



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

MEMORANDUM FOR: FILE

FROM: Christy Fellas, DWH Environmental Compliance Coordinator  
NOAA Restoration Center, Southeast Region

DATE: March 27, 2019

SUBJECT: No Additional ESA or EFH Consultation Needed for Design Refinements  
to the Grand Bay Intertidal and Subtidal Reef Project, Phase IV Early  
Restoration, Mississippi

A handwritten signature in black ink, appearing to read "Christy Fellas".

Based on my review of project materials including design updates (see attached) and in coordination with representatives from NOAA's Protected Resource Division and Habitat Conservation Division in the South East Regional Office, the NOAA Restoration Center determined that design updates do not require re-initiation of consultation with NOAA.

Project elements have been refined within the previously considered action area and will not result in any discernible changes to the effects of the project to designated Essential Fish Habitat or species protected under the Endangered Species Act. The EFH and ESA consultations were concluded in 2015; all BMPs and minimization measures in these consultations remain in effect for construction.

## **Restoring Living Shorelines and Reefs in Mississippi Estuaries**

### **Grand Bay Intertidal and Subtidal Reef Component**

**March 15, 2019**

Memo to: Christy Fellas, NOAA Restoration Center, Deepwater Horizon NRDA Program  
Erin Chandler, Environmental Compliance Coordinator, Deepwater Horizon Gulf Restoration Office, USFWS  
David Felder, Mississippi Field Office, USFWS

The Restoring Living Shorelines and Reefs in Mississippi Estuaries project includes the restoration of secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques to reduce shoreline erosion. The project was proposed, evaluated and selected in the *Deepwater Horizon Oil Spill: Final Phase IV Early Restoration Plan and Environmental Assessments* (DOI 2015) referred to hereafter as the Phase IV RP/EA. As the designated Mississippi State Trustee under the Oil Pollution Act, the Mississippi Department of Environmental Quality (MDEQ) is responsible for implementing this project. Eight components were originally identified in the RP/EA as part of the project; three have been eliminated and five components are now in the permitting phase. The project goal is to restore secondary productivity.

ESA consultations for the Grand Bay Subtidal Reefs and Grand Bay Intertidal Reefs were previously coordinated with NOAA NMFS (SER-2015-16955 and SER-2015-16990) and USFWS (2015-I-793) in 2015 and 2016. EFH consultations were coordinated with NOAA NMFS in 2015. The 2015 Biological Evaluations included intertidal and subtidal reef locations located both within and outside of Gulf Sturgeon Critical Habitat. In 2016, additional design refinements resulted in the anticipated locations of reef locations in Bangs Lake (out of Gulf Sturgeon Critical Habitat). Since that time, due to various constraints, the reef locations have shifted again, and geotechnical and bathymetric studies and subsequent engineering design has been conducted for the project. The Final Basis of Design Report includes the placement of a maximum of 3 acres of intertidal reef in Bangs Bayou (outside of Gulf Sturgeon Critical Habitat) and a maximum of 6.5 acres on the western side of Point Aux Chenes Bay (in Gulf Sturgeon Critical Habitat). Please note that the new final design reduces subtidal reef acreage from 77 acres to a maximum of 6.5 acres.

The project is moving into the permitting phase, and a pre-application meeting will soon be scheduled with the USACE, MDMR and your agency representatives. The following is provided as a brief summary of the relevant refinements to the project design since your agency's review. For the purposes of your review, Table 1 summarizes the engineering design and compares the current design to the data previously presented in the 2015 and 2016 Final Biological Evaluations. The Conceptual Project Designs that were analyzed in the 2015 Biological Evaluation are shown in Figures 1-4 and the design analyzed in the 2016 Biological Evaluation is shown in Figure 5. The new project location area is depicted in Figure 6, and the final engineering design is depicted in Figures 7-10. We do not anticipate that the current design refinements would change your EFH and ESA findings, and are requesting confirmation by email that your agency's project concurrence remains in effect.

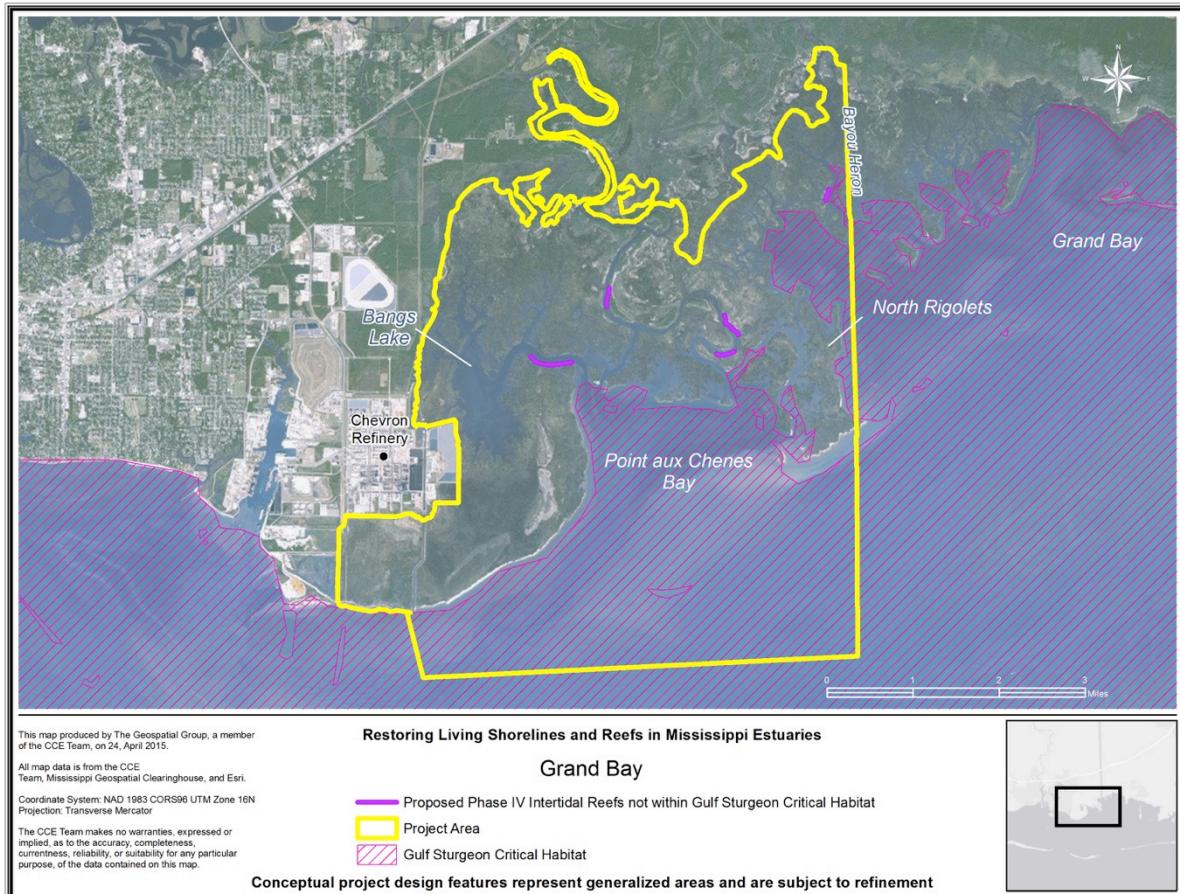
**Table 1. Grand Bay Subtidal Reefs in Mississippi Estuaries-Design Refinements post ESA and EFH consultation**

Project Element	Parameters	2015 BE	2016 BE	Current Design
Subtidal Reef	<b>Acreage</b>	Up to 77 acres in Bangs Lake or in and adjacent to Grand Bay	up to 77 acres in Bangs Lake	6.5 acres (maximum) Point Aux Chenes Bay
	<b>Gulf Sturgeon Critical Habitat</b>	Some areas in GSCH and some areas not in GSCH	No	Yes
	<b>Construction materials</b>	Approved cultch material (limestone, crushed concrete, oyster shells or combination thereof)	Limestone, crushed concrete, oyster shells or a combination thereof	Aggregate (stone or processed concrete), native shell, and shell hash
	<b>Thickness</b>	1 – 12 inches	1 – 12 inches	0.2 foot to 3.0 feet in undulating ridges
	<b>Volume of materials</b>	62,139 cubic yards	62,139 cubic yards	Up to 8,000 cubic yards
	<b>Substrate</b>	Unconsolidated soft and hard bottom (sand, muddy sand, mud bottom and remnant reef)	Unconsolidated soft and hard bottom (sand, muddy sand, mud bottom and remnant reef)	Sand or firm clays, with some areas having up to 1.5 feet of soft sediment, underlain by a marine clay bearing layer.
	<b>Water depth</b>	0 – 10 feet below MLLW	No greater than 10 feet below MLLW	- 2.0 ft to - 5 ft below MLLW

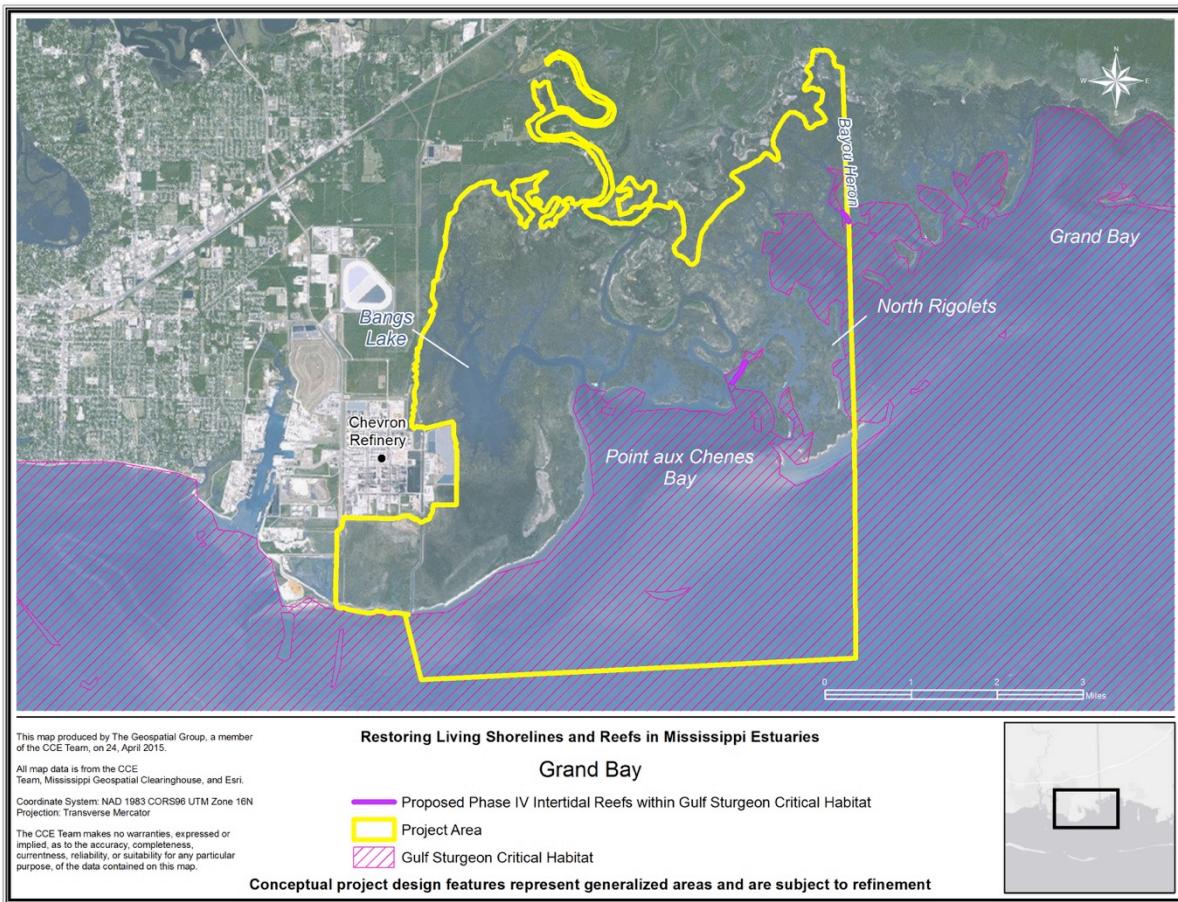
**Table 2. Grand Bay Intertidal Reefs in Mississippi Estuaries-Design Refinements post ESA and EFH consultation**

Project Element	Parameters	2015 BE	2016 BE	Current Design
Intertidal Reef	<b>Acreage</b>	Up to 3 acres in Grand Bay Estuary in multiple waters including Bangs	Up to 3 acres in Bangs Lake	Up to 3 acres in Bangs Bayou

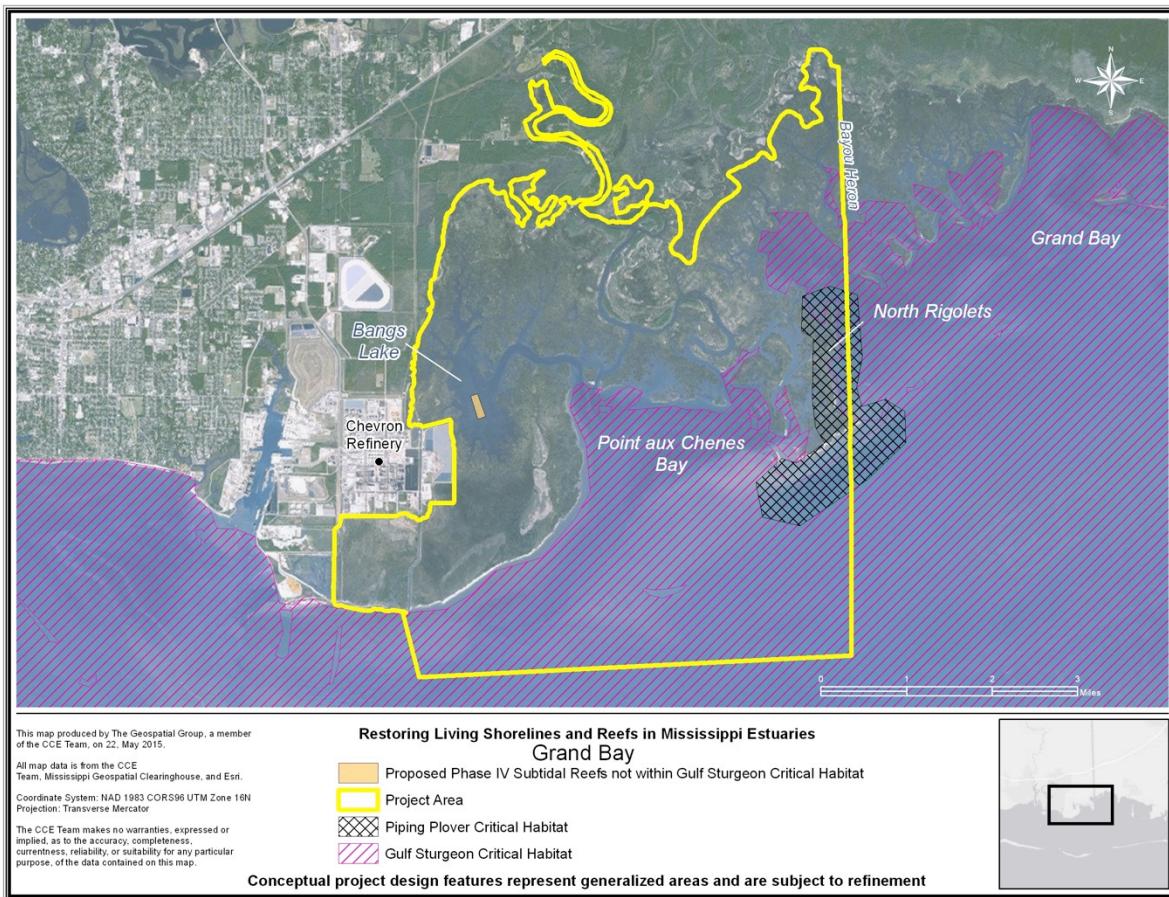
		Bayou and Bayou Heron		
<b>Gulf Sturgeon Critical Habitat</b>		Some areas in GSCH and some areas not in GSCH	No	No
<b>Construction materials</b>		Loose or bagged oyster shells	Loose or bagged oyster shells	Oyster bags and aggregate (stone or processed concrete). Oyster bags will be constructed of carbon steel wire mesh and filled with oyster shell and aggregate (stone or processed concrete).
<b>Volume of materials</b>		2,420 cubic yards	2,420 cubic yards	Up to 2,500 cubic yards
<b>Substrate</b>		Soft bottom sands and mud	Unconsolidated soft and hard bottom (sand, muddy sand, and mud bottom)	Sand or firm clays with a thin veneer of silt and silty sands, with some areas having up to 1.5 feet of soft sediment, underlain by a marine clay bearing layer
<b>Water depth</b>		Between MLLW and MHHW	No greater than 6 feet below MLLW	-0.5 ft to +1.5 ft MLLW



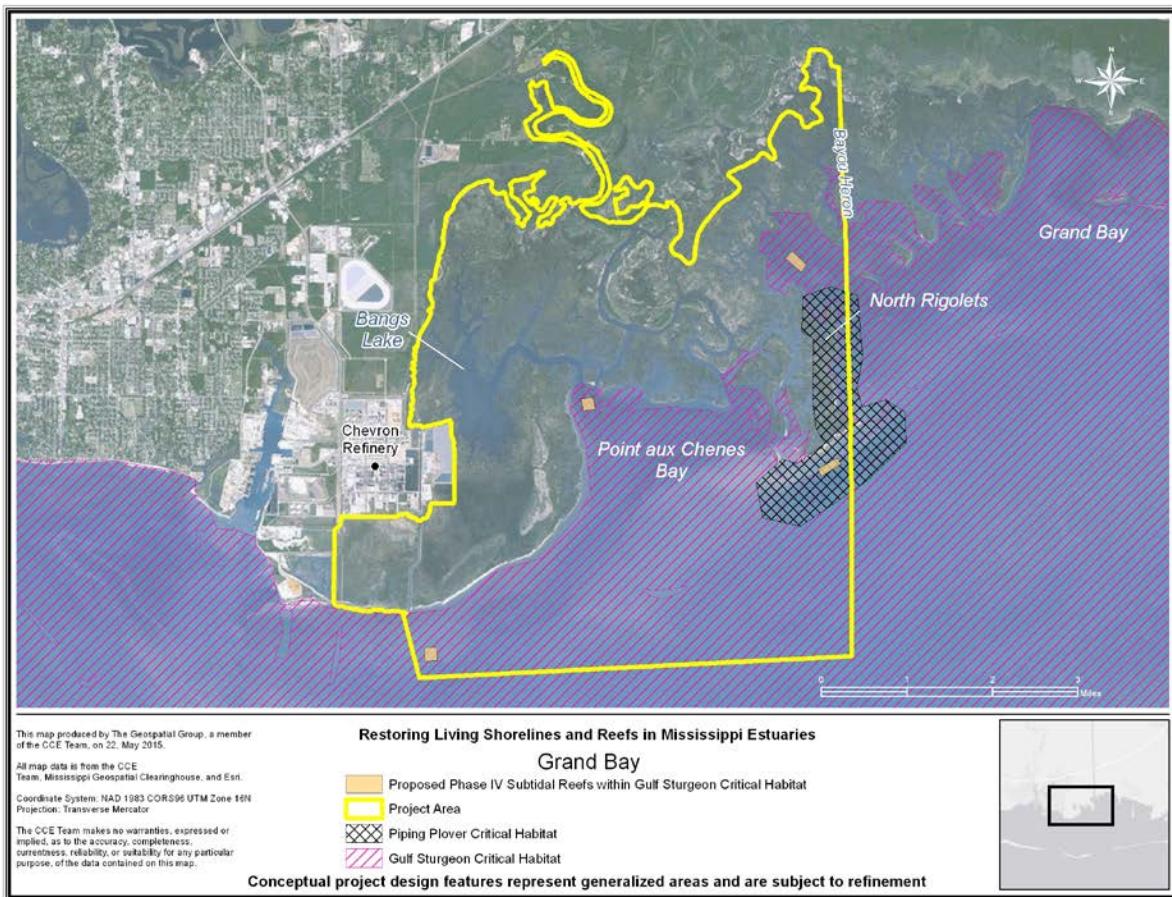
*Figure 1: Conceptual project design proposed in the 2015 Final Biological Evaluation, Proposed Intertidal Reefs not within Gulf Sturgeon Critical Habitat*



*Figure 2: Conceptual project design proposed in the 2015 Final Biological Evaluation, Proposed Intertidal Reefs within Gulf Sturgeon Critical Habitat*



*Figure 3: Conceptual project design proposed in the 2015 Final Biological Evaluation, Proposed Subtidal Reefs not within Gulf Sturgeon Critical Habitat*



*Figure 4: Conceptual project design proposed in the 2015 Final Biological Evaluation, Proposed Subtidal Reefs within Gulf Sturgeon Critical Habitat*

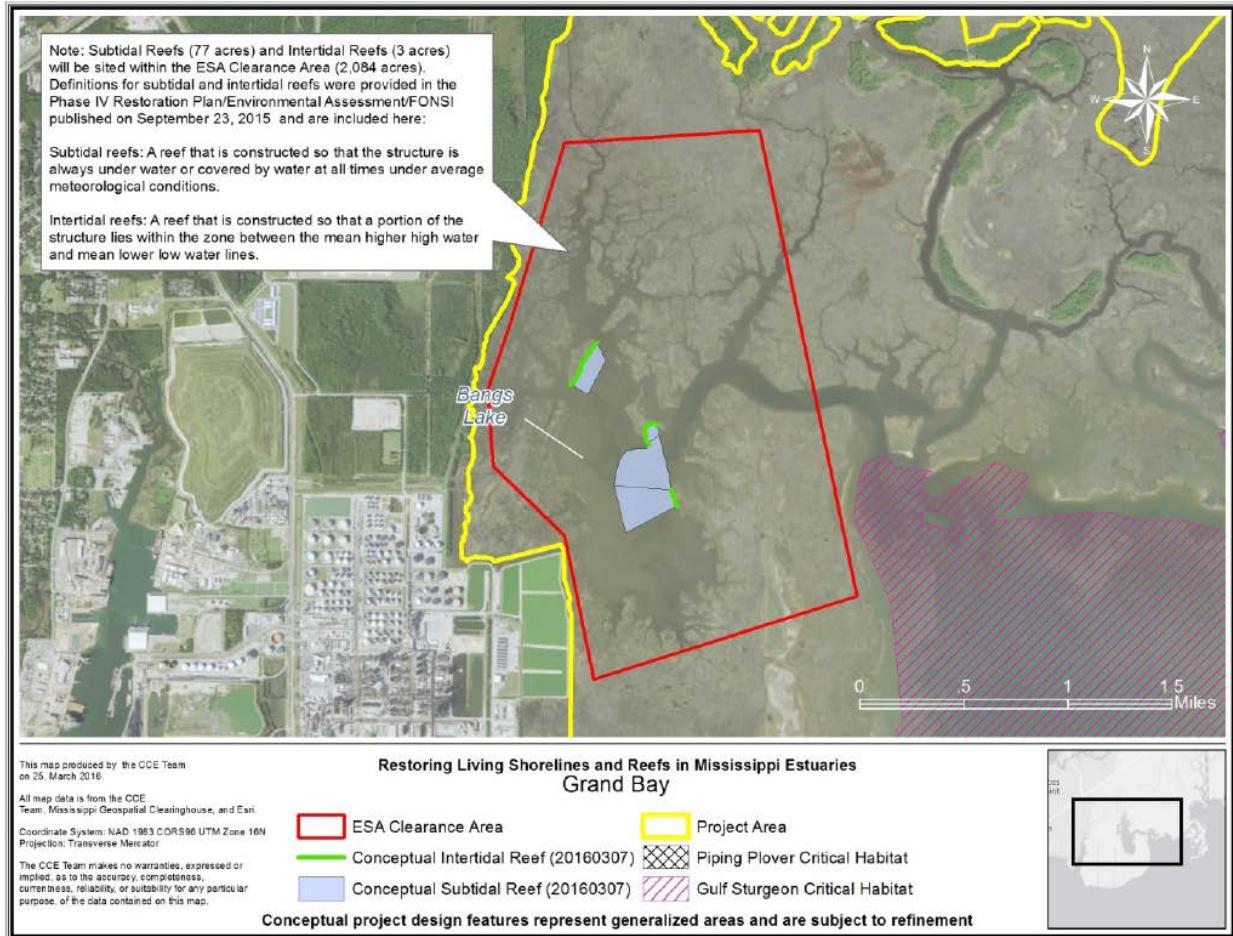
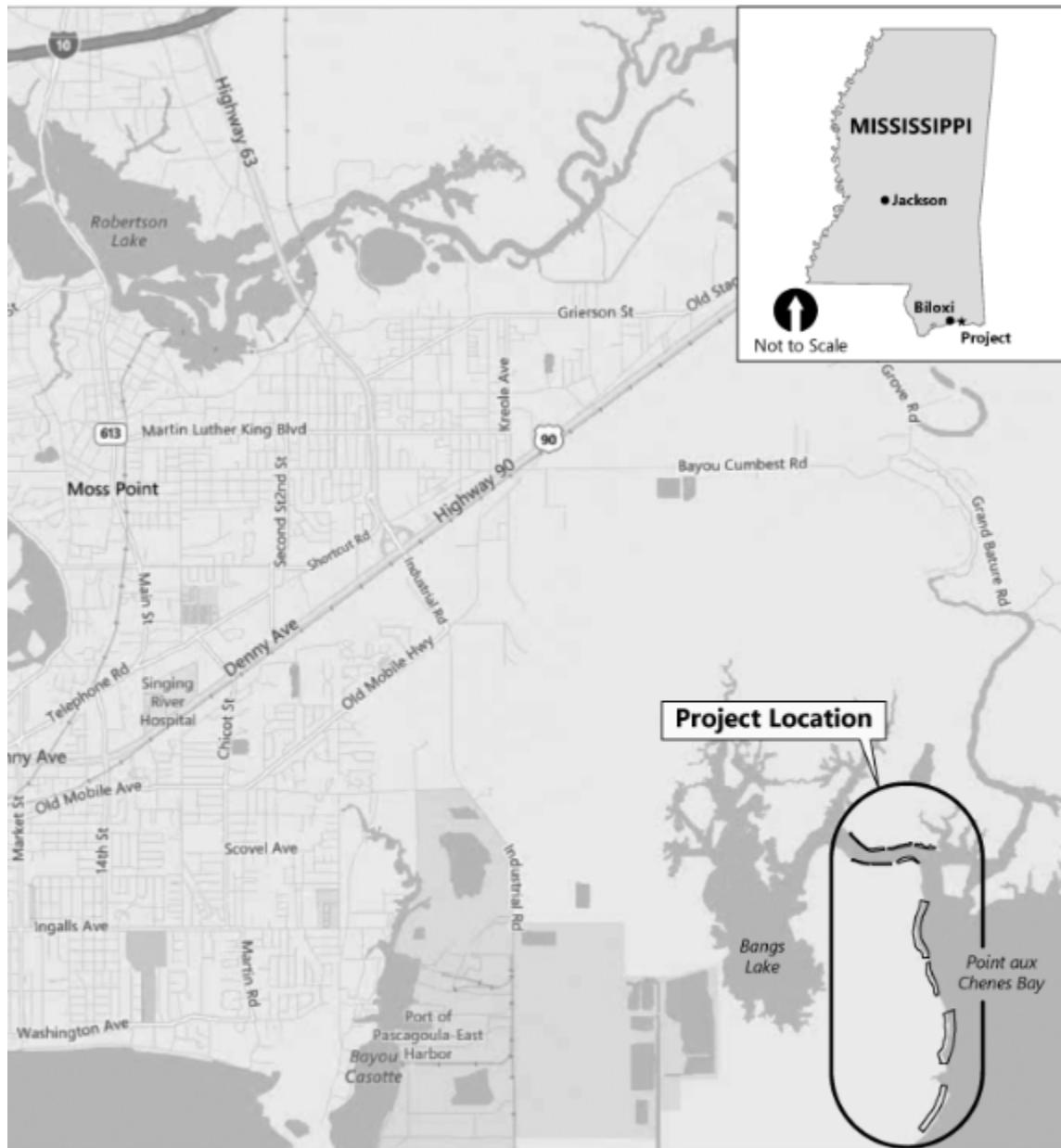


Figure 5: Conceptual project design proposed in the 2016 Final Biological Evaluation



**SOURCE:** 2010 NAVTEC © and 2017 Microsoft Corporation.  
**HORIZONTAL DATUM:** Mississippi State Plane East, NAD83, U.S. Feet.  
**VERTICAL DATUM:** Mean Lower Low Water (MLLW).

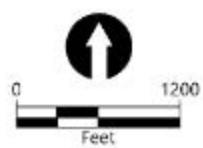
Figure 6: Current Grand Bay Project Location



**SOURCE:** ©2018 Microsoft Corporation ©2018 DigitalGlobe ©CNES (2018) Distribution Airbus DS  
**HORIZONTAL DATUM:** Mississippi State Plane East, NAD83, U.S. Feet  
**VERTICAL DATUM:** Mean Lower Low Water (MLLW)

**LEGEND:**

Proposed Subtidal Reef Polygons (total 35 acres) in which 6.5 acres (maximum) will be located and constructed in water depths between the 2.0 and 5.0 foot MLLW contours.



*Figure 7: Current Design Grand Bay Subtidal Reef in Plan View*

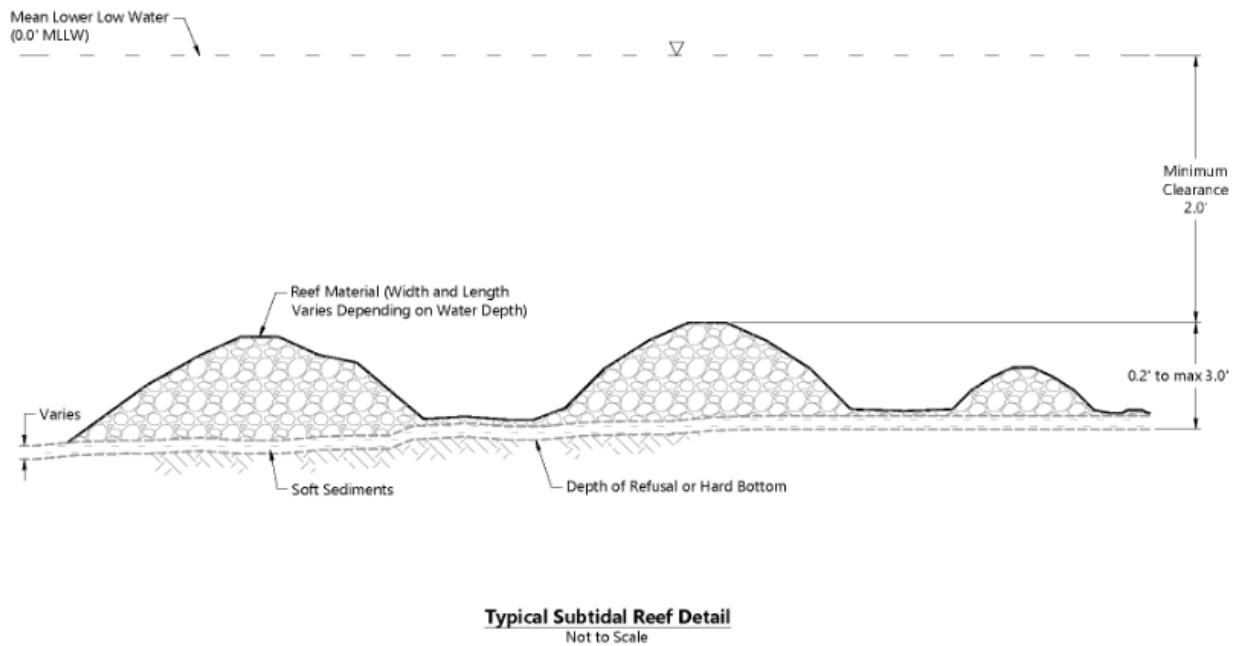
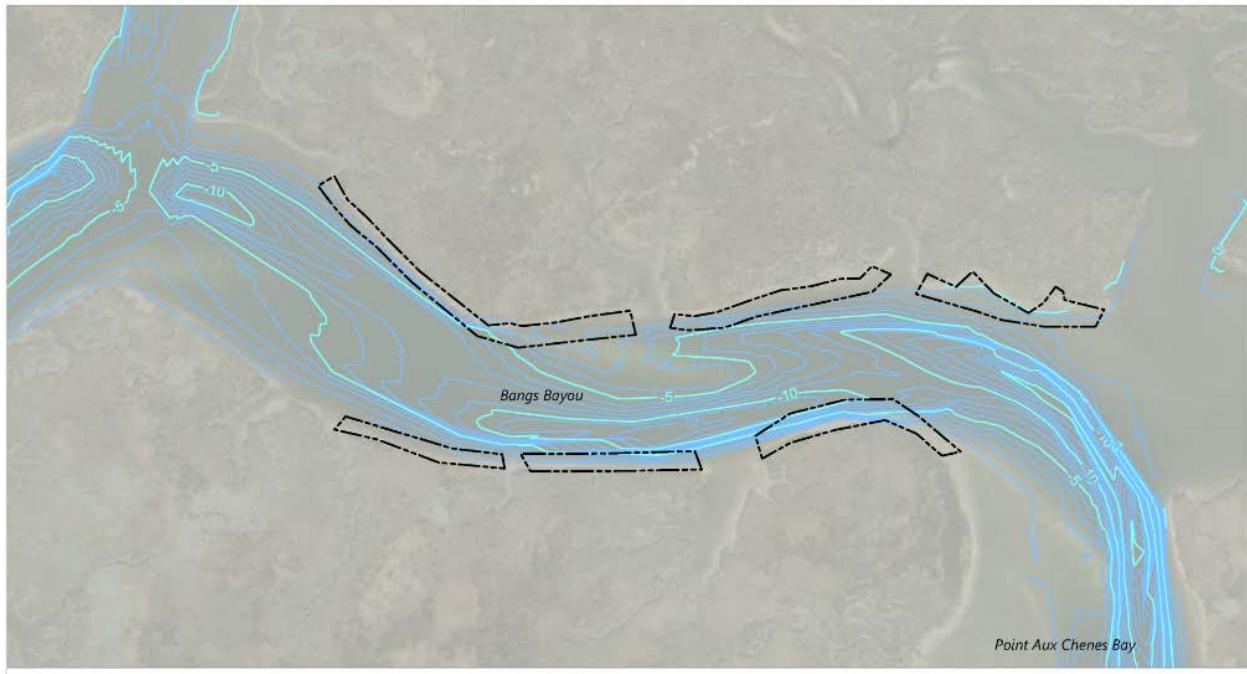


Figure 8: Current Design Grand Bay Subtidal Reef in Profile View



**AERIAL SOURCE:** ©2018 Microsoft Corporation ©2018 DigitalGlobe

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**SURVEY SOURCE:** DIMCO drawing titled "Hydrographic Survey and Push Sampling Grids" dated July 12, 2016.

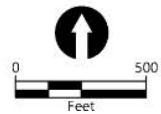
**HORIZONTAL DATUM:** Mississippi State Plane East, NAD83, U.S. Feet

**VERTICAL DATUM:** Mean Lower Low Water (MLLW)

**LEGEND:**

— Proposed Intertidal Reef Polygons (total 8.5 acres) in which 3 acres (maximum) will be located and constructed in water depths between the +0.5 and -1.5 foot MLLW contours.

— Existing Bathymetric Contours (1' Interval)



*Figure 9: Current Design Grand Bay Intertidal Reef in Plan View*

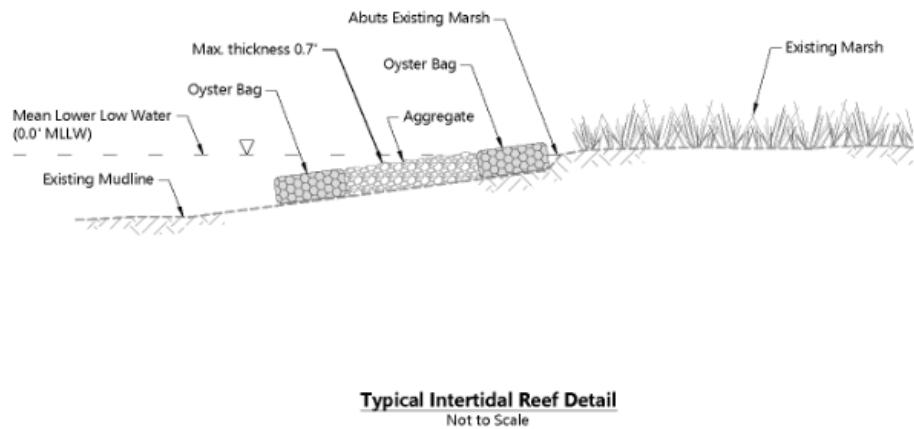


Figure 10: Current Design Grand Bay Intertidal Reef in Profile View

References:

DOI (Department of the Interior), 2015. *Deepwater Horizon Oil Spill: Final Phase IV Early Restoration Plan and Environmental Assessments*. September 2015.