



US Army Corps
of Engineers®
Jacksonville District

PINELLAS COUNTY, FLORIDA COASTAL STORM RISK MANAGEMENT STUDY

TREASURE ISLAND AND LONG KEY SEGMENTS

Draft Integrated Feasibility Report and
Environmental Assessment

APPENDIX G: CLEAN WATER ACT 404(B)1 EVALUATION



August 2020



SECTION 404(b) EVALUATION

PINELLAS COUNTY, FLORIDA COASTAL STORM RISK MANAGEMENT TREASURE ISLAND AND LONG KEY SEGMENTS

DRAFT INTEGRATED FEASIBILITY STUDY AND ENVIRONMENTAL ASSESSMENT

I. Project Description

a. General Description and Project Location. The proposed study investigates alternatives for a unified plan that addresses vulnerabilities such as shoreline damage from waves, erosion, and inundation caused by coastal storms, as well as provides incidental opportunities for habitat restoration and recreation for Treasure Island and Long Key along the Gulf Coast shorelines of Pinellas County, Florida.

This evaluation describes the effects on water quality pursuant to Section 404(b)(1) of the Tentatively Selected Plan (TSP). The TSP includes beach nourishment (including berm and dune features) along 7.4 miles of Pinellas County shoreline between Florida Department of Environmental Protection (FDEP) range monuments (R) R-126 to R-166. The study area includes the two barrier islands: Treasure Island (R-126 to R-143; 3.4 miles); and Long Key (R-144 to R-166; 4.0 miles). The sediment sources include the inlets and their associated ebb shoals (referred to as the inlet shoal complexes) located adjacent to these barrier islands (from north to south): Johns Pass, Blind Pass, and Pass-a-Grille. Additional sediment for the project may be dredged from Egmont Shoal, which is a shoal complex located southwest of the Treasure Island and Long Key shoreline and north of the Tampa Harbor Federal Navigation Project.

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

- Conservation
- Economics
- Aesthetics
- General Environmental Concerns
- Wetlands
- Historic Properties
- Fish and Wildlife Values
- Flood Hazards
- Flood Plain Values
- Land Use

- Navigation
- Shore Erosion and Accretion
- Recreation
- Water Supply and Conservation
- Water Quality
- Energy Needs
- Safety
- Food and Fiber Production
- Mineral Needs
- Consideration of Property Ownership
- Needs and Welfare of the People

As discussed in Sections 3.11 and 4.4, 4.5 and 4.6 of the draft report, the tentative selected plan was determined by using an array of alternatives during the screening process that included structural and non-structural measures, and natural and nature based features in strategic locations designed to appropriate elevations to work together to effectively and efficiently reduce the risk of damage to infrastructure resulting from coastal storms. It is anticipated that the tentatively selected plan would result in no net loss of habitat function. Finally, the tentatively selected plan includes recreational elements which could be used by the local communities as well as potentially support tourism. For these reasons, the Corps concludes that the proposed activity is clearly in the public interest.

I. General Description of Fill Material.

- (1) General Characteristics of Material. The beach sediments consist of poorly-graded, fine-grained quartz sand (SP) with a mean grain size of 0.28 mm, and a standard deviation of 1.16 phi. The average percentage of fines passing the #230 sieve is 1.0 %. The average carbonate content is 24 %. The typical moist Munsell Color is 2.5YR 8/1 (white).
Material from the inlet shoal complexes and Egmont Shoal is similar to that found on the beach, and was determined to be compatible with the existing beach material.
- (2) Quantity of Material. Quantities needed for fill to construct the TSP range from 7.85mcy to 9.83mcy over the 50-year life of the project. The inlet shoal complexes can provide a total of over 8mcy of sand over the 50-year life of the project, and Egmont Shoal East is estimated to contain approximately 15mcy of sediment.
- (3) Source of Material. The fill material will primarily be obtained from the inlet shoal complexes of Johns Pass, Blind Pass, and Pass-a-Grille. Additional material can be obtained from Egmont Shoal East.

II. Description of the Proposed Dredge and Discharge Sites.

- (1) Location and Size. Material will be dredged from the inlet shoal complexes and from Egmont Shoal East. Fill material will be placed along the shoreline of the study area. The specific locations include previously nourished areas. The length of each nourishment event will depend on the scale of the project and the extent of the erosion in the study area at the time of construction.

- (2) Type of Site. The dredge sites are ebb shoals with sandy substrates. The disposal sites will be eroded, sandy recreational beaches.
- (3) Type of Habitat. The placement sites will be eroding carbonate and quartz sandy beaches and the nearshore habitat within the depth of the closure for the placed material. The sand source locations are characterized by sandy bottoms.
- (4) Timing and Duration of Discharge. Dredging and disposal timing and duration of the discharge will vary depending on the extent of erosion on the study areas beaches and availability of project funds.

b. Description of Disposal Method. Material will be excavated from the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille using cutter suction dredge with a pipeline dredge to the beach. Material will be excavated from Egmont Shoal East using a hopper dredge, clamshell dredge, or cutter-suction dredge attached to a spider barge. Sediment will be distributed through pipelines to the placement areas in a slurry. Grading will be performed at the beach to achieve the construction profile (including to create any dune features).

II. Factual Determinations

a. Physical Substrate Determinations.

- (1) Substrate Elevation and Slope. Top elevation of the construction template will be a dune crest elevation of +10.0 ft-NAVD88. The construction berm elevation will be at +4.57 ft-NAVD88 (approximately equal to the previously authorized +6.0 ft-MLW for Pinellas County). The equilibrium profile for the beach fill will vary along the project beach depending on wave/current distribution of the fill material. Generally, the equilibrium berm elevation will remain consistent with the construction berm. However, equilibrated width will be less than the constructed width with a flatter slope from the berm to the existing bottom.
- (2) Sediment Type. The sand source sediments from the Egmont Shoals and from the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille are classified as poorly to moderately well sorted, fine-grained quartz sand with a mean grain size of 0.16 to 0.33 mm, and a standard deviation of 0.56 to 1.92 phi. The average percentage of fines passing the #230 sieve ranges from 0.9 to 2.0%. The carbonate content ranges from 9.6 to 26.7 %. The typical moist Munsell Color Value is 2.5Y 7/1
- (3) Dredge/Fill Material Movement. The fill material will be subject to erosion by waves and will be subject to dispersion losses to the north at south of each fill. For Treasure Island and Long Key dispersion of the fill will move predominantly toward the central region of the barrier island shoreline. However, the overall net movement of sediment transport for both Treasure Island and Long Key is to the south.

b. Water Circulation, Fluctuation and Salinity Determination.

- (1) Water Column Effects. Fill placement will not have long-term or significant impacts, if any, on salinity, water chemistry, clarity, color, odor, taste, dissolved gas levels, nutrients or eutrophication.
- (2) Current Patterns and Circulation. Currents in the study area are both tidal and longshore. Net movement of water due to the alongshore current can be either northerly or southerly depending on the locations. Placement of the fill on the beach from the Egmont Shoals and from the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille will have no effect on the currents.
- (3) Normal Water Level Fluctuations and Salinity Gradients. Tides in the project area are semi-diurnal mixed. Treasure Island and Long Key have a mean tide range of 1.5 feet (0.5m) and a spring range of 2.2 feet (0.7m). Wind set-up (piling up of water on the shoreline) has significantly more effect on seasonal and long-term water fluctuations than astronomical tides. The project will have no adverse impact to these characteristics.

c. Suspended Particulate/Turbidity Determinations.

- (1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. There will be a temporary increase in turbidity levels in the study area during discharge from use of the Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille. The material to be dredged/placed consists principally of sand that would rapidly settle from the water column, and contains only a minor fraction of fines. Turbidity will be short-term and localized and no significant adverse effects are expected. State standards for turbidity will not be exceeded.
- (2) Effects on the Chemical and Physical Properties of the Water Column.
 - (a) Light Penetration. Light penetration will decrease during discharge in the immediate area where sand is being deposited on the beach from use of the Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille. There may be a minor decrease in light penetration at borrow sites during dredging. This effect will be temporary and will have no adverse impact on the environment.
 - (b) Dissolved Oxygen. Dissolved oxygen levels will not be altered significantly by this study due to high-energy wave action and associated adequate re-aeration rates.
 - (c) Toxic Metals, Organics, and Pathogens. No toxic metals, organics, or pathogens will be released by the project.
 - (d) Aesthetics. Aesthetic quality will be reduced during that period when work is occurring. There will be a long term increase in aesthetic quality of the beach once the work is completed.

(3) Effects on Biota.

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

(b) Suspension/Filter Feeders. Suspension feeders will experience short-term impacts during construction, but no long-term adverse impact.

(c) Sight Feeders. Visual feeders will experience short term impacts, but no long-term adverse impact.

d. Contaminant Determinations. Deposited fill material from Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille will not introduce, relocate, or increase contaminants.

e. Aquatic Ecosystem and Organism Determinations. The grain size characteristics and composition exhibited by the proposed fill material from Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille shall be similar to those of the existing beach sediments. Therefore, no sediment related impacts are expected. The proposed fill material meets the exclusion criteria, therefore, no additional chemical-biological testing will be required.

(1) Effects on Plankton. Although short term effects (e.g., clogging of feeding appendages) on plankton are likely, no adverse long term impacts to planktonic organisms are anticipated.

(2) Effects on Benthos. Adverse short term impacts to non-motile or motile benthic invertebrates are anticipated.

(3) Effects on Nekton. No adverse long-term impacts to nektonic species are anticipated.

(4) Effects on the Aquatic Food Web. Short term adverse impact to foodweb via destruction of poorly mobile benthic organisms at borrow sites until benthos recovers. No adverse long-term impacts to any trophic group in the food web are anticipated.

(5) Physical Effects on Benthos. The fill will bury some benthic organisms. Most organisms in this high energy wave ecosystem are adapted for existence in an area with considerable

substrate movement, and they will be able to burrow up through the fill material. Recolonization generally occurs within a year.

(6) Effects on Special Aquatic Sites.

- (a) Coral Reefs. There are no coral reefs located within the placement areas.
- (b) Sanctuaries and Refuges. There are no sanctuaries or wildlife refuges located within the proposed placement areas.
- (c) Wetlands. There are no wetlands located within the proposed placement areas.
- (d) Mud Flats. There are no mud flats located within the proposed placement areas.
- (e) Vegetated Shallows. There are no seagrass beds located within or adjacent to the beach placement sites.

f. Endangered and Threatened Species. USACE determined that the proposed work “may affect, but is not likely to adversely affect” (MANLAA) threatened and endangered species located in the study area (Table 1). USACE is coordinating with USFWS, and will finalize coordination prior to completing the NEPA process. If a hopper dredge is used to dredge material from Egmont Shoal and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille, the possibility of entrainment of sea turtles and Gulf Sturgeon exists. There will be no adverse effect to designated critical habitat for any threatened or endangered species. Any potential take would be coordinated with NMFS to determine appropriate course of action to protect sea turtles or Gulf sturgeons. The Gulf Regional Biological Opinion, amended 19 November 2003 and the USFWS Statewide Programmatic Biological Opinion (SPBO) (issued May 22, 2013 and revised March 13, 2015) conditions will be implemented. Also, sea turtle nesting will most likely occur in the project area during the time dredging and beach disposal occurs. In order to avoid or minimize effects to nesting sea turtles, sea turtle surveys and nest relocations will be conducted by a Florida Fish and Wildlife Conservation Commission marine turtle permit holder as required by the conditions in the SPBO and FDEP WQC. USACE is coordinating with USFWS, and will finalize coordination prior to completing the NEPA process.

Table 1. ESA listed species in the study area.

Common Name	Scientific Name	Status	Determination	Relevant Biological Opinion (if any)
Marine Mammals				
Florida manatee	<i>Trichechus manatus</i>	T	MANLAA	SPBO
Whales	Numerous		MANLAA	N/A
Sea Turtles				
Loggerhead sea turtle	<i>Caretta caretta</i>	T	MALAA	GRBO (Swimming Sea Turtles) SPBO (Nesting Sea Turtles)
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E	MALAA	GRBO (Swimming Sea Turtles) SPBO (Nesting Sea Turtles)
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E	MALAA	GRBO (Swimming Sea Turtles) SPBO (Nesting Sea Turtles)
Green sea turtle	<i>Chelonia mydas</i>	T	MALAA	GRBO (Swimming Sea Turtles) SPBO (Nesting Sea Turtles)
Kemp's ridley	<i>Lepidochelys kempii</i>	E	MALAA	GRBO (Swimming Sea Turtles) SPBO (Nesting Sea Turtles)

Fish				
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	T	MANLAA	GRBO
Smalltooth sawfish	<i>Pristis pectinata</i>	E	MANLAA	GRBO
Shorebirds				
Piping plover	<i>Charadrius melodus</i>	T	MANLAA	P3BO
Red knot	<i>Calidris canutus</i>	T	MANLAA	P3BO

g. Other Wildlife. No significant adverse impacts to small foraging mammals, reptiles, wading birds, or wildlife in general are expected.

h. Actions to Minimize Impacts. All practical safeguards will be taken during construction to preserve and enhance environmental, aesthetic, recreational, and economic values in the project area. Risks to sea turtles during dredging would be minimized through the use of rigid deflectors on the dragheads and management of how the dragheads are utilized. A nest relocation program will be implemented to discover, mark, and relocate sea turtle nests. All sea turtle nests discovered within the beach disposal area will be removed and relocated using the procedures outlined in the USFWS Statewide Programmatic Biological Opinion (issued May 22, 2013 and revised March 13, 2015). Measures shall be taken to avoid or minimize impacts to threatened and endangered species as well as other wildlife. Additional mitigation measures are not required.

i. Proposed Disposal Site Determinations.

- 1) Mixing Zone Determination. The fill material from the Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille will not cause unacceptable changes in the mixing zone specified in the Water Quality Certification in relation to: depth, current velocity, direction, and variability, degree of turbulence, stratification, or ambient concentrations of constituents. Elevated turbidity levels are expected to dissipate rapidly returning to background levels in a short period. No long-term adverse impacts on water quality is expected to occur. Construction operations would be in compliance with the FDEP water quality certification to ensure compliance with Section 401 of the Clean Air Act.
- 2) Determination of Compliance with Applicable Water Quality Standards. Because of the inert nature of the fill material from the Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille, State water quality standards will not be violated. Turbidity monitoring will be implemented as stipulated by State permits.
- 3) Potential Effects on Human Use Characteristics.
 - (a) Municipal and Private Water Supplies. No municipal or private water supplies will be impacted by the implementation of the project.
 - (b) Recreational and Commercial Fisheries. Recreational and commercial fisheries may be temporarily impacted by impacts to foodweb from loss of benthos at dredging sites. Fisheries will not be permanently impacted by the placement of material from the

Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille on the beach.

- (c) Water Related Recreation. Water related recreation will be temporarily impacted during construction, but will be preserved and enhanced by the nourishment of the beach.
- (d) Aesthetics. A temporary decrease in aesthetics will occur with the presence of earthmoving equipment. However, stabilizing the eroding beach will improve the aesthetics of the beach.
- (e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. No designated sites are located in the project area.

j. Determination of Cumulative Effects on the Aquatic Ecosystem. Borrow activities out to year 2077 for this project would cumulatively impact between approximately 100 and 200 acres of seafloor. The thicknesses removed from the passes and adjacent ebb shoals is approximately 1-8 feet, and the thickness removed from Egmont shoal is approximately 8-14 feet. The passes are dredged every 4-6 years and identical areas will be impacted. Egmont shoal is an offshore borrow area, and each part will be dredged only once. It is anticipated however, that while relatively non mobile benthos would be destroyed at the borrow site during each placement cycle, that because these habitats are occupied by relatively short-lived opportunistic organisms quick to recolonize that impacts of each borrow action on the aquatic ecosystem would only be less than 2 years duration. There will be no cumulative effects that result in a major impairment of water quality of the existing aquatic ecosystem as a result of the placement of fill from the Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille at the project site. Subsequent renourishment events will occur approximately every five to seven years. The impact of depositing material on the beach during these events will be minor. The project will not interfere with the productivity and water quality of the existing aquatic ecosystem.

k. Determination of Secondary Effects on the Aquatic Ecosystem. Temporary adverse secondary effects to the aquatic ecosystem are anticipated from destruction of benthos at the borrow sites as described above.

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

- a. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation: No significant adaptations of the guidelines were made relative to this evaluation.
- b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem: As discussed in Sections 5.6.3 and 6.22, no practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the State of Florida and/or United States. Therefore, the least environmentally damaging practicable alternative was selected.
- c. Compliance with Applicable State Water Quality Standards and Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act: After consideration of disposal site dilution and dispersion, the discharge of fill materials from the Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille will not cause or contribute to, violations of any applicable

State water quality standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. Compliance with Endangered Species Act of 1973: The disposal of dredged material on the beach will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.

e. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972: The placement of fill material from the Egmont Shoals and the inlet shoal complexes at Johns Pass, Blind Pass, and Pass-a-Grille will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will be adversely affected, but only locally and temporarily. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.

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

(1) Effects on Human Health and Welfare

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

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

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

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

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

(f) Wildlife: The proposed project would potentially displace wildlife in their respective construction areas temporarily.

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

(2) Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems: Essential Fish Habitat (EFH) includes all waters and substrates, including corals, SAV, intertidal vegetation and wetlands that are necessary for the reproduction, growth, and feeding of marine species. In the Future Without Project/no-action alternative there could be degradation of water quality from erosion and sedimentation due to SLR and storm events. This could result to impacts to EFH. Construction could also affect EFH including SAV, estuarine water column, estuarine scrub shrub (mangroves), and palustrine emergent wetlands. However, the proposed work is not anticipated to significantly adversely affect managed species or EFH (See Draft Integrated Feasibility Report and Environmental Assessment EFH Sections. 2.3.4 and 5.2.4).

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

(4) Effects on Recreational, Aesthetic, and Economic Values: Temporary impacts to recreational activities during construction and a temporary reduction in the aesthetic appeal during construction are expected. No significant adverse effects on recreational, aesthetic, and economic values are anticipated.

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

h. On the basis of the guidelines, the proposed disposal site for the discharge of sand in the study areas is specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.