



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
<https://www.fisheries.noaa.gov/region/southeast>

F/SER31:MT
SERO-2020-00674

Christy Fellas
DWH Environmental Compliance Coordinator
NOAA Restoration Center
263 13th Ave. South
St. Petersburg, FL 33701

Dear Ms. Fellas:

This letter responds to your request for consultation with us, the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the following action.

Project Name	Applicant	SERO Number	Project Type
Mississippi Oyster Spawning Reefs Project	Mississippi Trustee Implementation Group (TIG)	SERO-2020-00674	Oyster Reef Restoration

Consultation History

We received your letter requesting consultation on March 11, 2020, and initiated consultation that day. This project has been assigned a tracking number in our NMFS Environmental Consultation Organizer (ECO), SERO-2020-00674. Please refer to this number in any future inquiries regarding this project.

Project Location

Location	Water body
Mississippi Sound and associated estuarine embayments in Hancock, Harrison, and Jackson Counties, Mississippi	Mississippi Sound, Gulf of Mexico

Existing Site Conditions

The Mississippi Sound and its associated estuarine embayments make up a marine system composed of an array of habitat types that support a large number of species. The diverse habitats include the estuarine intertidal zone, submerged aquatic vegetation (SAV) beds, mollusk reefs, tidal creeks, unconsolidated bottom substrate (sand, soft mud, and mixes), artificial reefs, and barrier island passes. The proposed oyster spawning reefs would be located in St. Louis Bay, Heron Bay, Back Bay/Biloxi Bay, Graveline Bay, Pascagoula Bay, and Grand Bay and the adjacent nearshore areas of the Mississippi Sound, in Hancock, Harrison and Jackson Counties (Figure 1). A range of environmental variables (salinity, water depth, and substrate) exist across the different project areas. Culch placement would be targeted on suitable hard substrates



(existing reefs, relic reefs and other hard bottom substrates that will support the cultch material). The majority of the priority areas identified for oyster reef restoration under this project are within Gulf sturgeon critical habitat Unit 8 (Figure 1).

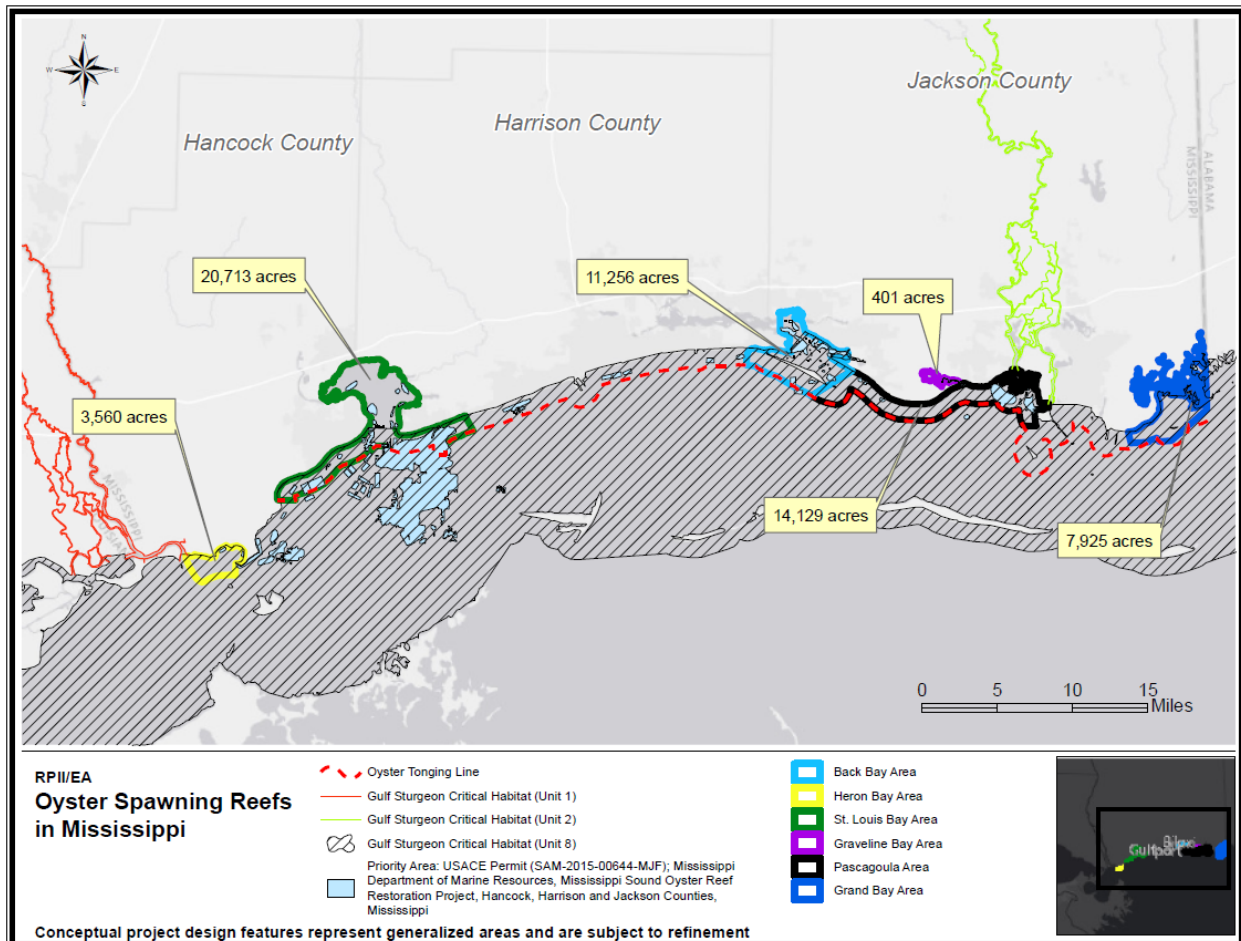


Figure 1. Overview of proposed project area, showing Priority Areas for oyster reef restoration and Gulf sturgeon critical habitat units throughout the larger project area.

Project Description

The Mississippi TIG proposes to fund the creation/restoration of oyster spawning habitat along the Gulf coast of Mississippi. The proposed project would take place over a 10-year timeframe and would include the restoration or creation of a minimum of 100 acres and a maximum of 400 acres of oyster spawning reefs, through high-relief cultch placements, in up to 6 locations in the Mississippi Sound and adjacent estuarine embayments (including St. Louis Bay, Heron Bay, Back Bay/Biloxi Bay, Graveline Bay, Pascagoula Bay, and Grand Bay; Figure 1). It is estimated that historically 7,062 acres of oyster reefs occurred in the locations that encompass the proposed project area.

Cultch would be deployed at a thickness of approximately 1 foot (ft) up to several ft in selected areas with water depths ranging from 0 to 10 ft at mean lower low water (MLLW). Exact locations would be based on bathymetry, salinity, substrate suitability and other factors. Cultch placement would be targeted on suitable hard substrates (existing reefs, relic reefs and other hard

bottom substrates that will support the cultch material). Some of the placement areas may have a thin veneer of soft sediments on top of these hard substrates. Soft sediments are not the preferred or intended substrate for cultch placement, but cultch material targeted for hard substrates may spill over into these areas. Soft sediments will make up less than 10% of the total placement areas within Gulf sturgeon critical habitat.

The oyster reef habitat would be constructed using appropriate cultch material (limestone, crushed concrete, oyster shells, fossilized oyster shells, and other suitable cultch material or a combination thereof). The cultch materials would be stockpiled at an existing upland staging area, which has water access to the project areas. The cultch materials would be inspected at the upland staging area to ensure the materials are clean and free of all debris, including but not limited to, trash, steel reinforcement, and asphalt. The cultch materials would be loaded onto shallow draft barges or shallow draft self-powered marine vessels and transported to the reef sites. Cultch materials would be deployed using a high-pressure water jet or a clam-shell bucket mounted on a crane or a long-armed track hoe located on a separate equipment barge. Distribution of cultch may be in undulating mounds or as an evenly distributed reef bed. Cultch would not be placed in any location or in a manner that might obstruct or inhibit Gulf sturgeon entering spawning rivers or any other migratory pathways. Some of the cultch may be pre-inoculated with living oyster spat to enhance oyster colonization on the new reefs.

Construction Conditions

To minimize any potential effects to ESA-listed species, the construction contractors will implement the following conditions during all in-water construction activities:

- All project-related vessels will adhere to NMFS's Vessel Strike Avoidance Measures and Reporting for Mariners.¹
- Construction contractors will implement the NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions.²
- Construction contractors will implement the NMFS Measures for Reducing the Entrapment Risk to Protected Species.³

¹ <http://www.fisheries.noaa.gov/webdam/download/92937962>

² <https://www.fisheries.noaa.gov/webdam/download/92937961>

³ <https://www.fisheries.noaa.gov/webdam/download/92937957>

Effects Determination(s) for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status⁴	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North Atlantic [NA] distinct population segment [DPS])	T	NLAA	NLAA
Green (South Atlantic [SA] DPS)	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Loggerhead (Northwest Atlantic [NWA] DPS)	T	NLAA	NLAA
Fish			
Gulf sturgeon (Atlantic sturgeon, Gulf subspecies)	T	NLAA	NLAA

Critical Habitat

The majority of the priority areas identified for oyster reef restoration under the proposed project are located within Gulf sturgeon critical habitat Unit 8. The following essential features are present in Unit 8:

1. Abundant prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, mollusks and/or crustaceans, within estuarine and marine habitats and substrates for subadult and adult life stages;
2. Water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages;
3. Sediment quality, including texture and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages;
4. Safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats (e.g., an unobstructed river or a dammed river that still allows for passage).

We believe the proposed project may have the potential to affect essential features 1, 2 and 3 above. Because the proposed project specifies that cultch would not be placed in any location or in a manner that might obstruct or inhibit Gulf sturgeon entering spawning rivers or any other migratory pathways, we believe there will be no effect on essential feature #4.

Analysis of Potential Routes of Effects to Species

Sea turtles and Gulf sturgeon may be injured if struck by construction related vessels, equipment, or materials (e.g. barge tugs, crane buckets, large cultch, etc.). The risk of this occurring is extremely unlikely because these species are highly mobile and are expected to avoid the noise and disturbance associated with construction vessels/activities. The implementation of NMFS's *Vessel Strike Avoidance Measures and Reporting for Mariners* and *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce any risk by requiring all construction

⁴ E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect.

vessels to maintain slow transit speeds (5 knots or less), and all workers shall keep watch for protected species. Operation of any mechanical equipment will cease immediately if a protected species is seen within a 50-ft radius of the equipment. Activities will not resume until the animal(s) have departed the project area of their own volition.

Sea turtles and Gulf sturgeon may avoid the in-water cultch placement areas due to turbidity and noise resulting from placement activities. We believe any potential effects from avoidance of these construction areas would be insignificant, as these are open water areas surrounded by large expanses of similar or higher quality habitats that would remain accessible to ESA-listed species throughout the construction process.

Analysis of Potential Routes of Effects to Critical Habitat

The proposed placement of cultch material on up to 400 acres of substrates within Gulf sturgeon critical habitat Unit 8 has the potential to affect specific essential features of this designated critical habitat. The potential effects to these essential features are described below.

Abundant prey items

The placement of cultch materials may result in prey species being crushed, covered, or displaced by the new reefs. We believe any effects to this essential feature would be insignificant due to the fact that Gulf sturgeon forage primarily in soft sediment substrates, and the proposed cultch placements would be targeted on firm, hard-bottom substrates. There is a potential for up to 10% of the placed cultch materials to end up in softer substrate areas (spill-over), but these small areas of converted foraging habitat, spread out across the entire project area, would have insignificant effects on this essential feature, as the impacted area would make up only a tiny fraction of the total area available to Gulf sturgeon in Critical Habitat Unit 8 (approximately 881,280 acres). Additionally, improving oyster reefs may provide an indirect benefit to this essential feature by enhancing the number and diversity of prey items available to Gulf sturgeon in the areas surrounding the reefs. This would happen through the establishment of living reefs that, over time, provide more diverse and structurally complex habitat for prey species (Boudreaux et al. 2006)⁵.

Water quality

Placement of cultch material will likely cause a temporary increase in turbidity in and around the area of activity. Any effect that these activities may have on water quality would be insignificant, as the project areas are naturally turbid and any increases in turbidity would be localized and relatively short in duration, as disturbed sediments would settle out quickly (likely within 1-2 days following completion of reef construction). Additionally, the establishment of healthy oyster reefs is highly beneficial to estuarine water quality as these filter feeders continually remove suspended sediments and toxins from the water column.

Sediment quality

Approximately 10 to 40 acres of soft sediments, spread out across 6 different locations in and around Mississippi Sound, may be permanently covered by the proposed placement of oyster cultch materials. These areas will no longer provide suitable foraging habitat for Gulf sturgeon.

⁵ Boudreaux, M. L., J. L. Stiner, and L. J. Walters. 2006. Biodiversity of Sessile and Motile Macrofauna on Intertidal, Oyster Reefs in Mosquito Lagoon, Florida. *Journal of Shellfish Research* 25(3):1079-1089.

Any effects that these cultch placements may have on the ability of this essential feature to support Gulf sturgeon in Unit 8 would be insignificant, as the affected area would make up a tiny fraction of the overall habitat available in Unit 8 (less than 0.0045% of the total 881,280 acres), and Gulf sturgeon would only need to move a very short distance to access more suitable foraging substrates surrounding the affected areas.

Conclusion

Because all potential project effects to listed species and critical habitat were found to be discountable, insignificant, or beneficial, we conclude that the proposed action is not likely to adversely affect listed species or critical habitat under NMFS's purview. This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. NMFS's findings on the project's potential effects are based on the project description in this response. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with NMFS.

We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions on this consultation, please contact Michael Tucker, Consultation Biologist, at (727) 209-5981 or by email at Michael.Tucker@noaa.gov.

Sincerely,

David Bernhart
Assistant Regional Administrator
for Protected Resources

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