

APPENDIX C

Clean Water Act Section 404(b)(1) Guidelines Evaluation

Final Environmental Assessment Broward County Shore Protection Project Segment II Beach Nourishment in Broward County, Florida



U.S. Army Corps of Engineers
JACKSONVILLE DISTRICT

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Final Evaluation of 404(b)(1) Guidelines

**Broward County Shore Protection Project
Segment II Beach Nourishment in
Broward County, Florida**

August 2020

1. Technical Evaluation Factors

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (40 CFR §§ 230.20-230.25)(Subpart C)

	N/A	Not Significant	Significant
(1) Substrate impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(2) Suspended particulates/turbidity impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(3) Water Quality Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Alteration of current patterns and water circulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Alteration of normal water fluctuations/hydroperiod	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(6) Alteration of salinity gradients	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Alternative 1, the Preferred Alternative, consists of the truck haul and placement of sand on Segment II of the BCSP. The upcoming nourishment event will include placement of approximately 413,000 cubic yards (CY) of sand in the following Florida Department of Environmental Protection (FDEP) monuments:

- Reach 1: Approximately 166,000 CY of sand to be placed between R-25 and R-31 above and below mean high water (MHW), with the inclusion of a feeder beach feature between R-28 and R-31. Approximately 22,000 CY of sand to be placed between R-31 and R-36 above MHW only.
- Reach 2: Approximately 42,000 CY of sand to be placed between R-36 and R-41.3 above and below MHW.
- Reach 3: Approximately 32,000 CY of sand to be placed between R-41.3 and R-51 above MHW only.
- Reach 4: Approximately 151,000 CY of sand to be placed between R-51 and R-72 above and below MHW.

Sand placement generally located between R-25 and R-27 establishes a fill template and the ability to protect the vulnerable upland infrastructure in this area when needed, rather than being subject to the Hillsboro Inlet bypassing project's inconsistent, and recently reduced, fill schedule. The feeder beach, generally located between R-28 and R-31, introduces sand into the coastal

system to provide a slow sustained transport to the south that may extend the time required until the next renourishment. The remaining fill, generally located between R-31 and R-36 and between R-41.3 and R-51, will be placed above MHW only and provides sand to portions of the beach where the berm is deflated to provide adequate upland protection and reduce ponding along the landward side of the berm. All proposed fill templates are located within the historical envelope of beach changes.

Under this alternative, renourishment of Segment II of the BCSPP would occur on a periodic cycle or as-needed basis using any combination of existing sand sources (Ortona Mine, Immokalee Mine, Witherspoon Mine, and/or Cemex Mine) and/or Garcia upland sand mine. The analysis of this alternative covers the potential effects of the use of Garcia Mine, nourishment of Reach 1 (R-25 to R-31) above and below MHW, and the inclusion of the feeder beach feature.

Renourishment may only be needed in certain portions of the project, which would be less than the full project footprint. The actual quantity of volume placed may vary based on changes in the existing conditions; the volumes provided are based on existing conditions and need identified through the November 2019 beach profile survey. There are also a variety of different combinations of upland mines that could provide sand.

Sand from upland mines would be hauled by dump truck, entering the project area at designated access points. At the beach, the sand would be transferred through temporary stockpiling and reloading from road trucks to beach transport vehicles, where it would be taken to the location on the beach where it is needed. Water quality would be controlled to ensure compliance with the Clean Water Act. Heavy equipment would be used to place and grade the sand to the specified design grades.

b. Biological Characteristics of the Aquatic Ecosystem (40 CFR §§ 230.30-230.32)
(Subpart D)

	N/A	Not Significant	Significant
(1) Effect on threatened/endangered species and their habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(2) Effect on the aquatic food web	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(3) Effect on other wildlife (mammals, birds, reptiles, and amphibians)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pursuant to Section 7 of the ESA, the Corps coordinated with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) for beach nourishment activities. Detailed analysis of the Corps' effect determinations are in Section 4 of the 2020 Environmental Assessment (EA). A summary of the effect determinations are as follows:

Effect determinations for species under NMFS jurisdiction:

MANLAA:

Swimming sea turtles (green sea turtle, hawksbill sea turtle, leatherback sea turtle, loggerhead sea turtle, Kemp's ridley sea turtle), smalltooth sawfish, Nassau grouper, giant manta ray, and corals (pillar coral, rough cactus coral, lobed star coral, mountainous star coral, boulder star coral, elkhorn coral, staghorn coral)

Effect determinations for species under USFWS jurisdiction:

LAA:

Nesting sea turtles (green sea turtle, hawksbill sea turtle, leatherback sea turtle, loggerhead sea turtle, Kemp's ridley sea turtle)

MANLAA:

American crocodile, Florida manatee, piping plover

No Effect:

Beach jacquemontia

The Preferred Alternative's potential effects to listed species and their DCH under NMFS jurisdiction are covered by the NMFS' South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States (SARBO)¹, dated March 27, 2020. To address potential effects from beach renourishment activities to federally-listed T&E species under the NMFS jurisdiction, the project adheres to the Project Design Criteria (PDCs) as described in the 2020 SARBO. The SARBO covers material placement (e.g. sand placement for beach nourishment, nearshore placement, and upland placement), geotechnical and geophysical (G&G) surveys, and species handling in the southeast U.S., specifically from North Carolina/Virginia border through and including Key West, Florida and the islands of Puerto Rico and the U.S. Virgin Islands. The use of equipment and/or methods not covered by the SARBO may require additional coordination and/or consultation with NMFS. The project will comply with all terms and conditions of the SARBO. Additionally, NMFS' sea turtle and smalltooth sawfish construction conditions would be implemented.

For potential effects to federally-listed T&E species under the USFWS jurisdiction, the Corps initiated consultation with the USFWS in May 2020. The Corps requested concurrence from the USFWS on the Corps' may affect, not likely to adversely affect (MANLAA) determinations. The Preferred Alternative's beach placement activities and potential effects to nesting sea turtles and piping plover are covered by the Statewide Programmatic Biological Opinion (SPBO) and Piping Plover Programmatic Biological Opinion (P3BO), respectively. The project will comply with all applicable minimization measures, Reasonable and Prudent Measures, and T&Cs of the SPBO and P3BO. Consultation with USFWS for potential effects to American crocodiles and Florida manatees is ongoing through review of the draft EA. The USFWS' final determination of concurrence is noted in the final NEPA document. Pertinent correspondence is located in Appendix A.

¹ The 2020 SARBO is available to be downloaded from the NMFS Southeast frequently requested biological opinions website:
<https://www.fisheries.noaa.gov/content/endangered-species-act-section-7-biological-opinions-southeast>

c. Special Aquatic Site (40 CFR §§ 230.40-230.45) (Subpart E)

	N/A	Not Significant	Significant
(1) Sanctuaries and refuges	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Mud flats	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Vegetated shallows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Coral reefs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(6) Riffle and pool complexes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

There are no hardbottoms in the direct footprint of the project; therefore, no direct effects to corals are anticipated. Nourishment activities and construction of the feeder beach would be expected to result in short term, temporary increases in turbidity since the source of the material is beach-quality sand. Conditions would revert to background levels after the newly constructed beach adjusts to conditions and reaches the Equilibrium Toe Of Fill (ETOF). An ETOF Analysis is included in Section 4.3 of the 2020 EA. The fill templates are designed to be located within the historical envelope of beach conditions in this area. To avoid potential impacts to nearshore hardbottom resources, the fill between R-31 and R-36, and between R-41.3 and R-51, will only be above MHW which will have no effect on corals. The fill between R-28 and R-31 is designed to act as a “feeder beach” with the primary benefit being the introduction of sand into the coastal system in a slow sustained manner to the south that may extend the time until the next renourishment is needed. Between R-28 and R-31, the hardbottom edge is located approximately 800 to 1000 feet offshore of the ETOF. South of R-31.5 the hardbottom edge is located approximately 300 to 600 feet offshore of the current shoreline. The Corps developed and analyzed equilibrium profiles for the feeder beach construction at each R-monument transect where the fill template extends below mean high water (R-25 to R-30). More information on corals can be found in Section 3 (3.1.1 and 3.2.1.2) and Section 4 (4.3 and 4.4.) of the 2020 EA.

d. Human Use Characteristics (40 CFR §§ 230.50-230.54) (Subpart F)

	N/A	Not Significant	Significant
(1) Effects on municipal and private water supplies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Recreational and Commercial fisheries impacts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Effects on water-related recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(4) Aesthetic impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Construction would cause minor, temporary restrictions for safety purposes during nourishment operations, but long-term benefits could be expected by restoring the amount of the beach available for recreation purposes. Additionally, inclusion of the feeder beach may extend the time

until the next renourishment is needed, thus offering a longer duration of available beach for recreation purposes.

A temporary reduction in the aesthetic value of the beach during nourishment activities may be expected due to the presence of trucks and heavy equipment, which may be considered unsightly by members of the public. However, long term improvements of in aesthetics would also be expected as the inclusion of the feeder beach may extend the time until the next renourishment is needed.

2. Evaluation of Dredged or Fill Material (40 CFR § 230.60) (Subpart G)

- a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. **(Check only those appropriate)**
- (1) Physical characteristics
 - (2) Hydrography in relation to known or anticipated sources of contaminants
 - (3) Results from previous testing of the material in the vicinity of the project
 - (4) Known, significant, sources of persistent pesticides from land runoff or percolation
 - (5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances
 - (6) Other public records of significant introduction of contaminants from industries, municipalities or other sources
 - (7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge/fill
 - (8) Other sources (specify)

Sand used for nourishment of Segment II of the Broward County Shore Protection Project must be obtained from a clean, permitted, and authorized sand source. Sand sources for the project will be from upland sand mine(s) and truck hauled to the beach fill area. Potential existing sand sources include E.R. Jahna Ortona Mine (Ortona), Stewart Immokalee Mine (Immokalee), Vulcan Witherspoon Mine (Witherspoon), Cemex Davenport Mine (Cemex), and/or Garcia Family Farm, LLC (Garcia Mine).

- b. An evaluation of the appropriate information in 2a above indicated that there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, of that levels of contaminants are substantively similar at extraction and disposal sites and not likely to exceed constraints. The material meets the testing exclusion criteria.

YES NO

3. Disposal Site Delineation (40 CFR § 230.11(f))

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

- (1) Depth of water at disposal site
- (2) Current velocity, direction, and variability at disposal site
- (3) Degree of turbulence
- (4) Water volume stratification
- (5) Discharge vessel or fill speed and direction
- (6) Rate of discharge/fill
- (7) Dredged material characteristics (constituents, amount, and type of material, settling velocities)
- (8) Number of discharges/fill per unit of time
- (9) Other factors affecting rates and patterns of mixing (specify)

Construction of the feeder beach would be expected to result in short term, temporary increases in turbidity in the surf zone since the source of the material is beach-quality sand. Conditions would revert to background levels after the newly constructed beach adjusts to conditions and reaches the ETOF. Elevated turbidity levels will be temporary and are not expected to be significant. No long-term adverse effects to water quality are expected.

Pursuant to Section 401 of the Clean Water Act of 1972, as amended, (CWA), a WQC is required for the beach nourishment activities below the MHW line. Any applicable authorizations for the placement of sand on the beach would be coordinated and obtained from the state of Florida prior to construction.

Pursuant to the Coastal Zone Management Act, the Corps prepared and submitted an updated Federal Consistency Determination (FCD) to the state of Florida for review and concurrence was received by correspondence dated July 17, 2020. (Pertinent correspondence is located in Appendix A.) The Corps determined that the beach renourishment activities are consistent with the enforceable polices of the Florida Coastal Management Program. Conditions imposed by the WQC will be implemented in order to minimize adverse effects to water quality. The final determination for consistency with the Coastal Zone Management Act (CZMA) will be obtained via issuance of the WQC.

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES NO

4. Actions to Minimize Adverse Effects (40 CFR §§ 230.70-230.77)(Subpart H)

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge/fill.

YES NO

5. Factual Determination (40 CFR § 230.11)

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short or long-term environmental effects of the proposed discharge/fill as related to:

- a. Physical substrate at the disposal site (review sections 2a, 3, 4, & 5)
- b. Water circulation, fluctuation & salinity (review sections 2a, 3, 4, & 5)
- c. Suspended particulates/turbidity (review sections 2a, 3, 4, & 5)
- d. Contaminant availability (review sections 2a, 3, & 4)
- e. Aquatic ecosystem structure and function (review sections 2b, c; 3, & 5)
- f. Disposal site (review sections 2, 4, & 5)
- g. Cumulative impact on the aquatic ecosystem
- h. Secondary impacts on the aquatic ecosystem

6. Review of Compliance (40 CFR § 230.10(a)-(d) (Subpart B)

A review of the permit application indicates that:

- a. The discharge/fill represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge/fill must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and information gathered for EA alternative);

YES NO

- b. The activity does not appear to 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally designated marine sanctuary(if no, see section 2b and check responses from resource and water quality certifying agencies;

YES NO

- c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values (if no, see section 2);

YES NO

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge/fill on the aquatic ecosystem (if no, see section 5);

YES NO

7. Findings

a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404 (b)(1) guidelines

b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions:

c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reason(s):

(1) There is a less damaging practicable alternative

(2) The proposed discharge/fill will result in significant degradation of the aquatic ecosystem

(3) The proposed discharge/fill does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem