UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MEMORANDUM FOR: David Bernhart,
Assistant Regional Administrator for Protected Resources
NOAA Fisheries Service, Southeast Regional Office

FROM: Jamie Schubert, Marine Habitat Resource Specialist
NOAA Restoration Center

DATE: July 7, 2015

SUBJECT: DWH-ERP-Request for section 7 Endangered Species Act Informal Consultation for *Deepwater Horizon* Oil Spill Phase IV Early Restoration Plan project *Restoring Living Shorelines and Reefs in Mississippi Estuaries*

The National Oceanic and Atmospheric Administration (NOAA) Restoration Center requests informal consultation with your office, under section 7 of the Endangered Species Act (ESA), for impacts from the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project. This project has multiple components located in: 1) Back Bay of Biloxi and Vicinity, 2) Grand Bay, 3) Graveline Bay and 4) St. Louis Bay. This project has the potential to affect the following federally listed species administered by NOAA Fisheries:

Sea Turtles (Green-T, Hawksbill-E, Leatherback-E, Loggerhead-T, Kemp's ridley-E)

Gulf Sturgeon – T

Gulf Sturgeon Critical Habitat - designated

The NOAA Restoration Center, a Lead Federal Agency, is requesting consultation on behalf of the Natural Resource Trustees for *Deepwater Horizon* Oil Spill. Please find Biological Evaluation forms for this Phase IV Early Restoration Project (multiple locations) included with this memo. It is our expectation that the proposed projects will have a significant net benefit to the Gulf of Mexico ecosystem.

December 2014

Endangered Species Act Biological Evaluation Form
Deepwater Horizon Oil Spill Restoration
Fish and Wildlife Service & National Marine Fisheries Service

This form will be used to provide information for the initiation of informal Section 7 consultations under the Endangered Species Act, if required or to document a No Effect determination. In addition, information provided in this form may be used to inform other regulatory compliance processes such as Essential Fish Habitat (EFH), Marine Mammal Protection Act (MMPA), Section 106 of the National Historic Preservation Act (NHPA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA). Further information may be required beyond what is captured in this form. Note: if you need additional space for writing, please attach pages as needed.

A. Project Identification

I. *Applicant Agency or Business Name:* Mississippi Department of Environmental Quality
II. *Applicant Contact Person:* Marc Wyatt
III. *Phone and Email:* (601)-961-5637 Marc_Wyatt@deq.state.ms.us
IV. *Project Name and ID# (Official name of project and ID number assigned by action agency):*
Restoring Living Shorelines and Reefs in Mississippi Estuaries - Graveline Bay Intertidal Reefs

V. *Project Type:* Artificial Reef Creation and/or Enhancement
VI. *NMFS Office (Choose appropriate office based on project location):* NMFS Southeast Regional Office
VII. *FWS Office (Choose appropriate office based on project location):* Mississippi Ecological Services Field Office (Jackson)

B. Project Location

I. *Physical Address of Project Site (If applicable*):
II. *State & County/Parish of Project Site:* Jackson County, MS
III. *Latitude & Longitude for Project Site (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83] [online conversion:http://transition.fcc.gov/mb/audio/bickel/DDDMMSS-decimal.html]):*
30.362738 N, -88.437808 W

IV. *Township and Range of project area:*
Township 8S, Range 5W,

C. Description of Action Area

1. Attach a separate map delineating where the action will occur. 2. Describe ALL areas that may be affected directly or indirectly by the Federal action and not merely the immediate project site involved in the action, or just where species or critical habitat may be present. Provide a description of the existing environmental conditions and characteristics (e.g., topography, vegetation type, soil type, substrate type, water quality, water depth, tidal/riverine/estuarine, hydrology and drainage patterns, current flow and direction), and land uses (e.g., public, residential, commercial, industrial, agricultural). 3. If habitat for species is present in the action area, provide a general description of the current state of the habitat. 4. Identify any management or other activities already occurring in the area. 5. Detailed map of the area of potential effect for ground disturbing activities if it is different from the project area

Maps in Appendix A (Figures 1 and 2)
The Graveline Bay Intertidal Reefs are a component of a larger project: The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries.

The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries includes the restoration of secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques including breakwaters. The projects would be implemented at proposed locations in Grand Bay, Graveline Bay, Back Bay of Biloxi and vicinity, and St. Louis Bay in Jackson, Harrison, and Hancock Counties, Mississippi (Figure 1; Appendix A). The project builds on recent collaborative projects implemented by the Mississippi Department of Marine Resources (MDMR), National Oceanic and Atmospheric Administration (NOAA), and The Nature Conservancy. When completed at all locations, the project would provide for construction of over four (4) miles of breakwaters, five (5) acres of intertidal reef habitat and 267 acres of subtidal reef habitat at four (4) locations across the Mississippi Gulf Coast. For the Grand Bay and Graveline Bay project locations, intertidal and subtidal reefs would be created in a number of sites. Over time, the breakwaters, intertidal and subtidal restoration areas would develop into living reefs that support benthic secondary productivity, including, but not limited to oysters/bivalve mollusks, annelid worms, shrimp, and crabs. Breakwaters would reduce shoreline erosion as well as marsh loss.

The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries-Graveline Bay Component includes the restoration of secondary productivity through the placement of intertidal reefs within the Graveline Bay estuary in Jackson County, MS. The project would provide for construction of 2 acres of intertidal reef habitat at numerous locations (Figure 1-4, Appendix A).

Graveline Bay and waterways represent one of only a few relatively undisturbed estuarine bays and small tidal creeks in Mississippi (Figure 4; Appendix A). The area supports salt marsh, brackish marsh, and several degraded oyster beds. This shallow, coastal bay/marsh estuarine system receives only local freshwater runoff and consists largely of mid-level needle rush (*Juncus roemerianus*) dominated marsh along its entire length. Smooth cordgrass (*Spartina alterniflora*) occurs largely as narrow (1-3 m) bands along the waterways. Subtidal ecological communities/habitats include muddy sand embayment, small tidal creeks and mollusk reefs. Intertidal ecological communities/habitats include sand beach, mesohaline marsh, and oligohaline marsh.

Substrate and depth at project sites: The substrate at the intertidal is composed of soft bottom sand and mud in shallow water at a depth of no greater than 5 ft. below MLLW.

a. *Waterbody (If applicable. Name the body of water, including wetlands (freshwater or estuarine)o n which the project is located. If the location is in a river or estuary, please approximate the navigable distance from the project location to the marine environment.):*

The Graveline Bay Intertidal Reefproject component is located in the Graveline estuary in which includes Graveline Bay, Graveline Bayou, and numerous tidal creeks.

b. *Existing Structures (If applicable. Describe the current and historical structures found in the project area (e.g., buildings, parking lots, docks, seawalls, groynes, jetties, marina.)). If known, please provide the years of construction.:*

A privately owned boat launch with a dock, pavilion and a parking area exists in the south-central portion of the study area. There are also several private, residential docks on the north side of Graveline Bay.

c. *Seagrasses & Other Marine Vegetation (If applicable. Describe seagrasses found in project area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the seagrasses in the project area.):*

Small patches of *Ruppia maritima* may exist. There is no known seagrass survey of the area, but the waters are turbid and do not support large, continuous beds.

d. *Mangroves (If applicable. Describe the mangroves found in project area. Indicate the species found (red, black, white), the species area of coverage in square footage and linear footage along project shoreline. Attach a separate map showing the location of the mangroves in the project area.):*

Not Applicable

e. *Corals (If applicable. Describe the corals found in project area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the corals in the project area.):*

Not Applicable

f. *Uplands (If applicable. Describe the current terrestrial habitat in which the project is located (e.g. pasture, forest, meadows, beach and dune habitats, etc.).*

Natural beach and pine flatwoods

D. Project Description

I. *Construction Schedule (What is the anticipated schedule for major phases of work? Include duration of in-water work.)*

The project is expected to last 4 months, with in-water work conducted from May through October.

II. *Describe the Proposed Action: 1. What is the purpose and need of the proposed action? 2. How do you plan to accomplish it? Describe in detail the construction equipment and methods** needed; permanent vs. temporary impacts; duration of temporary impacts; dust, erosion, and sedimentation controls; restoration areas; if the project is growth-inducing or facilitates growth; whether the project is part of a larger project or plan; and what permits will need to be obtained. 3. Attach a separate map showing project footprint, avoidance areas, construction accesses, staging/ laydown areas. **If construction involves overwater structures, pilings and sheetpiles, boat slips, boat ramps, shoreline armoring, dredging, blasting, or artificial reefs, list the method here, but complete the next section(s) in detail.*

The siting of breakwaters, intertidal and subtidal reefs for the Restoring Living Shorelines and Reefs in Mississippi Estuaries project components are conceptual and subject to refinement. For the purposes of impact analysis, the Trustees have conservatively estimated the maximum footprint for permanent and temporary impacts resulting from the deployment of structures. Additionally, an estimated project area in which the total impacts would occur is also provided. To the extent practicable, submerged aquatic vegetation (SAVs) would be avoided; and, none is expected to be impacted at this time. Intertidal oyster surveys inventories would be completed as part of siting intertidal habitat. Other reasons for refinement in project location include but are not limited to:

- Avoidance of natural or cultural resources (e.g. SAVs or archaeological sites);
- Revised siting based on natural resource inventory;
- Engineering considerations including but not limited to geotechnical, hydrological, navigation, construction materials, construction techniques or bathymetric design constraints;
- Input received during the public comment period.

Construction methods and activities are included in order to assess the impact on the environment from the proposed project. Actual construction methods and activities would be determined after final design and will be comparable to activities described below or consultation will be reinitiated

Intertidal Reef Habitat

The Intertidal reef habitat would be constructed using loose or bagged oyster shells. Oyster shells would be bagged and stockpiled at an existing upland staging area which has water access to the project area. The bagged oyster shells would be loaded by hand onto shallow draft marine vessels. The shallow draft vessels would transport the bagged oyster shells to the project location where they would be unloaded and placed by hand from the boat. The intertidal reef habitat would be constructed along the water's edge between MLLW and Mean Higher High Water (MHHW). Tide surveys would be conducted prior to beginning construction and PVC poles would be pushed in the ground to mark the high and low tide elevations.

Staging Areas

Existing staging areas will be used and are not located in habitats used by listed or at-risk species. No new access to staging areas will be necessary.

Impacts

The Graveline Bay Intertidal Reefs sites: A total of approximately 2 acres of hard and soft bottom habitat would be impacted and would be replaced with hard structure (Figure 3; Appendix A). Project component structures would not be installed in any SAV beds to the extent practicable. The construction of intertidal reef habitat at Graveline Bay would not require flotation channels. To the extent practicable, intertidal reef would be sited where there is existing adjacent or historic intertidal reef habitat.

Volume of proposed Intertidal Reef Habitat material: Approximately 6 inch thickness for the intertidal reef habitat; 807 cubic yards per acre. This equates to approximately 1,614 cubic yards for the 2 acres project area.

Bottom Disturbance and Turbidity

Deployment of the reefs would result in short-term impacts to water quality as a result of re-suspension of sediment by vessels (barges, tugs, skiffs, etc.) moving in and out of the area of proposed action. The suspended sediment may be transported into surrounding wetlands, waterways, and the Mississippi Sound. However, the area is currently exposed to elevated turbidity levels as a result of natural re-suspension of sediment during frequent storms, tides and other typical events.

Disturbance of the bottom sediment by placing hardened structure may affect prey availability in the area of proposed action for juvenile and adult fish. The impacts from placing material would be short term, and localized, affecting individuals and not entire populations.

U.S. Army Corps of Engineers Section 10/404 and State Water Quality Certifications would be required; all project activities would be conducted in compliance with permit conditions. Impacts from turbidity would be moderate, short-term and limited in spatial extent.

Figures 4 (Appendix A) shows the project area and the footprint of potential project components.

III. *Specific In-Water Construction Methods (Provide a detailed account of construction methods. It is important to include step-by-step descriptions of how demolition or removal of structures is conducted and if any debris will be moved and how. Describe how construction will be implemented, what type and size of materials will be used and if machines will be used, manual labor, or both. Indicated if work will be done from upland, barge, or both.)*

a. *Overwater Structures (Place your answers to the following questions in the box below.)*

- i. *Is the proposed use of this structure for a docking facility or an observation platform?*
- ii. *If no, is this a fishing pier? Public or Private? How many people are expected to fish per day? How do you plan to address hook and line captures?*
- iii. *Use of "Dock Construction Guidelines"? http://sero.nmfs.noaa.gov/pr/endangered%20species/Section%207/DockGuidelines.pdf*
- iv. *Type of decking: Grated – 43% open space; Wooden planks or composite planks – proposed spacing?*
- v. *Height above Mean High Water (MHW) elevation?*
- vi. *Directional orientation of main axis of dock?*
- vii. *Overwater area (sqft)?*
- viii. *Use of "Sea Turtle and Smalltooth Sawfish Construction Conditions, March 2006"? http://sero.nmfs.noaa.gov/pr/endangered%20species/Sea%20Turtle%20and%20Smalltooth%20Sawfish%20Construction%20Conditions%20323-06.pdf*

Not Applicable/ See Intertidal Reefs in project description D.II.

b. *Pilings & Sheetpiles (What type of material is the piling or sheetpiles? What size and how many will be used? Method used to install: impact hammer, vibratory hammer, jetting, etc.?)*

Not Applicable

c. *Boat Slips (Describe the number and size of slips and if the number of new slips changes from what is currently available at the project. Indicate how many are wet slips and how many are dry slips. Estimate the shadow effect of the boats - the area (sqft) beneath the boats that will be shaded.)*

Not Applicable

d. *Boat Ramp (Describe the number and size of boat ramps, the number of vessels that can be moored at the site (e.g., staging area) and if this is a public or private ramp. Indicate the boat trailer parking lot capacity, and if this number changes from what is currently available at the project.)*

Not Applicable

e. *Shoreline Armoring (This includes all manner of shoreline armoring (e.g., riprap, seawalls, jetties, groins, breakwaters, etc.). Provide specific information on material and construction methodology used to install the shoreline armoring materials. Include linear footage and square footage. Attach a separate map showing the location of the shoreline armoring in the project area.)*

Not Applicable

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft^2) to be dredged, volume of material (yd^3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction))*

Not Applicable

g. *Blasting (Projects that use blasting might not qualify as "minor projects," and a Biological Assessment (BA) may need to be prepared for the project. Arrange a technical consultation meeting with NMFS Protected Resources Division to determine if a BA is necessary. Please include explosive weights and blasting plan.)*

Not Applicable

h. *Artificial Reefs (Provide a detailed account of the artificial reef site selection and reef establishment decisions (i.e., management and siting considerations, stakeholder considerations, environmental considerations), deployment schedule, materials used, deployment methods, as well as final depth profile and overhead clearance for vessel traffic. For additional information and detailed guidance on artificial reefs, please refer to the artificial reef program websites for the particular state the project would occur in.*

Not Applicable/See Intertidal Reefs in project description D.II.

E. Species & Critical Habitat

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area.
2. Attach a separate map identifying species/critical habitat locations within the action area.
For information on species and critical habitat under FWS jurisdiction, visit http://www.fws.gov/endangered/species/.
Under NMFS jurisdiction,
visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

SPECIES and/or CRITICAL HABITAT (CH)	Status	CH UNIT
Gulf Sturgeon – estuarine	Threatened	
Loggerhead sea turtle – in water	Threatened	
Green sea turtle – in water	Threatened	
Leatherback sea turtle – in water	Endangered	
Hawksbill sea turtle – in water	Endangered	
Kemp's ridley sea turtle – in water	Endangered	
Piping plover – terrestrial	Threatened	
Red knot – terrestrial	Threatened	
West Indian Manatee – in water	Endangered	

F. Effects of the Proposed Project

I. *Explain the potential beneficial and adverse effects to each species listed above (Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, interdependent, interrelated, connected actions, and cumulative impacts. Where possible, quantify effects. If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.)*

Five species of sea turtles - The project area does not include nesting habitat for the five sea turtle species therefore there will be no effect to nesting sea turtles. However, in-water project work may coincide with sea turtle presence (i.e. spring/summer). During this time construction crews would be operating mechanized equipment in the water including barges and light watercraft. The noise produced by the machinery, movement of the machinery in the water, and placement of materials could disturb sea turtles. All species are highly mobile and project activities would not impede transitory routes. In the section below we describe conservation measures to protect sea turtles; *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS, 2006). The implementation of these measures would minimize any potential risks to sea turtles to an insignificant and discountable effect.

Piping Plover - Piping plover are not known to occur in the footprint of construction. Piping plovers do not nest in the project area, but do use it for wintering habitat. Piping plovers could be startled by work crews, vehicles, and machinery and stop foraging or roosting. However, piping plovers would be expected to move away from the disturbance to other suitable habitats outside of the disturbance area. There is an abundance of suitable foraging and roosting habitat within GBNERR and within 2 miles of the action area in which plovers would be expected to move to or within (i.e., within their normal range of movements). The noise produced by the machinery and movement of the machinery may disturb the piping plover present on site, but piping plover could avoid disturbance by moving into adjacent areas of unimpacted habitat. Therefore it is not expected that startling and temporary displacement would interrupt or have long-term consequences to normal behaviors. Foraging habitats are abundant within GBNERR therefore we do not expect indirect effects to piping plover from a loss of prey base. Increased visitor use is not expected as a result of this project. Therefore, an increase of indirect effects from human use is not expected. Based upon the normal movement patterns of piping plover and the conservation measures outlined below (allowing movement of their own volition, and watching for the birds), it is determined the project may affect but is not likely to adversely affect piping plover.

Red Knot - In coastal Mississippi, the red knot is mainly a migratory species that uses coastal beaches and marine intertidal areas as stopover feeding locations or staging areas from March to April during the northward spring migration and September and October during the southward autumn migration (Niles et al. 2007; USFWS 2013). Red knot individuals could be startled by work crews, vehicles, and machinery and stop foraging or roosting. However, they would be expected to move away from the disturbance to other suitable habitats outside of the disturbance area. There is an abundance of suitable foraging and roosting habitat within GBNERR and within 2 miles of the action area in which they would be expected to move to or within (i.e., within their normal range of movements). The noise produced by the machinery and movement of the machinery may disturb the red knot individuals present on site, but red knot individuals could avoid disturbance by moving into adjacent areas of unimpacted habitat. Therefore it is not expected that startling and temporary displacement would interrupt or have long-term consequences to normal behaviors. Foraging habitats are abundant within GBNERR therefore we do not expect indirect effects to red knot from a loss of prey base. Increased visitor use is not expected as a result of this project. Therefore, an increase of indirect effects from human use is not expected. Based upon the normal movement patterns of red knot and the conservation measures outlined below (allowing movement of their own volition, and watching for the birds), it is determined the project may affect but is not likely to adversely affect red knot. Conservation measures will minimize any disturbance to an insignificant and discountable level.

West Indian Manatee - The West Indian manatee occasionally occurs in Mississippi coastal habitats and these visits are becoming more common (Fertl et al. 2005). The manatee migrates from wintering habitats in Florida and possibly Mexico to Mississippi and Alabama waters from spring through summer, when project implementation is expected. Although the West Indian manatee could be present in the project area in warmer months, the migration of this species is still not well understood. One study did indicate that when manatees were observed outside of Florida they were most likely found near estuaries and the mouths of rivers (Fertl et al. 2005). Manatees forage on

a variety of plants, including submerged aquatic vegetation (SAV), floating plants, and emergent plants (MDWFP 2001). The estuarine shallow water habitat of the project area supports large beds of *Halodule wrightii* and *Ruppia maritima* throughout the project boundary, but intertidal reefs sites would be selected to completely avoid areas with seagrass. If manatees were present, in-water work could startle an individual or project debris or vessels could strike a manatee. Striking a manatee generally results in harm or mortality. Conservation measures listed below would minimize risk of startle and strike to an insignificant and discountable level. Construction equipment such as a barge would likely cause increased levels of turbidity at the local scale and noise in the water column which may affect the species within a particular distance. Manatees would probably avoid any areas of increased turbidity as they are not known to use turbid habitats and avoid areas with increased noise due to their highly mobile nature. Manatees, if present, would probably avoid the construction areas. *Standard Manatee Conditions (A-D) for In-Water Work* would be implemented during construction (USFWS, 2011).

Gulf Sturgeon - Numerous studies in the northern Gulf have documented habitat use and seasonality of Gulf sturgeon movement from spawning areas in riverine habitat to foraging grounds in the nearshore environment (Fox et al., 2000; Heise et al., 2004, 2005; Rogillio et al., 2007; Ross et al., 2009; Havrylkoff et al., 2012). Data from Gulf sturgeon that are natal to the Pascagoula drainage system show clear seasonal migration patterns. Movement chronologies show summer habitat use upriver to take place between April and November and winter habitat use at Cat, Ship, Horn, and Petit Bois islands in the Mississippi Sound to occur between November and early March (Rogillio et al., 2007. Project work would be completed in the spring and summer months when sturgeon are not expected in marine and estuarine environments. If work continues beyond the May to October window, continued adherence to the Sea turtle and Smalltooth Sawfish Construction Conditions (NMFS, 2006) will minimize the potential for impacting Gulf Sturgeon. No direct or indirect impacts from construction are expected in the riverine ecosystems.

II. *Explain the potential beneficial and adverse effects to [critical habitat for]each species listed above (Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, interdependent, interrelated, connected actions, and cumulative impacts. Where possible, quantify effects. If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.):*

There are no Critical habitats in the project area.

G. Actions to Reduce Adverse Effects

I. *Explain the actions to reduce adverse effects to each species listed above (For each species for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.):*

General BMPs
Natural cultch materials (i.e. oyster shells) would be used for intertidal cultch placements in Graveline Bay.

Material used for construction cannot contain trash, debris, and/or toxic pollutants.

Transiting vessels/barges, and/or mechanical dredge-related activities, will occur at slow transit speed of the towed barges (5 knots or less).

The project would comply with Measures for Reducing Entrapment Risk to Protected Species, revised May 22, 2012.

Minimize the risk of attracting invasive species and predators to the action area
Prior to bringing any equipment (including personal gear, machinery, vehicles or vessels) to the work site, inspect each item for mud or soil, seeds, and vegetation. If present, the equipment, vehicles, or personal gear shall be cleaned until they are free from mud, soil, seeds, and vegetation. This inspection will occur each time equipment, vehicles, and personal gear are being prepared to go to a site or prior to transferring between sites to avoid spreading exotic, nuisance species.

Inspect sites periodically to identify and control new colonies/individuals of an invasive species not previously observed prior to construction.

Remove trash or anything that would attract nuisance wildlife to work areas daily.

Project related trash or debris shall not be allowed to blow into open water or onto beaches.

Sea turtles
Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006).

All project work would be in-water, during daylight hours and no nesting habitat exists in the project area.

All construction personnel would be notified of the potential presence of sea turtles in the water and would be reminded of the need to avoid sea turtles.

If any sea turtles are found to be present in the immediate project area during activities, construction would be halted until species moves away from project area.

All construction personnel would be notified of the criminal and civil penalties associated with harassing, injuring, or killing sea turtles.

Train/instruct all construction personnel of what they are to do in the presence of a sea turtle.

Construction activities would occur during daylight hours and noise would be kept to the minimum feasible.

Shorebirds
All construction personnel would be notified of the potential presence of shorebirds within the project area.

All construction personnel would be instructed and trained in the protection of shorebirds.

Construction personnel would be notified of the criminal and civil penalties associated with harassing, injuring or killing shorebirds.

If piping plovers or red knots are present, work would not occur until the birds have moved, of their own volition, from the area by 150 feet.

Construction noise would be kept to the minimum feasible.

West Indian Manatee
Standard Manatee Conditions (A-D) for In-Water Work (USFWS 2011)

All construction personnel would be notified of the potential presence of West Indian Manatee in the water and reminded of the criminal and civil penalties associated with harassing, injuring, or killing West Indian Manatees.

All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) have moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

All vessels associated with the construction project shall operator at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

Care would be taken when lowering equipment into the water and the sediment in order to ensure that no harm is caused to West Indian Manatee that may potentially be in the water within the construction area.

Site selection will avoid seagrasses to the maximum extent practicable such that potential feeding areas will not be removed.

Construction noise would be kept to the minimum feasible.

Gulf Sturgeon
In-water construction activities would be limited to late spring/summer months when Gulf sturgeon are unlikely to be within the construction area. In addition, the Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS, 2006) will be implemented throughout as they are protective of Gulf sturgeon as well.

Project components would not impede any migratory paths during construction. Design or materials used will not create an entanglement or entrapment risk to ESA and MMPA species or block migration. Completed projects would not impede ingress, egress, and migration of species protected under ESA or MMPA (protected species) between shoreline and open water.

Post Construction Monitoring
The following parameters may be monitored after construction is complete.

- Structural integrity of interdial reefs
- Intertidal reef height/elevation and area
- Infauna and epifauna species composition, density, and biomass on intertidal reef

All sites would need to be accessed by small vessels during monitoring events. Structural integrity would be observational from boat or through poling intertidal reef once a year. Area and elevation of interdial reefs may be monitored post-construction to ensure that elevation and area meet design specifications. This may be done by boat using side-scan sonar or other similar instrumentation, at minimum once for as-built verification and once

more during 5-7 year monitoring period. Non-bivalve invertebrate infauna and epifauna surveys would be conducted using trays attached to or laid on intertidal reefs. This methods requires deployment from boat or by foot in shallow areas. Trays would be deployed for a 6-week period and then retrieved for at least two post-construction monitoring events. Shoreline profile/slope and marsh edge position may be monitored by foot using GPS, at minimum once post-construction.

Sample size and frequency of sampling will be determined after engineering and design are completed and monitoring contractor costs are established. Minimum number of events are outlined in the monitoring plan. All monitoring data and reporting will go through the quality assurance/ quality control process set up by the Trustees and as outlined in MDEQ's Comprehensive Quality Assurance Plan before being released to the public.

II. *Explain the actions to reduce adverse effects to critical habitat listed above (For critical habitat for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.):*

There are no critical habitats in the project area.

H. Effect Determination Requested

From the sections above, there should be enough detailed information to provide clear and obvious support for your determination in the section below. If the rationale for the determination is not clear, additional information must be added to one of the sections. Identify if gulf sturgeon are in saltwater, estuarine, or in freshwater in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. gulf sturgeon CH - saltwater). Identify if sea turtles are in water or on land in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Loggerhead sea turtle CH - terrestrial).

SPECIES and/or CRITICAL HABITAT	DETERMINATION (see definitions below)
Gulf Sturgeon - estuarine	May Affect, Not Likely to Adversely Affect
Loggerhead sea turtle – in-water	May Affect, Not Likely to Adversely Affect
Green sea turtle – in-water	May Affect, Not Likely to Adversely Affect
Leatherback sea turtle – in-water	May Affect, Not Likely to Adversely Affect
Hawksbill sea turtle – in-water	May Affect, Not Likely to Adversely Affect
Kemp's ridley sea turtle – in-water	May Affect, Not Likely to Adversely Affect
Piping plover - terrestrial	May Affect, Not Likely to Adversely Affect
Red knot - terrestrial	May Affect, Not Likely to Adversely Affect
West Indian Manatee – in water	May Affect, Not Likely to Adversely Affect

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is "Concurrence." This conclusion is appropriate when effects to the species or critical habitat will be beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is "Formal Consultation". Response requested for proposed and candidate species is "Conference." This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination should be "is likely to adversely affect." Such a determination requires formal section 7 consultation and will require additional information.

JP = likely to jeopardize proposed species/adversely modify proposed critical habitat. For proposed species and proposed critical habitats, the Service is required to evaluate whether the proposed action is likely to jeopardize the continued existence of the proposed species or adversely modify an area proposed for designation as critical habitat. If you reach this conclusion, a section 7 conference is required.

JC = likely to jeopardize candidate species. For candidate species, the Service is required to evaluate whether the proposed action is likely to jeopardize the continued existence of the candidate species. If this conclusion is reached, intra-Service section 7 conference is required.

I. Bald Eagles

I. Are Bald Eagles present in the action area?: YES

If YES, the following conservation measures should be implemented:

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (e.g., walking, camping, clean-up, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is no line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).
2. If a similar activity (e.g., driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances activities conducted within 660 feet of a nest may result in disturbance, particularly for the eagles occupying the Mississippi barrier islands. If an activity appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

If these measures cannot be implemented, then you must contact the Service's Migratory Bird Permit Office.
Texas – (505) 248-7882 or by email: permitsR2MB@fws.gov
Louisiana, Mississippi, Alabama, and Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

J. Migratory Birds

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Wading birds (herons, egrets, ibises)	Foraging, feeding, resting, roosting	Wading birds primarily forage and feed at the water's edge. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Wading birds (herons, egrets, ibises)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily nest in trees or shrubs (e.g. pines, Baccharis), which occur outside the action area. Therefore, nesting will not be impacted.

Migratory Birds

Continuation page if needed.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Shorebirds (plovers, oystercatchers, stilts, sandpipers)	Foraging, feeding, resting, roosting,	Shorebirds forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Shorebirds (plovers, oystercatchers, stilts, sandpipers)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. . These birds primarily nest and roost in the dunes. This project would occur in open water away from potential shorebird nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Foraging, feeding, resting, roosting,	Seabirds forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily roost in the dunes. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Migratory Birds

Continuation page if needed.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Raptors (osprey, hawks, eagles, owls)	Foraging, feeding, resting, roosting,	Raptors forage, feed, and rest in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting. Most raptors are aerial foragers and soar long distances in search of food.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Raptors (osprey, hawks, eagles, owls)	No work would occur within 660 feet of any bald eagle nests and all other bald eagle conservation measures (identified under Section I, above) can be implemented. Care would be taken to minimize noise and vibration in their vicinities. Roosting should not be impacted because the project would occur during daylight hours only, and because the areas where these birds nest are not within the action area. A staff biologist would advise the contractor of the nesting status of all identified raptor nests near the action area and approve of work in the vicinity. The areas in the estuary where these birds roost and nest are not within the action area.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Goatsuckers	Foraging, feeding, resting, roosting,	Goatsuckers forage, feed, rest, and roost in the project area. However, they are nocturnal/crepuscular and therefore not active during the project work period.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Goatsuckers	All work would be done during daylight hours. These birds are nocturnal/crepuscular and as such, should not be foraging or feeding while work occurs. Care would be taken to minimize noise and vibration near habitat where these birds are resting or roosting. They nest in thickets and woodlands, which are present in the action area. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Migratory Birds

Continuation page if needed.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Waterfowl (geese, swans, ducks, loons, and grebes)	Foraging, feeding, resting, roosting,	Waterfowl forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Waterfowl (geese, swans, ducks, loons, and grebes)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily roost and nest in low vegetation. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Doves and pigeons	Foraging, feeding, resting, roosting	Doves and pigeons could forage, feed, rest, and roost in the project area. However, they are unlikely to utilize habitat in the estuarine zone/action area.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Doves and pigeons	It is unlikely that doves and pigeons would be impacted by this project. In addition, this project would not take near habitats where the species would nest; therefore it is not anticipated to impact nesting.

Migratory Birds

Continuation page if needed.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Rails and coots	Foraging, feeding, resting, roosting	Rails and coots forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting if disturbed by the project. These birds primarily roost and nest in marshes, which are within the action area, and adjacent to project activities which are in-water.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Rails and coots	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Pre-existing NEPA Documents: YES

Does this project have any pre-existing, site specific NEPA analysis? If YES, then provide final NEPA analysis, if not final then provide draft. If tiered from a programmatic EIS or EA, then provide the programmatic document or a link below.

Tiered from the DWH Phase III ERP/PEIS; http://www.gulfspillrestoration.noaa.gov/restoration/early-restoration/phase-iii/

NMF S E SA § 7 Consultation

We request that all ESA §7 consultation requests/packages be submitted electronically to: Laurel.Jennings@noaa.gov. Questions about consultation status may be directed to the same email address or by phone, 206-526-4601 or 206-794-4761 (cell).

FWS ESA § 7 Consultation

We request that all consultation requests/packages to FWS be submitted electronically to: Ashley_Mills@fws.gov. You will be notified when we receive your Biological Evaluation. Upon receipt, we will conduct a preliminary review and provide any comments and feedback, including any requests for modifications

or additional information. If modifications or additional information is necessary, we will work with you until the Biological Evaluation form is considered complete. Once complete, we will send your Biological Evaluation to the appropriate Field Office to conduct consultation. If you have questions about consultation status, please contact Ashley Mills by phone 812-756-2712 or email Ashley_Mills@fws.gov.

Name of Person Completing this Form: Stephen Parker
Name of Project Lead: Marc Wyatt
Date Form Completed: 7-2-15
Date Form Updated: *8-11-15*

Appendix A

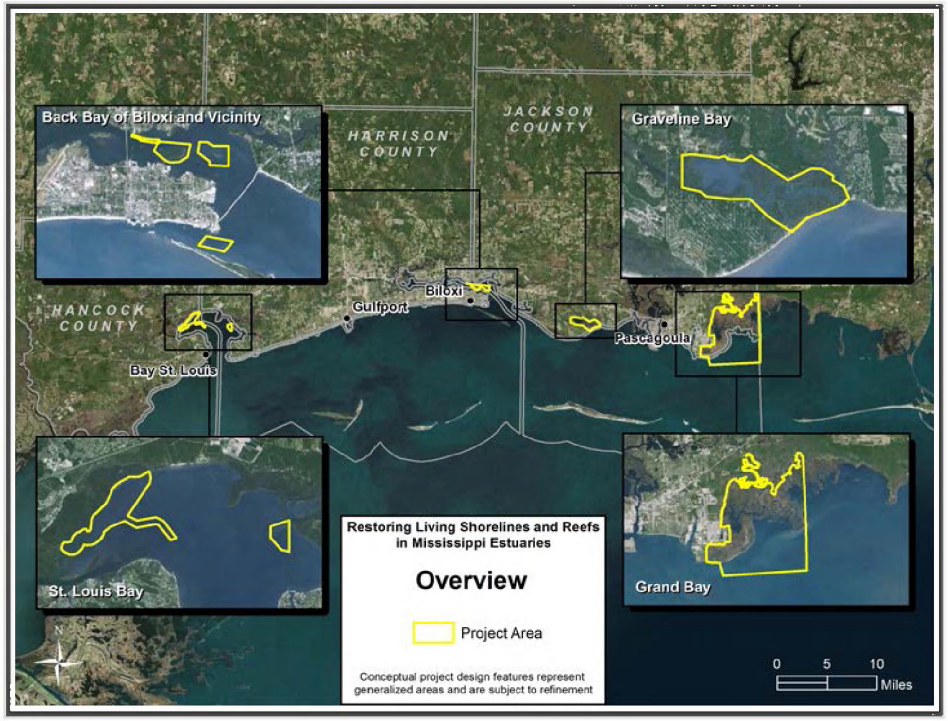

Figure 1: Restoring Living Shorelines and Reefs in Mississippi Estuaries-Vicinity Map Depicting Project Locations and Project Areas[1]

[1] Project areas encompass the project components, the direct restoration measures and potential areas for construction or indirect impacts. Conceptual design features (breakwaters, intertidal reef habitat, subtidal reef habitat, and temporary flotation channels) are subject to refinement and would be sited within respective project areas.

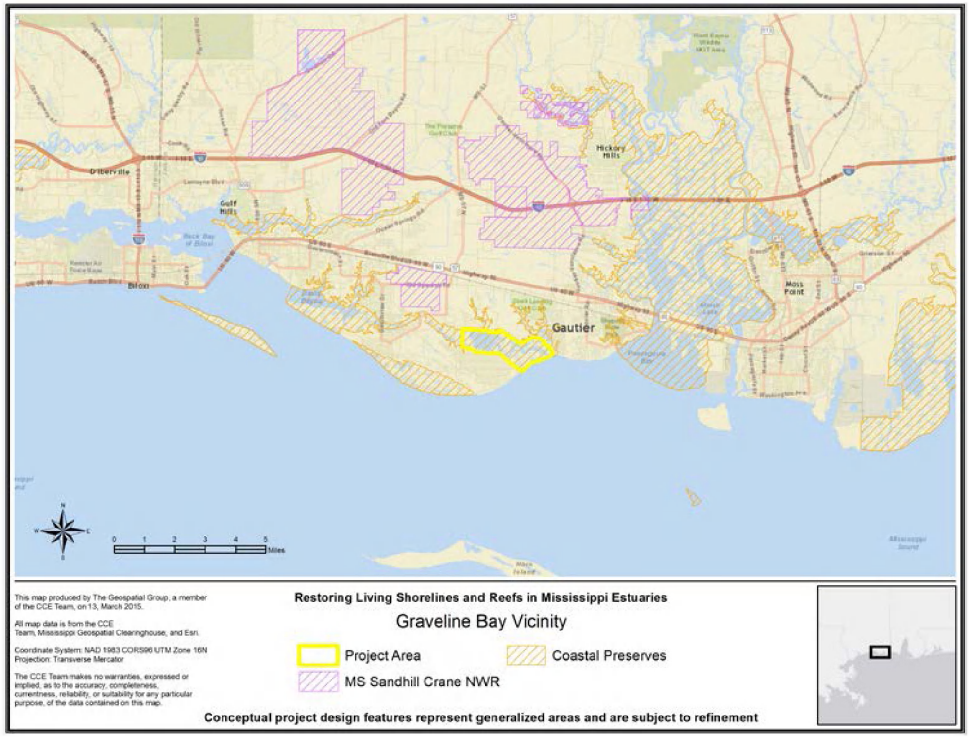

Figure 2. Graveline Bay Intertidal Reef Components Vicinity

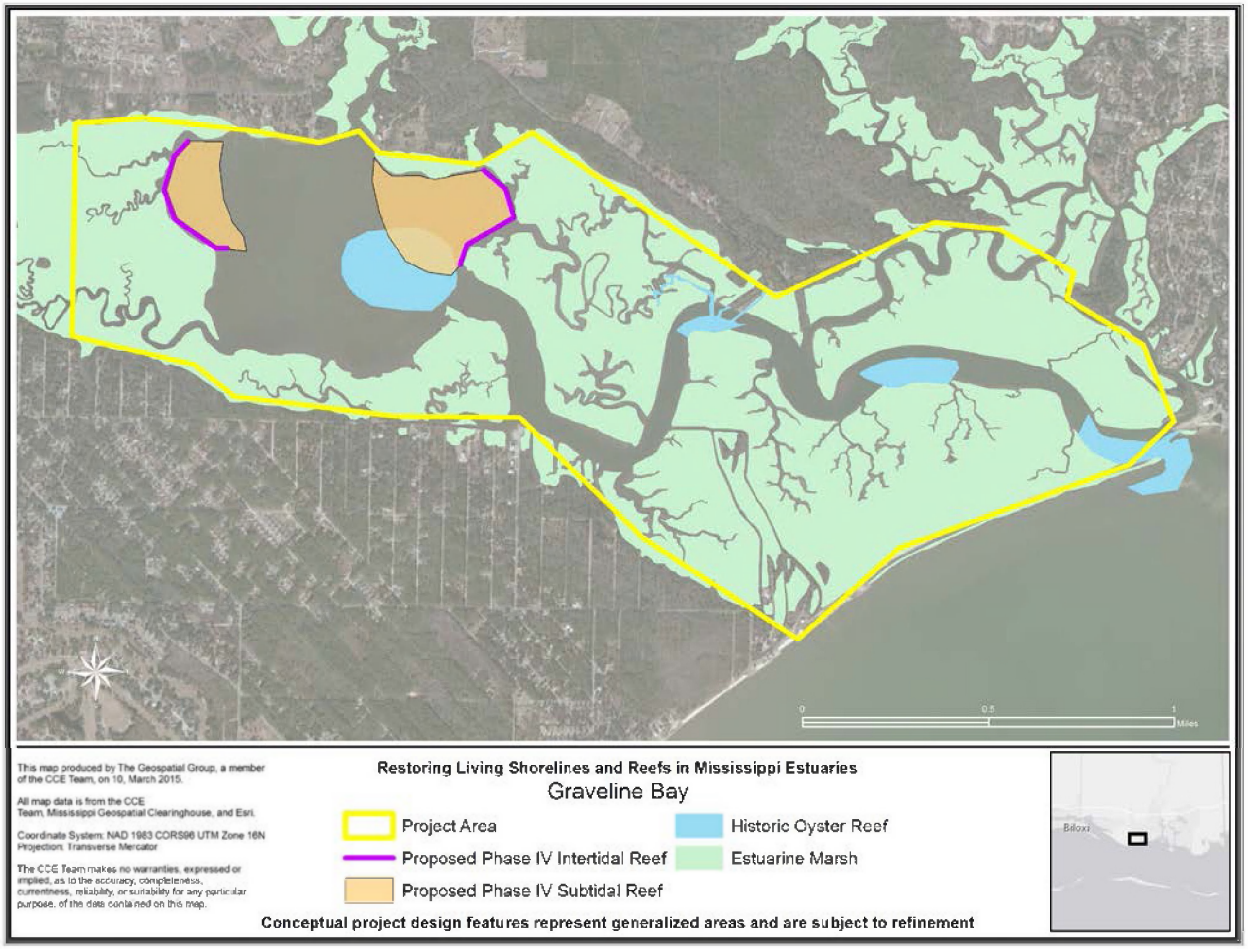

Figure 3. Graveline Bay Project Component and Submerged Aquatic Vegetation, National Wetland Inventory, and Oyster Locations

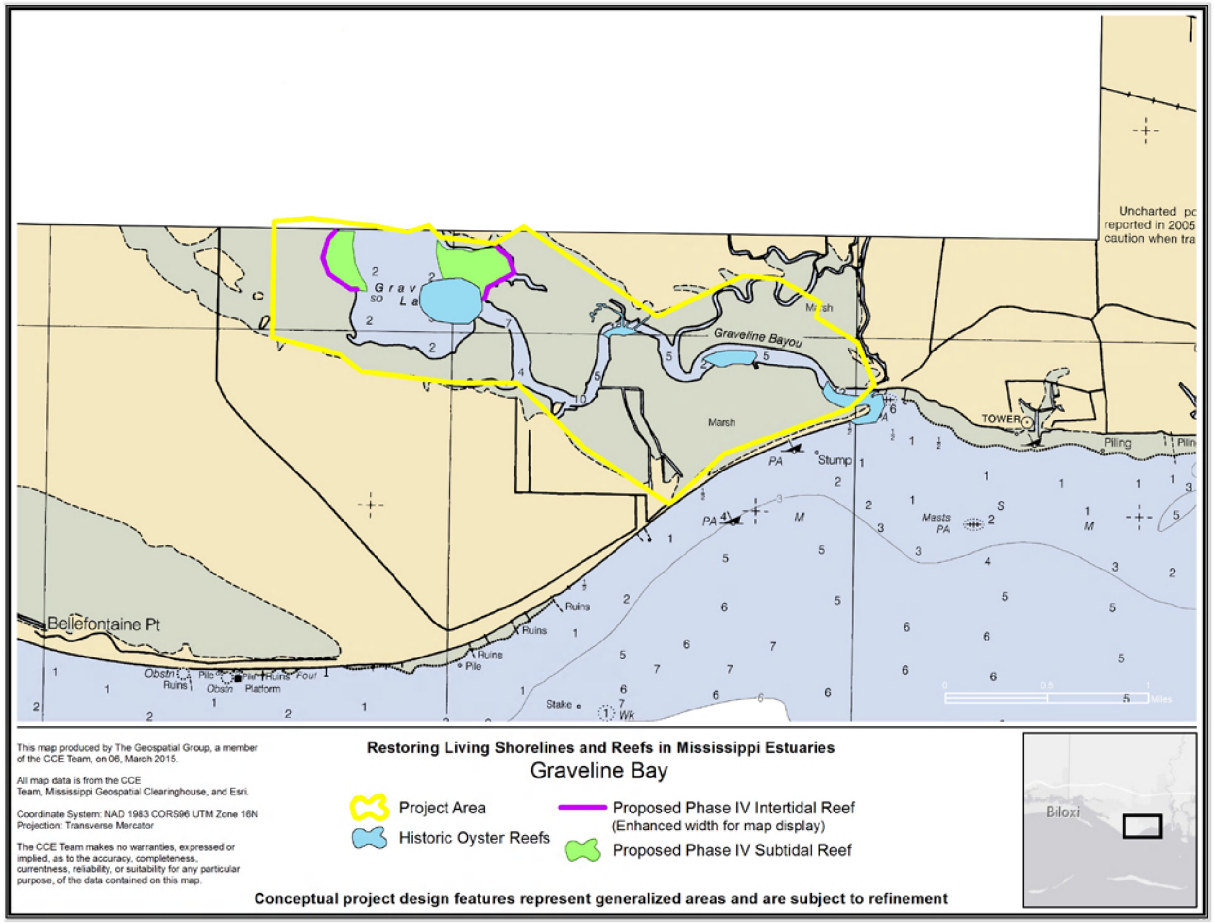

Figure 3. Graveline Bay Bathymetry Map

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