

**ENVIRONMENTAL ASSESSMENT  
PASCAGOULA HARBOR FEDERAL NAVIGATION PROJECT  
PASCAGOULA RIVER AND PASCAGOULA UPPER SOUND  
CHANNEL DEEPENING  
FLOOD CONTROL AND COASTAL EMERGENCIES  
JACKSON COUNTY, MISSISSIPPI  
A FEDERALLY AUTHORIZED PROJECT**

**TABLE OF CONTENTS**

<b><u>TITLE</u></b>	<b><u>PAGE NUMBER</u></b>
<b>1.0 INTRODUCTION</b> .....	EA-1
<b>2.0 AUTHORIZED AND EXISTING NAVIGATION DIMENSIONS</b> .....	EA-2
<b>3.0 AUTHORITY</b> .....	EA-3
<b>4.0 PURPOSE AND NEED FOR THE PROPOSED ACTION</b> .....	EA-4
<b>5.0 NATIONAL ENVIRONMENTAL POLICY ACT CONSIDERATION</b> .....	EA-4
<b>6.0 DESCRIPTION OF THE PROPOSED PROJECT</b> .....	EA-5
<b>7.0 ALTERNATIVES TO THE PROPOSED PROJECT</b> .....	EA-6
7.1 No Action Alternative .....	EA-6
7.2 Sediment Placement Alternative(s) and Proposed Action.....	EA-6
<b>8.0 AFFECTED ENVIRONMENT</b> .....	EA-7
8.1 Physiography .....	EA-7
8.2 Soils .....	EA-8
8.2.1 Sediment Testing and Analysis.....	EA-8
8.2.2 Water Quality .....	EA-10
8.3 Biological Resources .....	EA-10
8.3.1 Coastal Flora .....	EA-10
8.3.2 Coastal Fauna .....	EA-12
8.4 Essential Fish Habitat .....	EA-13
8.5 Cultural Resources .....	EA-14
8.6 Aesthetics .....	EA-15
8.7 Noise.....	EA-15
8.8 Air Quality .....	EA-15
8.9 Threatened and Endangered Species .....	EA-15
<b>9.0 ENVIRONMENTAL EFFECTS</b> .....	EA-19
9.1 General .....	EA-19
9.2 Soils .....	EA-19
9.3 Water Quality .....	EA-19
9.4 Biological Resources .....	EA-20
9.4.1 Coastal Flora .....	EA-20

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A FEDERALLY AUTHORIZED PROJECT**

**TABLE OF CONTENTS (CONTINUED)**

<b><u>TITLE</u></b>	<b><u>PAGE NUMBER</u></b>
9.4.2 Coastal Fauna .....	EA-20
9.5 Essential Fish Habitat Assessment .....	EA-20
9.6 Cultural Resources .....	EA-21
9.7 Aesthetics .....	EA-21
9.8 Noise.....	EA-21
9.9 Air Quality .....	EA-21
<b>10.0 THREATENED AND ENDANGERED SPECIES .....</b>	<b>EA-21</b>
<b>11.0 HAZARDOUS TOXIC RADIOACTIVE WASTE .....</b>	<b>EA-22</b>
<b>12.0 COASTAL ZONE CONSISTENCY .....</b>	<b>EA-22</b>
<b>13.0 EXECUTIVE ORDER (EO) 13045 PROTECTION OF CHILDREN .....</b>	<b>EA-22</b>
<b>14.0 EXECUTIVE ORDER (EO) 12898 ENVIRONMENTAL JUSTICE .....</b>	<b>EA-23</b>
<b>15.0 CUMULATIVE EFFECTS SUMMARY .....</b>	<b>EA-23</b>
<b>16.0 CONCLUSION .....</b>	<b>EA-23</b>
<b>17.0 LIST OF PREPARERS .....</b>	<b>EA-24</b>
<b>18.0 LIST OF AGENCIES AND OTHERS CONTACTED REGARDING THE ACTION.....</b>	<b>EA-24</b>
<b>19.0 REFERENCES.....</b>	<b>EA-24</b>

**LIST OF FIGURES**

<b><u>FIGURE NO.</u></b>	<b><u>DESCRIPTION</u></b>	
1	Vicinity Map of Pascagoula Harbor Project Area.....	EA-27
2	Pascagoula Harbor Project Area.....	EA-28
3	Singing River Island Beneficial Use Site Aerial Photo.....	EA-29
4	Round Island Beneficial Use Site Aerial Photo.....	EA-30

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JACKSON COUNTY, MISSISSIPPI**

**A FEDERALLY AUTHORIZED PROJECT**

**TABLE OF CONTENTS (CONTINUED)**

**LIST OF TABLES**

<b><u>TABLE NO.</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>PAGE NUMBER</u></b>
1	Pascagoula Harbor Authorized vs. Existing Channel Dimensions .....	EA-3
2	Fishery Management Plans and Managed Species for GOM.....	EA-14
3	Threatened and Endangered Species USFWS.....	EA-16
4	Threatened and Endangered Species NMFS .....	EA-18

## ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effects
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DMMP	Dredged Material Management Plan
DO	Dissolved Oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
EPA	Environmental Protection Agency
ER	Engineering Regulation
F	Fahrenheit
FCCE	Flood Control and Coastal Emergencies
FSEIS	Final Supplemental Environmental Impact Statement
FONSI	Findings of No Significant Impact
JCPA	Jackson County Port Authority
MCYS	Million cubic yards
MDAH	Mississippi Department of Archives and History
MDEQ	Mississippi Department of Environmental Quality
Mg/l	Milligrams per liter
MLLW	Mean Lower Low Water
MSDMR	Mississippi Department of Marine Resources
MSNHP	Mississippi Natural Heritage Program
NAAQS	National Ambient Air Quality Standards
Ng/Kg	Nanograms per Kilograms
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
ng/kg	nanograms per kilogram
NMFS	National Marine Fisheries Service
nm <sup>2</sup>	square nautical miles
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places

## **ACRONYMS AND ABBREVIATIONS (CONTINUED)**

ODMDS	Ocean Dredged Material Disposal Site
O&M	Operations and Maintenance
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated biphenyl
PCEs	Primary Constituent Elements
PEL	Probable Effects Level
PIR	Project Information Report
P.L.	Public Law
ppt	parts per thousand
RBO	Regional Biological Opinion
ROD	Record of Decision
RSM	Regional Sediment Management
SAV	Submerged Aquatic Vegetation
SHPO	State Historic Preservation Officer
SVOC	Semi-volatile organic compounds
TEL	Threshold Effects Level
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
µg/kg	micrograms per kilogram
USACE	U.S. Army Corps of Engineers
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
WRDA	Water Resources Development Act
WQC	Water Quality Certification

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## **1.0 INTRODUCTION**

This Environmental Assessment (EA) presents potential impacts resulting from placement of new work, along with some subsequent operations and maintenance (O&M), dredged material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site from deepening the Pascagoula River and Pascagoula Upper Sound Channel segments of the Pascagoula Harbor Navigation Project from the existing depth of -38 feet mean lower low water (MLLW) to the federally-authorized channel depth of -42 feet MLLW. Proposed changes to the federally-authorized project include: placement of new work material at Singing River Island Semi-Confined Site (previously only authorized for O&M material) and placement of new work and O&M material at Round Island Beneficial Use Site (not previously evaluated for placement of Civil Works dredged material).

This EA is prepared according to the U.S. Army Corps of Engineers (USACE) Engineer Regulation (ER) 200-2-2, Procedures for Implementing the National Environmental Policy Act (NEPA) of 1969, and the Council of Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations (CFR) § 1508.27) for Implementing the Procedural Provisions of NEPA (40 CFR § 1500-1508).

***Project Background.*** The Final Supplemental Environmental Impact Statement (FSEIS) for the Pascagoula Harbor Federal Navigation Channel Project, dated July 2010, previously evaluated impacts for completion of the unconstructed portions of the congressionally-authorized improvements and continued future O&M of Pascagoula Harbor. Specifically, project features evaluated in that FSEIS included widening from 450 feet to 550 feet in the Pascagoula Bar Channel, constructing a 600 feet wide by 1,500 feet long by 56 feet deep Horn Island Impoundment Basin, and deepening from 38 feet to 42 feet in the Pascagoula River and Pascagoula Upper Sound Channel. The majority of that dredged material was to be placed offshore within the Pascagoula Ocean Dredged Material Disposal Site (ODMDS). A Pascagoula Harbor Project Information Report (PIR), dated February 2010, only recommended widening the Pascagoula Bar Channel, which was subsequently constructed in 2014.

The project site evaluated in this EA is located starting at the 'Y' intersection with the Bayou Casotte and Pascagoula Upper Sound Channel northward towards the Pascagoula River portion of Pascagoula Harbor (Figure 1). Sediment placement sites are located within the Mississippi Sound, west of the Pascagoula Upper Sound Channel (Figure 2). Maintenance material from these channel segments has typically been placed in Triple Barrel upland site, Singing River Island Semi-Confined Site and open-water placements sites 5-9. Placement of

dredged material at Pascagoula ODMS is available and is a management tool to ensure future placement site(s) capacity.

Upon completing the Pascagoula Bar Channel improvements in 2014, the non-Federal Sponsor, Jackson County Port Authority (JCPA), requested the USACE, Mobile District to pursue those authorized Pascagoula River improvements with remaining appropriated funds. During development of this river improvement project, additional sediment placement options became available since the last environmental review due to the recommendation of state and Federal environmental agencies. These sediment placement options are therefore evaluated in this EA and Section 404(b)(1) Evaluation Report. These placement options were recommended because it would provide sediment for future marsh colonization and reduce the project cost. The Pascagoula River Harbor Dredged Material Management Plan (DMMP) PIR, dated May 2011, consisted of the following: raising existing dikes at the Triple Barrel upland site to 35 feet; constructing a 450-acre semi-confined open-water site; using existing open-water sites, and dredged material for beneficial uses. The associated 2009 EA and Finding of No Significant Impact (FONSI) concluded that no significant impacts would occur as a result of these improvements.

In 2011, the Mississippi Department of Marine Resources (MSDMR) received a Department of Army permit (SAM-2011-01590-KMN) for the construction of a 220-acre Round Island Beneficial Use Site. The Round Island Beneficial Use Site is a viable option for a sediment placement alternative because of its location and substantial agency support. Placement of dredged material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site allows the material to remain within the Mississippi Sound system, as in keeping with USACE, Mobile District's Regional Sediment Management (RSM) operating principles.

## **2.0 AUTHORIZED AND EXISTING NAVIGATION DIMENSIONS**

The entire federally-authorized Pascagoula Harbor Federal Navigation Project, located in Jackson County, Mississippi includes the following channels:

- a. An entrance channel 44 feet deep and 550 feet wide from the Gulf of Mexico to Horn Island Pass, including a 2,200-foot long by 200-foot wide sediment trap situated on the east side of the channel. Also, a channel 44 feet deep and 600 feet wide through Horn Island Pass, including a 4,700-foot long sediment trap situated on the east side of the channel 44 feet deep and 175 feet wide;
- b. A channel 42 feet deep and 350 feet wide in Mississippi Sound and the Pascagoula River to the railroad bridge at Pascagoula, including a turning basin 2,000 feet long and 950 feet wide (including the channel area) on the west side of the river below the railroad bridge;
- c. A channel 42 feet deep and 350 feet wide from the ship channel in Mississippi Sound to the 1,150-foot turning basin at the mouth of Bayou Casotte, then 350 feet wide for approximately one mile to the northern turning basin, 900 feet wide and 1,750 feet long;
- d. A channel 22 feet deep and 150 feet wide up Pascagoula River from the railroad bridge to the mouth of Escatawpa River (Dog River), thence up the Escatawpa River to the Highway 613 Bridge;

e. A channel 12 feet deep and 125 feet wide from the Highway 613 Bridge, via Robertson and Bounds Lakes to mile 6.0 on the Escatawpa River; and

f. A channel 12 feet deep by 80 feet wide extending from deep water in the Pascagoula River to a turning basin in Krebs Lake, a distance of approximately 1,500 feet, then along the south bank of the lake a channel 10 feet deep and 60 feet wide, terminating at a second turning basin, a distance of 2,700 feet from the first.

**Table 1. Pascagoula Harbor Authorized vs. Existing Channel Dimensions**

<b>Pascagoula Harbor Channels</b>	<b>Authorized Dimensions</b>	<b>Existing Dimensions</b>
Pascagoula Bar Channel	44' x 550'	44' x 550'
Horn Island Pass*	44' x 600'	44' x 600'
Lower Pascagoula Channel	42' x 350'	42' x 350'
Bayou Casotte Channel	42' x 350'	42' x 350'
Upper Pascagoula Channel	42' x 350'	38' x 350'
Pascagoula River Channel	42' x 350'	38' x 350'

*\*Horn Island Pass also includes the Horn Island Impoundment Basin currently constructed to -44 feet MLLW but authorized to -56 feet MLLW*

### **3.0 AUTHORITY**

As a result of Hurricane Katrina’s landfall on August 29, 2005, Congress passed Public Law (P.L.) 109-148, dated December 2005, that provided supplemental appropriations to address hurricanes in the Gulf of Mexico. P.L. 109-148 authorized Flood Control and Coastal Emergencies (FCCE) funds to be used to complete previously unconstructed portions of authorized projects in the State of Mississippi along the Mississippi Gulf Coast at full Federal expense.

The supplemental bill allows the USACE to improve the Pascagoula Harbor to the ‘authorized dimensions’, as stated in P.L. 99-662, dated November 1986. Two (2) PIRs were prepared pursuant to the Emergency Supplemental authority for Pascagoula Harbor to address the remaining unconstructed improvements and future maintenance of the entire Federal project. The Pascagoula Harbor Federal Navigation Project PIR (Channel Widening PIR), dated May 2011, recommended widening the Pascagoula Bar Channel by 100 feet to its authorized width of 550 feet. The construction for the Pascagoula Bar Channel was completed in August 2014. While the FSEIS for the Pascagoula Harbor Federal Navigation Channel Project also covers the deepening of the Upper Pascagoula Channel and Pascagoula River Channel and Horn Island Impoundment Basin, at the request of the non-Federal sponsor, JCPA, the deepening of the channel(s) from -38 feet to -42 feet MLLW was not constructed. All of the authorized improvements have been constructed, with the exception of the Pascagoula River and Pascagoula Upper Sound Channel deepening from -38 to -42 feet MLLW, as well as deepening the Horn Island Impoundment Basin to -56 feet MLLW.

### **4.0 PURPOSE AND NEED FOR THE PROPOSED ACTION**

Since development of the 2010 FSEIS for the Pascagoula Harbor Navigation Channel, additional sediment placement options were recommended by state and Federal agencies.



Furthermore, placement at the Pascagoula ODMS was less economically and environmentally feasible for the proposed deepening, there was a need to consider additional sediment placement alternatives that could be beneficially used while retaining material within the Mississippi Sound system. Congress authorized the USACE to complete previously unconstructed portions of authorized projects and provided subsequent appropriation funding (\$75 million for all authorized projects). Limited funds remain from that initial appropriation. JCPA requested the deepening of the Pascagoula River and Pascagoula Upper Sound Channel be completed with those remaining funds.

## **5.0 NATIONAL ENVIRONMENTAL POLICY ACT CONSIDERATION**

The NEPA and Title 40 of the Code of Federal Regulations (CFR), Parts 1500-1508 (40 CFR § 1500-1508) require Federal agencies to consider the potential environmental consequences of proposed actions and alternatives. Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality (amended by EO 11991), provides policy directing the Federal Government to take leadership in protecting and enhancing the environment.

The FSEIS for the Pascagoula Harbor Federal Navigation Channel Project, dated July 2010, evaluated impacts (construction and subsequent placement of material) for completion of the unconstructed portions of the congressionally-authorized improvements and continued future O&M of Pascagoula Harbor. A Record of Decision (ROD) was signed on August 19, 2011. Recommended sediment placement for new work material from the Pascagoula River and Pascagoula Upper Sound Channel included the Pascagoula ODMS. Future O&M material from that evaluation included: open-water placement, Pascagoula ODMS, Singing River Island Semi-Confined Site and the Triple Barrel upland site. Sediment placement alternatives were also evaluated in the Pascagoula River Harbor Dredged Material Management Plan (DMMP) for only O&M material placement at Singing River Island Semi-Confined Site. That evaluation did not consider placing new work material at Singing River Island Semi-Confined Site.

This EA, prepared by the USACE, Mobile District, Planning and Environmental Division, Coastal Environment Team tiers from the FSEIS to address potential impacts associated with utilizing the MSDMR Round Island Beneficial Use Site as a sediment placement alternative for the Civil Works' Pascagoula Harbor Federal Navigation Channel Project, as well as placing new work material at the Singing River Island Semi-Confined Site.

The MSDMR Round Island Beneficial Use site was permitted by the USACE, Regulatory Division for the construction and placement of material by state or private interests. As part of the Department of Army permit, the construction of the Round Island Beneficial Use Site and subsequent placement of dredged material was evaluated in an EA, prepared by the USACE, Regulatory Division. Findings of this EA determined no significant impacts would occur as a result of these improvements. The MSDMR is the permittee of Round Island Beneficial Use Site.

## **6.0 DESCRIPTION OF THE PROPOSED ACTION**

The proposed action consists of placement of new work and some O&M dredged material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site from deepening the Pascagoula River and Pascagoula Upper Sound Channel segments of the Pascagoula Harbor Federal Navigation Project from the existing depth of -38 feet MLLW to the federally-authorized channel depth of -42 feet MLLW and to maintain the channels at the specified depths in the future. An additional -2 feet of advance maintenance dredging and -2 feet of allowable overdepth dredging will be conducted for purposes of new work and future maintenance to accommodate for imprecision in the dredging process for a total maximum depth of -46 feet MLLW. An additional -3 feet of sediment below the -2-foot paid allowable dredging cut may be disturbed in the dredging process with minor amounts of material being removed (Tavolaro *et. al.*, 2007) Impacts from the O&M dredging were addressed in the FSEIS.

Approximately 3.3 million cubic yards (mcys) of new work and subsequent O&M material will be removed from the Pascagoula River and Pascagoula Upper Sound Channel and placed within Singing River Island Semi-Confined Site and/or the Round Island Beneficial Use Site. Dredging will be accomplished most likely with a hydraulic cutter-head dredge. Of the 3.3 mcys, approximately 1.7 mcys of O&M material from the Pascagoula Upper Sound Channel will be placed in open-water placement sites directly adjacent to the channel.

Of the 3.3 mcys of material, approximately one mcys of material will be placed at the Singing River Island Semi-Confined Site, within 150 acres of the 450-acre site at an elevation to promote sustained marsh vegetation. One cycle of O&M material has already been placed within the 150-acre site. Material from the deepening project will increase the elevation within the semi-confined site to a height more conducive for the establishment of wetland vegetation habitat (target height between +1 and +3 feet above MLLW).

The 220-acre Round Island Beneficial Use Site consists of a U-shaped sand berm structure open at one end (though during material placement, a turbidity curtain will be in place). At the widest end, the berm will be 300 feet in width and 10 feet in height MLLW (see Figure 5). An access channel (1,000 feet in length by 6 feet in depth by 60 feet in width) will be required to access the site from the main navigation channel. Material side-cast from the access channel shall remain in place. The access channel has previously been coordinated as part of the Regulatory process. Approximately 2.4 mcys of material from the improvement project will be placed within Round Island Beneficial Use Site. After the establishment of a protective sand berm structure, material will be placed within to a maximum height of +1 to +3 feet MLLW (after material settling and consolidation).

The overall intent of placing material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site is to use material beneficially. The proposed action will accomplish this by placing stackable material to achieve the elevation suitable for establishment of wetland habitat vegetation. Placement of dredged material at these site(s) allows material to remain within the Mississippi Sound system, as in keeping with USACE, Mobile District's RSM operating principles.

## 7.0 ALTERNATIVES TO THE PROPOSED PROJECT

**7.1 No Action.** Under the No-Action Alternative, the USACE, Mobile District would not construct the deepening project as proposed and would continue to maintain the navigation channel at the existing dimensions. Maintenance material would be placed within Triple Barrel upland placement site, open-water placement areas and/or Singing River Island Semi-Confined Site, but not placed within the Round Island Beneficial Use Site. If capacity issues or emergency situations arise, O&M material would be placed at the Pascagoula ODMDS, however this option is less economically and environmentally feasible. Congress passed P.L. 109-148 that provided supplemental appropriations to complete unconstructed portions of authorized projects in the State of Mississippi along the Mississippi Gulf Coast at full Federal expense. Therefore, the No-Action Alternative was not considered the preferred alternative, although a viable alternative.

### 7.2 Sediment Placement Alternative(s) and Proposed Action

**Pascagoula ODMDS:** The U.S. Environmental Protection Agency (EPA), Region 4 designated the Pascagoula ODMDS in July 1991 for materials dredged from the Mississippi Sound area that meets the Ocean Dumping Criteria (40 CFR § 220-228). Pascagoula ODMDS is located approximately seven miles south from the 'Y' intersection with the Bayou Casotte Channel and the Pascagoula Upper Sound Channel (the southern termini of the project) and is located south of the barrier islands (Horn Island and Petit Bois Island) (see Figure 1). The site covers an area of approximately 24.3 square nautical miles (nmi<sup>2</sup>) with depths varying from about 30 feet in the north to 60 feet in the south. The Pascagoula ODMDS is approved for placement of O&M material as well as new work material. However, ocean placement in the Pascagoula ODMDS for this action can be more costly than deposition in the upland, open-water or beneficial use sites due to the longer hauling distances and site management requirements. Furthermore, sole use of this disposal option for new work and maintenance is not consistent with the USACE, Mobile District's RSM operating principles. The USACE's approach to RSM is to manage sediments in a manner that maximizes natural and economic efficiencies. The USACE recognizes that sediment is a valuable resource. The proposed action will save money and benefit the region by keeping the sediment within the Mississippi Sound system. Additionally, state agencies would prefer the USACE to retain dredged material within the Mississippi Sound, rather than remove it by placing it at the ODMDS.

**Singing River Island Semi-Confined Site:** This sediment placement area is 450 acres in size and located directly adjacent to Singing River Island (a former naval base) (see Figures 1 and 3). The construction of the containment rock breakwater was completed in 2013. Six (6) fish passages remain open within the rock breakwater to allow for tidal flushing and fish passage. One hundred and fifty (150) acres within the site will be converted to emergent tidal marsh through vegetative planting or natural succession. This site was designated for the placement of maintenance dredged material from Pascagoula Harbor Federal Navigation Project. Placement of new work material within the semi-confined site produces a more 'stackable' substrate, which allows for more efficient establishment of marsh wetland habitat. Placement of material at the Singing River Island Semi-Confined Site also allows the material to be retained within the Mississippi Sound system and is consistent with USACE, Mobile

District's RSM operating principles. Placement at this site is a more economical alternative due to its close proximity, when compared to other sites that are located further away. Pascagoula River Harbor DMMP's capacity will be retained by placement of some O&M material in open-water sites adjacent to the Pascagoula Upper Sound Channel. Placement of new work and some O&M material at this placement area is considered to be a viable alternative for this project due to the following: available capacity at Singing River Island Semi-Confined Site, quality of new work dredged material placed to establish wetland habitat, ability to retain the dredged material within Mississippi Sound, and state and Federal agencies support.

**Round Island Beneficial Use Site:** The MSDMR obtained a USACE Department of Army permit for the construction of a 220-acre beneficial use site adjacent to Round Island. The site had only been constructed to approximately 70 acres, however the MSDMR is expanding the site and accepting more suitable material. Placement of material at the Round Island Beneficial Use Site, which is located south of Singing River Island (see Figures 1 and 4), allows material to be retained within the Mississippi Sound system and is in line with USACE, Mobile District's RSM operating principles. Placement at this site also is a more economical alternative due to its vicinity, when compared to other sites that are located further away. In addition, the island greatly benefits shorebirds by providing them with a relatively large area to safely congregate, forage and roost. A June 2015 bird survey of the recently constructed island identified over 2,000 birds using the area. Therefore, placement of new work and subsequent O&M material at Round Island Beneficial Use Site is considered to be a viable alternative.

**Open Water Placement Sites:** Some dredged material from the project could also be placed in previously authorized open water disposal areas. Open water sites 5, 6, 7, and 8 would be used for placement of O&M material from this event (see Figure 1).

## **8.0 AFFECTED ENVIRONMENT**

**8.1 Physiography.** The geologic formations exposed on the surface of the Mississippi Gulf Coast were deposited, beginning approximately 1.6 million years ago, atop the Pliocene and Miocene deposits. There are two major physiographic regions in the Mississippi coastal region. The Gulf Coast Flatwoods form an irregular belt through the southern half of the three-county region. This belt consists mainly of wet lowlands and poorly drained depressions, with some higher, adequately-drained areas. The second physiographic region, the Southern Lower Coastal Plain, is rolling and gently undulating interior uplands. Elevations range from sea level along the coast in Hancock, Harrison, and Jackson Counties to approximately 420 feet above sea level. The slope of the land surface is generally oriented to the south. The area is underlain by a thick sequence of sedimentary deposits dipping to the south and west.

Geologic processes have shaped the present configuration and geomorphology of the Mississippi Gulf Coast for the past 1.6 million years, particularly in the past 18,000 years, and efforts of man to stabilize an eroding shoreline with structures and artificial fill. The Biloxi Formation is a transgressive unit deposited in marine and brackish water both nearshore and offshore. This formation is not exposed along the coast, but is visible in the excavated banks of the Industrial Seaway in Gulfport, Mississippi. It consists of clays, fine sands, and sandy

clays with abundant fossils, including both shells and microscopic fossils called foraminifers, which help to identify its environment of deposition (Otvos 1985). It ranges from 15 to 45 feet in thickness in Harrison County to as much as 120 feet thick in Jackson County. Two islands in the Mississippi Sound, Round Island in Jackson County and Deer Island in Harrison County, are remnant Gulfport Formation sand ridges, which were once connected to the ancient mainland (Otvos 1985). Historic new work and maintenance placement operations predating many environmental laws and regulations formed Singing River Island.

**8.2 Soils.** Jackson County is in the extreme southeastern part of Mississippi. The total area of the county is 1,043 square miles, including land and water. Jackson County is comprised of several major soil types including Troup, Benndale, Harleston, and Atmore. The Troup series consists of well-drained, nearly level to gently sloping soils on uplands. These soils formed in unconsolidated marine sediments of loamy sands, sandy loams, and sandy clay loams. Water permeates through the sandy layers and in the loamy layers. Native vegetation consists of scrub oak, scattered longleaf or loblolly pine, and dogwood. Benndale series consists of well-drained soils on uplands. This series is prevalent in unconsolidated beds of sandy loams and sandy clay loams. Native vegetation consists of mainly longleaf and loblolly pines, dogwood, and various oaks. Harleston series consists of moderately well-drained soils. This series formed in marine or stream deposits consisting of thick beds of sandy loam. This series is prevalent on terraces and uplands of the Southern Coastal Plain. The Atmore series consists of deep, poorly drained, moderately slowly permeable soils that formed in loamy marine sediments. These soils are on slight depressions and gently sloping interstream divides of the coastal plain.

Bottom sediments along the navigation channel range from silt and clay to fine to medium grained sands. Material to be dredged from the Pascagoula River Channel consists of soft, fine-grained, organic silts and clays. The Pascagoula Upper Sound Channel immediately south of the Pascagoula River Channel consists of fine and very fine sands. Approximately two miles south of the river mouth, the channel transitions to silt and clay and then near the Y-junction with Bayou Casotte Channel returns to sandy material. Medium and coarse sands lie along the mainland beaches west of Pascagoula River as well as along the barrier islands. East of the Pascagoula River to Mobile Bay, fine sands, silts, and clays dominate the mainland borders. The Pascagoula Bar Channel and Horn Island Pass Channel sediment consists primarily of sands containing traces of shells.

**8.2.1 Sediment Testing and Analysis.** Sediment sampling and analysis for the Pascagoula Harbor Federal Navigation Project were conducted in 2000, 2005, 2006, 2009 and 2010. Sediments were analyzed for physical (e.g., grain size) and chemical parameters. Analysis also included water column bioassays. Concentrations of detected nutrients (ammonia, nitrite, nitrate, Total Kjeldahl Nitrogen, total phosphorus, and total sulfide) were within the expected range for sediments from coastal depositional environments. Pascagoula Upper Sound Channel concentrations tended to be higher than those from a reference site located at Grand Bay, Alabama. Total Organic Carbon concentrations were also typical of coastal depositional environments and ranged from 1.05 to 2.06 percent. Overall, concentrations of detected metals were low in both studies. Arsenic was the only metal that exceeded a threshold effects level (TEL) value. No probable effects levels (PELs) were exceeded. Generally, concentrations of detected metals increased with increasing distance from the

coast. The simultaneously extracted metals/acid volatile sulfides ratio was less than one (1) at each location, indicating the metals present are probably bound to organic material and not bio-available to aquatic organisms.

Total Polynuclear Aromatic Hydrocarbon (PAH) concentrations ranged from 125 to 599 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ), and concentrations decreased with increasing distance from the coast and possible sources of contamination. Total PAH concentrations in sediment samples from the Pascagoula Upper Sound Channel were higher than concentrations detected at the reference site ( $31.6 \mu\text{g}/\text{kg}$ ), but below the TELs of  $1,684.06 \mu\text{g}/\text{kg}$ . Concentrations of four PAHs - acenaphthene, acenaphthylene, dibenzo(a,h) anthracene, and fluoranthene—exceeded TEL values at one sample location. The acenaphthene TEL value was also exceeded at two other locations.

Eight (8) of the 17 tested dioxin and furan congeners were detected in sediments from the Pascagoula Upper Sound Channel. Dioxin toxic equivalents (TEQs) ranged from 8.04 to 14.1 nanograms per kilogram ( $\text{ng}/\text{kg}$ ). These concentrations were slightly higher than the dioxin TEQ at the reference location ( $8.21 \text{ ng}/\text{kg}$ ). Dioxin TEQs measured in the Pascagoula Upper Sound Channel were comparable to dioxin TEQs measured in navigation channel sediment in the Gulf Coast region (USACE, 2006b). Total polychlorinated biphenyl (PCB) concentrations ranged from 1.5 to  $9.77 \mu\text{g}/\text{kg}$ , below the TEL ( $21.55 \mu\text{g}/\text{kg}$ ) (USACE, 2006b). Nine (9) of 22 tested chlorinated pesticides were detected at low concentrations in Pascagoula Upper Sound Channel sediments. Sediments were analyzed for 46 semivolatile organic compounds (SVOCs). Three of the 46 tested SVOCs were detected at low concentrations in the elutriates. Butyltins were not detected in sediment during that study. No individual PCB congeners or chlorinated pesticides were detected in the elutriate water.

Generally, results from dredged material evaluation(s) conducted in the Pascagoula River and Pascagoula Upper Sound Channel indicated low concentrations of some target analytes in sediments and standard elutriates. Sediments exhibited minimal toxicity for both exposure to suspended particulate phases and whole sediments, and no evidence of significant bioaccumulation was reported.

Results from the post-oil spill sampling effort conducted in November 2010 were compared to results from a previous investigation occurring in November 2009 and mid-April 2010 to determine if there were any discernible changes to sediment quality in the Pascagoula Harbor Federal Navigation Project that could potentially be attributed to the Deepwater Horizon Oil Spill that occurred from late-April 2010 to July 2010. When compared to PAH concentrations from November 2009 and April 2010, results from the November/December 2010 study indicate PAH concentrations are essentially comparable and within the range of natural variability for locations within Mississippi Sound and the northern reaches of the Gulf of Mexico, the reference sites, and Pascagoula ODMDS. Based on the results of PAH and Total Petroleum Hydrocarbons (TPH) testing of surface sediment collected in November and December 2010, there were no discernible changes in sediment quality that are attributable to the Deepwater Horizon Oil Spill.

Details of testing and results are contained in *Dredged Material Evaluation of the Upper Pascagoula River Channels, Pascagoula Harbor, Pascagoula, Mississippi* (EA 2002), *Post-Hurricane Katrina Dredged Material Evaluation of Pascagoula River and Upper Sound*

*Channels* (EA 2006), *Final Evaluation of Dredged Material, Federally Authorized Navigation Projects, Pascagoula Harbor, Pascagoula, Mississippi* (EA 2012) and *Final Post-Oil Spill Surface Sediment Evaluation: Pascagoula Harbor Federal Navigation Channels* (EA 2012).

**8.2.2 Water Quality.** Water quality in the project area was described in the 2010 FSEIS for the Pascagoula Harbor Navigation Channel, and is incorporated herein by reference. EA Engineering, Science, and Technology, Inc. conducted a sediment quality characterization in the Pascagoula Upper Sound Channel in November 2005 (USACE, 2006b). As part of the 2006 study, water from the channel was analyzed. *In situ* measurements of temperature, salinity, Dissolved Oxygen (DO), turbidity, and pH were recorded at seven locations along the Pascagoula River and Pascagoula Upper Sound Channel. Within the navigation channel, the general trend is for increasing salinity with depth. Surface salinities measured in the Pascagoula Upper Sound Channel ranged from 27 to 30 parts per thousand (ppt). Bottom salinities ranged from 30 to 33 ppt. Data collected in 2005 within the Pascagoula Upper Sound Channel showed a slight decrease in water temperature with depth. Across all analyzed sampling stations, temperature decreased by less than 1.6°F (F) between the surface and the bottom. Surface temperatures ranged from 70.5 to 71.6°F. Near the Pascagoula Harbor Navigation Channel (within 2 miles), temperature was fairly uniform, with little evidence of a strong thermocline and little temperature variation noted with depth. Along the Pascagoula Upper Sound Channel, DO levels ranged from 6.3 to 6.8 milligrams/liter (mg/L) at the surface. DO typically decreased with depth and bottom DO levels ranged from 6.1 to 7.1 mg/L.

**8.3 Biological Resources.** Coastal Mississippi consists of several habitats including beaches, sand dunes, coastal maritime forests, emergent wetlands, submerged aquatic vegetation (SAV), rivers, tidal creeks, tidal flats, scrub/shrub wetlands, forested wetlands, and open-water benthic habitats. These areas are home to an immensely diverse, resilient, and environmentally significant group of species, including some threatened and endangered fauna. Ecological habitats within the project site include estuarine subtidal and intertidal waterbottoms populated with diverse benthic communities. Benthic communities vary depending on the substrate bottom types present in the area. Intertidal and subtidal water bottoms vary from sand to muddy sand to mud. Subtidal bottoms consist primarily of soft mud sediments (Christmas, 1973). There are no SAV beds in the vicinity of the project area. Generally, submerged aquatic grasses are restricted to the northern shores of the barrier islands south of the mainland shoreline.

**8.3.1 Coastal Flora.** Vegetative communities in Coastal Mississippi are diverse; however, existing land use patterns have resulted in a great deal of modification to natural plant associations. Terrestrial uplands dominate higher ground areas that are not normally subject to riverine flooding or tidal inundation. Natural upland vegetation complexes found in the area include longleaf pine oaks, moist pinelands, bay forests, monoculture pine, maritime strand, and beach dune associations. The most dominant upland association, longleaf pine oaks, is well-adapted to the dry, sandy sites in the coastal plain region. This association is usually found above the 10-foot contour but sometimes integrates into the moist pinelands along streams and rivers. Other dominant species occurring in the community include: southern red oak (*Quercus falcata*), laurel oak (*Q. laurifolia*), live oak (*Q. virginiana*), southern magnolia (*Magnolia grandiflora*), flowering dogwood (*Cornus florida*), persimmon (*Diospyros*

*virginiana*), winged sumac (*Rhus copallina*), sparkleberry (*Vaccinium arboreum*), and broomsedge (*Andropogon* spp.).

Forest coverage opens up when entering sandy areas near the coast. Vegetation consists largely of slash pine (*Pinus elliottii*) with an understory of saw palmetto (*Serenoa repens*) and wax myrtle (*Myrica cerifera*). This area, known as moist pinelands, differs from longleaf pine-oaks due to its higher water table. A thin strip of moist pinelands usually divides the floodplain swamps and longleaf pine-oak forests. Sedges, grasses, and other herbaceous plants grow in the understory area. Pitcher plant bogs are very noticeable with thousands of plants occupying a relatively small area. Depression in the land combined with the high water table produce standing water, which supports dense growths of freshwater, floating and submerged, aquatic plants.

The vegetative community in brackish to saline marshes consists of plants that have adapted physiologically to higher levels of salinity. Brackish marshes are more diverse than saline marshes and are characterized by black needlerush (*Juncus roemerianus*) and saltmeadow cordgrass (*Spartina patens*). *S. patens* is characteristic of the saline environment. A distinct zonation exists within brackish and saline marshes. Proceeding seaward from the upland, the number of species composing the community decreases, until in the most saline conditions only smooth cordgrass (*S. alterniflora*) or black needle rush represent the marsh.

The Pascagoula River area supports diverse saline and brackish marshes. Saline marshes exist south of Highway 90 between the east and west mouths of the river. In the area north of Highway 90, and south of I-10, brackish marshes are much more extensively developed. These areas are characterized by smooth cordgrass in the intertidal areas backed by large meadows of black needlerush (*J. roemerianus*). Brackish marshes merge with saline marshes at the I-10 crossing area and species such as big cordgrass, bullrush, reed, sawgrass, and marsh mallow (*Hibiscus mascheutos* and *Kosteletzkya virginica*) become conspicuous.

The barrier islands of Mississippi support saline marsh development along their protected shores. High turbidity and lack of suitable substrate have limited distribution of SAV in Mississippi. SAVs have been restricted to relatively quiet waters along mainland and barrier island shores. Isolated patches occur only several hundred acres in size north of Horn and Petit Bois Islands. Freshwater SAVs are found along the edge and bottom of the river tributaries of Mississippi; however, these SAVs are more abundant in inland portions of the estuarine areas. In turbid waters of the Sound, seagrass beds are typically found in shallow water less than six (6) feet in depth, most in two (2) or less feet. With the exception of shoal grass (*Halodule wrightii*), which grows on hard sand bottoms, the species characteristic of Mississippi Sound areas prefer soft muddy substrates. A study of the Mississippi portion of Mississippi Sound by Eleuterius (1973) indicated approximately 20,000 acres of SAVs were present including turtle grass (*Thalassia testudinum*), manatee grass (*Cymodocea manatorum*), shoal grass (*H. wrightii*), star grass (*Halophila engelmannii*), and widgeon grass (*Ruppia maritima*). In 1969, Hurricane Camille destroyed the majority of SAVs along the Mississippi Gulf Coast (Eleuterius 1973). Moncreiff (1992) and the U.S. Geological Survey (USGS) (2006) Seagrass Status and Trends in the Northern Gulf of Mexico: 1940-2002 report identified areas along the northern shorelines of Ship, Horn, and Petit Bois Islands as potential habitat for seagrass beds. These areas have historically supported populations of shoal, star,



manatee, and turtle grasses. Currently, these locations only appear to support beds of shoal grass. Seagrass beds were also identified in the Grand Batture area south of the marshes in eastern Jackson County and along the Mississippi-Alabama border. In areas where SAVs are present, significant quantities of benthic and epibenthic macroalgae are found, such as red, brown, and green species. Currently no SAVs are found at Singing River Island Semi-Confined Site nor the Round Island Beneficial Use Site.

**8.3.2 Coastal Fauna.** Many species of invertebrates and vertebrates make up the faunal population along the Gulf Coast. Invertebrate populations in Mississippi Sound and the nearshore area of the Gulf of Mexico transfer energy through the coastal food web. Microscopic estuarine zooplankton live throughout the water column with limited mobility. Zooplankton includes such organisms as copepods, protozoans, chaetognaths, pteropods, tunicates, ctenophores, and siphonophores. Larval stages of benthic forms and eggs and larval stages of many fish species are often interspersed throughout zooplankton. Many important commercial species feed upon zooplankton.

Vittor and Associates (1982) investigated the macrofauna of Mississippi Sound and selected areas in the Gulf of Mexico. Over 532 taxa from offshore Mississippi and Alabama and 437 taxa from the Mississippi Sound were identified. Densities of individuals varied from 910 to 19,536 individual/square yard for the offshore and 1,200 and 38,863 individual/square yard for the Sound area. Abundance of macrofauna is temporal with greatest densities occurring from fall to spring. In 2005, twelve stations sampled in 1980-1981 within the Pascagoula area were resampled, by Vittor and Associates as part of the USACE Section 7 consultation regarding Gulf sturgeon critical habitat. This assessment found that only two station pairs from 1980 to 2005 had similar sediment composition. In most instances, the study found there had been a shift in sediment texture, with the majority of station pairs showing an increase in the sediment percent sand. The study found that changes in sediment composition had led to a decrease in both taxa richness and macroinvertebrate density at all station pairs from 1980 to 2005. These changes in assemblage composition generally resulted in a shift from a diverse, mixed assemblage of polychaetes, mollusks and amphipods to one dominated by one or several opportunistic polychaete taxa (e.g. *Mediomastus ambiseta*, *Paraprionospio pinnata*). These data are reflective of the typically dynamic nature of benthic communities in shallow coastal areas of the Gulf of Mexico.

Oyster production in Mississippi depends on public reefs managed by the MSDMR. The State of Mississippi accounts for approximately 13 percent to 17 percent of Gulf oyster landings. Reefs are located along the coast across the entire state with the largest reefs near the western boundary. According to a 1966 survey by W.J. Demoran, there were 9,934 acres of oysters. At that time, there were 582 acres of planted oyster beds. Additional acreage has been planted. A few small areas of oyster bottom have been leased for private development; however, production from these areas has been negligible. There have been considerable annual variations in size of productive areas due to natural environmental fluctuations, such as freshwater flow into the oyster beds. Many of Jackson County's most productive areas have been closed to harvest due to increased pollution associated with coastal development.

Many commercially important species of crustaceans are harvested in Mississippi Sound and the nearshore of the Gulf of Mexico. Brown shrimp (*Penaeus aztecus*) is the main shrimp species harvested by commercial fishermen in the Gulf of Mexico and is the most important

commercial species in the Mississippi Sound and Mobile Bay area. White shrimp (*Litopenaeus setiferus*) and blue crab (*Callinectes sapidus*) are also harvested within the study area. In addition to those commercial species, there is a diverse community of crustaceans within Mississippi Sound and adjacent waters including a wide variety of forms and habitat preferences. Epibenthic crustaceans dominate the diet of flounder, catfish, croaker, porgy, and drum. The major fisheries landed along the Mississippi Gulf Coast are anchovies, menhaden, mullet, croakers, shrimp, and oyster. Primarily, the Ports of Pascagoula and Moss Point receive greater than 85 percent of all Mississippi landings, including all industrial fish (menhaden), 95 percent of mullet, trout, and red snapper, and 74 percent of croaker landed (USACE 1992).

Over 300 species of birds have been reported as migratory or permanent residents within the area, several of which breed there as well. Shorebirds include osprey, great blue heron, great egret, piping plover, red knot, sandpiper, gulls, brown and white pelicans, American oystercatcher and terns. Birds of the area eat a great variety of foods, are also food to many predators, and exhibit a diversity of nesting behaviors. Round Island and Singing River Island has the potential to provide nesting, feeding, and roosting habitat to many shorebirds.

**8.4 Essential Fish Habitat.** Essential Fish Habitat (EFH) is defined in the Magnuson-Stevens Fishery Conservation and Management Act as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity." The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. The National Marine Fisheries Service (NMFS) has identified EFH for the Gulf of Mexico in its Fishery Management Plan Amendments. These habitats include estuarine areas, such as estuarine emergent wetlands, seagrass beds, algal flats, mud, sand, shell, and rock substrates, and the estuarine water column. Table 2 provides a list of the species that NMFS manages under the federally implemented Fishery Management Plans in the vicinity of the proposed action.

**Table 2: Fishery Management Plans and Managed Species for the Gulf of Mexico (NMFS 2015).**

**Shrimp Fishery Management Plan**

brown shrimp – *Farfantepenaeus aztecus*  
pink shrimp - *F. duorarum*  
royal red shrimp - *Pleoticus robustus*  
white shrimp - *Litopenaeus setiferus*

**Reef Fish Fishery Management Plan**

almaco jack – *Seriola rivoliana*  
anchor tilefish - *Caulolatilus ntermedius*  
banded rudderfish – *S. zonata*  
blackfin snapper - *Lutjanus buccanella*  
blackline tilefish - *Caulolatilus cyanops*  
black grouper- *Mycteroperca bonaci*  
blueline tilefish – *C. microps*  
cubera snapper – *L. cyanopterus*  
dog snapper – *L. jocu*  
dwarf sand perch - *Diplectrum ivittatum*  
gag grouper - *M. microlepis*  
goldface tilefish – *C. chrysops*  
goliath grouper - *Epinephelus itajara*  
gray snapper – *L. griseus*  
gray triggerfish - *Balistes capriscus*  
greater amberjack – *S. dumerili*  
hogfish - *Lachnolaimus maximus*  
lane snapper - *Lutjanus synagris*  
lesser amberjack - *S. fasciata*  
mahogany snapper – *L. mahogoni*  
marbled grouper – *E. inermis*  
misty grouper – *E. mystacinus*  
mutton snapper – *L. analis*  
Nassau grouper – *E. striatus*  
queen snapper - *Etelis oculatus*  
red hind - *Epinephelus guttatus*  
red grouper – *E. morio*  
red snapper - *L. campechanus*  
rock hind – *E. adscensionis*  
sand perch - *Diplectrum formosum*  
scamp grouper - *M. phenax*  
schoolmaster – *L. apodus*  
silk snapper – *L. vivanus*  
snowy grouper – *E. niveatus*  
speckled hind - *E. drummondhayi*  
tilefish - *Lopholatilus chamaeleonticeps*  
vermillion snapper - *Rhomboplites aurorubens*  
Warsaw grouper – *E. nigritus*  
wenchman - *Pristipomoides aquilonaris*  
yellowedge grouper *E. lavolimbatus*  
yellowfin grouper – *M. venenosa*  
yellowmouth grouper – *M. interstitialis*  
yelooxtail snapper – *Ocyurus chrysurus*

**Stone Crab Fishery Management Plan FL**

stone crab - *Menippe mercenaria*  
gulf stone crab – *M. adina*

**Spiny Lobster Fishery Management Plan**

spiny lobster - *Panulirus argus*  
slipper lobster - *Scyllarides nodife*

**Coral and Coral Reef Fishery Management Plan**

varied coral species and coral reef communities  
comprised of several hundred species

**Coastal Migratory Pelagic Fishery Management Plan**

cobia - *Rachycentron canadum*  
king mackerel – *Scomberomorus cavalla*  
Spanish mackerel - *S. maculatus*

**Red Drum Fishery Management Plan**

red drum - *Sciaenops ocellatus*

**8.5 Cultural Resources.** In accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations at 36 CFR § 800, the USACE must consider potential effects of this project on *historic properties* (cultural resource sites potentially eligible for, or listed on, the National Register of Historic Places (NRHP)). In addition, the USACE must afford the State Historic Preservation Officer (SHPO)

and interested parties including but not limited to Native American Tribes (Tribes), the opportunity to comment on its determination of effects to *historic properties*. In order to assess effects of the project, the USACE has conducted a records and literature search of the state wide survey and site files at the Mississippi Department of Archives and History, as well as other data as available, in order to identify existing resources. A literature and background check was made that included all areas of potential effect (APE) of the proposed project including the placement areas in 2011. The investigation was updated in July 2015. No sites were identified within the project APE. However, there is a single archaeological site known within a mile of the APE. Due to the site's location on the southwest corner of Round Island, the placement activity will have no impact on the site.

Based on the proposed studies and *historic property* avoidance, the USACE has determined that the action should have no effect on historic properties in accordance with 36 CFR §800.4(d)(1). Therefore, the project is expected to have no significant impact to cultural resources. A no-effect determination on cultural resources was submitted to the MDAH SHPO on July 27, 2015. The SHPO office concurred with this determination by letter dated, August 6, 2015 (see Appendix A).

**8.6 Aesthetics.** The project area is aesthetically pleasing outside of developed areas. The developed industrialized areas offer little in the way of aesthetics. Many of the remaining natural communities now have non-recoverable debris and non-recoverable, salvageable debris located in them.

**8.7 Noise.** Predominant ambient sounds in the vicinity of the project are those expected with metropolitan areas, including industry, ports, and local traffic (automobiles, boats, and planes).

**8.8 Air Quality.** The Clean Air Act of 1970, as amended, mandated that the EPA establish ambient standards for certain pollutants, regarding all identifiable effects a pollutant may have on the public health and welfare. The EPA subsequently developed the National Ambient Air Quality Standards (NAAQS) identifying levels of air quality, which it judged necessary to protect public health and welfare, and account for the environment. Areas in compliance with the NAAQS are termed as attainment areas, while areas not meeting the standards are termed non-attainment areas. Jackson County is in attainment with the NAAQS of the Clean Air Act.

**8.9 Threatened and/or Endangered Species.** Table 3 on the following page provides a list of endangered and threatened species identified by the U.S. Fish and Wildlife Service (USFWS) in Jackson County, Mississippi.

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**Table 3: Federally Listed Threatened and Endangered Species in Jackson County, Mississippi (USFWS 2015)**

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- E – Red-cockaded woodpecker (*Picoides borealis*)
- E – Alabama Red Bellied Turtle (*Psuedemys alabamensis*)
- TCH – Piping plover (*Charadrius melodus*)
- E – West Indian manatee (*Trichechus manatus*)
- T – Yellow-blotched map turtle (*Graptemys flavimaculata*)
- T – Gopher tortoise (*Gopherus polyphemus*)
- T – Louisiana black bear (*Ursus a. luteolus*)
- ECH – Dusky gopher frog (*Rana sevosa*)
- TCH – Loggerhead sea turtle (*Caretta caretta*)
- E – Kemp's ridley sea turtle (*Lepidochelys kempii*)
- T – Green sea turtle (*Chelonia mydas*) (P)
- TCH – Gulf sturgeon (*Acipenser oxyrinchus desotoi*)
- E – Louisiana quillwort (*Isoetes louisianensis*)
- C – Black pine snake (*Pituophis melanoleucus lodingi*)
- ECH- Mississippi Sandhill crane (*Grus canadensis pulla*)
- PT- Red Knot (*Calidris canutus rufa*)
- C - Pearl Darter (*Percina aurora*) (Pascagoula River System)
- E – Leatherback Sea Turtle (*Dermochelys coriacea*)

Key to codes on list:

- E – Endangered
  - T – Threatened
  - C – Candidate Species
  - TCH – Threatened with Critical Habitat
  - P – Proposed
- 

Federally-protected species, such as the Louisiana black bear, Mississippi sandhill crane, red-cockaded woodpecker, Louisiana quillwort, pearl darter, Dusky gopher frog, gopher tortoise, red-bellied Alabama turtle, black pine snake, and the yellow blotched map turtle, would not be adversely impacted because these species are not typically found in the area. West Indian Manatees are generally found in waterways along the Mississippi Gulf Coast. However, manatees are not known to frequent Pascagoula Harbor.

Additionally, the potential exists for the occurrence of the Piping plover (*C. melodus*) near the proposed project area. Round Island is located in designated critical habitat for the Piping plover but Singing River Island is not. Surveys in the past have possibly found Piping plover in the vicinity. The Piping plover breeds on sandy or pebble coastal beaches of Newfoundland and southeastern Quebec to North Carolina. Decline in Piping plover populations has been linked to loss of breeding habitat. Shoreline development, river flow alteration, river channelization, and reservoir construction have all led to loss of breeding habitat. The Piping plover winters along the Gulf Coast but does not nest in Mississippi. The Mississippi National Heritage Program (MSNHP) database indicates three over-wintering sightings of Piping plovers: one along the beaches of Gulfport, one on Deer Island, and one on Ship Island.

Piping plovers begin arriving on the wintering grounds in July, with some late-nesting birds arriving in September. The primary constituent elements (PCEs) for the Piping plover wintering habitat are those habitat components that are essential for the primary biological needs of foraging, sheltering, and roosting, and only those areas containing these PCEs within the designated boundaries are considered critical habitat. The PCEs are found in coastal areas that support intertidal beaches and flats (between annual low tide and annual high tide) and associated dune systems and flats above annual high tide.

Red knots (*Calidris cantus*), a species of sandpiper shorebird, have been observed wintering on the majority of the barrier islands, especially Cat Island and Petit Bois Island. Similar wintering habitat requirements to the Piping plover exist for red knots. There are six (6) recognized subspecies of red knots (*C. canutus*), and on December 11, 2014, the USFWS published a final rule in the Federal Register listing the *rufa* subspecies of red knot (*Calidris canutus rufa*) as a threatened species under the Endangered Species Act. The USFWS has determined that the *rufa* red knot is threatened due to loss of both breeding and nonbreeding habitat; potential for disruption of natural predator cycles on the breeding grounds; reduced prey availability throughout the nonbreeding range; and increased frequency and severity of asynchronies (“mismatches”) in the timing of the birds’ annual migratory cycle relative to favorable food and weather conditions. Main threats to the *rufa* red knot in the United States include: reduced forage base at the Delaware Bay migration stopover; decreased habitat availability from beach erosion, sea level rise, and shoreline stabilization in Delaware Bay; reduction in or elimination of forage due to shoreline stabilization, hardening, dredging, beach replenishment, and beach nourishment in Massachusetts, North Carolina, and Florida; and beach raking which diminishes red knot habitat suitability. Critical habitat has not been proposed or designated for the red knot at this time.

Table 4 provides a list of endangered and threatened species identified by the NMFS, Protected Resources Division in the Gulf of Mexico. There are five species of sea turtles (green, Kemp’s ridley, hawksbill, leatherback and loggerhead), which may be found in or near the action area. The National Oceanic and Atmospheric Administration (NOAA) Fisheries Sea Turtle Stranding and Salvage Network records from 1998-2002 and preliminary data from 2003-2006 verify the presence of all five (5) species along the northern Gulf of Mexico. The species most likely to be found in the action area (based on past trawling records) in association with dredging are the loggerhead and Kemp’s ridley. However, not any of the five species of sea turtles are known to nest on Singing River Island and Round Island.

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**Table 4: Federally Listed Endangered and Threatened Species for the Gulf of Mexico (NMFS PRD 2014)**

- E – Fin Whale (*Balaenoptera physalus*)
- E – Humpback Whale (*Megaptera novaeangliae*)
- E – Sei Whale (*Balaenoptera borealis*)
- E – Sperm Whale (*Physeter macrocephalus*)
- T – Green sea turtle (*Chelonia mydas*) (P)
- E – Hawksbill sea turtle (*Eretmochelys imbricata*)
- E – Kemp's ridley sea turtle (*Lepidochelys kempii*)
- T – Loggerhead sea turtle (*Caretta caretta*)
- E – Leatherback Sea Turtle (*Dermochelys coriacea*)
- T – Gulf sturgeon (*Acipenser oxyrinchus desotoi*)
- E – Smalltooth sawfish (*Pristis pectinata*)

Key to codes on list:

- E – Endangered
  - T – Threatened
- 

Loggerheads inhabit continental shelves, bays, estuaries, and lagoons in temperate, subtropical, and tropical waters. In the Atlantic, loggerhead turtles' range extends from Newfoundland to as far south as Argentina. During summer, nesting occurs in the lower latitudes. Primary Atlantic nesting sites are along the east coast of Florida, with additional sites in Georgia, the Carolinas, and along the Gulf Coast. Adults and sub-adults have a reddish-brown carapace. Scales on the top and sides of the head and top of the flippers are also reddish-brown, but have yellow borders. The neck, shoulders, and limb bases are dull brown on top and medium yellow on the sides and bottom. The plastron is also medium yellow. An adult average size is about 3-foot straight carapace length; average weight is 250 pounds. Hatchlings are dull brown in color with an average size and weight of approximately 2 to 3 inches long and 0.7 ounces, respectively. Sexual maturity is reached between 16-40 years. Mating takes place between late March-early June, and eggs are laid throughout the summer.

Kemp's ridleys are found along the Gulf coasts of Mexico and the U.S., and the Atlantic coast of North America as far north as Nova Scotia and Newfoundland. Most Kemp's ridleys nest on the coastal beaches of the Mexican states of Tamaulipas and Veracruz, although a very small number of Kemp's ridleys nest consistently at Padre Island National Seashore, Texas. Outside of nesting, the major habitat for Kemp's ridleys is the nearshore and inshore waters of the northern Gulf of Mexico, especially Louisiana waters. Kemp's ridleys are often found in salt marsh habitats. The preferred sections of nesting beach are backed up by extensive swamps or large bodies of open water having seasonal narrow ocean connections.

A number of whales are known to occur offshore Mississippi and Alabama and occasionally are sighted within the Mississippi Sound. However, these are deepwater species, which are unlikely to be found in the project area. The smalltooth sawfish (*P. pectinata*) possess a characteristic long, flattened, toothed rostrum (often referred to as the "saw") and a flattened head and trunk. Historically, the United States population was common throughout the Gulf

of Mexico from Texas to Florida, and along the east coast from Florida to North Carolina. The species are now found in the Peninsula of Florida, common only in the Everglades region at the southern tip of the state. Given their reduced distribution, it is unlikely the smalltooth sawfish will occur in Mississippi Sound.

Gulf sturgeon is a subspecies of the Atlantic sturgeon. In early spring, subadult and adult fish migrate into rivers from the Gulf of Mexico and continue until early May. In late September or October, subadult and adult sturgeon begin downstream migrations. Adult fish spend eight to nine months each year in rivers and three to four of the coolest months in estuarine or Gulf waters. Gulf sturgeon are bottom-feeders which apparently only feed during their stay in marine waters; food items are rarely found in the stomachs of specimens sampled from rivers. Mississippi Sound along with other adjacent areas have been designated as 'critical habitat' for the Gulf sturgeon (Unit 8 of the USFWS and NMFS's final rule). Unit 8 area provides juveniles, subadult and adult feeding, resting, and passage habitat for the Gulf sturgeon from Pascagoula River and the Pearl River subpopulations. One or both of these subpopulations have been documented by tagging data, historic sightings, and incidental captures as using Mississippi Sound within one nautical mile of the nearshore Gulf of Mexico adjacent to the barriers island and within the passes. Substrates in these areas range from sand to silt, all of which contain known Gulf sturgeon prey items. Pascagoula Harbor and its tributaries could be possible habitat for the Gulf sturgeon.

## **9.0 ENVIRONMENTAL EFFECTS**

**9.1 General.** Impacts resulting from placement of dredged material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site would be short-term and localized, including temporary benthic impacts in shallow water areas around barge operations, increased turbidity, suspension of bottom sediments, and minor aesthetic degradation. All reasonable efforts would be made to avoid, minimize, and restore affected natural resources to the extent practicable. Beneficial use of the dredged material at these placement sites would promote emergent tidal marsh establishment. This habitat provides nursery areas for fisheries, feeding areas for shorebirds and wading birds, and enhances water quality by natural assimilation.

**9.2 Soils.** The proposed action may result in minor soil disturbances due to placement operations. No significant impacts are anticipated.

**9.3 Water Quality.** Potential water quality impacts as a result of dredging and disposal were considered. Dredging and disposal are expected to create some degree of turbidity in excess of the natural condition. Impacts from sediment disturbance during these operations are expected to be temporary, minimal and similar to conditions experience during past routine O&M of the channel. Suspended particles will settle out within a short time-frame, with no measurable effects on water quality. No measurable changes in temperature, salinity, pH, hardness, oxygen content or other chemical characteristics are expected.

The USACE, Mobile District coordinated with the Mississippi Department of Environmental Quality (MDEQ) Office of Pollution Control for the placement of material from the Pascagoula River and Pascagoula Upper Sound Channel into the Round Island Beneficial Use Site and



new work material at Singing River Island Semi-Confined Site and received a water quality certification on May 4, 2016 (see Appendix A).

**9.4 Biological Resources.** Benthos within the immediate area may be displaced. However, it is anticipated that affected areas are small and would rapidly recover within a couple of months. No seagrasses or oyster beds would be disturbed. Turbidity levels would increase during some of the removal and placement operations; however, the levels of turbidity would subside shortly after the operation is complete. No long-term adverse impacts are anticipated. Placement of material at the beneficial use sites will encourage establishment of wetland habitat and vegetation, which would improve water quality and provide habitat for a plethora of marine species.

**9.4.1 Coastal Flora.** No flora would be disturbed other than that floating in the water column. Vegetation has begun to be established at the Singing River Island Semi-Confined Site, however placement of material would merely be a temporary disturbance and long-term would provide an improved substrate for establishment of wetlands. Increasing the elevation of sediment at the Round Island Beneficial Use Site could also provide an improved substrate for the establishment of wetlands. Currently the proposed area of impact adjacent to Round Island is an area of open-water and lacks vegetation. Overall, placement of material at these sites would merely be a temporary disturbance and long-term would provide an improved substrate for establishment of wetlands.

**9.4.2 Coastal Fauna.** The most vulnerable organisms during this action would be benthic animals, such as polychaete worms, shrimp, and crabs. These animals may be subject to localized impacts through any dredged placement, especially the less motile worms. The more motile species, such as fish, would not be significantly affected as they have the ability to avoid disturbances caused by the operations.

Mammals and birds that inhabit the coastal marshes and wetlands would not likely be impacted because the activity would be confined to the placement areas. In addition, this is a highly industrialized site upon which these species thrive; thus, it is anticipated these animals would re-colonize the site following disturbance completion or would continue to coexist with the operation. Placement of sediment would likely disturb bottom areas at the sites and benthos within the immediate area may be destroyed. However, it is believed that affected areas are small and would rapidly recover within a few months. Furthermore, the material would be placed in a manner to promote natural emergent tidal marsh habitat which would provide additional nursery habitat for fish and various invertebrates. No seagrasses or oyster beds would be disturbed because they are not found in the project footprint. Elevated levels of turbidity would subside shortly after the operation is complete. Furthermore, Mississippi Sound, a shallow water environment subject to frequent wave energy disturbances, is routinely in a constant state of flux (i.e. sediment movement, wave action, shrimping, etc.). No long-term adverse impacts are anticipated.

**9.5 Essential Fish Habitat Assessment.** As a result of the project, temporary and localized increases in the turbidity may occur during dredged material placement. The spatial extent of elevated turbidity is expected to be within 400 feet of the operation, with turbidity levels returning to ambient conditions within a few hours after completion of placement activities. Use of this new work and some O&M material at Singing River Island Semi-Confined Site

and/or Round Island Beneficial Use Site would promote natural colonization of emergent tidal marsh, which is a vital habitat for sustainable fisheries in Mississippi Sound. Therefore, the USACE, Mobile District does not anticipate any adverse impacts to occur to EFH. The NMFS-Habitat Conservation Division concurred with the Mobile District's determination by letter dated April 22, 2016 (see Appendix A).

**9.6 Cultural Resources.** The Mississippi Department of Archives and History (MDAH) SHPO was coordinated with regarding any potential cultural resources. A no-effect determination on cultural resources was made by the Mobile District Archaeologist and submitted to the MDAH SHPO on July 27, 2015. The SHPO office concurred with this determination by letter dated, August 6, 2015 (see Appendix A).

Additionally, if cultural material, specifically, human remains and funerary objects, are inadvertently discovered, work in the immediate area would cease and the discovery would be protected. In addition, the Mobile District Archaeologist, the Mississippi SHPO, and the Tribal Historic Preservation Office (THPO) of the Choctaw Nation of Oklahoma will be notified immediately by the USACE, Mobile District.

**9.7 Aesthetics.** The proposed action would result in minor changes to the beneficial use sites with the placement of material and subsequent establishment of wetland vegetation. A benefit to aesthetics in the area is anticipated due to anticipated shorebird use of those beneficial use sites.

**9.8 Noise.** Construction equipment and vehicles in the area would temporarily increase noise levels in the vicinity. No long-term adverse effects are anticipated.

**9.9 Air Quality.** The proposed project is expected to add exhaust emissions to the immediate area during construction, but this would not result in any permanent changes to the air quality of the area. Air quality in the immediate vicinity of the heavy equipment would be slightly affected for a short period of time by the fuel combustion and resulting engine exhausts. The standards would not be violated by the implementation of the proposed project. In light of prevailing winds in the area, these emissions are insignificant.

## **10.0 THREATENED AND ENDANGERED SPECIES**

The majority of the threatened and endangered species listed for Jackson County, Mississippi are not likely to be in the project area. The potential exists for the occurrence of the Piping plover and the red knot near the proposed project area. However, the project site is not within a designated Piping plover Critical Habitat Unit, but some surveys in the past have possibly found Piping plover in the vicinity. Critical Habitat has not been designated for red knot. The Piping plover breeds on sandy or pebble coastal beaches of Newfoundland and southeastern Quebec to North Carolina. Decline in Piping plover populations has been linked to loss of breeding habitat. Shoreline development, river flow alteration, river channelization, and reservoir construction have all led to loss of breeding habitat. Piping plover winters along the Gulf Coast but does not nest in Mississippi. The Mississippi National Heritage Program (MSNHP) database indicates three (3) over-wintering sightings of Piping plovers: one (1) along the beaches of Gulfport, one (1) on Deer Island, and one (1) on Ship Island. Generally, a hydraulic pipeline dredge is utilized for the entire project. Hydraulic cutterhead dredges are

not known for taking sea turtles. Any sea turtles in the area would likely avoid the area during dredging and placement activities. The overall project has the potential to greatly benefit threatened or endangered bird species by providing additional shoreline habitat for foraging and safe roosting areas. In the off-chance, that a West Indian Manatee is spotted near the dredging or placement sites, the Standard Manatee Protocol requirements would be implemented.

Based on this assessment, the USACE, Mobile District determined a may affect, but not likely to adversely affect any listed threatened or endangered species and their associated designated critical habitat. The proposed project coordinated with the USFWS by letter dated April 12, 2016. The USFWS concurred with this determination on May 19, 2016 (see Appendix A).

## **11.0 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE**

The project site is an industrialized port facility with several private operations, such as Chevron Pascagoula Refinery, Mississippi Phosphates Corporation, Gulf LNG Energy, LLC, First Chemical Corporation and several shipbuilding facilities. Hazardous substances were not identified above actionable levels. Based on chemical analysis of sediments in the channel described in Section 8.2.1 and in further detail in the 2010 FSEIS for the Pascagoula Harbor Navigation Channel, toxicity and metal contaminant levels were minimal and overall sediment quality was good. The dredging contractor would be required to secure and properly dispose of any hazardous materials or waste associated with the dredging and disposal operation.

## **12.0 COASTAL ZONE CONSISTENCY**

The USACE coordinated with the MSDMR for the placement of material from the Pascagoula River Leg channel into the Round Island Beneficial Use Site and new work material at Singing River Island Semi-Confined Site and received coastal zone consistency on May 12, 2016 (see Appendix A).

## **13.0 EXECUTIVE ORDER (EO) 13045, PROTECTION OF CHILDREN**

Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 21, 1997), recognizes a growing body of scientific knowledge and demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children's bodily systems are not fully developed; because children eat, drink, and breathe more in proportion to their body weight; and because their behavior patterns may make them more susceptible to accidents. Based on these factors, the President directed each Federal agency to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. The President also directed each Federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

The proposed action will not cause any environmental health risks or safety risks that may disproportionately affect children and complies with Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks."

## **14.0 EXECUTIVE ORDER (EO) 12898, ENVIRONMENTAL JUSTICE**

EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (February 11, 1994) requires that Federal agencies conduct their programs, policies, and activities that substantially affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies, and activities because of their race, color, or national origin. On February 11, 1994, the President also issued a memorandum for heads of all departments and agencies, directing that the EPA, whenever reviewing environmental effects of proposed actions pursuant to its authority under Section 309 of the Clean Air Act, ensure that the involved agency has fully analyzed environmental laws, regulations, and policies.

The proposed action will not cause any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations and complies with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

## **15.0 CUMULATIVE IMPACTS SUMMARY**

Cumulative impacts are those impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.

Cumulative Impacts for the entire Pascagoula Harbor Navigation Channel were addressed in the 2010 FSEIS. Cumulative impacts were summarized for future O&M material that included: open-water placement, Pascagoula ODMDs, Singing River Island Semi-Confined Site and the Triple Barrel upland site. The Round Island site would be an additional placement area. The proposed new work dredging and placement activities at Round Island would have no incremental significant adverse cumulative impacts. The potential environmental impacts associated with the proposed action are temporary, and minor. Placement of the material at Round Island and Singing River Island Beneficial use sites would be beneficial for the species that utilize those islands.

## **16.0 CONCLUSION**

The proposed action would have no significant environmental impacts on the existing environment. No mitigation actions are required for the proposed project. Best Management Practices would be employed during the proposed actions to minimize any identified adverse impacts. The implementation of the proposed action would not have a significant adverse impact on the quality of the environment and an environmental impact statement is not required.

## **17.0 LIST OF PREPARERS**

Ms. Caree Kovacevich, Biologist  
Ms. Lekesha Reynolds, Chief, Coastal Environment Team  
Ms. Jennifer Jacobson, Chief Environment and Resources Branch

Department of the Army  
Mobile District, Corps of Engineers  
P.O. Box 2288  
Mobile, Alabama 36628-0001

## **18.0 LIST OF AGENCIES AND OTHERS CONTACTED REGARDING THE ACTION**

U.S. Environmental Protection Agency, Region 4  
U.S. Department of the Interior, Fish and Wildlife Service  
U.S. Department of Commerce, National Marine Fisheries Service  
Gulf of Mexico Fishery Management Council  
Regional Director, National Parks Service  
Commander, Eighth Coast Guard District  
Mississippi Department of Environmental Quality  
Mississippi Department of Marine Resources  
Mississippi State Historic Preservation Officer  
Mississippi Secretary of State

## **19.0 REFERENCES**

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# FIGURES



Figure 1: Vicinity Map of Pascagoula Harbor Project Area



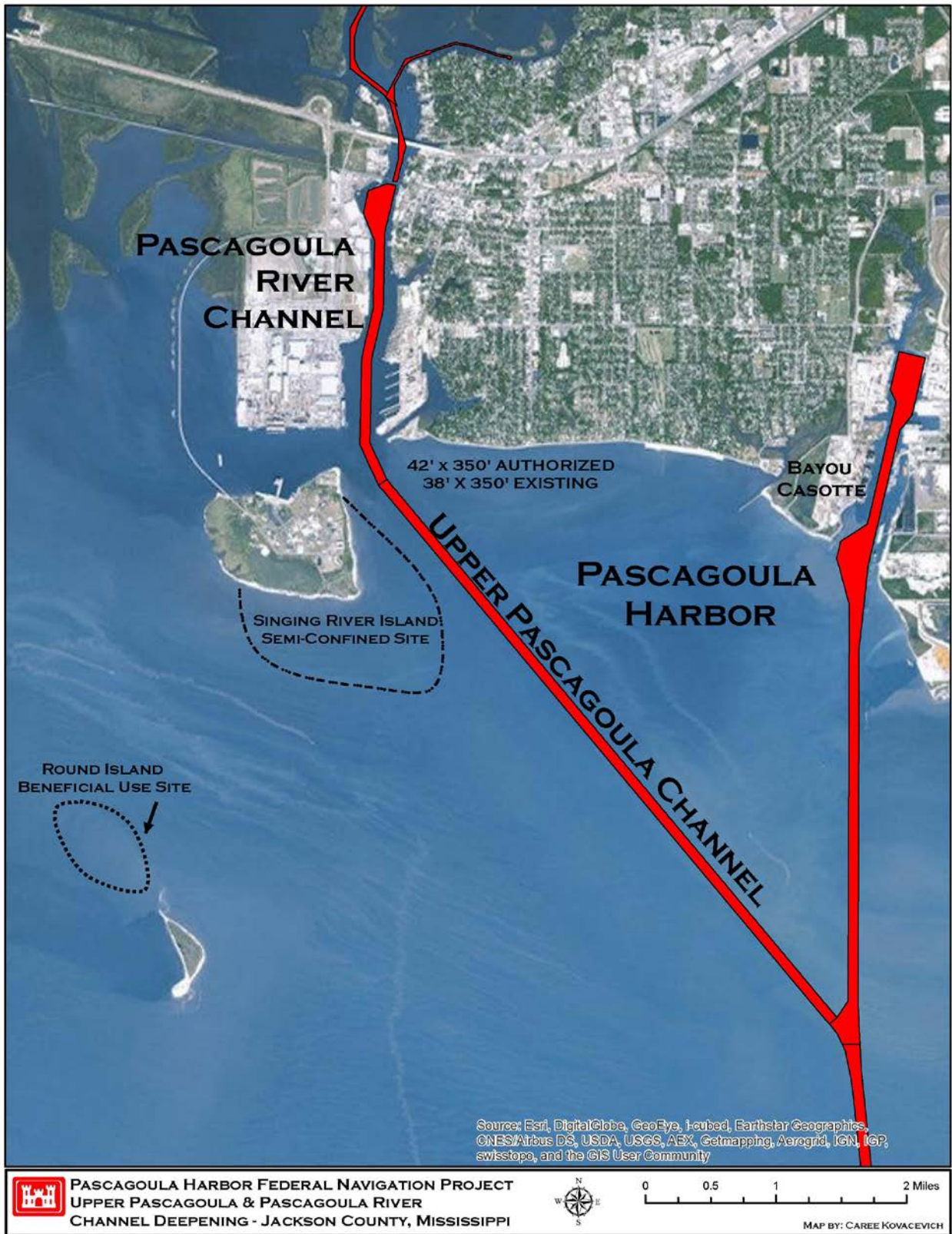


Figure 2: Pascagoula Harbor Project Area



**Figure 3: Singing River Island Beneficial Use Site aerial photo**



**Figure 4: Round Island Beneficial Use Site aerial photo**

**APPENDIX A**  
**AGENCY COORDINATION**



DEPARTMENT OF THE ARMY  
MOBILE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 2288  
MOBILE, ALABAMA 36628-0001

REPLY TO  
ATTENTION OF:

April 12, 2016

Coastal Environment Team  
Planning and Environmental Division

Ms. Florance Bass  
Mississippi Department of Environmental Quality  
Office of Pollution Control  
Post Office Box 2261  
Jackson, Mississippi 39225-2261

Dear Ms. Bass:

Pursuant to the requirements of the Clean Water Act, the U.S. Army Corps of Engineers (USACE), Mobile District requests water quality certification (WQC) modification for a ten-year period for improving the federally authorized Pascagoula Harbor Federal Navigation Channel Project located in Jackson County, Mississippi. The proposed action consists of placement of new work and some operations and maintenance (O&M) dredged material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site from deepening the Upper Pascagoula Channel & Pascagoula River Channel segment of the Pascagoula Harbor Federal Navigation Project from the existing depth of 38 feet to the federally-authorized channel depth of 42 feet and to maintain the channel at the specified depths in the future (**Enclosure 1**).

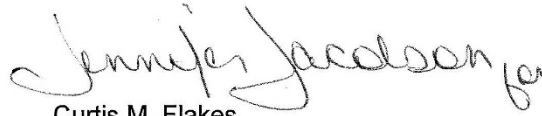
An additional -2 feet of advance maintenance dredging and -2 feet of allowable overdepth dredging will be conducted. Maintenance dredging of soft-dredged material with hopper, mechanical, and/or hydraulic cutterhead dredges tends to disturb the bottom sediments several feet deeper than the target depth due to the inaccuracies of the dredging process. An additional -2 feet of sediment below the -2-foot paid allowable dredging cut may be disturbed in the dredging process with minor amounts of the material being removed (Tavolaro *et al.*, 2007).

Approximately 5.2 million cubic yards of new work and maintenance material will be removed and placed within the newly-constructed Singing River Island Semi-Confined Site and the Round Island Beneficial Use Site. For a description of the entire Pascagoula Harbor Federal Navigation Project, see Public Notice No.FP12-PA01-14, as well as the most recent WQC No.2012006 (**Enclosure 2**).

-2-

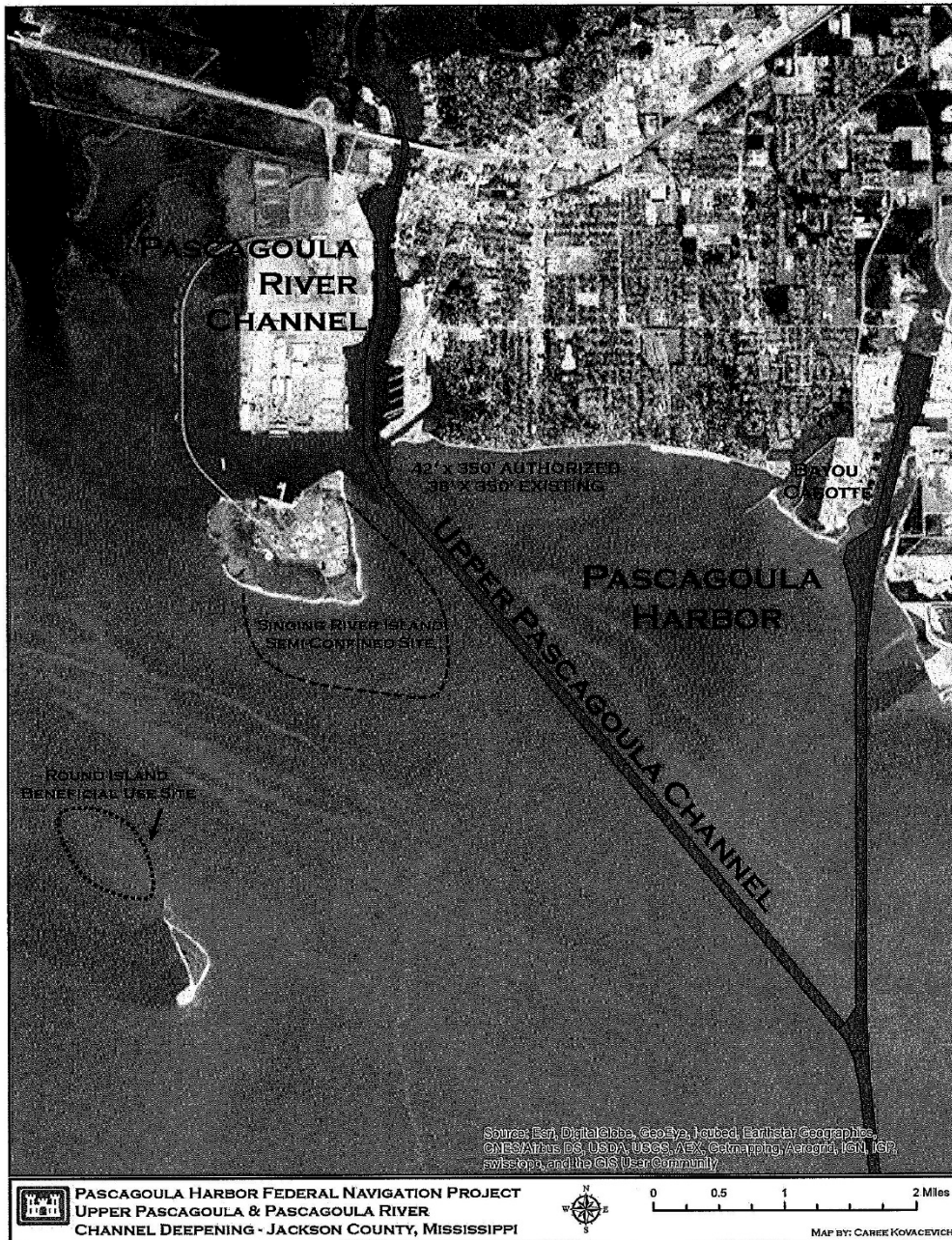
The USACE, Mobile District does not anticipate water quality problems resulting from the proposed dredging and placement activities for the Pascagoula Harbor navigation project. Environmental impacts associated with the proposed action would be minor and short-term. No wetlands would be affected by the proposed action. If you require additional information please contact Ms. Caree Kovacevich at (251) 690-3026 or at [caree.a.kovacevich@usace.army.mil](mailto:caree.a.kovacevich@usace.army.mil).

Sincerely,

A handwritten signature in cursive script that reads "Jennifer Jacobson for". The signature is written in black ink and is positioned above the typed name and title.

Curtis M. Flakes  
Chief, Planning and Environmental Division

Enclosures



Enclosure 1



0160-AD  
CFPD-EC  
Reynolds  
LONG

STATE OF MISSISSIPPI  
PHIL BRYANT  
GOVERNOR  
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
GARY C. RIKARD, EXECUTIVE DIRECTOR

May 4, 2016

Mr. Curtis Flakes  
Chief, Planning and Environmental Division  
Department of the Army  
Mobile District, Corps of Engineers  
Post Office Box 2288  
Mobile, Alabama 36628-0001

Dear Mr. Flakes:

Re: US Army COE, Mobile District,  
Maintenance Dredging,  
Pascagoula Harbor Navigation Project  
Jackson County  
COE No.FP97PA0706  
WQC No.WQC2012006

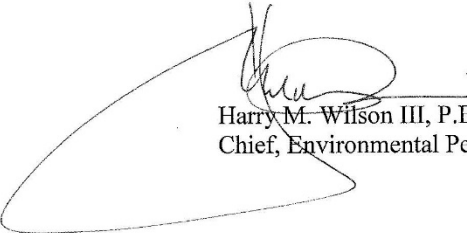
The Department of Environmental Quality understands the need for a Section 401 Water Quality Certification - Modification to the above referenced project. The proposed dredging action would be performed with a tolerance of up to 2 feet of advanced maintenance plus 2 feet of overdepth dredging. Maintenance dredging of soft-dredged material with hopper, mechanical, and/or hydraulic cutterhead dredges tends to disturb the bottom sediments several feet deeper than the target depth due to the inaccuracies of the dredging process. An additional 2 feet of sediment below the 2-foot paid allowable overdepth dredging cut could be disturbed in the process with minor amounts of material being removed. Approximately 5.2 million cubic yards of new work and maintenance material will be removed and placed within Singing River Island semi-confined site and Round Island Barrier Beneficial Use Site. This modification will allow for this additional disturbance over the 2 foot overdepth dredging cut.



Mr. Flakes  
Page 2 of 2  
May 4, 2016

Please be advised the remaining conditions of the Section 401 Water Quality Certification are unchanged. If we can be of further assistance, please contact Joseph Paige of my staff at (601) 961-5624.

Sincerely,



Harry M. Wilson III, P.E., DEE  
Chief, Environmental Permits Division

HMW: jp

cc: Jenny Jacobson, U.S. Army Corps of Engineers, Mobile District  
Lekesha Reynolds, U.S. Army Corps of Engineers, Mobile District  
Caree Kovacevich, U.S. Army Corps of Engineers, Mobile District



**MISSISSIPPI  
DEPARTMENT OF MARINE RESOURCES**

May 12, 2016

Curtis M. Flakes  
Chief, Planning and Environmental Division  
U.S. Army Corps of Engineers-Mobile District  
P.O. Box 2288  
Mobile, AL 36628-0001

Re: DMR-080125; Pascagoula Harbor Federal Navigation Channel Dredging Project

Dear Mr. Flakes:

The Department of Marine Resources in cooperation with other state agencies is responsible under the Mississippi Coastal Program (MCP) for managing the coastal resources of Mississippi. Proposed activities in the coastal area are reviewed to insure that the activities are in compliance with the MCP.

The Department has previously found both the proposed Pascagoula Harbor Federal Navigation Channel Dredging Project and the Singing River Island Beneficial Use Site consistent with the MCP. In addition, the department has previously permitted the Round Island Beneficial Use Site and that site is currently authorized to receive suitable dredged material. The placement of 5.2 million cubic yards of new work and maintenance material which will be removed and placed within Singing River Island semi-confined site and Round Island Beneficial use sites has been reviewed based upon provisions of the Mississippi Coastal Program and Section 307 of the Coastal Zone Management Act of 1972 (as amended) and this activity has been determined to be consistent to the maximum extent practicable with the Mississippi Coastal Program.

The above granted consistency certification was based upon the information presented. If you have any questions regarding this letter, please contact Greg Christodoulou with the Bureau of Wetlands Permitting at (228) 523-4109 or [greg.christodoulou@dmr.ms.gov](mailto:greg.christodoulou@dmr.ms.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Willa Brantley", with a long horizontal line extending to the right.

Willa Brantley  
Bureau Director, Wetlands Permitting

WJB/gsc

cc: Caree Kovacevich,USACE



DEPARTMENT OF THE ARMY  
MOBILE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 2288  
MOBILE, ALABAMA 36628-0001

REPLY TO  
ATTENTION OF:

Coastal Environment Team  
Planning and Environmental Division

Mr. Rick Hartman  
National Marine Fisheries Service  
Habitat Conservation Division  
Louisiana State University  
South Stadium Drive  
Military Science Building- Room 266  
Baton Rouge, Louisiana 70803-7535

Dear Mr. Hartman:

Pursuant to the requirements of the Magnuson–Stevens Fishery Conservation and Management Act, the U.S. Army Corps of Engineers (USACE), Mobile District has prepared a comprehensive Essential Fish Habitat (EFH) assessment, which fully assesses the potential impacts for improving the federally authorized Pascagoula Harbor Federal Navigation Channel Project located in Jackson County, Mississippi (as previously assessed in the *Final Supplemental Environmental Impact Statement for the Pascagoula Harbor Federal Navigation Channel Project*, dated July 2010). This coordination effort is due to a change in the material placement plan, which previously authorized ocean placement at the Pascagoula Ocean Dredged Material Disposal Site (ODMDS), to utilize beneficial use of the dredged material as well as allow for the placement of new work (NW) material at Singing River Island Semi-Confined Site.

The proposed action consists of placement of NW and some operations and maintenance (O&M) dredged material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site from deepening the Upper Pascagoula Channel & Pascagoula River Channel segment of the Pascagoula Harbor Federal Navigation Channel Project from the existing depth of -38 feet mean lower low water (MLLW) to the federally-authorized channel depth of -42 feet MLLW and to maintain the channel at the specified depths in the future (see **Enclosure 1**). An additional -2 feet of advance maintenance dredging and -2 feet of allowable overdepth dredging will be conducted. Maintenance dredging of soft-dredged material with hopper, mechanical, and/or hydraulic cutterhead dredges tends to disturb the bottom sediments several feet deeper than the target depth due to the inaccuracies of the dredging process. An additional -2 feet of sediment below the -2-foot paid allowable dredging cut may be disturbed in the dredging process with minor amounts of the material being removed (Tavolaro *et al.*, 2007).

Approximately 5.2 million cubic yards of NW and some O&M material will be removed and placed within the newly-constructed Singing River Island Semi-Confined Site and the Round Island Beneficial Use Site. A portion of the O&M material from the Upper Pascagoula Channel (approximately 1.7 million cubic yards) will also be placed in existing open-water disposal sites directly adjacent to the channel. This action has been previously coordinated in the 2009 Environmental Assessment (EA) and Finding of No Significant Impact (FONSI). Placement of O&M material at Singing River Island Semi-Confined Site has been previously coordinated with your office as part of the Pascagoula River Harbor Dredged Material Management Plan (DMMP). The Mississippi Department of Marine Resources has a Department of Army permit for the construction of Round Island Beneficial Use site and subsequent placement of material. For a description of the entire Pascagoula Harbor Federal Navigation Channel Project, see Public Notice No.FP12-PA01-14.

Of the 5.2 million cubic yards of material, approximately one (1) million cubic yards of material will be placed at the Singing River Island Semi-Confined Site, within 150 acres of the 450 acre site at an elevation to promote sustained marsh vegetation. One (1) cycle of O&M material this year has already been placed within the 150 acre site. Material from the deepening project will increase the elevation within the semi-confined site to a height more conducive for the establishment of wetland vegetation and habitat (target height up to +1 to +2 feet above MLLW).

The 220-acre Round Island Beneficial Use site will be a U-shaped sand berm structure open at one end (though during material placement, a turbidity curtain will be in place). At the widest end, the berm will be 300 feet in width and 10 feet in height MLLW. An access channel (1,000 feet in length by 6 feet in depth MLLW by 60 feet in width) will be required for the contractor to access the site from the main navigation channel to construct the berm and also place material. Material side-cast from the access channel shall remain in place. The access channel has previously been coordinated as part of the USACE, Mobile District Regulatory process. Approximately 2.4 million cubic yards of material will be placed within Round Island Beneficial Use Site from material dredged from the channel. After the establishment of a protective sand berm structure created from sandy material from within the interior footprint of the site, the channel-dredged material will be placed within the footprint of the protective sand berm structure to a maximum height of +1 to +3 feet MLLW (after material settling and consolidation).

The overall intent of placing the material at Singing River Island Semi-Confined Site and Round Island Beneficial Use Site is to use the material beneficially and will accomplish this by placing stackable material to achieve the elevation suitable for the establishment of wetland habitat and vegetation. Placement of dredged material at these site(s) allows the material to remain within the Mississippi Sound, as in keeping with USACE, Mobile District Regional Sediment Management Operating Principles.

Congress defines EFH as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity," the designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing

activities. The National Marine Fisheries Service (NMFS) has identified EFH habitats for the Gulf of Mexico in its Fishery Management Plan Amendments. These habitats include estuarine areas, such as estuarine emergent wetlands, seagrass beds, algal flats, mud, sand, shell, and rock substrates, and the estuarine water column. In addition, marine areas, such as the water column, vegetated and non-vegetated bottoms, artificial and coral reefs, geologic features, continental shelf features, and the Mississippi shelf, have also been identified. **Enclosure 2** lists the species managed by the Gulf of Mexico Fishery Management Council.

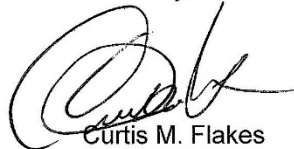
Dredged material would be removed from the channel by a hydraulic pipeline dredge and discharged through a pipeline to the placement areas. This method is preferable in terms of turbidity reduction and minimizing the potential impact to fish and wildlife. Most of the motile benthic and pelagic fauna, such as crab, shrimp, and fish, should be able to avoid the disturbed area and should return shortly after the activity is completed. No long-term direct impacts to managed species are anticipated. However, it is reasonable to anticipate some non-motile and motile invertebrate species will be physically affected through placement operations. These species are expected to recover rapidly soon after the dredging and placement operations are complete.

The USACE, Mobile District has taken extensive steps to reduce and avoid potential impacts to EFH as well as other significant area resources. The USACE, Mobile District will utilize authorized placement areas, and adhere to water quality requirements provided by the Mississippi Department of Environmental Quality to further reduce impacts to EFH. These steps also include reducing the amount of material dredged within the channel to the minimal amount required to achieve the project objectives.

Based on our assessment of the proposed action and incorporated conservation measures, the USACE, Mobile District has determined that the proposed action and associated O&M of Pascagoula Harbor are not likely to adversely affect EFH. We request your concurrence with our determination. Your cooperative support of this activity, in accordance with the Magnuson-Stevens Fishery Conservation and Management Act, is greatly appreciated.

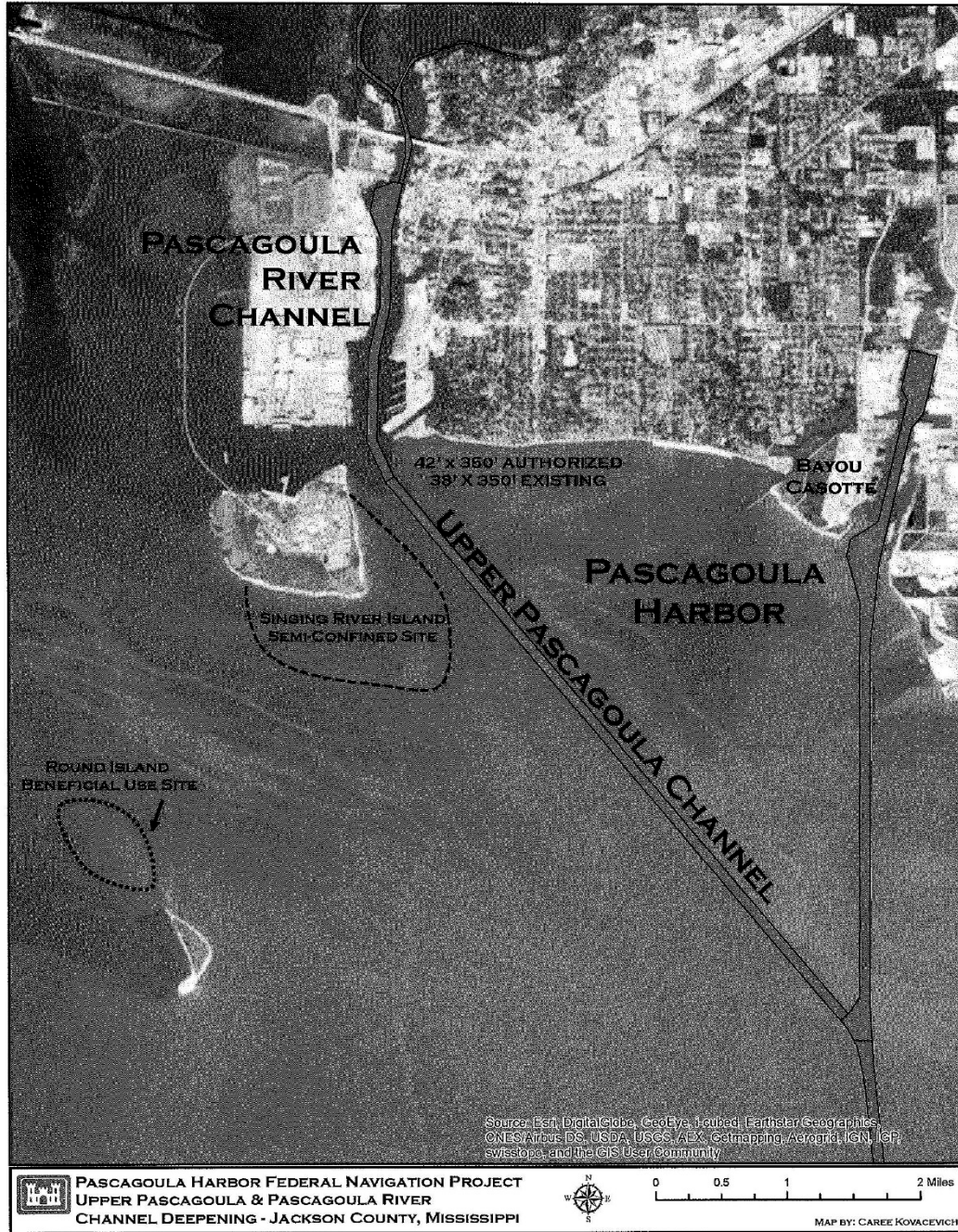
If you require additional information please contact Ms. Caree Kovacevich at (251) 690-3026 or at [caree.a.kovacevich@usace.army.mil](mailto:caree.a.kovacevich@usace.army.mil).

Sincerely,



Curtis M. Flakes  
Chief, Planning and Environmental  
Division

Enclosures



Enclosure 1

**Enclosure 2: Fishery Management Plans and Managed Species for the  
Gulf of Mexico (NMFS 2015).**

**Shrimp Fishery Management Plan**

brown shrimp - *Farfantepenaeus aztecus*  
pink shrimp - *F. duorarum*  
royal red shrimp - *Pleoticus robustus*  
white shrimp - *Litopenaeus setiferus*

**Reef Fish Fishery Management Plan**

almaco jack - *Seriola rivoliana*  
anchor tilefish - *Caulolatilus ntermedius*  
banded rudderfish - *S. zonata*  
blackfin snapper - *Lutjanus buccanella*  
blackline tilefish - *Caulolatilus cyanops*  
black grouper - *Mycteroperca bonaci*  
blueline tilefish - *C. microps*  
cubera snapper - *L. cyanopterus*  
dog snapper - *L. jocu*  
dwarf sand perch - *Diplectrum ivittatum*  
gag grouper - *M. microlepis*  
goldface tilefish - *C. chrysops*  
goliath grouper - *Epinephelus itajara*  
gray snapper - *L. griseus*  
gray triggerfish - *Balistes capricus*  
greater amberjack - *S. dumerili*  
hogfish - *Lachnolaimus maximus*  
lane snapper - *Lutjanus synagris*  
lesser amberjack - *S. fasciata*  
mahogany snapper - *L. mahogoni*  
marbled grouper - *E. inermis*  
misty grouper - *E. mystacinus*  
mutton snapper - *L. analis*  
Nassau grouper - *E. striatus*  
queen snapper - *Etelis oculatus*  
red hind - *Epinephelus guttatus*  
red grouper - *E. morio*  
red snapper - *L. campechanus*  
rock hind - *E. adscensionis*  
sand perch - *Diplectrum formosum*  
scamp grouper - *M. phenax*  
schoolmaster - *L. apodus*  
silk snapper - *L. vivanus*  
snowy grouper - *E. niveatus*  
speckled hind - *E. drummondhayi*  
tilefish - *Lopholatilus chamaeleonticeps*  
vermillion snapper - *Rhomboplites aurorubens*  
Warsaw grouper - *E. nigritus*  
wenchman - *Pristipomoides aquilonaris*  
yellowedge grouper *E. javolimbatus*  
yellowfin grouper - *M. venenosa*  
  
yellowmouth grouper - *M. interstitialis*  
  
yellowtail snapper - *Ocyurus chrysurus*

Stone Crab Fishery Management Plan FL  
stone crab - *Menippe mercenaria*  
gulf stone crab - *M. adina*

Spiny Lobster Fishery Management Plan  
spiny lobster - *Panulirus argus*  
slipper lobster - *Scyllarides nodife*

Coral and Coral Reef Fishery Management Plan  
varied coral species and coral reef  
communities  
comprised of several hundred species

Coastal Migratory Pelagic Fishery Management Plan  
cobia - *Rachycentron canadum*  
king mackerel - *Scomberomorus cavalla*  
Spanish mackerel - *S. maculatus*

Red Drum Fishery Management Plan  
red drum - *Sciaenops ocellatus*



**UNITED STATES DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13th Avenue South  
St. Petersburg, Florida 33701-5505  
<http://sero.nmfs.noaa.gov>

April 22, 2016

F/SER46/RH:jk  
225/389-0508

Mr. Curtis M. Flakes, Chief  
Planning and Environmental Division  
Mobile District  
Department of the Army, Corps of Engineers  
Post Office Box 2288  
Mobile, Alabama 36628-0001

Dear Mr. Flakes:

NOAA's National Marine Fisheries Service (NMFS) has received your undated letter pertaining to the proposed placement of sediment generated from the federally authorized dredging of the Pascagoula Harbor Federal Navigation Channel project in Jackson County, Mississippi. As described in your letter, the proposed action consists of the placement of dredged material into the Singing River Island Semi-Confined Site and/or the Round Island Beneficial Use Site. The dredged material would be placed in an attempt to create elevations conducive to the establishment of wetland vegetation and habitat. In your letter you requested our concurrence with the determination that project implementation would not result in adverse impacts to essential fish habitat (EFH) protected under provisions of the Magnuson-Stevens Fishery Conservation and Management Act.

Staff of NMFS have reviewed the information transmitted with your letter. Project implementation would help restore a variety of barrier island and/or wetland habitats using sediment dredged from the Pascagoula Harbor Federal Navigation Channel. As described in your letter, sediment dredged from the navigation channel would be placed between elevations of +1 ft and +3 ft Mean Lower Low Water with the expectation that wetland vegetation would naturally colonize such soil surface elevations. Given our understanding of the project and the habitats to be restored, NMFS supports implementation of activities described in your letter. While the proposed dredging and placement of dredged material would temporarily impact EFH in the project area, it would help restore more productive categories of EFH such as intertidal marsh supportive of a variety of federally-managed fishery species. As such, NMFS concurs with the US Army Corps of Engineer's determination that project implementation would not result in significant adverse impacts to EFH.

We appreciate your coordination with our office on this project.

Sincerely,





*Virginia M. Fay*

Virginia M. Fay  
Assistant Regional Administrator  
Habitat Conservation Division

c:  
Mobile District, Kovacevich  
F/SER46, Swafford  
F/SER4, Dale, Rolfes  
Files



DEPARTMENT OF THE ARMY  
MOBILE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 2288  
MOBILE, ALABAMA 36628-0001

REPLY TO  
ATTENTION OF:

April 12, 2016

Coastal Environment Team  
Planning and Environmental Division

Mr. Stephen Ricks  
U.S. Fish and Wildlife Service, Ecological Services  
6578 Dogwood View Parkway  
Jackson, Mississippi 39213

Dear Mr. Ricks:

Pursuant to Section 7 of the Endangered Species Act, the U.S. Army Corps of Engineers (USACE), Mobile District requests informal consultation for improving the federally authorized Pascagoula Harbor Federal Navigation Channel project located in Jackson County, Mississippi (as previously assessed in the *Final Supplemental Environmental Impact Statement for the Pascagoula Harbor Federal Navigation Channel Project*, dated July 2010). This coordination effort is due to a change in the material placement plan, which previously authorized ocean placement at the Pascagoula Ocean Dredged Material Disposal Site (ODMDS), to utilize beneficial use of the dredged material as well as allow for the placement of new work (NW) material at Singing River Island Semi-Confined Site.

The proposed action consists of placement of NW and some operations and maintenance (O&M) dredged material at Singing River Island Semi-Confined Site and/or Round Island Beneficial Use Site from deepening the Upper Pascagoula Channel & Pascagoula River Channel segment of the Pascagoula Harbor Federal Navigation Channel Project from the existing depth of -38 feet mean lower low water (MLLW) to the federally-authorized channel depth of -42 feet MLLW and to maintain the channel at the specified depths in the future (**Enclosure 1**). An additional -2 feet of advance maintenance dredging and -2 feet of allowable overdepth dredging will be conducted. Maintenance dredging of soft-dredged material with hopper, mechanical, and/or hydraulic cutterhead dredges tends to disturb the bottom sediments several feet deeper than the target depth due to the inaccuracies of the dredging process. An additional -2 feet of sediment below the -2-foot paid allowable dredging cut may be disturbed in the dredging process with minor amounts of the material being removed (Tavolaro *et al.*, 2007).

Approximately 5.2 million cubic yards of NW and some O&M material will be removed and placed within the newly-constructed Singing River Island Semi-Confined Site and the Round Island Beneficial Use Site. A portion of the O&M material from the Upper Pascagoula Channel (approximately 1.7 million cubic yards) will also be placed in existing open-water disposal sites directly adjacent to the channel. This action has

been previously coordinated in the 2009 Environmental Assessment (EA) and Finding of No Significant Impact (FONSI). Placement of O&M material at Singing River Island Semi-Confined Site has been previously coordinated with your office as part of the Pascagoula River Harbor Dredged Material Management Plan (DMMP). The Mississippi Department of Marine Resources has a Department of Army permit for the construction of Round Island Beneficial Use site and subsequent placement of material. For a description of the entire Pascagoula Harbor Federal Navigation Channel Project, see Public Notice No.FP12-PA01-14.

Of the 5.2 million cubic yards of material, approximately one million cubic yards of material will be placed at the Singing River Island Semi-Confined Site, within 150 acres of the 450 acre site at an elevation to promote sustained marsh vegetation. One cycle of O&M material this year has already been placed within the 150 acre site. Material from the deepening project will increase the elevation within the semi-confined site to a height more conducive for the establishment of wetland vegetation and habitat (target height up to +1 to +2 feet above MLLW).

The 220-acre Round Island Beneficial Use site will be a U-shaped sand berm structure open at one end (though during material placement, a turbidity curtain will be in place). At the widest end, the berm will be 300 feet in width and 10 feet in height MLLW (**Enclosure 2**). An access channel (1,000 feet in length by 6 feet in depth MLLW by 60 feet in width) will be required for the contractor to access the site from the main navigation channel to construct the berm and also place material. Material side-cast from the access channel shall remain in place. The access channel has previously been coordinated as part of the USACE, Mobile District Regulatory process. Approximately 2.4 million cubic yards of material will be placed within Round Island Beneficial Use Site from material dredged from the channel. After the establishment of a protective sand berm structure created from sandy material from within the interior footprint of the site, the channel-dredged material will be placed within the footprint of the protective sand berm structure to a maximum height of +1 to +3 feet MLLW (after material settling and consolidation).

The USFWS lists the following species as either threatened and/or endangered that may occur within Jackson County, Mississippi: Louisiana black bear (*Ursus americanus luteolus*), West Indian manatee (*Trichechus manatus*), piping plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), Mississippi sandhill crane (*Grus canadensis pulla*), black pine snake (*Pituophis melanoleucus ssp. lodingi*), Alabama red-bellied turtle (*Pseudemys alabamensis*), pearl darter (*Percina aurora*), red-cockaded woodpecker (*Picoides borealis*), gopher tortoise (*Gopherus polyphemus*), Gulf sturgeon (*Acipenser oxyrinchus desotoi*), yellow-blotched map turtle (*Graptemys flavimaculata*), Dusky gopher frog (*Rana sevosa*), Louisiana quillwort (*Isoetes louisianensis*), green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), leatherback sea turtle (*Dermochelys comacea*) and Kemp's ridley sea turtle (*Lepidochelys kempii*).

Federally protected species, such as the Louisiana black bear, Mississippi sandhill crane, red-cockaded woodpecker, Louisiana quillwort, pearl darter, Dusky gopher frog, gopher tortoise, Alabama red-bellied turtle, black pine snake, and the yellow-blotched map turtle, would not be adversely impacted by the proposed new work nor O&M dredging operations because these species are not typically found in estuarine open-water. However some of the listed species, such as piping plovers or red knots, may be near the placement operations at Round Island Beneficial Use Site. Round Island is designated as Piping Plover Critical Habitat as well as Red Knot Critical Habitat, however the Round Island Beneficial Use Site is adjacent to Round Island. The Beneficial Use Site is currently being constructed (by the Mississippi Department of Marine Resources and Mississippi Department of Environmental Quality) and placement of channel-dredged material should begin approximately in August. Bird-deterrent techniques will be in place, such as the use of ATVs, to temporarily prevent colonization of nesting shorebirds during the course of the project. These measures will continue during the placement of channel-dredged material.

Placement of material at Round Island Beneficial Use Site will be accomplished by placing the hydraulic pipeline from the cutterhead dredge across the newly-created sand berm near the eastern end and the outfall will be within the interior of the site. Marsh buggies will be utilized on site to move the end of the pipeline around within the site to distribute the dredged material as needed. Movement of the pipeline across and around the sand berm would be kept to a minimum with the use of land-based equipment such as bulldozers. No more than ¼ of the entire sand berm area will be affected by these temporary staging areas. We anticipate these impacts to be temporary and at project conclusion, will improve overall habitat for nesting birds such as piping plover and red knot. Therefore, we anticipate no adverse impacts to occur to these listed species.

West Indian manatee and green, loggerhead, leatherback and Kemp's ridley sea turtles may be in the project area. Generally a hydraulic pipeline dredge is utilized for the entire Pascagoula Harbor Federal Navigation Channel Project, except for the Gulf Entrance Channel. The hydraulic pipeline dredge will only dredge within the channel and its cutterhead will be on the channel bottom while operational. Hydraulic dredges are not known for taking sea turtles. The West Indian manatee is a slow moving animal that typically follows the coastline. Subsequent disposal of material dredged would be placed at previously identified disposal sites. We do not anticipate any adverse impacts to occur to the West Indian manatee due to dredging and subsequent dredged material disposal. However, in the off-chance that a West Indian manatee is spotted near dredging or disposal operations, Standard Manatee Protocol requirements will be implemented. Green, loggerhead, leatherback and Kemp's ridley sea turtles are motile species that would likely avoid the project area during dredging and placement activities due to the elevated noise level. Several species of sea turtles are known to nest on the barrier islands, however Singing River Island and Round Island are not part of the barrier islands chain and sea turtles are not known to utilize these areas for nesting. Therefore, we do not anticipate adverse impacts to occur to any West Indian manatees or any sea turtles.

Regarding the overall impact on the local environment due to improvements and maintenance of navigation channels, the USACE, Mobile District has in the past and continues to implement long-term measures to minimize and/or offset habitat loss of the Mississippi Sound. Those include implementation and management of the Pascagoula River Harbor Dredged Material Management Plan. Through this plan and others currently being considered but not yet implemented, the USACE, Mobile District continues to utilize dredged material beneficially, as it is feasible, to retain material within the active system. Current disposal practices on existing projects are being modified to also retain material within the active system. Lastly, the Mississippi Coastal Improvements Program is actively engaging Comprehensive Barrier Island Restoration efforts to restore the sediment budget of the Mississippi Sound.

We request your concurrence with our determination that no adverse impacts are likely to occur to any endangered and/or threatened species found in this area as a result of the proposed new work and O&M dredging project. A copy of this letter is also being forwarded to Mr. Paul Necaie of your office. Should you require further assistance, please contact Ms. Caree Kovacevich at (251) 690-3026 or at [caree.a.kovacevich@usace.army.mil](mailto:caree.a.kovacevich@usace.army.mil).

Sincerely,

A handwritten signature in cursive script that reads "Jennifer L. Jacobson".

Jennifer L. Jacobson  
Chief, Environment and Resources Branch

Enclosures



Enclosure 1

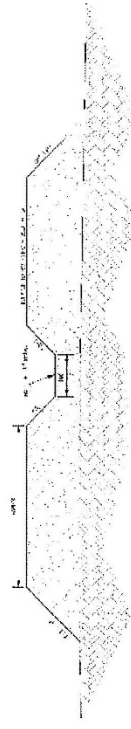


DATE	10/15/2013
BY	RS

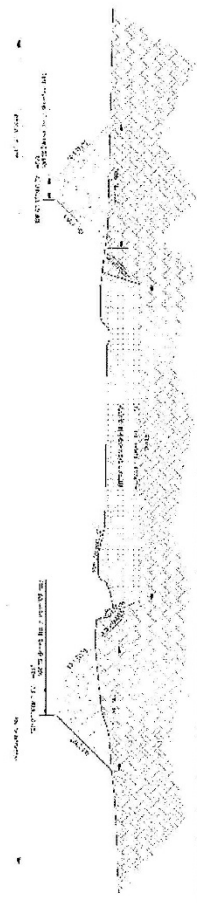
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
 MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
 JACKSON COUNTY, MISSISSIPPI  
 MS SOUND SAND BERM PROJECT

GENERAL NOTES, TYPICAL SECTIONS AND DETAILS  
 SHEET NO. G-2  
 OF 10 SHEETS

- Notes:**
1. SURVEY WAS CONDUCTED BY HYDROTECH, SURVEY WAS PERFORMED BETWEEN OCTOBER 3 - 7, 2013.
  2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE BEGINNING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
  3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AS ATTACHMENTS TO THE SPECIFICATIONS AND THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ANY OTHER NECESSARY PERMITS. PERMITS NOT SUPPLIED BY THE AGENCY SHALL BE OBTAINED BY THE CONTRACTOR.
  4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO BOTH ON-SITE AND OFF-SITE FACILITIES CAUSED BY HIS ACTIONS AND SHALL BE RESPONSIBLE FOR THE COST OF REPAIRS TO SUCH FACILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY DAMAGE TO THEIR PRE-CONSTRUCTION CONDUIT AT NO COST TO THE AGENCY.
  5. NO PAYMENT, PARTIAL OR COMPLETE, WILL BE MADE FOR OBSOLETE OR REJECTED WORK. REJECTED MATERIAL SHALL BE TRANSPORTED TO, DEPOSITED AT, OR DESTROYED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY MATERIAL THAT IS DEPOSITED IN PLACES NOT ASSIGNED OR APPROVED BY THE ENGINEER OR AGENCY MAY BE REQUIRED TO BE REMOVED AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REMOVAL AND ENVIRONMENTAL DAMAGE MITIGATION REQUIREMENTS MAY BE DIRECTED BY THE AGENCY. SUCH DAMAGE MITIGATION REQUIREMENTS MAY BE DIRECTED BY THE AGENCY. ANY PHASES OR MATERIALS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  6. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING POTENTIAL DRAINAGE CONDUITS AND HAZARDS PRIOR TO WORK.
  7. CONTRACTOR SHALL CLEARLY MARK WORKING AREAS WITH SURVEY OR BUCKS PRIOR TO DREDGING.
  8. DREDGE PIPELINE ROUTES MAY BE SELECTED BY CONTRACTOR. PIPELINE ROUTE MAP SHALL BE SUBMITTED TO ENGINEER FOR INFORMATIONAL PURPOSES PRIOR TO COMMENCING DREDGING. PIPELINES SHALL NOT BE INSTALLED IN AREAS WHERE PROHIBITED BY FEDERAL, STATE, OR U.S. COAST GUARD REGULATIONS. ACTUAL LOCATIONS OF PIPELINE ARE SUBJECT TO APPROVAL OF ENGINEER.
  9. REFER TO SPECIFICATION SECTION 31.05 "DREDGING" FOR ADDITIONAL DREDGING REQUIREMENTS.
  10. ALL ELEVATIONS ARE IN REFERENCE TO MEAN LOWER LOW WATER (MLLW).

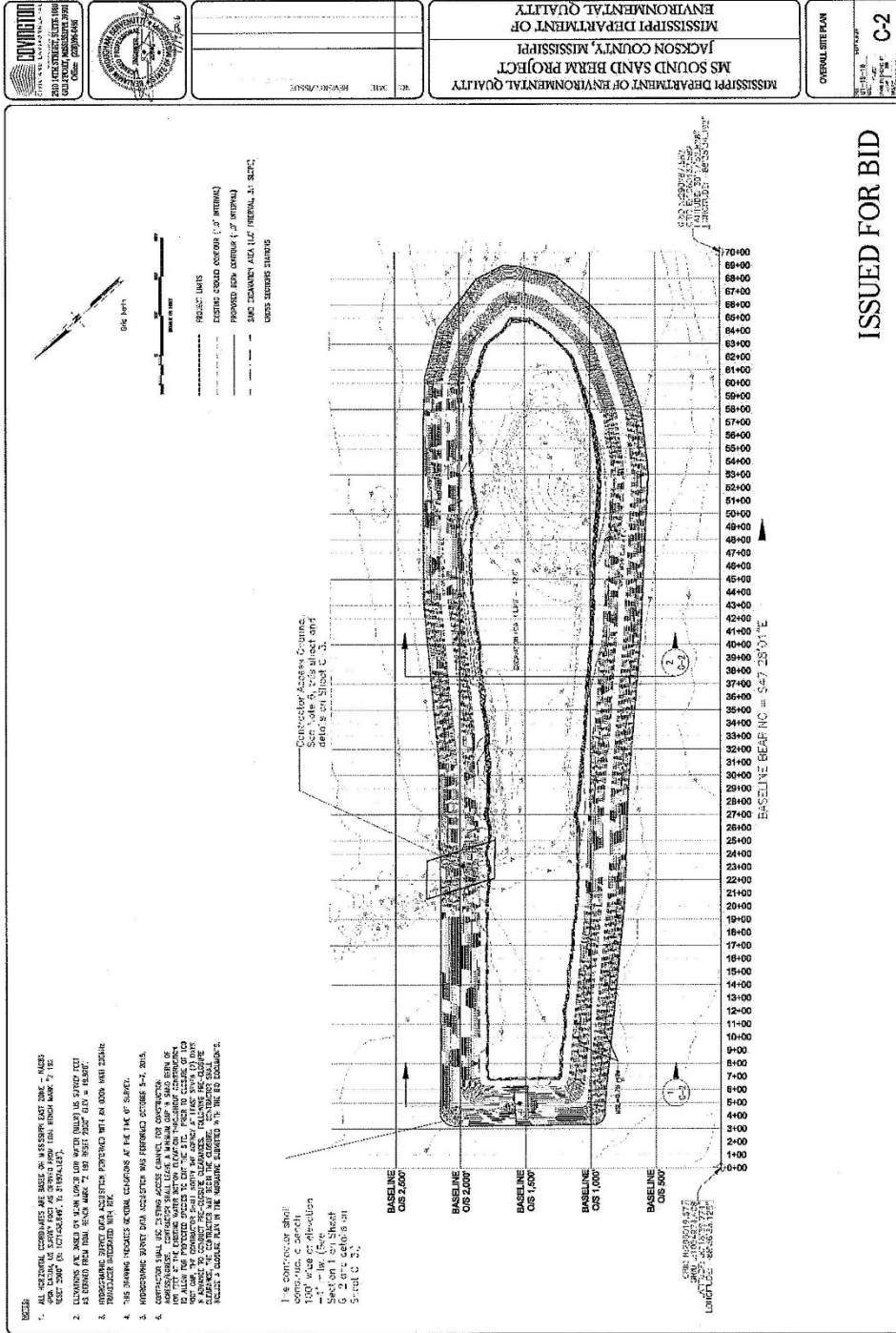


TYPICAL SECTION 100' WIDE BENCH - STA: 3+23 THRU STA: 6+26



TYPICAL SECTION : PROTECTIVE SAND BERM AND MINING AREA

ISSUED FOR BID



- NOTES:**
1. CONTRACTOR SHALL VERIFY THE BENCH MARKS AND ELEVATIONS SHOWN ON THIS PLAN. ALL BENCH MARKS SHALL BE CHECKED AND FOUND TO BE CORRECT. IF ANY BENCH MARK IS FOUND TO BE INCORRECT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
  2. ELEVATIONS ARE BASED ON MSL UNLESS OTHERWISE NOTED. THE PROPOSED BERM ELEVATIONS ARE BASED ON MSL UNLESS OTHERWISE NOTED.
  3. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL SURVEY STATIONS USED DURING CONSTRUCTION AND SHALL SUBMIT THIS RECORD TO THE ENGINEER UPON COMPLETION OF THE PROJECT.
  4. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL SURVEY STATIONS USED DURING CONSTRUCTION AND SHALL SUBMIT THIS RECORD TO THE ENGINEER UPON COMPLETION OF THE PROJECT.
  5. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL SURVEY STATIONS USED DURING CONSTRUCTION AND SHALL SUBMIT THIS RECORD TO THE ENGINEER UPON COMPLETION OF THE PROJECT.

The contractor shall:  
 1. Maintain a record of all survey stations used during construction.  
 2. Submit this record to the engineer upon completion of the project.  
 3. Maintain a record of all survey stations used during construction.  
 4. Submit this record to the engineer upon completion of the project.

ISSUED FOR BID

		MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY JACKSON COUNTY, MISSISSIPPI MS SOUND SAND BERA PROJECT	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY JACKSON COUNTY, MISSISSIPPI MS SOUND SAND BERA PROJECT
		OVERALL SHEET NO. C-2	OVERALL SHEET NO. C-2

Enclosure 2



## **Reynolds, Lekesha W. SAM**

---

**From:** Paul Necaise <paul\_necaise@fws.gov>  
**Sent:** Thursday, May 19, 2016 3:40 PM  
**To:** Kovacevich, Caree  
**Cc:** Reynolds, Lekesha W. SAM  
**Subject:** [EXTERNAL] RE: Pascagoula Harbor USFWS Coordination Request

Caree/Lekesha,

The US Fish and Wildlife Service (Service) has reviewed the subject coordination report. The Service concurs with your determination that the proposed work will have no adverse impacts to any endangered and/or threatened species found in the project areas outlined in the report. However, the Service has been notified of non-federally listed bird species nesting at the Round Island beneficial use site outlined in your report. Attempts are being made during the current construction activity at the Round Island BU site to prevent disturbance to nesting birds. Nesting bird species, which are protected under the Migratory Bird Treaty Act (16 U.S.C. 703-711), should not be disturbed during nesting activities. Such disturbances can result in the birds abandoning their nests in addition to other forms of impact to these species. Additionally, similar impacts may occur in other locations where bird nesting activity is actively taking place. Therefore, the Service recommends the proposed disposal work take place outside of nesting season for birds likely to utilize the subject sites (least terns for the sites proposed) or verify that no nesting habitat is available (Service is unsure of whether nesting habitat is available at the Singing River Island Semi-Confined Site). The Service appreciates the corps making efforts to increase beneficial use of dredged material options in Mississippi. The Service is available to discuss the project further and we look forward to continued coordination on this project.

Paul Necaise  
Coastal Biologist  
U.S. Fish and Wildlife Service  
6578 Dogwood View Parkway, Suite A  
Jackson, MS 39213  
228-493-6631



REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, MOBILE DISTRICT  
CORPS OF ENGINEERS  
P.O. BOX 2288  
MOBILE, ALABAMA 36628-0001**

July 27, 2015

Mobile District Office  
Planning and Environmental Division

SUBJECT: No Effect Determination for the placement of dredged material on Round Island, Jackson County, Mississippi.

Katie Blount  
State Historic Preservation Officer  
Mississippi Department of Archives and History  
100 South State Street  
Jackson, MS 39201  
Phone (601) 576-6940

Dear Ms. Blount,

The U.S. Army Corps of Engineers, Mobile District is proposing to place material dredged from the previously coordinated Pascagoula River Deepening Project around Round Island, Jackson County, Mississippi. This action is intended to restore Round Island to its historic footprint. This dredge material placement action was previously coordinated with the Mississippi SHPO office in December 2011 (response enclosed), but the undertaking was not carried out at that time. As Round Island is now being proposed for disposal, we are re-coordinating our No Effect determination with your office.


A literature and background check for previously recorded cultural resource sites and surveys was made of the proposed alternative project area in the fall of 2011. This investigation was updated in July of 2015. Investigations included records at the Mobile District office, the Mississippi Department of Archives and History, and historic materials collected by FEMA and its contractors working in the same area for Katrina recovery projects. Records included the state site files, historic soil maps, and the U.S. General Land Office Coast Survey maps and National Oceanic and Atmospheric Administration (NOAA) charts dating back to 1853.

A number of areas around the APE, both terrestrial and maritime, were targeted as part of a reconnaissance level survey conducted by Mistovich et al. in 1983. No sites have been identified within the project APE. However, the area is rich in both prehistoric and historic resources. There is a single archaeological site known within a mile of the APE. Site 22JA625 is an early to middle Woodland site of unknown NRHP eligibility. The site was identified in 1983 and was last visited as part of a post-Katrina site assessment (Bourdreaux 2007). The site has not been tested for eligibility. Due to the site's location on the southwest corner of Round Island, the placement activity will have no impact on the site.



In addition to the archaeological site on Round Island, the Round Island Lighthouse was erected on the south side of the island in 1859. It served as a navigational beacon for ships headed toward the southeast Mississippi shore. The lighthouse was nominated to the National Register of Historic Places (NRHP) in 1986. Over time, several severe hurricanes that hit the Mississippi coast damaged the lighthouse. Hurricane Georges caused significant damage to the structure in 1998. The structural integrity of the lighthouse's base was also compromised that same year by shifting sands and beach erosion as the beach was almost entirely washed away from the base. The lighthouse received further damage from Hurricane Katrina in 2005. It was relocated to the mainland and rebuilt in 2010. As the structure is no longer on the island, the placement activity will have no impact on the structure and no impact on any site associated with the lighthouse. The National Register of Historic Places has been consulted to determine if there are properties listed on, being nominated to, or that have been determined eligible for the National Register known to exist in the vicinity of the proposed work. Due to the absence of know historic properties eligible for nomination to the NRHP, the lack of physical integrity of the island, and the low probability of unknown historic resources remaining in the project footprint, the Mobile District has determined No Effect to historic properties by the proposed Pascagoula River Deepening Disposal project as per 36 CFR 800.4(d)(1).

We respectfully request that your office provide any comments on our finding of **No Effect** within 30 days of receipt of this letter so we may address them in a timely manner. Please direct comments or questions to Mr. Allen Wilson via email at [Allen.D.Wilson@usace.army.mil](mailto:Allen.D.Wilson@usace.army.mil) or contact via phone 251-694-3867 with any concerns.

Sincerely,

  
for

Brian Zettle, Chief  
Inland Team  
Planning and Environmental Division

Wilson  
Fedoroff   
Zettle 

Encl: 1, 2011 SHPO comment letter

MISSISSIPPI DEPARTMENT *of* ARCHIVES AND HISTORY



HISTORIC PRESERVATION  
Jim Woodrick, director  
PO Box 571, Jackson, MS 39205-0571  
601-576-6940 • Fax 601-576-6955  
mdah.state.ms.us

August 6, 2015

Mr. Allen D. Wilson  
Mobile District, Corps of Engineers  
Post Office Box 2288  
Mobile, Alabama 36628-0001

RE: Proposed placement of dredged material on Round Island,  
MDAH Project Log #07-168-15, Jackson County

Dear Mr. Wilson:

We have reviewed your request for a cultural resources assessment, received on July 29, for the above referenced project in accordance with our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After reviewing the information provided, it is our determination that no cultural resources are likely to be affected. Therefore, we have no objection with the proposed undertaking.

Should there be additional work in connection with the project, or any changes in the scope of work, please let us know in order that we may provide you with appropriate comments in compliance with the above referenced regulations.

If you have any questions, please do not hesitate to contact us at (601) 576-6940.

Sincerely,

  
Hal Bell  
Review and Compliance Assistant

FOR: Greg Williamson  
Review and Compliance Officer

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)**  
**PASCAGOULA HARBOR FEDERAL NAVIGATION PROJECT**  
**PASCAGOULA RIVER AND PASCAGOULA UPPER SOUND**  
**CHANNEL DEEPENING**  
**FLOOD CONTROL AND COASTAL EMERGENCIES**  
**JACKSON COUNTY, MISSISSIPPI**  
**A FEDERALLY AUTHORIZED PROJECT**

**A. DESCRIPTION OF THE PROPOSED ACTION**

The proposed action consists of new work and some subsequent operations and maintenance (O&M) material from deepening the Pascagoula River and Pascagoula Upper Sound Channel segments of the Pascagoula Harbor Federal Navigation Project from the existing depth of -38 feet mean lower low water (MLLW) to the federally-authorized channel depth of -42 feet MLLW and to maintain the channel at the specified depths in the future. This would include an additional -2 feet of advance maintenance dredging and -2 feet of allowable overdepth for a total maximum depth of -46 feet MLLW. Dredged material would be beneficially placed within two areas, the Singing River Island Semi-Confined Site and Round Island, as well as previously approved, utilized open water sites adjacent to the channel. Dredging will be accomplished most likely using a hydraulic cutter-head dredge.

The dredged material for the two identified sites will be placed at an elevation suitable for the establishment of wetland habitat. This allows the material to remain within the Mississippi Sound system, and supports the U.S. Army Corps of Engineers (USACE), Mobile District Regional Sediment Management (RSM) operating principles.

**B. ALTERNATIVES TO THE PROPOSED ACTION**

**No Action:** Under the No-Action Alternative, the USACE, Mobile District would not construct the deepening project as proposed and would continue to maintain the navigation channel at the existing dimensions. Maintenance material would be placed within Triple Barrel upland placement site, open-water placement areas and/or Singing River Island Semi-Confined Site, but not placed within the Round Island beneficial use site. If capacity issues or emergency situations arise, O&M material would be placed at the Pascagoula Ocean Dredged Material Disposal Site (ODMDS), however, this option is less economically and environmentally feasible. Therefore, the No-Action Alternative was not considered the preferred alternative, although a viable alternative.

**Sediment Placement Alternative(s)**

**Pascagoula ODMDS:** The U.S. Environmental Protection Agency (USEPA), Region 4 designated the Pascagoula ODMDS in July 1991 for materials dredged from the Mississippi Sound area that meets the Ocean Dumping Criteria (40 CFR § 220-228). Pascagoula ODMDS is located approximately seven miles from the 'Y' intersection with the Bayou Casotte Channel and the Pascagoula Upper Sound Channel (the southern termini of the project) and is located south of the barrier islands (Horn Island and Petit Bois Island). The site covers an area approximately 24.3 square nautical miles (nmi<sup>2</sup>).

with depths varying from approximately 30 feet in the north to 60 feet in the south. The Pascagoula ODMDS is approved for placement of O&M material as well as new work material. However, ocean disposal in the Pascagoula ODMDS for this action would be more costly than deposition in the upland, open-water or beneficial use sites due to longer hauling distances and site management requirements. Furthermore, sole use of this disposal option for new work and maintenance is not consistent with the USACE's RSM principles. The RSM operating principles allow USACE, Mobile District to better manage sediment, potentially saving money while benefiting the overall region, allows use of natural processes to solve engineering problems, and improves the environment by keeping sediment within the system. Additionally, state agencies would prefer the USACE retain dredged material within the Mississippi Sound, rather than remove it by placing it at the Pascagoula ODMDS.

**Singing River Island Semi-Confined Site:** This sediment placement area is 450 acres in size and is located directly adjacent to Singing River Island. Construction of the containment rock breakwater was completed in 2013. Six (6) fish passages remain open within the rock breakwater to allow for tidal flushing and fish habitat. One hundred and fifty acres within the site will be converted to wetland habitat through vegetative planting or natural succession. This site was designated for placement of maintenance dredged material from Pascagoula Harbor Federal Navigation Project. Placement of new work material within the semi-confined site produces a more 'stackable' substrate, which allows for more efficient establishment of marsh wetland habitat. Placement of material at the Singing River Island Semi-Confined Site also allows the material to be retained within the Mississippi Sound and supports the USACE, Mobile District's RSM operating principles. In addition, placement at this site is considered a more economical alternative due to its close proximity to the dredging area, when compared to other sites. The Pascagoula River Harbor Dredged Material Management Plan (DMMP) capacity will be retained by placement of some O&M material in open-water sites adjacent to the Pascagoula Upper Sound Channel. Therefore, placement of new work and some O&M material at Singing River Island Semi-Confined Site is considered to be a viable and preferred alternative for this project.

**Round Island Beneficial Use Site:** The Mississippi Department of Marine Resources (MSDMR) obtained a USACE Department of Army permit for the construction of a 220-acre beneficial use site adjacent to Round Island. Currently, the site is only constructed to approximately 70 acres, however the MSDMR intends to expand the site and accept additional suitable material. Placement of material at the Round Island Beneficial Use Site allows material to be retained with the Mississippi Sound system and supports the USACE, Mobile District's RSM operating principles. In addition, placement at this site is a more economical alternative due to its close proximity to the dredging area when compared to other sites. Therefore, placement of new work and some O&M material by the USACE, Mobile District at Round Island Beneficial Use Site is considered to be a viable and preferred alternative for this project.

### **C. POTENTIAL ENVIRONMENTAL IMPACTS**

A careful review of the Environmental Assessment (EA) shows that the proposed beneficial placement of new work and some O&M dredged material at the two placement sites would not jeopardize the continued existence of any federally-listed endangered or

threatened species or their critical habitat. The potential environmental impacts associated with the proposed action are temporary, and minor. Placement of the material at Singing River Island Semi-Confined Site and Round Island would be beneficial for the species that utilize those islands.

#### **D. DETERMINATION**

Based on the EA prepared for this project, I have determined that this action does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, the action does not require the preparation of a detailed statement under Section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). My determination was made considering the following factors discussed in the EA to which this document is attached:

- a. The proposed action would not significantly impact any threatened or endangered species potentially occurring in the project area.
- b. No significant cumulative or secondary impacts would result from implementation of this action.
- c. The proposed action would not significantly impact cultural resources.
- d. The proposed action would result in no significant impacts to air or water quality.
- e. The proposed action would result in no significant adverse impact to fish and wildlife resources.
- f. The proposed action will not cause any environmental health risks or safety risks that may disproportionately affect children and complies with Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks."
- g. The proposed action will not cause any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations and complies with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

#### **E. FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

A careful review of the EA shows the proposed action would not have a significant adverse impact on the natural and human environment. The implementation of the proposed action would not have a significant adverse impact on the quality of the environment and an environmental impact statement is not required. The requirements of the National Environmental Policy Act and the Council on Environmental Quality (CEQ) regulation have been satisfied.

DATE \_\_\_\_\_

\_\_\_\_\_  
Jon J. Chytka  
Colonel, Corps of Engineers  
District Commander

**LEGAL CERTIFICATION**

The Environmental Assessment and 404(b)(1) analysis for the Pascagoula Harbor Federal Navigation Project has been reviewed by the Mobile Office of Counsel and determined to be legally sufficient.

A handwritten signature in black ink, appearing to read 'Michael W. Creswell', is written over the printed name. To the right of the signature, the date '6/2/16' is handwritten in black ink.

Michael W. Creswell

Assistant District Counsel



1                                   **SECTION 404 (b)(1) EVALUATION REPORT**  
2   **FOR**  
3                                   **PROPOSED UTILIZATION OF AUTHORIZED**  
4                                   **DREDGED MATERIAL PLACEMENT AREA(S)**  
5                                   **PASCAGOULA HARBOR FEDERAL NAVIGATION PROJECT**  
6                                   **PASCAGOULA RIVER AND PASCAGOULA UPPER SOUND**  
7   **CHANNEL DEEPENING**  
8                                   **JACKSON COUNTY, MISSISSIPPI**  
9                                   **A FEDERALLY AUTHORIZED PROJECT**

10 **I. PROJECT DESCRIPTION**

11           **a. Location.** The Pascagoula Harbor Federal Navigation Project is located in the  
12 Mississippi Sound in the Gulf of Mexico midway between Mobile Bay in Alabama and  
13 Gulfport Harbor in Mississippi. Singing River Island Semi-Confined Site is near the mouth  
14 of the Pascagoula River Harbor. Round Island Beneficial Use site is directly southwest  
15 of Singing River Island Semi-Confined Site.

16           **b. General Description of the Proposed Action.** The proposed action involves the  
17 addition of two dredge material placement areas to be utilized for the deepening of the  
18 Pascagoula River and Pascagoula Upper Sound Channel (see Environmental  
19 Assessment (EA) Figures 1 and 2). Singing River Island Semi-Confined Site has been  
20 previously reviewed and approved for the placement of maintenance material. Round  
21 Island Beneficial Use site has been previously reviewed and approved for the placement  
22 of material from state and private entity actions. The action would provide numerous  
23 environmental benefits such as increased habitat for various shore birds and many other  
24 wetland and marine dwelling organisms. The cumulative impacts of the overall action are  
25 considered to be beneficial to the local ecosystem.

26 **Singing River Island Semi-Confined Site:** This sediment placement area is 450 acres  
27 in size located directly adjacent to Singing River Island (a former naval base) and  
28 construction of the rock breakwater was completed in 2013. Six fish passages remain  
29 open within the rock breakwater to allow for tidal flushing and fish habitat. One hundred  
30 and fifty acres within the site will be converted to wetland habitat through vegetative  
31 planting or natural succession. This site was designated for the placement of  
32 maintenance dredge material from Pascagoula Harbor Federal Navigation Project.

33 **Round Island Beneficial Use Site:** The Mississippi Department of Marine Resources  
34 (MDMR) has obtained a U.S. Army Corps of Engineers (USACE) Department of Army  
35 permit for the construction of a 220-acre beneficial use site adjacent to Round Island.  
36 Currently the site is only constructed to approximately 70 acres, however the MDMR  
37 would like to expand the site and accept more material that is suitable.

38           **c. Authority and Purpose.** The existing project was authorized by Water Resources  
39 Development Act (WRDA) of 1986 (Public Law (P.L.) 99-662). Subsequent to this

1 authorization, an Environmental Impact Statement (EIS) for the designation of an Ocean  
2 Dredged Material Disposal Site (ODMDS) located offshore of Pascagoula was completed  
3 in 1991. The Record of Decision (ROD) for the improvements to the Pascagoula Harbor  
4 Federal Navigation Project was signed in 1992. Construction of the recommended  
5 improvements was completed by 2012, with the exception of this project and the  
6 deepening of the Horn Island Impoundment Basin. Currently there are no plans to deepen  
7 the Horn Island Impoundment Basin to -56 feet MLLW, as the existing impoundment  
8 basins have been found to be effective in increasing the time between maintenance  
9 cycles for Horn Island Pass and Pascagoula Harbor Entrance Channel segments.

10 **d. General Description of the Dredged or Fill Material.** The material to be placed  
11 in the proposed dredge material site(s) will be new work and maintenance-dredged  
12 material from the navigation channel segment(s). The dredged material is composed  
13 predominantly of silt and clays.

14 (1) General Characteristics of Material. The dredged material consists of marine  
15 sediment of silts and clays ranging from 72.0 percent to 98.6 percent.

16 (2) Quantity of Material. It is estimated approximately 3.3 million cubic yards  
17 (mcys) of material from the Pascagoula River and Pascagoula Upper Sound Channel are  
18 to be removed for channel deepening.

19 (3) Source of Material. The source of the material to be placed in the placement  
20 areas(s) is new work and O&M dredged material from the Pascagoula Harbor Federal  
21 Navigation Project (Pascagoula River and Pascagoula Upper Sound Channel).

22 **e. General Description of the Discharge Sites.**

23 (1) Location Map. A map illustrating the location of the existing sediment  
24 placement areas is presented in Figures 1 and 3 of the EA.

25 (2) Size. The size of the placement areas are approximately 450 acres for Singing  
26 River Island Semi-Confined Site and 220 acres for Round Island Beneficial Use Site.

27 (3) Type of Site. The sediment placement sites are semi-confined placement sites  
28 contained with a rock breakwater structure. Singing River Island Semi-Confined site has  
29 six (6) openings for fish passages and Round Island Beneficial Use site is open at one  
30 end of the site.

31 (4) Type of Habitat. Unlike the true "barrier islands" located further offshore,  
32 geologists say Round Island is a mainland remnant composed of ancient mainland areas  
33 as well as stratified silts and clays and is now surrounded by rising sea water. Most of  
34 the island is covered in slash pine forest with a fringe of beach and no significant marsh.  
35 The proposed areas adjacent to Singing River Island and Round Island for sediment  
36 placement are near-shore zones and are a very dynamic environment that changes  
37 drastically as a function of climate and wave conditions. Due to the harsh environment  
38 within the active near-shore beach zone, the benthic community generally consists of a  
39 small number of opportunistic invertebrates. Fish species abundance and diversity are  
40 generally lower in near-shore environments such as this. The constantly shifting  
41 sediments do not allow aquatic vegetation to become rooted or attached to the  
42 unconsolidated sandy substrate. The dynamic nature of the near-shore littoral zone

1 (swash zone, surf zone, and foreshore) is a harsh, unstable environment providing low  
2 animal and plant densities.

3 (5) Timing and Duration of Discharge. The new work dredging activities for this  
4 project is typically conducted on an as-needed basis and availability of funding. The  
5 frequency of maintenance dredging typically will occur, on average, once every two to  
6 three years. Maintenance dredging cycles typically require several months to complete.

7 **f. Sediment Placement Method.** Dredging will be accomplished by using hopper,  
8 mechanical and/or hydraulic cutterhead dredges, or some combination.

## 9 **II. FACTUAL DETERMINATIONS.**

### 10 **a. Physical Substrate Determinations.**

11 (1) Substrate Elevation and Slope. The preferred alternative would have no  
12 adverse impacts on the existing substrate elevation and slope within the vicinity of the  
13 project. The project would result in the removal of substrate as needed to a depth of -42  
14 feet MLLW. Approximately 2.2 mcys of material will be dredged every 24 months. Should  
15 unnatural escarpments develop in the beneficial use areas, earth moving equipment may  
16 be deployed to restore the area to a more natural configuration.

17 (2) Sediment Type. All material dredged from the navigation channel and placed  
18 on the described sediment placement sites are silts and clays ranging from 72.0 percent  
19 to 98.6 percent.

20 (3) Dredged/Fill Material Movement. Dredged material placed in the beneficial  
21 use areas would be subject to movement via cross-shore and long-shore transport  
22 processes. This movement would occur on a continuous basis depending upon wave  
23 climate and the frequency of storm events. The predominant long-shore sediment  
24 transport pattern in this area is from east to west. One purpose of placing sediment at  
25 the proposed sites is to re-establish the historic footprint of Round Island and return the  
26 material to the littoral system. Another is to encourage suitable elevation for the  
27 establishment of wetland habitat. However, after placement some material may move  
28 due to storm events outside the designated area.

29 (4) Physical Effects on Benthos. Disruption in the benthic community is expected  
30 to be temporary and minimal. It is certain that some benthic organisms would be  
31 destroyed by the proposed action; however, due to the constant movement of material by  
32 currents, benthic organism diversity and abundance would appear to be low. Research  
33 conducted by the USACE, Engineer Research and Development Center (ERDC) under  
34 the Dredged Material Research Program (DMRP) suggests the benthic community is  
35 adapted to a wide range of naturally occurring environmental changes and that no  
36 significant or long-term changes in community structure or function are expected.

37 (5) Other Effects. No other significant effects due to movement of the physical  
38 substrate are noted.

39 (6) Actions Taken To Minimize Impacts. No actions, which would further reduce  
40 impacts due to the placement of dredged material, are deemed necessary.

1       **b. Water Circulation/Fluctuation, and Salinity Determination.**

2           (1) Water

3           (a) Salinity. There would be no change in salinity gradients or patterns.

4           (b) Water chemistry (pH etc.). No effects.

5           (c) Clarity. Minor increases in turbidity may be experienced in the  
6 immediate vicinity of the beneficial use areas during placement operations. However,  
7 these increases will be temporary and would return to pre-project conditions shortly after  
8 completion.

9           (d) Color. No effects.

10          (e) Odor. No effects.

11          (f) Taste. No effects.

12          (g) Dissolved gases. No effects.

13          (h) Nutrients. No effects.

14          (i) Eutrophication. No effects.

15          (2) Current Patterns and Circulation

16           (a) Current patterns and flow. Changes in water circulation and flow due  
17 to placement of sand on the downdrift beaches are not expected to occur. Natural  
18 currents and flow will occur during tidal, wave, and storm activities.

19           (b) Velocity. No effects.

20           (c) Stratification. No effects.

21           (d) Hydrologic Effects. No effects.

22          (3) Normal Water Level Fluctuations. No effects.

23           (4) Salinity Gradients. The salinities in the project vicinity are highly variable due  
24 to the inflow of freshwater from the river and the tidal influence from the Gulf of Mexico.  
25 No effect on salinity gradient is anticipated.

26           (5) Actions That Will Be Taken To Minimize Impacts. No other actions that would  
27 minimize impacts on water circulation/fluctuation and salinity are deemed necessary.

28       **c. Suspended Particulate/Turbidity Determinations.**

29           (1) Expected Changes In Suspended Particulate and Turbidity Levels In The  
30 Vicinity of The Sediment Placement Site. Suspended particulate and turbidity levels are  
31 expected to undergo minor increases during dredging and placement activities, however,  
32 suspended sediment of this type will quickly fall out of the water column and return to  
33 normal conditions. No significant effects would occur as a result of these increases.  
34 Turbidity during sediment placement is not expected to violate state water quality  
35 certification conditions.

36

1           (2) Effects on the chemical and physical properties of the water column.

2           (a) Light Penetration. Increased turbidity levels in the project area as a  
3 result of the placement of dredged material would reduce the penetration of light into the  
4 water column only slightly and would be a minor short-term impact.

5           (b) Dissolved Oxygen. No effects.

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

7           (d) Pathogens. No effects.

8           (e) Esthetics. The placement of dredged material would likely decrease  
9 the esthetic qualities of the project area for a short period of time during and shortly after  
10 placement. The beneficial use areas equilibrate and rapidly return to normal upon  
11 exposure to the wave climate.

12           (f) Others as Appropriate. None appropriate.

13           (3) Effects on biota.

14           (a) Primary Production, Photosynthesis. No significant effects.

15           (b) Suspension/Filter Feeders. Some local minor increases in suspended  
16 particulates may be encountered during the proposed action, but these increases would  
17 not cause significant impacts to these organisms unless they are directly covered with  
18 sand. If directly covered with dredged material, it is expected that some organisms will  
19 be destroyed. Rapid recruitment of these organisms will promote a rapid recovery to  
20 normal populations. Overall, the impact to these organisms is expected to be minor and  
21 insignificant.

22           (c) Sight Feeders. Sight feeders would avoid impacted areas and return  
23 when conditions are more suitable, however, it is difficult to relate the presence or  
24 absence of sight feeders in an area to the placement of dredged material. Sight feeders,  
25 particularly fishes, may vary in abundance as a result of changes to temperature, salinity,  
26 seasonal variations, dissolved oxygen level, as well as other variables. Sight feeders,  
27 such as shore birds, tend to be attracted to associated placement activities due to the  
28 presence of food items in the sediment. No significant impacts are expected to occur on  
29 sight feeders.

30           (4) Actions Taken To Minimize Impacts. No further actions are deemed  
31 appropriate.

32           **d. Contaminant Determination.** Results from dredged material evaluation(s)  
33 conducted in the Pascagoula River and Pascagoula Upper Sound Channel indicated low  
34 concentrations of some target analytes in sediments and standard elutriates. Sediments  
35 exhibited minimal toxicity for both exposure to suspended particulate phases and whole  
36 sediments, and no evidence of significant bioaccumulation was reported. Results from  
37 the post-oil spill sampling effort conducted in November/December 2010 were compared  
38 to results from a previous investigation occurring in November 2009 and mid-April 2010  
39 to determine if there were any discernible changes to sediment quality in the Pascagoula  
40 Harbor Federal Navigation Project that could potentially be attributed to the *Deepwater*

1 *Horizon* spill that occurred from late-April 2010 to July 2010. When compared to  
2 Polynuclear Aromatic Hydrocarbon (PAH) concentrations from November 2009 and April  
3 2010, results from the November/December 2010 study indicate PAH concentrations are  
4 essentially comparable and within the range of natural variability for locations within  
5 Mississippi Sound and the northern reaches of the Gulf of Mexico, the reference sites,  
6 and Pascagoula ODMDS.

7 **e. Aquatic Ecosystem and Organism Determinations.**

8 (1) Effects on Plankton. No effects.

9 (2) Effects on Benthos. Benthic organisms would be temporarily impacted by the  
10 deposition of dredged material below the waterline in the near-shore placement areas,  
11 but no significant long-term effects are expected on the benthic community as a result of  
12 the proposed action.

13 (3) Effects on Nekton. No effects.

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

15 (5) Effects on Special Aquatic Sites.

16 (a) Sanctuaries and Refuges. Not applicable.

17 (b) Wetlands. Not applicable.

18 (c) Mud Flats. Not applicable.

19 (d) Vegetated Shallows. No significant impacts to the submerged aquatic  
20 vegetation (SAV) were identified in this evaluation. SAVs are located in Mississippi  
21 Sound but there are no SAVs within the areas of the beneficial use sites.

22 (e) Coral Reefs. Not applicable.

23 (f) Riffle and Pool Complexes. Not applicable.

24 (6) Threatened and Endangered Species. The majority of the threatened and  
25 endangered species listed for Jackson County, Mississippi are not likely to be in the  
26 project area. The potential exists for the occurrence of the Piping plover and the red knot  
27 near the proposed project area. However, the project site is not within a designated  
28 Piping Plover Critical Habitat Unit, but some surveys in the past have possibly found  
29 Piping plover in the vicinity. Critical Habitat has not been designated for red knot. The  
30 Piping plover breeds on sandy or pebble coastal beaches of Newfoundland and  
31 southeastern Quebec to North Carolina. Decline in Piping plover populations has been  
32 linked to loss of breeding habitat. Shoreline development, river flow alteration, river  
33 channelization, and reservoir construction have all led to loss of breeding habitat. The  
34 Piping plover winters along the Gulf Coast but does not nest in Mississippi. The  
35 Mississippi National Heritage Program (MSNHP) database indicates three over-wintering  
36 sightings of Piping plovers: one along the beaches of Gulfport, one on Deer Island, and  
37 one on Ship Island. Generally, a hydraulic pipeline dredge is utilized for the entire project.  
38 Hydraulic cutterhead dredges are not known for taking sea turtles. Any sea turtles in the  
39 area would likely avoid the area during dredging and placement activities. The overall  
40 project has the potential to greatly benefit threatened or endangered bird species by  
41 providing additional shoreline habitat for foraging and safe roosting areas. In the off-

1 chance, that a West Indian Manatee is spotted near the dredging or placement sites, the  
2 Standard Manatee Protocol requirements would be implemented.

3 Based on this assessment, the USACE, Mobile District determined that no federally-  
4 protected species or designated critical habitat were likely to be adversely affected as a  
5 result of the proposed project. Mobile District has received concurrence from the U.S.  
6 Fish and Wildlife Service (USFWS) with our determination of may affect, but not likely to  
7 adversely affect any listed threatened or endangered species and their associated  
8 designated critical habitat.

9 In summary, no threatened or endangered species are anticipated to be significantly  
10 impacted by the proposed action.

11 (7) Other Wildlife. No significant effects.

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

14 **f. Proposed Sediment Placement Site Determination.**

15 (1) Mixing Zone Determinations. The Mississippi Department of Environmental  
16 Quality (MDEQ) delineates mixing zones on a case-by-case basis. Any requirements  
17 placed on the project would be followed to the maximum extent practicable.

18 (2) Determination of Compliance with Applicable Water Quality Standards. The  
19 proposed action is in compliance with all applicable water quality standards. Water  
20 Quality Certification (WQC) has been received for the new work operation, as well as the  
21 operation and maintenance of the Pascagoula Harbor Federal Navigation Project.

22 (3) Potential Effects on Human Use Characteristics.

23 (a) Municipal and Private Water Supply. No effects.

24 (b) Recreational and Commercial Fisheries. No effects.

25 (c) Water-related Recreation. No effects.

26 (d) Esthetics. No effects.

27 (e) Parks, National and Historic Monuments, National Seashores,  
28 Wilderness Areas, Research Sites, and Similar Preserves. Not applicable.

29 **g. Determination of Cumulative Effects on the Aquatic Ecosystem.** No significant  
30 cumulative effects on the aquatic ecosystem would occur as a result of the proposed  
31 action.

32 **h. Determination of Secondary Effects on the Aquatic Ecosystem.** No significant  
33 effects.

34

1 **III. FINDING OF COMPLIANCE.**

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

4 **b.** The proposed project represents the least environmentally damaging practicable  
5 alternative.

6 **c.** The planned addition of two sediment placement areas for dredged material would  
7 not violate any applicable Section 401 State water quality standards; nor would it violate  
8 the Toxic Effluent Standard of Section 307 of the Clean Water Act (CWA).

9 **d.** Use of these new proposed sediment placement sites would not jeopardize the  
10 continued existence of any federally-listed endangered or threatened species or their  
11 critical habitat provided the specified conditions in the EA are implemented during normal  
12 maintenance or new work dredging and sediment placement operations. Sufficient  
13 safeguards exist to protect federally-protected species which may enter into the project  
14 area.

15 **e.** The proposed activity would not result in any significant adverse effects on human  
16 health or welfare, including municipal or private water supplies, recreation and  
17 commercial fishing, plankton, fish, shellfish, and wildlife. The life stages of aquatic life  
18 and other wildlife would not be adversely affected. Significant adverse effects on aquatic  
19 ecosystem diversity, productivity and stability, and recreational, esthetic, and economic  
20 values would not occur. No wetlands would be impacted by the proposed action.

21 **f.** Appropriate and practicable steps will be taken to minimize potential adverse  
22 impacts of the discharge on the aquatic ecosystem.

23 DATE: \_\_\_\_\_

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Jon J. Chytka  
Colonel, Corps of Engineers  
District Commander