

ENCLOSURE 2
SECTION 404(B)(1) EVALUATION

**SECTION 404(b)(1) EVALUATION
FOR THE
BEACH EROSION CONTROL AND
STORM DAMAGE REDUCITON PROJECT
PANAMA CITY BEACH, BAY COUNTY, FLORIDA**

I. PROJECT DESCRIPTION

Please refer to the figures included in the environmental assessment to which this evaluation is appended.

a. **Location.** The Panama City Beaches Shore Protection (SDR) Project is located in the northwest Florida Panhandle and extends 18.5 miles from Philips Inlet eastward to the Panama City Harbor (St. Andrews Bay) entrance channel shown in Figure 1. The project site is located 80 miles southwest of Tallahassee.

b. **General Description.** The proposed action is described in Section 3.0 of the environmental assessment to which this evaluation is appended.

c. **Authority and Purpose.** The authority and purpose of the proposed rehabilitation action is described in Section 1.2 of the environmental assessment to which this evaluation is appended.

d. General Description of Dredged or Fill Material.

(1) General Characteristics of Material. Material in the existing borrow areas (BAs) is generally fine to coarse grained, poorly sorted sand with trace silt and shell hash. The dry Munsell color value is greater than 7. The mean sample grain sizes ranges from 0.19 mm to 0.37 mm. The mean silt content is less than 1%. The material is compatible in grain size and color with the existing beach sands.

(2) Quantity of Material. The estimated quantity of sand to be excavated is approximately 390,000 cubic yards (cy). On average the project is expected to require approximately 150,000 cy of sand placement every 10 years

(3) Source of Material. The material would be obtained from existing approved offshore borrow areas (BAs).

e. General Description of Discharge Sites.

(1) Location. The beach placement site is located adjacent to and in the nearshore Gulf of Mexico in Bay County, Panama City Beach, Florida. It is located on the south shore of Panama City Beach and encompasses approximately 1 mile of shoreline between the existing Panama City Beach SDR project and Philips Inlets.

(2) Type of Site. The discharge site is a beach nourishment site and is typical of Florida panhandle coastal beaches and the nearshore Gulf of Mexico with predominately marine sand substrate.

(4) Types of Habitat. The beach and nearshore area at Panama City Beach support a highly variable marine environment that is typical of the nearshore zones of the northwest Florida Gulf of Mexico. These areas are characterized by clean white sands and clear blue-green ocean waters.

(5) Timing and Duration of Discharge. It is expected that initial excavation and restoration work would occur in 2009. Renourishment activities are expected to be on average every 10 years.

f. **Description of Discharge Methods**. The material would be initially placed on the site utilizing a hydraulic cutterhead and/or hopper dredge. Heavy earth moving equipment such as bulldozers would be utilized to achieve the final design template.

II. FACTUAL DETERMINATIONS (SECTION 230.11)

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The placement of material on the beach and in the nearshore areas would be accomplished in such a manner as to replicate the existing beach elevation/slope but at a distance of approximately 130 feet seaward of the existing mean high water elevation. After placement, the beach fill would be subject to modifying effects of the natural wave climate of the Gulf of Mexico and within approximately 6 months should reach equilibrium. This short term change in natural elevation and slope would not pose a significant impact to the resources of the area or circulation in the nearshore Gulf of Mexico.

(2) Sediment Type. The material to be utilized in the beach renourishment project is predominantly medium sized sand with some shell hash and less than 5 percent fine grained material. This material is compatible with the sand on the Panama City Beach and nearshore littoral zone. Mineral composition and particle size of the substrate would not be significantly altered.

(3) Dredged/Fill Material Movement. Some of the fill material is expected to be transported westward along the shoreface in the littoral drift system. This movement however, would not have any adverse impact on the area as the littoral drift is a natural occurrence and the quantity of material expected to be lost to this system is minimal compared to that which is currently in circulation.

(4) Physical Effects on Benthos. The placement of the fill material would bury the benthos of the shoreface and to some extent that of the nearshore area. These communities are well adapted to this type of phenomena due to the natural high energy of the area and should reestablish within 6 to 12 months after placement.

(5) Other effects. No other effects are anticipated.

(6) Actions Taken to Minimize Impacts (Subpart H). Since the material to be placed is naturally occurring sand similar to the substrate of the beach nourishment site, no further actions are deemed necessary.

b. Water Column Determinations.

(1) Salinity. There would be no changes in gradients or patterns.

(2) Water Chemistry (pH, etc.). The materials to be dredged are naturally occurring marine sands in areas of high current activity and far removed from sources of pollution; therefore, no impacts to water chemistry are anticipated.

(3) Clarity. The discharging of effluent is expected to create some degree of construction-related turbidity in excess of the natural condition in the proximity of the placement site and the borrow areas. These impacts are expected to be temporary, with suspended particles settling out within a short time without measurable effects on water quality. During construction, turbidity levels would be monitored at the dredge and the beach sites, to ensure compliance with FDEP's Water Quality Certification.

(4) Color. No effect.

(5) Odor. No effect.

(6) Taste. No effect.

(7) Dissolved Gas Levels. No effect.

(8) Nutrients. No significant effect.

(9) Eutrophication. No effects.

c. Water Circulation, Fluctuation, and Salinity Determinations.

(1) Current Patterns and Circulation.

(a) Current Patterns and Flow. The placement of material on neither the beach nor the proposed excavation is expected to result in significant changes in current patterns or circulations. In the area of proposed excavation currents would be slightly modified due to the increase depth.

(b) Velocity. No significant effects.

(2) Stratification. No significant effects.

(3) Hydrologic Regime. See (a) and (b) above. No significant effects.

(4) Normal Water Level Fluctuations. No effects.

(5) Salinity Gradient. No effects.

d. Suspended Particulate/Turbidity Determination.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Placement Site. The discharging of effluent is expected to create some degree of construction-related turbidity in excess of the natural condition in the proximity of the placement site and the borrow areas. These impacts are expected to be temporary, with suspended particles settling out within a short time without measurable effects on water quality. During construction, turbidity levels would be monitored at the dredge and the beach sites, to ensure compliance with FDEP's Water Quality Certification.

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

(a) Light Penetration. Slight decreases in the degree of light penetration may occur during placement activities. These impacts would be temporary in nature and restricted to the immediate area of placement.

(b) Dissolved Oxygen. No significant effects.

(c) Toxic Metals and Organics. No effects.

(d) Pathogens. No effects.

(e) Aesthetics. Only temporary degradation to the aesthetic environment would occur as a result of excavation and placement operations. Impacts would primarily occur as a result of the physical presence of heavy equipment. Some minor increases in turbidity may be noted in the immediate vicinity of excavation and placement activities but these increases would be minor and short term in nature.

(3) Effects on Biota.

(a) Primary Production Photosynthesis. No long-term significant impacts are expected to occur due to the physical nature of the material to be excavated. No submerged aquatic vegetation is located within the area that would be adversely affected by sand excavation or placement.

(b) Suspension/Filter Feeders. No significant effects. No oyster or clam reefs are within the vicinity of the project.

(c) Sight Feeders. No significant effects.

(4) Actions Taken to Minimize Impacts (Subpart H). No further actions are deemed

appropriate.

e. **Contaminant Determinations.** The material to be utilized during restoration of the beach has been determined to meet the criteria set forth in 20 CFR 230.60(b) in that the material is characterized as clean sand which is sufficiently removed from sources of pollution and is located in areas of high current velocities to provide reasonable assurance that the material would not be contaminated by such pollution. In addition the material originates in the near vicinity of the placement activity and is similar to the substrate of the placement site, and receives the same overlying waters as the placement site. Hence, no further physical, biological, or chemical testing is required pursuant to the 404(b)(1) Guidelines.

f. **Aquatic Ecosystem and Organism Determinations.** No significant effects.

(1) Effects on Plankton. Placement of nourishment material on the Panama City Beach and the nearshore area would destroy some phytoplankton and zooplankton, and could reduce light penetration which may tend to affect primary production by the phytoplankton. Due to the nature of the materials to be placed and the duration of the placement operations, these impacts would be short-term in nature and restricted to the general vicinity of the construction activity. Total impacts to the planktonic community would not be significant.

(2) Effects on Benthos. Temporary disruption of the aquatic community is anticipated by the excavation and placement activities. The excavation and direct placement of sands from the borrow sites would result in the mortality of some percentage of the existing benthic assemblages. Non-motile benthic fauna within the area may be destroyed by the proposed work, but should repopulate within several months after completion. Some of the motile benthic and pelagic fauna, such as crabs, shrimp, and fishes, are able to avoid the disturbed area and should return shortly after the activity is completed. Larval and juvenile stages of these forms may not be able to avoid the activity due to limited mobility.

(3) Effects on Nekton. Some fish within and in close proximity of the excavation and placement area would likely leave the area until conditions prove more favorable. However, it is not anticipated that all such organisms would vacate the area. It is logical to speculate that many organisms would avoid an area of disruption such as that associated with the placement of fill material. Some nektonic filter feeders may be killed as a result of being in the affected area and other organisms less capable of movement, such as larval forms, may be physically abused by the placement of sand. Generally, however; most organisms would avoid the area and later return to the area. Total impacts to the nektonic community are not considered significant.

(4) Effects on Aquatic Food Web. No significant effects.

(5) Effects on Special Aquatic Sites. No significant effects.

(a) Sanctuaries and Refuges. Not applicable.

(b) Wetlands. Not applicable.

(c) Mud Flats. Not applicable.

(d) Vegetated Shallows. Patches of seagrasses are located within the St. Andrews

Bay and St. Andrews Inlet. No adverse impacts are expected to occur to these resources. No seagrasses are located within the project borrow areas or beach fill.

(e) Coral Reefs. Not applicable.

(f) Riffle and Pool Complexes. Not applicable.

(6) Effects on Threatened and Endangered Species. Pursuant to Section 7 of the Endangered Species Act, the proposed action has been coordinated with the U.S. Department of the Interior, Fish and Wildlife Service (USFWS), and the U.S. Department of Commerce, National Marine Fisheries Service (NMFS). The proposed project is located within Gulf sturgeon designated critical habitat. Based on the Corps, Mobile District's assessment and NMFS's August 2007 BO the proposed project would not result in the likelihood of destruction or adverse modification of Gulf sturgeon critical habitat. In addition to the Gulf sturgeon, the surrounding area is known to support the Piping plover, Florida manatee and various species of listed threatened and endangered sea turtles. The Corps, Mobile District has determined that the proposed project is not likely to adversely affect the Piping plover or Florida Manatee. The Corps, Mobile District would use Standard Manatee Protection Conditions during construction and survey for Piping plovers should work extend into February and April. To minimize the potential of sea turtles and Gulf sturgeon take during construction the Mobile District would abide by the terms and conditions of the following: (1) Gulf Regional Biological Opinion (GRBO) for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts, dated November 19, 2003; (2) the U.S. Fish and Wildlife Service's (USFWS) Panama City Beach Nourishment Biological Opinion (BO), dated April 8, 1998; (3) the NMFS Panama City Beaches Renourishment BO, dated February 11, 2005 and associated amendments of these documents.

(7) Effects on Other Wildlife. No significant effect.

(8) Actions to Minimize Impacts. All reasonable and prudent measures recommended by the USFWS and NMFS would be initiated during construction activities.

g. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. A variance from the state's 150 meter mixing zone at the excavation sites and beach placement is being requested from the state.

(2) Determination of Compliance with Applicable Water Quality Standards. The proposed action would comply with applicable water quality standards. Water quality certification and consistency determination with the state coastal management plan is being requested from Florida Department of Environmental Protection. During construction all turbidity monitoring would be conducted to ensure compliance with the State's WQC.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supply. No impacts would occur to any water supply.

(b) Recreational and Commercial Fisheries. Minor impacts to recreational and commercial fisheries could occur during the construction period. These impacts would be short term and restricted to the immediate area of construction activities.

(c) Water Related Recreation. Restoration of the beach would increase the area available for beach related water recreation. Restrictions of water-related recreational activities in the immediate areas of construction and dredging would result in short term losses of such opportunities. It has been determined that the benefits associated with the restoration of the beach outweigh these losses.

(d) Aesthetics. Only temporary degradation to the aesthetic environment would occur as a result of the proposed action. Impact would primarily be a result of the physical presence of heavy equipment. Conducting work in late fall and early spring would miss the peak recreational season, however, it is impossible to completely avoid all impacts to the aesthetic appeal of the area. The presence of the dredge, dredge pipe, and associated water and land based equipment would be evident and would temporarily degrade aesthetic quantities of the area. Some discoloration of the sand would occur following placement due to the fact that the sands to be placed on the beach are coming from anaerobic environment. Bleaching of the sand should occur within one to two months. Rainfall and wave action would act to filter out the fine grained materials from the restored beaches and increase the compatibility of the nourishment sands with those presently on the beach.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. St. Andrews State Recreation Area and Camp Helen State Park are located adjacent to the proposed work. No adverse impacts are expected to occur.

(f) Other Effects. No effect.

h. Determination of Cumulative Effects on the Aquatic Ecosystem. The proposed action is not expected to have significant cumulative adverse impacts. The action would have cumulative beneficial impacts due to the erosion attenuation.

i. Determination of Secondary Effects of the Aquatic Ecosystem. The proposed action is not expected to have any significant secondary adverse effects on the aquatic ecosystem.

III. FINDING OF COMPLIANCE

a. No significant adaptations of the Section 404(b)(1) guidelines were made relative to this evaluation.

b. No practicable alternative exists which meets the study objective that does not involve discharge of fill into the waters of the United States.

c. After consideration of placement site dilution and dispersion, the placement fill material along the beach and nearshore zone would not cause or contribute to, violations of any applicable State water quality standards. A variance for an expanded mixing zone is expected to

be received from the State.

d. As required by the Coastal Zone Management Act, the proposed action is consistent with the Florida Coastal Zone Management Program to the maximum extent practicable.

e. The proposed excavation and beach restoration would not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.

f. The proposed excavation and beach restoration would not result in significant adverse effects on human health and welfare, including municipal and private water supplies; recreation and commercial fishing; life stages of organisms dependent upon the aquatic ecosystem; ecosystem diversity, productivity and stability; or recreational, aesthetic or economic values.

g. Appropriate and practicable steps to minimize potential adverse impacts on the aquatic ecosystem have been included in this evaluation.

h. On the basis of the guidelines, the proposed site for placement of fill materials is specified as complying with the requirements of these guidelines with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects to the aquatic ecosystem.

DATE _____

Byron G. Jorns
Colonel, Corps of Engineers
District Commander