

Subject: DWH-Early Restoration- Essential Fish Habitat Consultation Initiation-Popp's Ferry Park Project-Mississippi

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Mr. Thompson,

Attached is the Essential Fish Habitat Assessment for the Popp's Ferry Park Project in Mississippi. This project is being proposed in the Deepwater Horizon Draft Phase III Early Restoration Plan and Programmatic Environmental Impact Statement. Please consider this our initiation of our Essential Fish Habitat consultation. If you anticipate this consultation requiring more than 30 days (March 24, 2014) please let me know.

If you have any questions or require additional information, please contact me at 409-621-1248 or at jamie.schubert@noaa.gov.

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Essential Fish Habitat Assessment

for the Popp's Ferry Causeway Park Project

1.0 INTRODUCTION

The purpose of this document is to present the findings of the Essential Fish Habitat (EFH) assessment conducted for the proposed Popp's Ferry Causeway Park project as required by the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended through 1996 (Magnuson-Stevens Act). The objectives of this EFH Assessment are to describe how the actions proposed project may affect EFH designated by the National Marine Fisheries Service (NMFS) and Gulf of Mexico Fisheries Management Council (GMFMC), for the area of influence of the project. According to the GMFMC, EFH within the Gulf of Mexico (Gulf) includes all estuarine and marine waters and substrates from the shoreline to the seaward limit of the Exclusive Economic Zone (EEZ). The area of influence for construction activities would be the project footprint. This assessment will include a description of the proposed action; a summary of EFH within the vicinity of the Popp's Ferry Park; a description of each Fishery Management Plan; an analysis of the direct, indirect and cumulative effects on EFH for the managed fish species and their major food sources; our views regarding the effects of the proposed action; and proposed minimization measures selected to minimize expected project negative effects.

2.0 PROJECT DESCRIPTION

The proposed project would enhance the interactive nature of the existing Popp's Ferry Causeway Park (Figure 1) by constructing new amenities and updating existing features. These enhancements would replace lost recreational opportunities by providing improved access to the adjacent coastal estuarine habitats. Local residents have used the mostly undeveloped Popp's Ferry Causeway for fishing, shrimping, boating, walking, jogging, biking, and other shoreline activities for many years. The City of Biloxi purchased the property in 2000 and the Popp's Ferry Causeway Park Master Plan was developed. Partially constructed in the early 2000's, the property and infrastructure sustained damage from Hurricane Katrina in 2005. The proposed project enhances coastal recreational access and opportunities. Improvements such as boardwalks, nature trails, an Interpretive Center, fishing piers, and other amenities intend to provide access to shoreline habitats and replacement opportunities for coastal-based recreation that was lost during the *Deepwater Horizon* oil spill and response activities.

Concrete Walkway and Wooden Boardwalk

Along the western edge of the park, south of the boat launch, the project proposes the construction of an 8 foot wide concrete walkway and wooden boardwalk that would extend approximately 1,313 linear feet along the shoreline (Figure 2). To make this shoreline walkway more enjoyable, benches, low impact lighting, and shoreline viewing landings would be installed.

Shoreline Stabilization (Riprap)

The placement of approximately 1,326 linear feet of riprap water edge treatment would extend along the western boundary of the park for shoreline stabilization. Riprap placement would begin immediately south of the boat launch.

Fishing Piers

Four fishing piers are proposed for construction on the western shoreline of the project area. Two Type A piers would have an area of 20 x 30 feet and two Type B piers would have an area of 40 x 40 feet. Currently, there are limited locations for fishing within the park and these would greatly increase those opportunities especially for visitors that do not have access to a boat.

Interpretive Center

An Interpretive Center would be constructed just to the east of a new parking area to provide new amenities for further enjoyment of the shoreline. This facility would be constructed in an open air style and provide exhibits on the park and its natural resources, as well as restrooms. This building would be surrounded by appropriate landscaping and connect to other parts of the park through a network of nature trails.



Figure 1 - Popp's Ferry Causeway Park and vicinity.

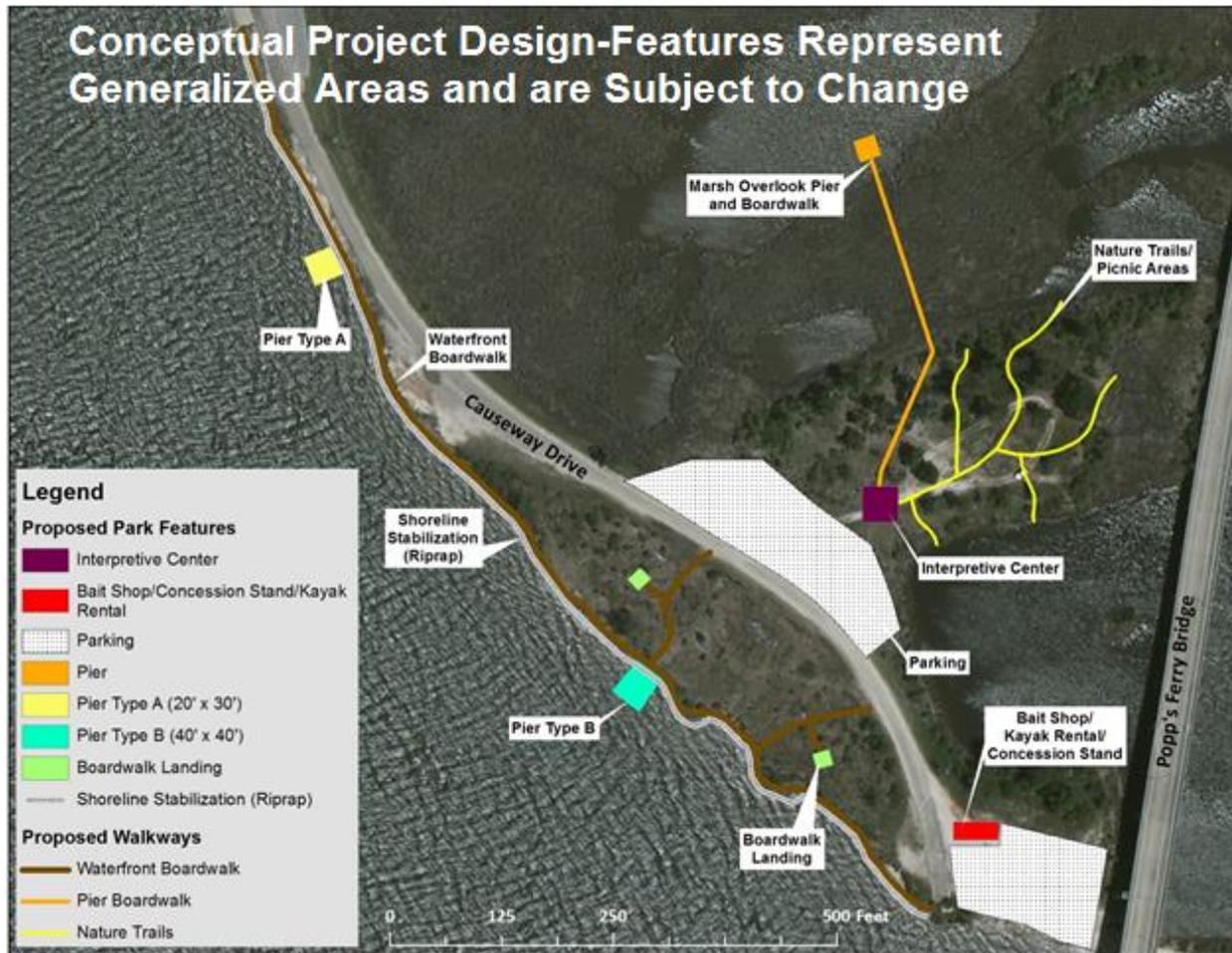


Figure 2 - Popp's Ferry Causeway Park project features-Conceptual Plan.

Road/Parking Areas

Causeway Drive currently connects the mainland to Popp’s Ferry Causeway Park and runs the length of the property. Improvement of this two-lane road south of the boat launch would enable easier access to the enhanced park and its amenities. At the southern end of the project area is a larger upland area where most of the new park amenities are to be constructed. A new parking area is proposed for land adjacent to the east side of the road in this upland area. Additionally, a hard-packed gravel and soil area at the very southern end of the park is to be paved. The addition of these parking areas would allow for increased public visitation of the park.

Nature Trails/Picnic Areas

Interconnecting nature trails with several picnic areas are proposed throughout the site. The trails would connect several major amenities within in the park area including the Interpretive Center and parking areas to the outer reaches of the property. These trails are meant to increase public access to, and enjoyment of, nature in general and specifically the surrounding coastal environment.

Marsh Overlook Pier and Boardwalk

A 6 foot wide wooden boardwalk (approximately 390 linear feet) is proposed to extend from the Interpretive Center to the northeast through the estuarine emergent marsh and would end with a marsh overlook pier located on the open water. This allows the public to have access to the wetland habitats for viewing opportunities of the associated wildlife and scenery.

Bait Shop/Concession Stand/Kayak Rental

A facility housing concessions, a bait shop, and kayak rentals is proposed for the southeastern most portion of the project area. This would be located next to the proposed new parking lot.

Landscaping

This proposed project would landscape the degraded and disturbed portions of the park property with native vegetation for a more enjoyable experience. Landscaping would be placed around the Interpretive Center and bait shop/concession stand/kayak rental facility, along Causeway Drive and other appropriate locations.

Utilities

To support the installation of restrooms and the bait shop/concession stand/kayak rental facility, the project would be connected to existing sewer, water, and electric utility infrastructure on Cambridge Drive, located in the residential neighborhood to the north (Figure 1).

3.0 CONSTRUCTION AND INSTALLATION

The construction and installation of proposed project elements would require the use of small dozers, loaders, excavators, forklifts, backhoes, haul trucks, and track-mounted Bobcats. If heavy equipment is necessary for any construction or installation work in sensitive areas, wetland mats and low ground pressure (LGP) equipment would be used in order to minimize damage. Access for all water-side construction would be from a working barge which would include a crane, vibratory hammer and clamshell bucket, etc.

Staging for construction would be confined to the site and the contractor could be directed to stage equipment in areas that have been previously disturbed and that do not contain wetlands. This project would likely involve some amount of redistribution of fill already present within the project area (Table 1).

Concrete Walkway and Wooden Boardwalk

Before construction and installation of the concrete walkway and lighted wooden boardwalk, site preparation activities would include demolition of old pilings, concrete slabs, broken asphalt and concrete steps along the shoreline and the subsequent, grading and compaction of the concrete walkway/boardwalk area only. The designs for the shoreline path include two distinct elements: one

constructed of concrete and others constructed of wooden materials. Therefore, the final installation would require the placement of concrete (approximately 500 linear feet; approximately 4,000 square feet) and the installation of a wooden piling super structure to be complemented with conventional support framing and composite decking (approximately 813 linear feet; approximately 4,878 square feet) along the upland edge of the shoreline. Using the same approach, lighted, wooden connector boardwalks (approximately 355 linear feet; approximately 2,130 square feet) featuring landings would connect the main shoreline to more landward areas. Pile installation would be accomplished through the use of a vibratory hammer head attached to a track-mounted excavator (trackhoe). All piles used in this project would be wood piles 12 inches in diameter. The boardwalk portions of this feature would require approximately 100 pilings which would take approximately six days to install. The planking would consist of fully recycled composite decking material. Low-impact lighting would be installed along the waterfront shoreline path.

Shoreline Stabilization (Riprap)

Replacing and establishing approximately 1,326 linear feet of clean concrete/conglomerate riprap at the water's edge along the western and southern project boundaries would stabilize the shoreline and protect the walkway. The shoreline to the north of the project has recently been completed using the same treatment. Both a land based and waterside access via a float barge would be necessary to deploy the riprap from the open water channel west of the shoreline.

Fishing Piers

With the shoreline cleared of existing concrete debris, the construction of four fishing piers would extend out from the concrete walkway or wooden boardwalk and would require the driving of 12 inch diameter wood pilings in open water using the previously mentioned vibratory hammer technique. Using the pilings as a foundation, conventional support framing and decking would be employed to construct all piers to the applicable specifications. The two Type A piers would be 20 X 30 feet and would have a total area of 600 square feet each. The two Type B piers would be 40 x 40 feet and would have a total area of 1,600 square feet each. Each Type A pier will contain 12 to 15 pilings and would require approximately one day to install. The Type B fishing piers would require 25 to 30 pilings and would require approximately 2 days to install.

Interpretive Center and Bait Shop/Concession Stand/Kayak Rental

Site preparation for the approximately 1,600 square foot Interpretive Center and the approximately 1,000 square foot bait shop/concession stand/kayak rental includes the clearing and grubbing of vegetation within the designated upland areas, using the same approach as described above. The Interpretive Center and the bait shop/concession stand/kayak rental facility would be constructed on pilings.

Road/Parking Areas

Improvements to the existing asphalt road and construction of additional parking areas would require minimal clearing and grubbing milling and reuse of existing asphalt, as well as re-grading and compaction of the natural substrate. The placement of asphalt on both the road and parking areas as well as associated grading work would use equipment such as conventional moto-graders, smooth drum rollers or other compaction equipment, and paving machines. All pavement features would be encircled by concrete curbs with the installation of new drainage features. New standard 16 inch lighting and low-impact lighting will also be installed where necessary. Approximately 1.0 acre of upland would be paved for parking lots and approximately 1,296 linear feet of existing roadway would be improved.

Nature Trails/Picnic Areas

Following any necessary clearing and grubbing work, approximately 3,860 square feet of nature trails and picnic areas would be installed throughout the project area using natural pervious materials such as mulch. No hardened materials or impervious surfaces such as concrete would be used for these trails.

Marsh Overlook Pier and Boardwalk

The construction of the marsh overlook pier (approximately 625 square feet) and boardwalk (approximately 390 linear feet) would require the driving of 12 inch pilings using a vibratory hammer mounted to a trackhoe. All piles used in this project would be wood piles 12 inches in diameter. The construction of this feature would require approximately 125 wood pilings which would take eight days to install. The pier and boardwalk foundation would be graded plank and the decking would be composite decking material.

Landscaping

Landscaping work is intended for areas surrounding the trails and picnic areas as well as around the constructed facilities, parking areas, and roadway. Preparation for landscaping activities would involve the removal of unusable soils, vegetation, trees, stumps, and debris followed by the placement of clean materials such as topsoil, sand, gravel and/or mulch on the proposed surfaces. After clearing and grubbing, trees and shrubs would be planted and seed would be spread along the roadway and around areas disturbed during construction. All landscaping work would use native species to the extent possible.

Utilities

The inclusion of restrooms in the Interpretive Center would require the construction of a new pump station and installation of a sanitary sewer main and new force main. Electrical and water, in addition to sewer and force main utilities, would be installed in trenches of approximately two to three feet wide along Causeway Road to a maximum depth of approximately six feet. These utilities would run approximately 4,749 linear feet from both the Interpretive Center and the bait shop/concession stand/kayak rental and tie into existing utilities located within residential neighborhood to the north (Figure 1).

Table 1 - Approximate Disturbance Areas within the Popp's Ferry Causeway Park		
Project Feature	Approximate Disturbance Area (acres)	In-Water Work
Connector and Boardwalks	0.25	
Shoreline Stabilization	0.09	x
Fishing Piers	0.10	x
Interpretive Center	0.04	
Bait Shop/Concession Stand/Kayak rental	0.02	
Marsh Overlook and Pier	0.23	x
Nature Trails and Picnic Area	0.03	
Road Improvements	0.50	
Parking	1.0	
Landscaping	4.2	
Utility Work	0.3	

Construction in Mississippi is required to follow the “Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas” and the “Field Manual for Erosion and Sediment Control on Construction Sites in Mississippi”. The construction of the proposed project would follow these guidelines as well as any other best management practices in order to prevent, control, and mitigate for any adverse impacts. The maintenance of the Popp’s Ferry Causeway Park and associated features would be controlled by the City of Biloxi. It is anticipated that maintenance activities would include activities such as replacement of light bulbs for street lighting, trash removal, mowing in grassed areas, and possible noxious/invasive plant removal. It is unlikely that any substantial in-water maintenance will take place.

3.0 ESSENTIAL FISH HABITAT

The 1996 amendments to the Magnuson-Stevens Act set forth a mandate for NMFS, regional Fishery Management Councils (FMC), and other Federal agencies to identify and protect EFH of economically important marine and estuarine fisheries. To achieve this goal, suitable fishery habitats need to be maintained. EFH in the project's area of effect is identified and described for various life stages of 12 managed fish and shellfish (GMFMC 1998). A provision of the Magnuson-Stevens Act requires that FMC's identify and protect EFH for every species managed by a Fishery Management Plan (FMP) (U.S.C. 1853(a)(7)). There are FMP's in the Gulf region for shrimp, red drum, reef fish, coastal migratory pelagics, and highly migratory species (e.g., sharks). Table 2 presents EFH in the northern Gulf.

Table 2. Essential Fish Habitat in the Northern Gulf of Mexico

Management Unit	Lifestage(s) Found at Location	FMP [^]
Red Drum	ALL	Red Drum
Highly Migratory Species		
Scalloped Hammerhead Shark	Neonate, Juvenile	HMS*
Bonnethead Shark	Adult	HMS*
Blacktip Shark	Neonate, Juvenile	HMS*
Bull Shark	Juvenile, Adult	HMS*
Spinner Shark	Juvenile	HMS*
Atlantic Sharpnose Shark	Neonate	HMS*
Shrimp (4 Species)		
Brown shrimp (<i>Farfantepenaeus aztecus</i>)	ALL	Shrimp
White shrimp (<i>Litopenaeus setiferus</i>)		
Pink shrimp (<i>Farfantepenaeus duararum</i>)		
Royal red shrimp (<i>Pleoticus robustus</i>)		
Coastal Migratory Pelagics		
King mackerel (<i>Scomberomorus cavalla</i>)	ALL	Coastal Migratory Pelagics
Spanish mackerel (<i>Scomberomorus maculatus</i>)		
Cobia (<i>Rachycentron canadum</i>)		
Dolphin (<i>Coryphaena hippurus</i>)		
Little tunny (<i>Euthynnus alletteratus</i>)		
Cero mackerel (<i>Scomberomorus regalls</i>)		
Bluefish (<i>Pomatomus saltatrix</i>)		
Reef Fish (43 Species)		
<u>Balistidae - Triggerfishes</u>	ALL	Reef Fish
Gray triggerfish (<i>Balistes capriscus</i>)		
<u>Carangidae – Jacks</u>		
Greater amberjack (<i>Seriola dumerili</i>)		
Lesser amberjack (<i>Seriola fasciata</i>)		
Almaco jack (<i>Seriola rivoliana</i>)		
Banded rudderfish (<i>Seriola zonata</i>)		
<u>Labridae – Wrasses</u>		
Hogfish (<i>Lachnolaimus maximus</i>)		
<u>Lutjanidae - Snappers</u>		
Queen snapper (<i>Etelis oculatus</i>)		
Mutton snapper (<i>Lutjanus analis</i>)		

Management Unit	Lifestage(s) Found at Location	FMP [^]
Schoolmaster (<i>Lutjanus apodus</i>) Blackfin snapper (<i>Lutjanus buccanella</i>) Red snapper (<i>Lutjanus campechanus</i>)		
Cubera snapper (<i>Lutjanus cyanopterus</i>) Gray (mangrove) snapper (<i>Lutjanus griseus</i>) Dog snapper (<i>Lutjanus jocu</i>) Mahogany snapper (<i>Lutjanus mahogoni</i>) Lane snapper (<i>Lutjanus synagris</i>) Silk snapper (<i>Lutjanus vivanus</i>) Yellowtail snapper (<i>Ocyurus chrysurus</i>) Wenchman (<i>Pristipomoides aquilonaris</i>) Vermilion snapper (<i>Rhomboplites aurorubens</i>) <u>Malacanthidae – Tilefishes</u> Goldface tilefish (<i>Caulolatilus chrysops</i>) Blackline tilefish (<i>Caulolatilus cyanops</i>) Anchor tilefish (<i>Caulolatilus intermedius</i>) Blueline tilefish (<i>Caulolatilus microps</i>) (Golden) Tilefish (<i>Lopholatilus chamaeleonticeps</i>) <u>Serranidae – Groupers</u> Dwarf sand perch (<i>Diplectrum bivittatum</i>) Sand perch (<i>Diplectrum formosum</i>) Rock hind (<i>Epinephelus adscensionis</i>) Speckled hind (<i>Epinephelus drummondhayi</i>) Yellowedge grouper (<i>Epinephelus flavolimbatus</i>) Red hind (<i>Epinephelus guttatus</i>) Goliath grouper (<i>Epinephelus itajara</i>) Red grouper (<i>Epinephelus morio</i>) Misty grouper (<i>Epinephelus mystacinus</i>) Warsaw grouper (<i>Epinephelus nigritus</i>) Snowy grouper (<i>Epinephelus niveatus</i>) Nassau grouper (<i>Epinephelus striatus</i>) Marbled grouper (<i>Epinephelus inermis</i>) Black grouper (<i>Mycteroperca bonaci</i>) Yellowmouth grouper (<i>Mycteroperca interstitialis</i>) Gag (<i>Mycteroperca microlepis</i>)		

Management Unit	Lifestage(s) Found at Location	FMP [^]
Scamp (<i>Mycteroperca phenax</i>) Yellowfin grouper (<i>Mycteroperca venenosa</i>)		

[^]FMP-Fisheries Management Plan, *HMS- Highly Migratory Species

Table 2 represents all EFH species located in the northern portion of the Gulf of Mexico. Several of those species will not be present near the Popp’s Ferry project site because specific essential habitat does not exist.

4.0 MANAGED FISH SPECIES

The seasonal and year-round locations of designated EFH for the managed fisheries are depicted on the figures available on the NMFS website (<http://sero.nmfs.noaa.gov/hcd/efh.htm>) and species abundance maps, both inshore and offshore, are available on the National Ocean Service (NOS) website (<http://ccma.nos.noaa.gov/products/biogeography/gom-efh/>). EFH figures for HMS are found in the 2009 amendments to the Consolidated Atlantic Highly Migratory Species Fisheries Management Plan. EFH for each managed fishery within the project’s footprint is described below:

Red Drum FMP – EFH for red drum consists of all Gulf of Mexico estuaries; waters and substrates extending from Vermilion Bay, Louisiana to the eastern edge of Mobile Bay, Alabama out to depths of 25 fathoms; waters and substrates extending from Crystal River, Florida to Naples, Florida between depths of 5 and 10 fathoms; waters and substrates extending from Cape Sable, Florida to the boundary between the areas covered by the Gulf of Mexico Fishery Management Council and the South Atlantic Fishery Management Council between depths of 5 and 10 fathoms.

Shrimp FMP – EFH for shrimp consists of Gulf of Mexico waters and substrates extending from the US/Mexico border to Fort Walton Beach, Florida from estuarine waters out to depths of 100 fathoms; waters and substrates extending from Grand Isle, Louisiana to Pensacola Bay, Florida between depths of 100 and 325 fathoms; waters and substrates extending from Pensacola Bay, Florida to the boundary between the areas covered by the Gulf of Mexico Fishery Management Council and the South Atlantic Fishery Management Council out to depths of 35 fathoms, with the exception of waters extending from Crystal River, Florida to Naples, Florida between depths of 10 and 25 fathoms and in Florida Bay between depths of 5 and 10 fathoms.

Coastal Migratory Pelagics FMP – EFH for coastal migratory pelagics consists of Gulf of Mexico waters and substrates extending from the US/Mexico border to the boundary between the areas covered by the Gulf of Mexico Fishery Management Council and the South Atlantic Fishery Management Council from estuarine waters out to depths of 100 fathoms. Managed fish in this fishery include king mackerel, Spanish mackerel, and cobia. Non-managed fish in this fishery include cero mackerel, little tunny, dolphin, and bluefish.

Reef Fish FMP – EFH for reef fish consists of Gulf of Mexico waters and substrates extending from the US/Mexico border to the boundary between the areas covered by the Gulf of Mexico Fishery Management Council and the South Atlantic Fishery Management Council from estuarine waters out to depths of 100 fathoms.

Estuarine areas are connected by currents and water patterns that influence the occurrence of HMS at particular times of the year. Due to habitat specific requirements of each species, EFH for each HMS potentially occurring in the vicinity of the Popp's Ferry Causeway Park is described below (EFH information from NMFS, 2009):

Scalloped Hammerhead Shark:

- Neonate/YOY (≤ 60 cm TL): Coastal areas in the Gulf of Mexico from Texas to the southern west coast of Florida. Atlantic east coast from the mid-east coast of Florida to southern North Carolina.
- Juveniles (61 to 179 cm TL): Coastal areas in the Gulf of Mexico from the southern to mid-coast of Texas, eastern Louisiana to the southern west coast of Florida, and the Florida Keys. Offshore from the mid-coast of Texas to eastern Louisiana. Atlantic east coast of Florida through New Jersey.
- Adults (≥ 180 cm TL): Coastal areas in the Gulf of Mexico along the southern Texas coast, and eastern Louisiana through the Florida Keys. Offshore from southern Texas to eastern Louisiana. Atlantic east coast of Florida to Long Island, NY.

Bonnethead Shark:

- Neonate/YOY (≤ 55 cm TL): Coastal areas in the Gulf of Mexico along Texas, and from eastern Mississippi through the Florida Keys. Atlantic east coast from the midcoast of Florida to South Carolina.
- Juveniles (56 to 81 cm TL): Coastal areas in the Gulf of Mexico along Texas, and from eastern Mississippi through the Florida Keys. Atlantic east coast from the midcoast of Florida to South Carolina.
- Adults (≥ 82 cm TL): Coastal areas in the Gulf of Mexico along Texas, and from eastern Mississippi through the Florida Keys. Atlantic east coast from the mid-coast of Florida to Cape Lookout.

Blacktip Shark:

- Neonate/YOY (≤ 75 cm TL): Coastal areas in the Gulf of Mexico from Texas through the Florida Keys. In Atlantic coastal areas from northern Florida through Georgia, and the mid-coast of South Carolina.
- Juvenile (76 to 136 cm TL): Coastal areas in the Gulf of Mexico from Texas through the Florida Keys. In Atlantic coastal areas localized off of the southeast Florida coast and from West Palm Beach, Florida to Cape Hattaras.

- Adult (≥ 137 cm TL): Coastal areas in the Gulf of Mexico from Texas through the Florida Keys. In Atlantic coastal areas southeast Florida to Cape Hattaras.

Bull Shark:

- Neonate/YOY (≤ 95 cm TL): Gulf of Mexico coastal areas along Texas, and localized areas off of Mississippi, the Florida Panhandle, and west coast of Florida; as well as the Atlantic mid-east coast of Florida.
- Juveniles (96 to 219 cm TL): Gulf of Mexico coastal areas along the Texas coast, eastern Louisiana to the Florida Panhandle, and the west coast of Florida through the Florida Keys. Atlantic coastal areas localized from the mid-east coast of Florida to South Carolina.
- Adults (≥ 220 cm TL): Gulf of Mexico along the southern and mid-coast of Texas to western Louisiana, eastern Louisiana to the Florida Keys. East coast of Florida to South Carolina in the Atlantic.

Spinner Shark:

- Neonate/YOY (≤ 70 cm TL): Localized coastal areas in the Gulf of Mexico along Texas, eastern Louisiana, the Florida Panhandle, Florida west coast, and the Florida Keys; and in the Atlantic along the east coast of Florida to southern North Carolina.
- Juveniles (71 to 179 cm TL): Gulf of Mexico coastal areas from Texas to the Florida Panhandle, and the mid-west coast of Florida to the Florida Keys. Atlantic east coast of Florida through North Carolina.
- Adults (≥ 180 cm TL): Localized areas in the Gulf of Mexico off of southern Texas, Louisiana through the Florida Panhandle, and from the mid-coast of Florida through the Florida Keys. In the Atlantic along the east coast of Florida, and localized areas from South Carolina to Virginia.

Atlantic Sharpnose Shark

- Neonate/YOY (≤ 60 cm TL): Gulf of Mexico coastal areas from Texas through the Florida Keys. In the Atlantic from the mid-coast of Florida to Cape Hattaras.
- Juveniles (61 to 71 cm TL): Gulf of Mexico coastal areas from Texas through the Florida Keys. In the Atlantic from the mid-coast of Florida to Cape Hattaras, and a localized area off of Delaware.
- Adults (≥ 72 cm TL): Gulf of Mexico from Texas through the Florida Keys out to a depth of 200 meters. In the Atlantic from the mid-coast of Florida to Maryland.

4.1 ECOLOGICAL NOTES ON THE EFH FISHERIES AND SPECIES

Habitats in the Proposed Project Area

The Popp's Ferry Causeway Park project area is composed largely of disturbed upland, estuarine emergent marsh, estuarine shallow water intertwined by a small number of tidal creeks, and estuarine

deepwater where river and navigation channels flow through. The project area is located within the Biloxi Bay watershed and includes estuarine wetlands and estuarine deep water habitats surrounding Popp's Ferry Causeway Park. The surrounding waterbodies are the Biloxi River, Big Lake, and the Back Bay of Biloxi. The open water habitats of the Biloxi River navigation channel to the west and south have deeper water whereas Back Bay of Biloxi waters to the north and east are shallower (Figure 1). NOAA bathymetry charts show that water depths are approximately 14 to 23 feet adjacent to the western and southern boundaries and approximately 1 to 3 feet on the northern and eastern sides. The project site is approximately 12.5 navigable miles from the Mississippi Sound and is tidally influenced.

The benthic habitats can be divided into two classes including intertidal and subtidal. Intertidal zones (typical tidal range of 0.5 ft.) in the area are composed of mud flats and salt marsh edge. The nearshore subtidal benthic habitat is composed mostly of unconsolidated bottom types including silt, muddy sand, and mud bottom (Wieland 1994). Submerged aquatic vegetation (SAV) and oyster reefs do not exist in the project area. Estuarine wetland and waters support an array of neonate, juvenile, and adult fish. Table 3 lists the EFH species that utilized the project area. A brief discussion of Gulf of Mexico Fishery Management Plan Groups is provided below.

4.1.1 Red Drum

In the Gulf, red drum occur in a variety of habitats, ranging from depths of about 130 feet offshore to very shallow estuarine waters. They commonly occur in all of the Gulf's estuaries where they are associated with a variety of substrate types including sand, mud, and hardened bottom. Throughout the Gulf, red drum use seagrass meadows as nursery and foraging habitat (GMFMC 2004). Estuaries provide habitat for red drum and species that it preys on. The GMFMC considers all estuaries to be EFH for the red drum. Schools of large red drum are common in the deep Gulf waters with spawning occurring in deeper water near the mouths of bays and inlets, and on the Gulf side of the barrier islands.

In the project area the red drum fishery is very common. The estuarine zone is used by this species in all life stages except for egg development. Habitat use is highest for nearshore hard bottoms, nearshore sand/shell, estuarine SAV, and estuarine soft bottoms (GMFMC 2005). Larvae, juveniles, and young adults spend the majority of their time in estuarine habitats and prey on a large array of species including blue crab eggs and numerous juvenile fish.

Table 3. Popp's Ferry Causeway Park Essential Fish Habitat In the Action Area

Gulf of Mexico FMP Group	Species	Habitat Type	Eggs	Larvae	Post Larvae	Early Juveniles	Late Juveniles	Adults	Spawning Adults
Red Drum Fishery	Red Drum (<i>Scianops ocellatus</i>)	SAV, soft bottom, sand/shell, emergent marsh		Growth; feeding	Growth; feeding	Growth; feeding	Growth; feeding	Feeding	Feeding
Reef Fish Fishery	Mutton Snapper (<i>Lutjanus analis</i>)	SAV, emergent marsh				Growth; feeding	Growth; feeding	Feeding	
	Cubera Snapper (<i>Lutjanus cyanopterus</i>)	SAV, emergent marsh				Growth	Growth		
	Gray Snapper (<i>Lutjanus griseus</i>)	SAV, soft bottom, sand/shell, emergent marsh			Growth; feeding	Growth; feeding	Growth; feeding	Feeding	
	Lane Snapper (<i>Lutjanus synagris</i>)	SAV, soft bottom, sand/shell			Growth	Growth; feeding	Growth; feeding		
	Yellowtail Snapper (<i>Ocyurus chrysurus</i>)	SAV, soft bottom				Growth; feeding			
Coastal Pelagic Fishery	Spanish Mackerel (<i>Scomberomorus maculatus</i>)	Pelagic				Growth; feeding	Growth; feeding	Growth; feeding	
Shrimp Fishery	Brown Shrimp (<i>Farfantepenaeus aztecus</i>)	SAV, soft bottom, sand/shell, emergent marsh, oyster reef			Growth; feeding	Growth; feeding	Growth; feeding		
	White Shrimp (<i>Litopenaeus setiferus</i>)	Emergent marsh, soft bottom			Growth; feeding	Growth; feeding	Growth; feeding		

Source: EIS 2004

4.1.2 Shrimp

Shrimp use a variety of estuarine and marine habitats in the Gulf of Mexico. Brown shrimp are found within the estuaries to offshore depths of 110 meters (m) throughout the Gulf; white shrimp inhabit estuaries and to depths of about 40 m offshore in the coastal area extending from Florida's Big Bend area through Texas. Brown and white shrimp are generally more abundant in the central and western Gulf.

Brown Shrimp

“Brown shrimp range in the Gulf of Mexico from Florida to the northwestern coast of Yucatan. The range is not continuous but is marked by an apparent absence of brown shrimp along Florida's west coast between the Sanibel and the Apalachicola shrimping grounds. In the U.S. Gulf of Mexico, catches are high along the Texas, Louisiana, and Mississippi coasts. In estuarine areas, shrimp are typically found as postlarvae and juveniles in shallow vegetated habitats, but, occasionally, in silty sand and non-vegetated bottoms. Juveniles and sub-adults generally prefer shallow estuaries and marsh edges (plant-water interfaces). Sub-adults migrate from estuaries during outgoing high tides and adult brown shrimp typically inhabit Gulf waters from the Mean Low Water line to the continental shelf” (GMFMC, 2006). Post-larvae, early juvenile, and late-juvenile brown shrimp use estuarine habitat for survival. Emergent marsh and marsh edge are particularly important microhabitats for these species, and they would use the tidal cycle to enter low emergent marsh adjacent to the shoreline (GMFMC 2004).

White Shrimp

White shrimp are offshore and estuarine dwellers, and are pelagic or demersal depending on their life stage. The eggs are demersal and larval stages are planktonic, and both occur in nearshore marine waters. Postlarval white shrimp become benthic upon reaching the nursery areas of estuaries, seeking shallow water with muddy-sand bottoms that are high in organic detritus. Juveniles move from estuarine areas to coastal waters as they mature. Adult white shrimp are demersal and generally inhabit nearshore Gulf waters in depths less than 100 ft. on soft mud or silty bottoms (GMFMC, 2006). Post-larvae, early juvenile, and late-juvenile white shrimp use estuarine habitat for survival. Emergent marsh and marsh edge are particularly important microhabitats for these species, and they would use the tidal cycle to enter low emergent marsh adjacent to the shoreline (GMFMC 2004).

4.1.3 Coastal Migratory Pelagics FMP

The managed coastal migratory pelagics in the project area include Spanish mackerel. Spanish mackerel is jointly managed by the GMFMC and the South Atlantic Fisheries Management Council. Spanish mackerel migrate south during the winter months and return north in the spring to their spawning grounds (GMFMC & SAFMC, 1983). Mackerel tend to feed on other fishes.

In the project area, only the Spanish mackerel (*Scomberomorus maculatus*) uses the estuarine zone during the early and late juvenile and adult life stages.

4.1.4 Reef Fish

The reef fishes FMP in the project area include snappers and groupers. Reef fish are often found as adults associated with coral reef, limestone, hard bottom, and artificial reef substrates. Occasionally adults occur over sand, away from reefs, but these appear to be foraging individuals. There is some evidence that adults have restricted movement and do not display long migrations. Juveniles of many of the reef fish species are located in shallow, inshore areas associated especially with SAV beds and inshore reefs. There is a general tendency for older and larger fish to occur in deeper water extending to the edge of the continental shelf. Reef fish feed on a variety of invertebrates including

shrimp, crabs, amphipods, octopus, and squid. Larger reef fish also have a tendency to eat small fish and other larger food items. (GMFMC 1981)

Reef fish utilize both pelagic and benthic habitats during their life cycle. A planktonic larval stage lives in the water column and feeds on zooplankton and phytoplankton. Juvenile and adult reef fish are typically demersal and usually associated with bottom topographies on the continental shelf that have high relief: i.e., coral reefs, artificial reefs, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings. More detail on these habitat types is found in the Fishery Management Plan (FMP) for Corals and Coral Reefs (GMFMC and SAFMC 1983). However, several species are found over sand and soft-bottom substrates. Some juvenile snapper and grouper such as mutton, gray, lane, and yellowtail snappers and red grouper have been documented in inshore seagrass beds, mangrove estuaries, lagoons, and larger bay systems (GMFMC 1981).

In the project area the reef fish fishery includes numerous species that utilize the estuarine zone in certain life stages. Most are transitory species use inshore environments part of the year. Only mutton (*Lutjanus analis*) and gray snapper (*Lutjanus griseus*) use the estuarine zone as adults for feeding. Reef species have the potential to use this zone as early or late juveniles for growth and feeding habitat.

4.1.5 Highly Migratory Species

Estuarine waters like those found at the Popp's Ferry site provide EFH resources for various life stages of HMS. Sharks enter the shallow estuarine waters to forage and feed, but are unlikely to stay for prolonged times due to the influx of freshwater from the adjacent Biloxi River. The shark species discussed in this assessment generally feed on a variety of small fish (such as menhaden, seatrout, croaker, and perch), shrimp, small sharks, crabs, and seagrass (most likely a result of foraging behavior) (Barry, 1996; Curtis, No Date; Bethea et. al., 2007).

5.0 ASSESSMENT OF IMPACTS AND MITIGATIVE MEASURES

The Trustee, in consultation with the contractors, will take all practicable precautions to minimize unavoidable adverse impacts to EFH. The 10-acre Popp's Ferry Causeway property is primarily upland habitat flanked by estuarine emergent marsh. It is surrounded by water on all sides, the Biloxi to the north and immediate west, Big Lake to the west and the Back Bay of Biloxi to the south and east. The proposed project is located within an area designated as EFH for five Fishery Management Plans (FMP) governed by the Gulf of Mexico Fisheries Management Council. The five fishery groups include *Red Drum, Reef Fish, Coastal Migratory Pelagics, and Shrimp*. Of the 40 species which are federally managed under these plans, nine are feasibly present at the Popp's Ferry estuarine area and could be potentially affected by the proposed project (Table 3). These data were based on species habitat characteristics, depth preferences, and commonality of occurrence for all life stages as reported in the final environmental impact statement for the Generic Essential Fish Habitat Amendment of March 2004 (GMFMC 2004). The project will not result in adverse, direct impacts to emergent wetlands in the area. Most motile fauna such as crab, shrimp, and finfish will likely avoid the area of potential effect during the construction process. The project may result in minor, adverse short-term impacts to benthic

organisms and temporarily affect habitat utilization by individuals considered under EFH fishery management plans. The potential impacts and minimization/mitigative measures are discussed in greater detail below (Section 5.3).

5.1 IMPACTS TO EFH

Minor and temporary impacts to EFH components are expected to soft bottom substrates, since the Popp’s Ferry project will be constructed in an area that is considered EFH for various life stages of the species managed under FMPs. In-water work for Popp’s Ferry includes the installation of a Marsh overlook and piers, fishing piers and shoreline stabilization. The entire footprint of the work is 0.14 acre. A detailed description of construction is provided in Section 3.0 and summarized in Table 4. Additionally, impervious surfaces will be created for parking access on the uplands.

Project Feature	Approximate Disturbance Area (acres)	Construction activities	In-Water Work
Marsh Overlook and Pier	0.23	390 linear foot boardwalk; 125 pilings (12 inch); duration-approximately 8 days	x
Fishing Piers (4)	0.10	2 Type A piers (20X30 ft.) using 12-15 pilings per pier; requiring 1 day to install; 2 Type B piers 12-15 pilings requiring 2 days to install; all piers 12’ wooden	x
Shoreline Stabilization	0.09	Replacing and establishing 1,327 linear ft. of clean concrete conglomerate rip rap at the water’s edge; land and waterside access via a float barge	x
Total	0.14		

Of the 9 species that would be potentially impacted by construction activities, one uses estuarine habitat for spawning (Red Drum) and none use the habitat for egg development. There will likely be short term, minor impacts to benthic invertebrate populations and small ichthyfauna and temporary displacement of adult fish on the west side shoreline from fishing pier construction. We expect these impacts to be short in duration and limited in range to areas where piles would be inserted. There are no SAV or oyster populations in the project area. Impacts are summarized in Table 5 and discussed by project feature below.

Type A & B Piers: Construction of Type A and B Piers would have short term , minor impacts to various life stages of red drum, gray snapper, lane snapper, yellowtail snapper, Spanish mackerel, brown shrimp and white shrimp.

Marsh Overlook Piers: Construction of the marsh overlook pier would have short term, minor impacts to various life stages of red drum, cubera snapper, gray snapper, lane snapper, yellowtail snapper, brown shrimp and white shrimp.

Table 5: Popp's Ferry Causeway Park-Essential Fish Habitat Impact Summary					
Species	Habitats Utilized	Life stages within the Area of Proposed Action	Type A Pier (2)	Type B Pier (2)	Marsh Overlook Pier
Red Drum (<i>Scianops ocellatus</i>)	SAV, soft bottom, hard bottom, sand/shell, emergent marsh	Larvae, post larvae, juvenile, adult, spawning adults	Short term, minor	Short term, minor	Short term, minor
Mutton Snapper (<i>Lutjanus analis</i>)	SAV	Juvenile, adult			
Cubera Snapper (<i>Lutjanus cyanopterus</i>)	SAV, emergent marsh	juvenile			Short term, minor
Gray Snapper (<i>Lutjanus griseus</i>)	SAV, soft bottom, sand/shell, emergent marsh	Post larvae, juvenile, adult,	Short term, minor	Short term, minor	Short term, minor
Lane Snapper (<i>Lutjanus synagris</i>)	SAV, soft bottom, sand/shell	Post larvae, juvenile	Short term, minor	Short term, minor	Short term, minor
Yellowtail Snapper (<i>Ocyurus chrysurus</i>)	SAV, soft bottom	juvenile	Short term, minor	Short term, minor	Short term, minor
Spanish Mackerel (<i>Scomberomorus maculatus</i>)	pelagic	Juvenile, adult	Short term, minor	Short term, minor	
Brown Shrimp (<i>Farfantepenaeus aztecus</i>)	SAV, soft bottom, sand/shell, emergent marsh, oyster reef	Post larvae, juvenile	Short term, minor	Short term, minor	Short term, minor
White Shrimp (<i>Litopenaeus setiferus</i>)	emergent marsh, soft bottom	Post larvae, juvenile	Short term, minor	Short term, minor	Short term, minor

Bottom Disturbance and Turbidity

Structural Placement

Placement of the pilings and work barge activity would result in short-term, minor adverse impacts to water quality as a result of re-suspension of sediment and potential acoustic behavior disturbance on fish. The suspended sediment may be transported into surrounding wetlands and waterways. However, the area is currently exposed to elevated turbidity levels as a result of re-suspension of sediment during frequent storms, tides and freshwater mixing from the nearby mouth of the Biloxi River.

Disturbance of the bottom sediment from pile driving with a vibratory hammer may affect prey availability in the project area for juvenile and adult fish for 3-4 days. The adverse impacts from piling insertion will be localized and temporary, affecting individuals and not entire populations. Since potential impacts will be localized and temporary, there are no expected impacts to populations since spawning, feeding, and resting occurs over broad areas.

Best management practices along with other avoidance and mitigation measures required by state and federal regulatory agencies would be employed to minimize potential water quality and sedimentation impacts. U.S. Army Corps of Engineers Section 10/404 and State Water Quality Certifications would be required and permit conditions would be adhered to. Impacts from turbidity would be minor and short-term and limited in spatial extent.

Boat Traffic

Popp's Ferry Causeway Park has an existing boat launch that provides substantial depth to load and unload boats. Additionally, the park is surrounded by deeper water on the west and south sides from the Biloxi River channel and a navigation channel.

Piling Installation

Installation of pilings for piers will be accomplished using a vibratory hammer mounted on a small track-hoe. Driving pilings creates less turbidity than jetting pilings. Piling installation would result in minor adverse impacts to the benthic community and transient fish using the area. These impacts will be temporary and small scale and will not have wide-ranging impacts to EFH beyond the piling installation footprint. Potential impacts on marine and coastal aquatic life from insertion of pilings would be due to the noise created from the vibration generated by the equipment. During use of this equipment, a vibratory motion propagates through the pile and radiates a pulse into the water, ground substrate, and air. Sound levels produced by vibratory driving of wood piles at the point of the pile include 186 dB (peak pressure), 170 dB (Sound Exposure Level), and 170 dB (RMS) (Caltrans, 2009). Behavior modification from acoustic sound waves may impact fish species, but threat of injury is highly unlikely given the amount of energy exerted from a vibratory hammer on timber piles. Marine Mammal Protection Act compliance is underway under separate consultation with NOAA-NMFS.

5.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Direct

Direct impacts will be limited to the area directly around the construction site and piling installation areas where sediments will be disturbed by placement of piles and work barges. These adverse direct impacts will be short term and it is expected that ambient conditions will be restored following cessation of work each day.

Indirect

Indirect adverse impacts are not expected in the short or long term.

Cumulative

Impacts to essential fish habitat was minimized to the extent possible. The project would provide additional recreational opportunities in the project area. The Popp's Ferry Causeway Park project has potential short-term adverse effects in a small project area (0.14 acre) Essential Fish Habitat. The proposed project has positive effects that are consistent with long-term planning goals, and contribute beneficially to the Mississippi Sound environment. Additionally, all immediate effects are relatively local and geographically disparate. There would be no cumulative impacts to Essential Fish Habitat anticipated from construction of the Popp's Ferry Causeway Park.

5.3 PROPOSED MITIGATIVE MEASURES AND GUIDELINES FOR EFH PROTECTION

1. Use of Best Management Practices (BMP)

Best management practices (BMPs) are measures to minimize and avoid all potential adverse impacts to EFH during project construction and monitoring. This conservation measure recommends the use of BMPs during construction to reduce impacts from project implementation. BMPs shall include but are not limited to:

- a) Anchoring and mooring will be restricted to impacted areas. Work barges would be moored for overnight and weekends/holidays in areas where previous impacts have occurred (deployment areas).

2. Use Vibratory Hammer Instead of Impact Driver

Vibratory hammers are considered a minimization measure to decrease injury and behavior modification to fish and cetaceans. The project will use this method to install pilings for piers.

3. Monitor Structures & Adaptively Manage Structures

Monitoring will be conducted before, during, and after project implementation to ensure compliance with project design.

6.0 CONCLUSIONS

Construction of the Popp's Ferry Causeway Park would not have a substantial adverse impact to EFH. The potential adverse impacts related to the Popp's Ferry Causeway Park project construction will be minimal and temporary and will not impact surrounding habitats due to the localized nature of construction activities.

7.0 REFERENCES/LITERATURE CITED

Barry, P.K. 1996. Feeding Habits of Blacktip Sharks, *Carcharhinus limbatus*, and Atlantic Sharpnose Sharks, *rhizoprionodon terraenovae*, in Louisiana Coastal Waters. A Thesis Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College, Department of Oceanography and Coastal Science. Baton Rouge, Louisiana.

Bethea, D.M., L. Hale, J.K. Carlson, E. Cortés, C. A. Manire, and J. Gelsleichter. 2007. Geographic and ontogenetic variation in the diet and daily ration of the bonnethead shark, *Sphyrna tiburo*, from the eastern Gulf of Mexico. Mar. Biol. 152:1009-1020.

CALTRANS. 2009. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Report prepared by ICF Jones & Stokes and Illinworth and Rodkin, Inc.

Curtis, T. No Date. Bull Shark.<<http://www.flmnh.ufl.edu/fish/Gallery/Descript/bullshark/bullshark.htm>>. Accessed September 16, 2013

Gulf of Mexico Fishery Management Council (GMFMC). 2005. Final Environmental Impact Statement for the Generic Essential Fish Habitat Amendment. Volume 1. March.

GMFMC. 2004. Final Environmental Impact Statement for the Generic Essential Fish Habitat Amendment to the following fishery management plans of the Gulf of Mexico (GOM): Shrimp Fishery of the Gulf of Mexico, Red Drum Fishery of the Gulf of Mexico, Reef Fish Fishery of the Gulf of Mexico, Stone Crab Fishery of the Gulf of Mexico, Coral and Coral Reef fishery of the Gulf of Mexico, Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic, Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic. GMFMC, Tampa, Florida. 118 p.

GMFMC. 1998. Generic Amendment for Addressing Essential Fish Habitat Requirements in the following Fishery Management Plans of the Gulf of Mexico: Shrimp Fishery of the Gulf of Mexico, United States Waters, Red Drum Fishery of the Gulf of Mexico, Reef Fish Fishery of the Gulf of Mexico, coastal Migratory Pelagic Resources (Mackerels) in the Gulf of Mexico and South Atlantic, Stone Crab Fishery of the Gulf of Mexico, Spiny Lobster in the Gulf of Mexico and South Atlantic, Coral and Coral Reefs of the Gulf of Mexico. Gulf of Mexico Fishery Management Council, 3018 U.S. Highway 301 North, Suite 100, Tampa, Florida. October 1998.

Gulf of Mexico Fishery Management Council and South Atlantic Fishery Management Council. 1983. Fishery Management Plan, Final Environmental Impact Statement Regulatory Impact Review, Final Regulations for the Coastal Migratory Pelagic Resources in Gulf of Mexico and South Atlantic Regions. GMFMC, Tampa, FL & SAFMC, Charleston, SC. February, 1983.

GMFMC. 1981. Final Environmental Impact Statement and Fisheries Management Plan for the Reef Fish Resources of the Gulf of Mexico. GMFMC, Tampa, FL. August 1981.

NMFS. 2009. Final Amendment 1 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan, Essential Fish Habitat. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document. pp. 395.

National Ocean Service (NOS). 1998. Gulf of Mexico Essential Fish Habitat, LA/MS/AL. Center for Coastal Monitoring and Assessment. <<http://ccma.nos.noaa.gov/products/biogeography/gom-efh/lma.aspx>>. Accessed September 9, 2013.

Weiland, R.G. 1994. Marine and Estuarine Habitat Types and Associated Ecological Communities of the Mississippi Coast. Museum Technical Report No. 25. Mississippi Department of Wildlife, Fisheries, and Parks.