

DRAFT
SECTION 404(b)(1) EVALUATION REPORT
MAINTENANCE DREDGING OF THE
GULF INTRACOASTAL WATERWAY (GIWW)
FEDERALLY AUTHORIZED NAVIGATION PROJECT
MOBILE AND BALDWIN COUNTIES, ALABAMA

I. PROJECT DESCRIPTION:

A. **Location:** The GIWW within Alabama extends from the Alabama-Florida state line through Perdido Bay, Mobile Bay and portions of the Mississippi Sound, to the Alabama-Mississippi state line (Figure 1 of the Environmental Assessment [EA]).

B. **General Description:** The proposed action is described in Section 1.3 of the EA to which this evaluation is appended.

C. **Authority and Purpose:** The authority and purpose of the proposed action is described in Sections 1.4 and 1.5 of the EA to which this evaluation is appended.

D. General Description of Dredged or Fill Material:

(1) **General Characteristics of Material:** The sediments that would be dredged and placed in previously authorized open water and confined upland disposal areas consist of sand to clays with various mixtures of sand, silt, and clay located throughout the channel. Sediments are primarily composed of sands in the lower Perdido Bay reach; a mix of estuarine silty clay and clay in Mobile Bay; and clays in the Mississippi sound.

(2) **Quantity of Material:** The proposed action would involve maintenance dredging and disposal operations for the GIWW in the State of Alabama. Approximately 300,000 cubic yards (cy) of clay, silt and sand are proposed for removal by hydraulic pipeline dredge along various sections of the channel on an infrequent basis over the next five years.

(3) **Source of Material:** The material proposed for disposal would be obtained by the maintenance dredging activities associated with the coastal Alabama portions of the GIWW.

E. Description of the Proposed Discharge Site:

(1) **Location:** The designated open-water placement areas are located Alabama, oriented to the south of the GIWW channel (Figures 2 & 9 of the EA). The designated confined upland disposal areas are located adjacent to the channel in the land-cut between Mobile and Wolf Bay.

(2) **Size:** The open water and confined upland placement sites, and their approximate acreages, are listed in Table 3 of the EA.

(3) **Type of Site:** The disposal sites are previously authorized open-water and confined upland placement areas that consist of bottoms colonized by similar material as to what is being proposed for removal.

(4) **Type of Habitat:** The open water placement sites are unvegetated open-water estuarine habitats, located in the Mississippi Sound and Mobile Bay. No submerged aquatic vegetation or oyster reefs are present at these sites.

(5) **Timing and Duration of Discharge:** Maintenance dredging and disposal would be performed on an as needed basis. The frequency of channel dredging at any one site and the associated time between uses of any given disposal area ranges on an average from once every 36 months to once every 25 years. Maintenance dredging cycles typically require several months to complete.

F. **Description of the Disposal Method:** The disposal method used will be a thin-layer placement in the previously authorized open water sites. The contractor will use a hydraulic pipeline dredge and the dredged material would be pumped via pipeline to the open water disposal areas. The dredged material will be placed in a thin-layer not to exceed 12 inches.

II. Factual Determinations (Section 230.11):

A. Physical Substrate Determinations:

(1) **Substrate Elevation and Slope:** The preferred alternative would have no adverse impacts on the existing substrate elevation and slope within the project vicinity. The project would result in the removal of substrate as needed to a depth of 12 feet MLLW with two-feet of advanced maintenance and two-feet of allowable overdepth within the project area. Thin layer technique for the placement of dredged material in open water sites would be utilized. Dredged material would not significantly exceed present depths at these sites. Significant mounding is not expected to occur in the open water sites, as the larger material will flow into deeper areas and seek slopes reflective of existing bottom conditions.

(2) **Sediment Type:** The dredged material proposed for disposal is composed of primarily sand, silts and clays.

(3) **Dredged/Fill Material Movement.** Initially, the thin layer placement (<12 inches) of material would stay within the limits of the designated open water site. However, after placement some material may move under storm events outside the designated area.

(4) **Physical Effects on Benthos.** Disruption in the benthic community is expected to be temporary and minimal. Immobile benthic fauna within the proposed project area may be destroyed, but should repopulate within several months of completion. Some of the benthos will be able to migrate up through the thin layer. Other mobile benthic fauna will avoid the disturbed area and return upon project completion.

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

(6) **Actions Taken to Minimize Impacts (Subpart H).** The thin-layer dredged material disposal is a minimization technique that will be used to lessen impacts caused by the disposal. No other actions to minimize impacts are deemed appropriate for this project.

B. Water Column Determinations:

(1) **Salinity.** There would be no change in salinity gradients or patterns.

(2) **Water Chemistry (pH, etc.).** No effect.

(3) **Clarity.** Minor increases in turbidity may be experienced in the immediate vicinity of the project during disposal operations. However, these increases will be temporary and would return to pre-project conditions shortly after completion.

(4) **Color.** No effect.

(5) **Odor.** No effect.

(6) **Taste.** No effect.

(7) **Dissolved Gas Levels.** Temporary decreases in dissolved oxygen could likely result from the operations depending on timing of discharge. If decreases occur, they will be of a short duration. No significant effect to the water column is anticipated.

(8) **Nutrients.** Slight increases in nutrient concentrations may occur; however, these would rapidly return to normal. These described increases would have no significant effect to the water column.

(9) **Eutrophication.** No effect.

C. Water Circulation, Fluctuation, and Salinity Gradient Determinations:

(1) **Current Patterns and Circulation.**

(a) **Current Patterns and Flow.** Placement of dredged material into the open water disposal site would have no effect on current patterns and flow in the vicinity of the project area.

(b) **Velocity.** No effect.

(2) **Stratification.** No effect.

(3) **Hydrologic Regime.** No effect.

(4) **Normal Water Level Fluctuations.** No effect.

(5) **Salinity Gradient.** The salinities in the project vicinity are highly variable due to the inflow of freshwater from surrounding rivers and the tidal influence from the Gulf of Mexico. No effect on the salinity gradient is anticipated.

D. Suspended Particulate/Turbidity Determination:

(1) **Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Placement Site:** Dredged material consists of fine silt, clays and sandy particles. Impacts from sediment disturbance during dredging operations are expected to be temporary, minimal and similar to conditions experience during past routine operation and maintenance of the GIWW. Suspended particles are expected to settle out within a short time frame (hours to days), with no long-term significant effects on water quality. Turbidity during disposal is not expected to violate State water quality certification conditions.

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

(a) **Light Penetration.** No significant effects.

(b) **Dissolved Oxygen.** No significant effects.

(c) **Toxic Metals and Organics.** No effects.

(d) **Pathogens.** No effect.

(e) **Esthetics.** No effect.

(3) **Effects on Biota:**

(a) **Primary Production Photosynthesis.** No significant effects.

(b) **Suspension/Filter Feeders.** No significant effects.

(c) **Sight Feeders.** Shorebirds tend to be attracted to associated placement activities due to the presence of food items in the sediment.

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

E. **Contaminant Determinations.** The Alabama portion of the GIWW consists of open embayment areas such as the Mobile, Perdido and Bon Secour Bays along with the land cut area passing near Foley, Alabama. The land cut area utilizes upland disposal with the embayments typically utilizing open water disposal. The areas that utilize open water disposal traverse bays that are far removed from potential sources of contamination and have minute probability as a

carrier of contaminants. An evaluation of the land cut reach of the GIWW concluded that the dredged material has a low likelihood of contamination due to the coarse grain size. Therefore, the materials are excluded from testing under Section 404(b)(1)(d).

F. **Aquatic Ecosystem and Organism Determinations:**

- (1) **Effects on Plankton.** No significant effects.
- (2) **Effects on Benthos.** No significant long-term effects would occur to the benthos.
- (3) **Effects on Nekton.** No significant effects.
- (4) **Effects on Aquatic Food Web.** No significant effects.
- (5) **Effects on Special Aquatic Sites.** No effect.
 - (a) **Sanctuaries and Refuges.** No effect.
 - (b) **Wetlands.** No significant effects
 - (c) **Mud Flats.** Not applicable.

(d) **Vegetated Shallows.** No significant impacts to the submerged aquatic vegetation were identified in this evaluation. The closest known SAVs are located over a mile from open water placement and no SAVs are located within the expected 400 foot turbidity mixing zone of channel dredging.

- (e) **Coral Reefs.** Not applicable.
- (f) **Riffle and Pool Complexes.** Not applicable.

(6) **Effects on Threatened and Endangered Species.** Through consultation with the NMFS and the United States Fish and Wildlife Service (USFWS) the Corps, Mobile District has determined that the following threatened and endangered species: Gulf sturgeon; West Indian manatee; and the loggerhead, green and Kemp's ridley sea turtles maybe affected by the continued operation and maintenance of the GIWW within the state of Alabama. The Corps, Mobile District assessed the potential impacts of the proposed action on threatened and endangered species and known designated critical habitat areas within the action area in a BA dated March 22, 2007. Based on this assessment the Corps, Mobile District determined that no federally-protected species or designated critical habitat were likely to be adversely affected as a result of the proposed project. A letter requesting concurrence with the District's Not Likely to Adversely Affect (NLAA) and Not Likely to Adversely Modify (NLAM) determination was sent to the NMFS and USFWS on April 19, 2007. The USFWS concurred, by letter dated August 29, 2007 that the proposed project would NLAA Gulf sturgeon provided that: 1) the intake portion of the dredge is kept within the substrate whenever operating and 2) dredging operations are temporarily stopped if a Gulf sturgeon is observed during dredging. At this time, the USFWS stated they can not concur with a NLAA on the West Indian manatee given recent data

indicating the increasing presence of the species within coastal Alabama and the potential strikes from project equipment. The USFWS; however, stated in their August 29, 2007 that provided the Alabama Standard Manatee Construction Conditions are implemented during dredging operations, potential impacts to West Indian manatee would be minimized (Enclosure 3). NMFS concurred with the Corps, Mobile District's determination on a NLAA threatened and endangered species and NLAM designated critical habitat determination, under their purview by letter dated 23 October 2007.

To reduce the likelihood of take the Corps, Mobile District has agreed to incorporate the following conditions during operations and maintenance dredging of the GIWW with Alabama:

- Dredging will be conducted utilizing hydraulic or mechanical methods reducing the potential for entrainment of Gulf sturgeon and sea turtles associated with hopper dredges.
- During active hydraulic dredging operations the cutterhead will be located within the substrate.
- Thin layer disposal will be utilized when practicable.
- If threatened or endangered species are observed during dredging operations, the operation will be temporarily stopped until the species has left the area.
- Alabama Standard Manatee Construction Conditions will be followed during operations.

(7) **Effects on Other Wildlife.** No significant effects.

(8) **Actions to Minimize Impacts.** No other actions to minimize impacts on the aquatic ecosystem are deemed appropriate.

G. Proposed Disposal Site Determinations:

(1) **Mixing Zone Determination.** The States of Alabama will specify a mixing zone for turbidity compliance. The Corps, Mobile District, will adhere to that turbidity requirement.

(a) **Depth of water at the disposal site.** Depths of water at the site vary from 7 to 15 feet.

(b) **Current velocity, direction, and variability at the disposal site.** Not significant.

(c) **Degree of turbulence.** Not significant.

(d) **Stratification attributable to causes such as obstructions, salinity or density profiles at the disposal site.** No effect.

(e) **Discharge vessel speed and direction, if appropriate.** No effect.

(f) **Rate of discharge.** Rate of discharge will vary according to the particular type of dredge disposing of the material.

(g) **Ambient concentrations of constituents of interest.** Not applicable.

(h) **Dredged material characteristics, particularly concentrations of constituents, amount of material, type of material (sand, silt, clay, etc.) and settling velocities.** The proposed action would involve maintenance dredging and disposal operations for the GIWW in the State of Alabama. Approximately 300,000 cubic yards (cy) of clay, silt and sand are proposed for removal by hydraulic pipeline dredge along various sections of the channel on an infrequent basis over the next five years. Material will consist primarily of sand, silty sands and clays. Settling of particles is anticipated.

(i) **Number of discharge actions per unit of time.** The number of discharge actions per unit of time will vary depending upon the particular disposal activity.

(2) **Determination of Compliance with Applicable Water Quality Standards.** The proposed activity is in compliance with all applicable water quality standards.

(3) **Potential Effects on Human Use Characteristics.**

(a) **Municipal and Private Water Supply.** No effect.

(b) **Recreational and Commercial Fisheries.** Recreational and commercial fishing would be temporarily impacted primarily as a result of the physical presence of heavy equipment during operation activities.

(c) **Water Related Recreation.** No significant effects.

(d) **Aesthetics.** No significant effects.

(e) **Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves.** No effect.

(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.

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 With the Restrictions on Discharge:

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

B. The proposed discharge represents the least environmentally damaging practicable alternative.

C. The planned placement of dredged materials would not violate any applicable State water quality standards; nor will it violate the Toxic Effluent Standard of Section 307 of the Clean Water Act (CWA).

D. Use of the previously authorized open water and confined upland disposal sites will not jeopardize the continued existence of any Federally-listed endangered or threatened species or their critical habitat provided the specified conditions in this document are implemented during maintenance dredging and disposal operations.

E. The proposed placement of fill material will not contribute to significant degradation of waters of the United States, nor will it 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.

F. Appropriate and practicable steps will be taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

DATE _____

Byron G. Jorns
Colonel, Corps of Engineers
District Commander