiod wetlands within CFAs are avoided, minimized, and compensated for by enhancement/restoration of short hydroperiod wetlands.

[8] For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Enclosure 3 for projects with greater than 2.02 hectares (5 acres) of wetland impacts. For projects with less than 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.

to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance[8]..... *"NLAA[1]"*

Project does not satisfy these elements ..... *"may affect[4]"*

This Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

Monitoring and Reporting Effects

For the Service to monitor cumulative effects, it is important for the Corps to monitor the number of permits and provide information to the Service regarding the number of permits issued where the effect determination was: "may affect, not likely to adversely affect." We request that the Corps send us an annual summary consisting of: project dates, Corps identification numbers, project acreages, project wetland acreages, and project locations in latitude and longitude in decimal degrees.

Thank you for your cooperation and effort in protecting federally listed species. If you have any questions, please contact Allen Webb at extension 246.

Sincerely yours,

Paul Souza
Field Supervisor
South Florida Ecological Services Office

Enclosures

cc: w/enclosures (electronic only)
Corps, Jacksonville, Florida (Stu Santos)
EPA, West Palm Beach, Florida (Richard Harvey)
FWC, Vero Beach, Florida (Joe Walsh)
Service, Jacksonville, Florida (Billy Brooks)

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Appendix 5
Uniform Mitigation Assessment Method (UMAM): Part 1 and Part 2

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR A1A Bridge over Sebastian Inlet		Mangrove Swamp

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
612	Mangroves	Impact	0.11

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Basin 22	Class III	OFW / Sebastian Inlet State Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The project study area is within the Sebastian Inlet State Park and has a direct connection to both the Atlantic Ocean and Indian River Lagood. The coastal dune system and beaches of the park east of A1A do not have any connection to the wetlands.

Assessment area description

The mangrove swamps consist of red, black, and white mangroves, with scattered buttonwood, cabbage palm, and sea grape.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Sebastian Inlet State Park, A1A, Indian River Lagoon, Atlantic Ocean	Mangrove swamps are very common in the regional landscape of southeastern coastal Florida

Functions	Mitigation for previous permit/other historic use
Sediment trap, recycle nutrients, successional land formation, substrate for attachment and shelter for numerous marine and estuarine organisms. Nursery grounds, breeding grounds, nesting. Erosion control, tidal control from storm surge.	none

Anticipated Wildlife Utilization Based on Literature Review	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
mangrove water snake, brown pelican, white ibis, osprey, bald eagle,shorebirds, herons, egrets, and raccoon, sponges, oysters, marine worms, barnacles, mangrove tree crabs, fiddler crabs, mosquitos, and numerous other invertebrates. black-tipped shark, lemon shark, nurse shark, bonnet- head shark, rays, tarpon, ladyfish, bonefish, menhaden, sardines, lookdown, permit	It is anticipated that this project area could be utilized by state listed wading birds including the little blue heron, snowy egret, wood storks and Atlantic salt marsh snake, smalltooth sawfish.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

none

Additional relevant factors:

The mangroves are directly connected to the Indian River Lagoon□

Assessment conducted by:	Assessme 6/9/2022
Mike Drauer	

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
SR A1A bridge over Sebastian Inlet		Mangrove Swamp
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Drauer	6/9/2022

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	**w/o pres or current**	**with**
	9	0
Some of the mangroves impacted are directly adjacent to the park roads or SR A1A but many are buffered by Tropical Hammock and in a fully natural condition		
.500(6)(b)Water Environment (n/a for uplands)	**w/o pres or current**	**with**
	8	0
Water levels are typical, though those areas along side the roads receive direct run-off. The IRL is an impaired waterway and does not have the highest water quality		
.500(6)(c)Community structure		
1. Vegetation and/or 2. Benthic Community	**w/o pres or current**	**with**
	9	0
These wetlands are comprised of high quality vegetation in excellent condition		

Score = sum of above scores/30 (if uplands, divide by 20)		
current or w/o pres		**with**
0.87		0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.096

Delta = [with-current]
0.87

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Appendix 6
Standard Manatee Conditions for In-Water Work

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2011

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

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

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

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

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

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

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to the email address listed above.

CAUTION: MANATEE HABITAT

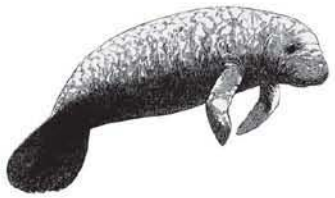
All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC

Appendix 7
Sea Turtle and Smalltooth Sawfish Construction Conditions

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

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

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

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

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

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

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

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

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

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

Revised: March 23, 2006
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Appendix 8
Protected Species Construction Conditions, NOAA Fisheries Southeast Regional Office

PROTECTED SPECIES CONSTRUCTION CONDITIONS, NOAA FISHERIES SOUTHEAST REGIONAL OFFICE

The action agency and any permittee shall comply with the following construction conditions for protected species under the jurisdiction of NOAA Fisheries Southeast Regional Office (SERO) Protected Resources Division (PRD):[1]

Protected Species Sightings–The action agency and any permittee shall ensure that all personnel associated with the project are instructed about the potential presence of species protected under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). All on-site project personnel are responsible for observing water-related activities for the presence of protected species. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing listed species and all marine mammals. To determine which protected species and critical habitat may be found in the transit area, please review the relevant marine mammal and ESA-listed species at Find A Species (https://www.fisheries.noaa.gov/find-species) and the consultation documents that have been completed for the project.

1. **Equipment**–Turbidity curtains, if used, shall be made of material in which protected species cannot become entangled and be regularly monitored to avoid protected species entrapment. All turbidity curtains and other in-water equipment shall be properly secured with materials that reduce the risk of protected species entanglement and entrapment.

    a. In-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) shall be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, shall be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line shall be allowed in the water. All anchoring shall be in areas free from hardbottom and seagrass.

    b. Turbidity curtains and other in-water equipment shall be placed in a manner that does not entrap protected species within the project area and minimizes the extent and duration of their exclusion from the project area.

    c. Turbidity barriers shall be positioned in a way that minimizes the extent and duration of protected species exclusion from important habitat (e.g. critical habitat, hardbottom, seagrass) in the project area.

2. **Operations**–For construction work that is generally stationary (e.g., barge-mounted equipment dredging a berth or section of river, or shore-based equipment extending into the water):

    a. Operations of moving equipment shall cease if a protected species is observed within 150 feet of operations.

[1] Manatees are managed under the jurisdiction of the U.S. Fish and Wildlife Service.

b. Activities shall not resume until the protected species has departed the project area of its own volition (e.g., species was observed departing or 20 minutes have passed since the animal was last seen in the area).

3. **Vessels**–For projects requiring vessels, the action agency, and any permittee shall ensure conditions in the Vessel Strike Avoidance Measures are implemented as part of the project/permit issuance (https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance).

4. **Consultation Reporting Requirements–**Any interaction with a protected species shall be reported immediately to NOAA Fisheries SERO PRD and the local authorized stranding/rescue organization.

   To report to NOAA Fisheries SERO PRD, send an email to takereport.nmfsser@noaa.gov. Please include the species involved, the circumstances of the interaction, the fate and disposition of the species involved, photos (if available), and contact information for the person who can provide additional details if requested. Please include the project's Environmental Consultation Organizer (ECO) number and project title in the subject line of email reports.

   To report the interaction to the local stranding/rescue organization, please see the following website for the most up to date information for reporting sick, injured, or dead protected species:

   Reporting Violations–To report an ESA or MMPA violation, call the NOAA Fisheries Enforcement Hotline. This hotline is available 24 hours a day, 7 days week for anyone in the United States.

   NOAA Fisheries Enforcement Hotline (800) 853-1964

5. **Additional Conditions–**Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the project consultation and must also be complied with.

For additional information, please contact NOAA Fisheries SERO PRD at:
NOAA Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
Tel: (727) 824-5312
Visit us on the web at Protected Marine Life in the Southeast
(https://www.fisheries.noaa.gov/region/southeast#protected-marine-life)

Revised: May 2021