In Reply Refer To:

MDBC Project

April 25, 2023

Memorandum

To: Chief, Planning and Consultation Branch, Gulf Restoration Office, Fairhope, AL

From: Field Supervisor, Louisiana Ecological Services Office Brigette D. Firmin BRIGETTE FIRMIN Digitally signed by BRIGETTE FIRMIN Date: 2023.04.28 07:06:47 -05'00'

Subject: Informal Consultation Request for Implementation of the Open Ocean Trustee Implementation Group Proposed Project OO RP2 MDBC Mapping, Ground Truthing, and Predictive Habitat Modeling; OO RP2 MDBC Habitat Assessment and Evaluation; OO RP2 MDBC Coral Propagation Technique Development; OO RP2 MDBC Active Management and Protection; also Proposed Open Ocean MAM Activity "Linkages between deep benthic habitats and water column resources"

This memorandum acknowledges our receipt of your memorandum on February 21, 2023. This response is in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (ESA). We have reviewed your proposed project(s) and concur with your February 21, 2023, determinations for endangered and threatened species, their critical habitat, andat-risk species (should they become listed). We based our concurrence on the justification below. Where more than one justification was applicable, multiple boxes are checked and additional comments are added.

☐ Species-specific surveys were conducted and there are no endangered, threatened, or at-risk species or designated critical habitat on site. Comments:

_____

_____

_____

☐ Endangered, threatened, and at-risk species are not known from and are not expected to occur within the vicinity of the proposed project. Comments:

_____

_____

_____

☑ Appropriate avoidance and minimization measures have been included within the project description to ensure that any effects to listed species (or at-risk species should they become listed) are insignificant or discountable. Comments:

_____

_____

_____

☐ Critical habitat is not present on site and does not occur within the vicinity of the proposed project. Comments:

_____

_____

_____

☐ Appropriate avoidance and minimization measures have been included within the project description to ensure PCEs and/or critical habitat will not be adversely modified or destroyed. Comments:

_____

_____

_____

☐ The proposed project is completely beneficial to the listed or at-risk species and/or critical habitat considered. Comments:

_____

_____

_____

Unless the project description changes, or new information reveals that the effects of the proposed action may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the ESA is necessary.

If you have questions, please contact Amy Trahan at 337-291-3126 or email amy_trahan@fws.gov.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Deepwater Horizon Gulf Restoration Office
341 Greeno Road North, Suite A
Fairhope, Alabama 36532

In Reply Refer To:
FWS/R4/DH NRDAR

Memorandum February 21, 2023

To: Field Supervisor, Ecological Services Office, Lafayette, LA

From: Compliance Supervisor, Deepwater Horizon Gulf Restoration Office

Subject: Informal Consultation Request for Implementation of the Open Ocean Trustee Implementation Group Proposed Project OO RP2 MDBC Mapping, Ground Truthing, and Predictive Habitat Modeling; OO RP2 MDBC Habitat Assessment and Evaluation; OO RP2 MDBC Coral Propagation Technique Development; OO RP2 MDBC Active Management and Protection; also proposed Open Ocean MAM Activity "Linkages between deep benthic habitats and water column resources"

After the Deepwater Horizon (DWH) oil spill, federal and state natural resource trustee agencies (Trustees) came together to assess the effects of the spill and plan for the restoration of injured natural resources. As part of the legal settlement reached with BP in 2016, the Trustees prepared a Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement (Final PDARP/PEIS), to provide the framework for DWH oil spill restoration across the Gulf. The Final PDARP/PEIS established Trustee Implementation Groups (TIGs) that develop specific plans for, developing, selecting, and implementing specific restoration actions under the Final PDARP/PEIS.

The Open Ocean TIG (OO TIG) consists of the United States Department of the Interior, the National Oceanic and Atmospheric Administration, the United States Department of Agriculture, and the United States Environmental Protection Agency. The OO TIG has developed the project: *OO RP2 MDBC Mapping, Ground Truthing, and Predictive Habitat Modeling; OO RP2 MDBC Habitat Assessment and Evaluation; OO RP2 MDBC Coral Propagation Technique Development; OO RP2 MDBC Active Management and Protection; also proposed Open Ocean MAM Activity "Linkages between deep benthic habitats and water column resources".* This project is being implemented as a restoration project to restore natural resources along the Gulf Coast injured as a result of the spill. We have reviewed the project in accordance with Section 7 of the Endangered Species Act (ESA) of 1973 as amended (16 U.S.S 1531-1544) and have made a May Affect, Not Likely to Adversely Affect determination for the project. For your information, a brief project description and species determinations are provided in Tables 1 and 2 below. A detailed project description is found in the attached Biological Evaluation (BE). This memo requests your concurrence with our determination for the proposed project.

Within the BE form, we have also reviewed the proposed projects for impacts to bald eagles (*Haliaeetus leucocephalus*) in accordance with the Bald and Golden Eagle Protection Act of 1940 as amended (16 U.S.C. 668-668c), impacts to migratory birds in accordance with the Migratory Bird Treaty Act of 1918 as amended (16 U.S.C. 703-712), and impacts to West Indian manatee (*Trichechus manatus*) in accordance with the Marine Mammal Protection Act of 1972 as amended (16 U.S.C. 1361-1383b, 1401-1406, 1411-1421h) and we determined that take would be avoided.

To facilitate your response, should you concur with our determination, we have attached a template response letter. If you have questions or concerns regarding this request, please contact Michael Barron, Fish and Wildlife Biologist, at 251-421-7030 or michael_barron@fws.gov.

Attachments (2)

- BE form including project maps
- Template response letter

Table 1. Brief description of the project

Proposed Project	Brief Description
OO RP2 MDBC Mapping, Ground Truthing, and Predictive Habitat Modeling; OO RP2 MDBC Habitat Assessment and Evaluation; OO RP2 MDBC Coral Propagation Technique Development; OO RP2 MDBC Active Management and Protection; also proposed Open Ocean MAM Activity "Linkages between deep benthic habitats and water column resources"	The work described here will be implemented by (National Oceanic and Atmospheric Administration (NOAA) offices and NOAA funded partners that may include staff and equipment from Southeast Fisheries Science Center, Office of Coastal Survey, National Centers for Coastal Ocean Science, Office of National Marine Sanctuaries, Office of Habitat Conservation, and other agencies/partners as needed. The work may take place on NOAA vessels, NOAA contracted vessels or vessels operated by NOAA funded partners. The goal of the Mapping, Ground-truthing, and Predictive Habitat Modeling project is to document the abundance and distribution of Mesophotic and Deep Benthic Communities (MDBC) and to gain a better understanding of their extent, species composition, and habitat characteristics. The proposed field operations support these goals and further project objectives to map (e.g., high-resolution surveying, backscatter interpretation, and photomosaic assemblage) and ground-truth (i.e., visually and including sample collections) MDBC at sufficiently high-resolution for habitat characterization. Mapping operations will also collect data to refine predictive models to improve the effectiveness and cost efficiency of restoration and mapping efforts. The goal of the MDBC Habitat Assessment and Evaluation Project is to fill critical gaps in our understanding of the health, biodiversity, recovery, and resilience of mesophotic and deep-sea habitats (both hard bottom communities and soft sediment communities) following the DWH oil spill. The proposed field operations further this goal and project objectives by documenting changes to the structure and function of MDBC impacted by the DWH oil spill and other threats and establishing environmental baseline conditions and changes over time around impacted and healthy MDBC. Habitat assessment operations will include ROV dives to characterize the fish and water column community including the deep scattering layer, and to perform sub-bottom profiling to characterize sediment and substrate stratigraphy. Visual/image transects will be conducted at previously imaged and new sites and biological, geological, and water column samples (i.e.,

	tissues, organisms, colonies, sediment, substrate, water, eDNA) will be taken to support habitat assessment. The goals of the MDBC Coral Propagation Technique Development Project are to develop techniques to propagate and transplant corals and to enhance larval coral recruitment. Field operations advance these goals and support project objectives to develop coral husbandry techniques for priority species and conduct specialized analyses of biological and environmental samples to evaluate potential restoration sites that can maximize survival and recruitment. Coral propagation technique development-related field operations will include the targeted collection of coral specimens (whole colonies, fragments for genetics analysis, commensal organisms, associated sediments or substrates, and water containing gametes or larvae) and small-scale deployments of experimental settlement substrates on landers to test coral recruitment potential and performance. Targeted coral collections are planned during cruise missions for laboratory culture and in support of studies of genetic connectivity, life history characteristics, health condition, and trophodynamic linkages among ecosystem components. None of the coral species to be collected are listed under the Endangered Species Act. Management activities included in the MDBC Active Management and Protection project for directly addressing threats to MDBC will also be undertaken in 2023-2027. These include mooring buoy installations to reduce damage to MDBCs from anchoring, removal of invasive species such as lionfish, documentation and removal of marine debris and derelict fishing gear, assessing and remediating risks associated with leaking and abandoned oil and gas infrastructure, and enhancing enforcement capacity for protection and management of MDBCs. These activities are planned in areas where the respective threats to MDBC habitats are documented. Boats will generally transit to and from the following ports: Pascagoula, MS; Gulfport, MS; Houma/Cocodrie, LA; Fourchon, LA; Panama City, FL; Tampa, FL; and Houston/Galveston, TX.

Table 2. Summary of ESA determinations for proposed project.
(NLAA = May Affect, Not Likely to Adversely Affect; NE = No Effect)

ESA Species Under USFWS Jurisdiction	**Status**	**OO RP2 MDBC Mapping, Ground Truthing, and Predictive Habitat Modeling; OO RP2 MDBC Habitat Assessment and Evaluation; OO RP2 MDBC Coral Propagation Technique Development; OO RP2 MDBC Active Management and Protection; also proposed Open Ocean MAM Activity "Linkages between deep benthic habitats and water column resources"**
West Indian Manatee (*Trichechus manatus*)	Threatened	NLAA
West Indian Manatee (CH)		NE
Green Sea Turtle (*Chelonia mydas*)	Endangered	NE
Hawksbill Sea Turtle (*Eretmochelys imbricata*)	Endangered	NE
Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)	Endangered	NE
Leatherback Sea Turtle (*Dermochelys coriacea*)	Endangered	NE
Loggerhead Sea Turtle (*Caretta caretta*)	Threatened	NE

Biological Evaluation Form

Deepwater Horizon Oil Spill Restoration

U.S. Fish and Wildlife Service & National Marine Fisheries Service

This form will be filled out by the Implementing Trustee and used by the regulatory agencies. The form will provide information to initiate informal Section 7 consultations under the Endangered Species Act (ESA) and may be used to document a No Effect determination or to initiate pre-consultation technical assistance.

It is recommended that this form also be completed to inform and evaluate additional needs for compliance with the following authorities: Migratory Bird Treaty Act (MBTA), Marine Mammal Protection Act (MMPA), Coastal Barrier
Resources Act (CBRA), Bald and Golden Eagle Protection Act (BGEPA) and Section 106 of the National Historic Preservation Act (NHPA).

Further information may be required beyond what is captured on this form. Note: if you need additional space for writing, please attach pages as needed.

For assistance, please contact the
compliance liaisons USFWS: Michael
Barron at michael_barron@fws.gov
NMFS: Christy Fellas at christina.fellas@noaa.gov

A. Project Identification

Federal Action Agency(one or more):USFWS ☒ NOAA ☒ EPA ☐ USDA ☐

Implementing Trustee(s): NOAA, DOI (USGS, BOEM)

Contact Name: Kristopher Benson Phone: 4096216408 Email:

kristopher.benson@noaa.gov Project Name:

OO RP2 MDBC Mapping, Ground Truthing, and Predictive Habitat Modeling; OO RP2 MDBC Habitat Assessment and

Evaluation(HAE); OO RP2 MDBC Coral Propagation Technique Development(CPT); OO RP2 MDBC

Active Management and Protection (AMP); also proposed Open Ocean MAM Activity “Linkages

between deep benthic habitats and water column resources”

DIVER ID# 232, 233, 234, 235, TBD TIG: Open Ocean TIG Restoration Plan # 2; MAM Activity TBD

B. Project Phase

Please choose the box which best describes the project status, as proposed in this BE form, check ALL that apply:

Construction/Implementation ☒ Planning/Conceptual ☐ Engineering & Design ☐

If "Engineering & Design" was selected, please describe the level of design that has been completed and is available for review:
NA

C. Project Location

I. State and County/Parish of action area

NA (federal US EEZ only): See figure below for the action area where this field work would take place.

II. Latitude/Longitude for action area (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83) [online conversion: https://www.fcc.gov/encyclopedia/degrees-minutes-seconds-tofrom-decimal-degrees]
The figure below shows the action areas where work will take place.

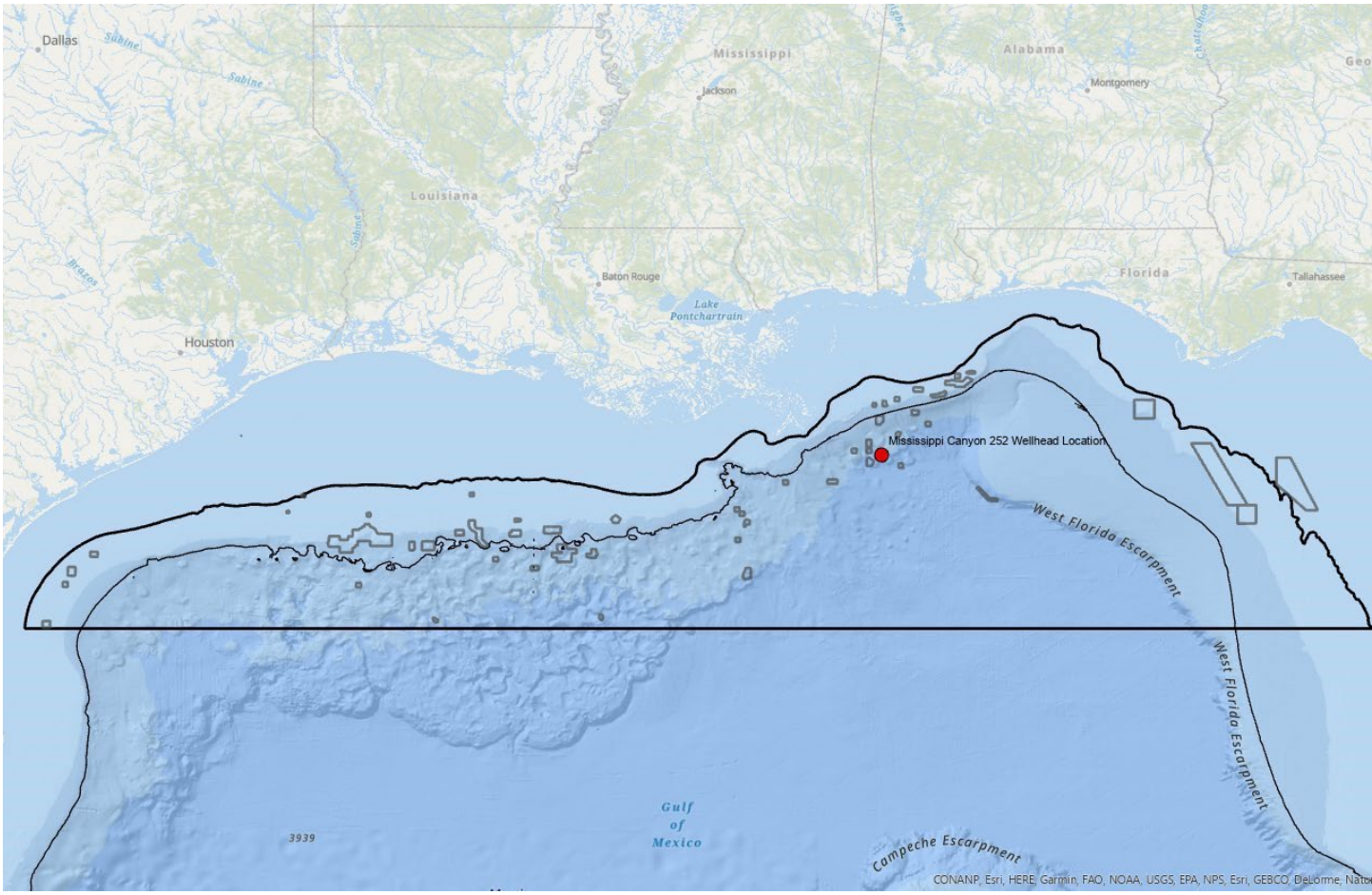


Fig. 1: Project area in the northern Gulf of Mexico.

D. Existing Compliance Documentation

NEPA Documents

Are there any **existing** draft or final NEPA analyses (not PDARP/PEIS) that cover all or part of this project?

YES☒ NO☐

Examples:
-TIG Restoration Plan/EA or EIS (draft or final)
-USACE programmatic NEPA analysis
-USACE Clean Water Act individual permit for the project
-NEPA analysis provided by a federal agency that gave approval, funding or authorization

Permits

Have any federal permits been obtained for this project, if so which ones and what is the permit number(s)?

YES☒ NO☐ Permit Number and Type: Flower Garden Banks National Marine Sanctuary Research Permit # FGBNMS-2022-005; NMFS/SERO Letter of Acknowledgement dated 03-21-21 and Scientific Research Permits dated 05-28-21, 09-15-21, 09-30-21, and 06-28-22 (including addendum dated 08-23-22).

Have any federal permits been applied for but not yet obtained, if so which ones and what is the permit number(s)?

YES☐ NO☒ Permit Number and Type: .

If yes to any question above, please provide details in the text box (i.e. link to the NEPA document, or name of the document, year, lead federal agency, POC, copy of the permit or permit application, etc.). This is needed to check for consistency of the project scope across different sources and to facilitate the NEPA analysis. If you do not have a link, email the documents to the TIG representative for the Trustee designated as lead federal agency for the restoration plan.

A NEPA review was completed as part of the "Mesophotic and Deep Benthic Communities (MDBC) Restoration Projects: National Environmental Policy Act and Environmental Compliance Review of Implementation Activities" dated January 2022. Available here: https://www.fws.gov/doiddata/dwh-ar-documents/1195/DWHARZ009990.pdf

A NEPA review was also completed as part of the "Summary of environmental compliance

for coral sampling activity by technical divers in support of MDBC portfolio planning phase activities" dated March 10, 2021. A NEPA review was also completed as part of the "Environmental compliance analysis for coral sampling activity by ROV in support of MDBC portfolio planning phase activities" dated May 28, 2021. For the Open Ocean MAM Activity "Deep Sea Benefits- Outcomes of Mesophotic and Deep Benthic Community Restoration" a NEPA review was completed in the Monitoring Activities Implementation Plan.

Any documentation or information provided will be very helpful in moving your project forward.

Name of Person Completing this Form: Kris Benson
Name of Project Lead: Kris Benson
Date Form Completed: 12-13-22
Date Form Updated: NA

E. Description of Action Area

Provide a description of the existing environment (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). Describe all areas that may be directly or indirectly affected by the action. If critical habitat (CH) is not designated in the area, then describe any suitable habitat in the area.

a. Waterbody & Wetlands

If applicable. Name the body of water, including wetlands (freshwater or estuarine), on which the project is located. If applicable, please describe water quality, depth, hydrology, current flow, and direction of flow.

The action areas for MDBC field operations lies within the territorial waters of the Gulf of Mexico, as represented in Figure 1. The project area in the northern Gulf of Mexico is indicated in Figure 1 by the heavy black polygon (bounded by the north, east, and west by the 50 m isobaths and to the south by the 27th N parallel).

Does the project area include a river or estuary?

YES☐ NO☒

If yes, please approximate the navigable distance from the project location to the marine environment. Click or tap here to enter text.

b. Existing Structures

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

Various oil and gas platforms, associated infrastructure, and artificial reef sites are located throughout the MDBC field operations project area, including in the vicinity of the sediment sampling areas (Figure 2).

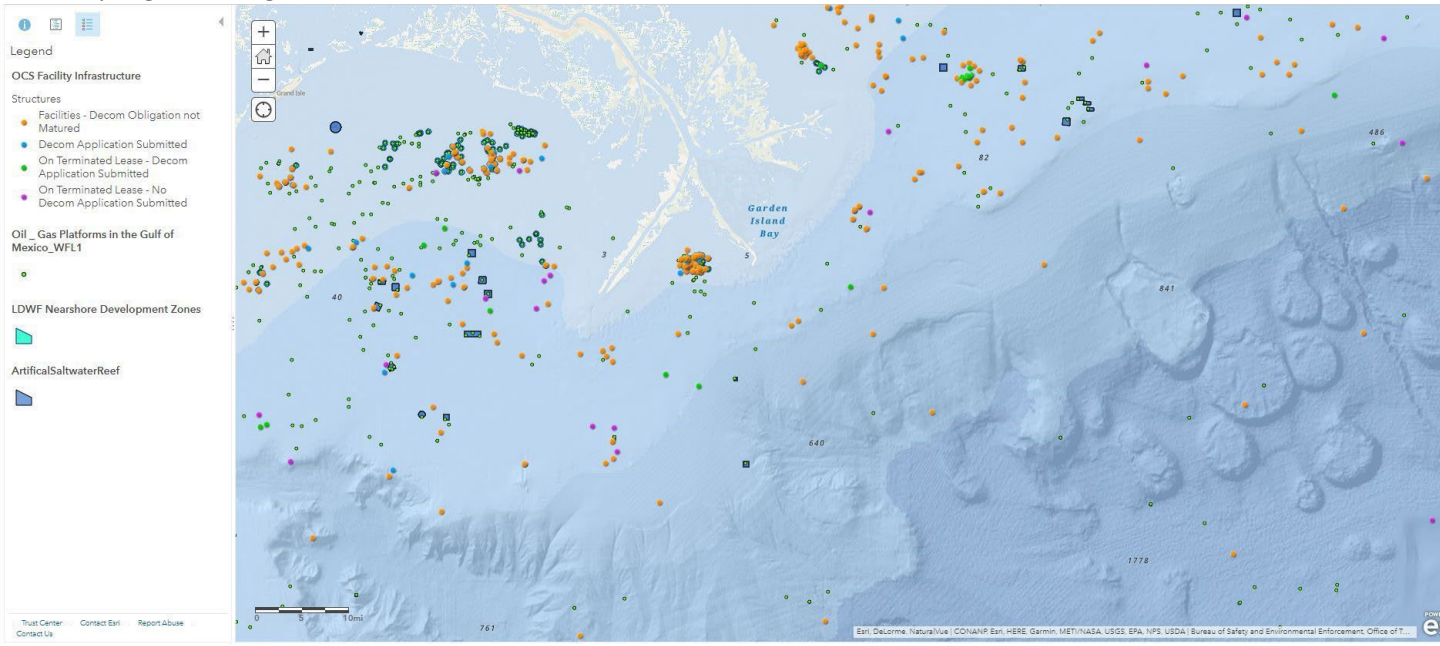


Figure 2. Oil and gas facility infrastructure and artificial reef sites in the MDBC project area.

Cultural Resources

The operations will be performed in a deep water, offshore area where few known cultural or historic resources are present on the sea floor. There are a number of historically significant shipwrecks known to exist throughout the area proposed for MDBC field operations, and project activities will be avoided in proximity to these shipwrecks. Project activities (e.g., sediment core collection, lander deployment, ROV landing) will only minimally disturb the bottom and are unlikely to potentially impact any unknown, buried cultural or historic resources. See Appendix A for more information about sediment core collection.

Shipwrecks in the vicinity are more fully described in the Flower Garden Banks National Marine Sanctuary Environmental Impact Statemetnt (EIS), Appendix E. Available at this link: https://flowergarden.noaa.gov/management/sanctuaryexpansion.html

In Figure 3, below, from the Flower Garden Banks National Marine Sanctuary EIS, Appendix E, the locations of 10 known, historically significant shipwrecks in the vicinity of the work proposed in this BE form are shown. The sites are: 1. USS Hatteras; 2. Monterrey wrecks; 3. GulfOil; 4. GulfPenn; 5. Mardi Gras wreck; 6. R. E. Lee & U-166; 7. Deepwater Horizon; 8. Anona.

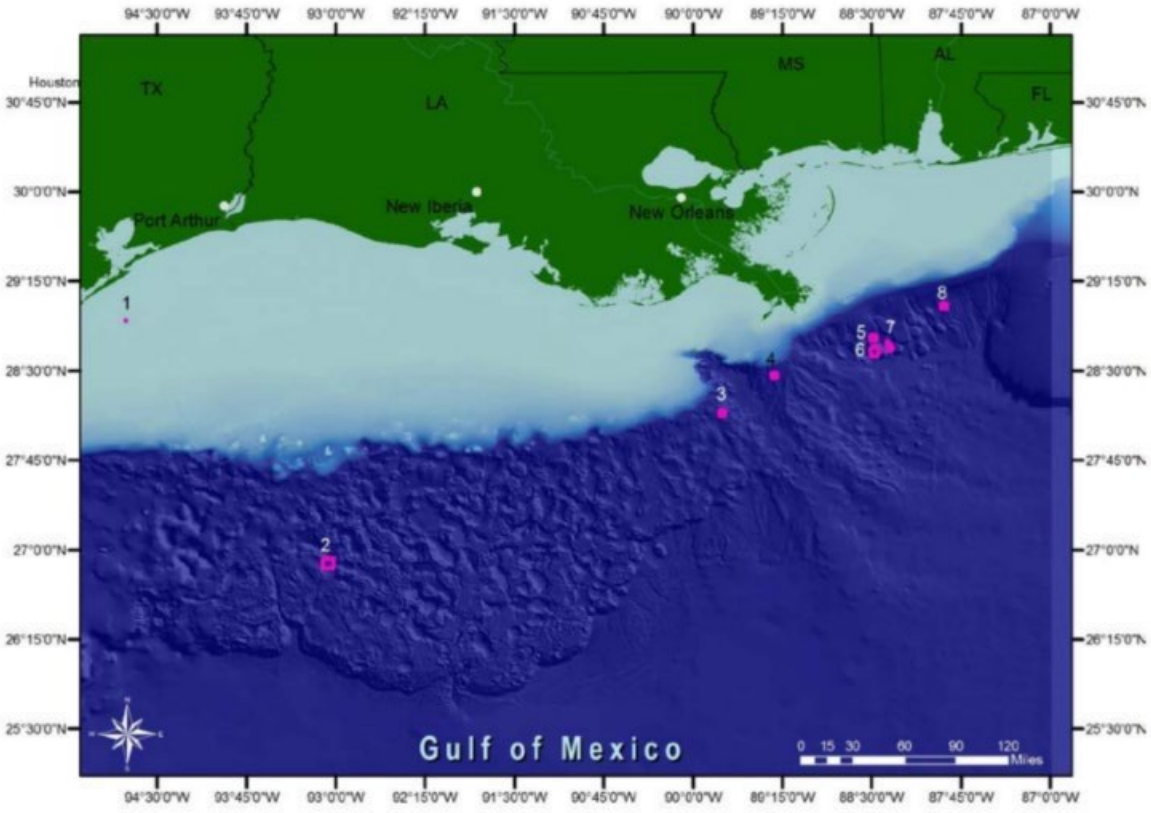


Figure 3: Historically significant shipwrecks in the vicinity of proposed MDBC activities in the northern Gulf of Mexico.

c. Seagrasses & Other Marine Vegetation

If applicable. Describe seagrasses found in action 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 action area.

Marine micro and macroalgae, crustose coralline algae.

d. Mangroves

If applicable. Describe the mangroves found in action 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 action area.

NA

e. Corals

If applicable. Describe the corals found in action 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 action area. Click here to enter text.

See https://repository.library.noaa.gov/view/noaa/17609/noaa_17609_DS6.pdf (cut and paste link text and copy to browser address bar if hyperlink does not automatically redirect)

Corals are present in the action area, and have been mapped to some extent (Figure 4), but there is an overall dearth of information on the spatial extent of these understudied mesophotic and deep benthic communities. Therefore, these projects seek to expand on the knowledge and understanding of these communities to facilitate restoration and active management activities in the future. Non ESA-listed corals may be targeted for scientific collection at some of the deep water sites for the coral propagation technique development portion of the MDBC project.

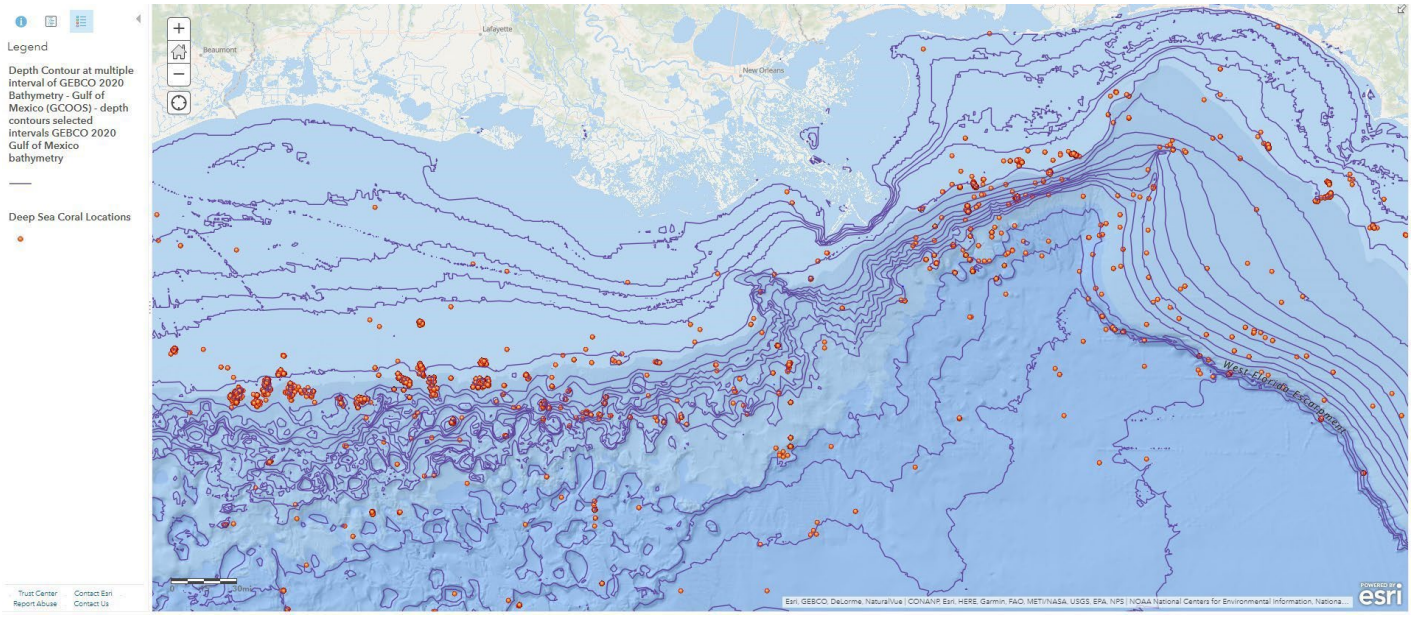


Figure 4. Mapped locations of deep sea corals and sponges in the project area (https://deepseacoraldata.noaa.gov/)

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.).

NA

g. Soils and Sediments

If applicable. Indicate topography, soil type, substrate type.

Sediment samples may be taken during field work to identify soils/substrates in these deep

water areas. See more information in Appendix A.

h. Land Use

If applicable. Indicate existing or previous land use activities (agriculture, dredge disposal, etc).

Fishing, oil and gas development.

i. Marine Mammals

Please select the following marine mammals that could be present within the project area:

Dolphins	YES☒	NO☐
Whales	YES☒	NO☐
Manatees	YES☐	NO☒

If applicable. Indicate and describe the species found in the action area. Use NMFS' Stock Assessment Reports (SARs) for more information, see http://www.nmfs.noaa.gov/pr/sars/region.htm

Marine mammals recorded in NMFS stock assessment report for this action area in the GOM include: Rice's whale (*Balaenoptera ricei*), sperm whale (*Physeter microcephalus*), Cuviers beaked whale (*Ziphius cavirostris*), Blainville's beaked whale (*Mesoplodon densirostris*), Gervais' beaked whale (*Mesoplodon europaeus*), common bottlenose dolphin (*Tursiops truncatus truncatus*), Atlantic spotted dolphin (*Stenella frontalis*), pantropical spotted dolphin (*Stenella attenuate*), striped dolphin (*Stenella coeruleoalba*), spinner dolphin (*Stenella longirostris*), rough-toothed dolphin (*Steno bredanensis*), Clymene dolphin (*Stenella clymene*), Fraser's dolphin (*Lagenodelphis hosei*), killer whale (*Orcinus orca*), false killer whale (*Pseudorca crassidens*), pygmy killer whale (*Feresa attenuata*), dwarf sperm whale (*Kogia sima*), pygmy sperm whale (*Kogia breviceps*), Melon-headed whale (*Peponocephala electra*), Risso's dolphin (*Grampus griseus*), and short-finned pilot whale (*Globicephala macrorhynchus*).

F. Project Description

I. *Describe the Proposed Action/Project Objectives: What are you trying to accomplish and how with this project? Describe in detail the construction equipment and methods** needed; long term vs. short term impacts; duration of short term 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.*

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, artificial reefs or fishery activities, list the method here, but complete the next section(s) in detail.*

Project objectives are described in "Mesophotic and Deep Benthic Communities Restoration Projects: National Environmental Policy Act and Environmental Compliance Review of Implementation Activities January 2022"

Field operations in 2023-2027 are anticipated to continue those previously analyzed for 2022 operations in the NMFS ESA consultation completed on 5/20/2022 (SERO-2022-01049). The BE form that describes the 2022 activities is attached.

Additional activities for 2023-2027

The HAE project and MAM activity objectives also expand the scope of project activities to be undertaken in 2023-2027 to include water column community sampling above MDBC sites using Multiple Opening/Closing Net and Environmental Sampling System (MOCNESS) transects paired with the water column acoustic sampling previously described. Briefly, MOCNESS nets are used to collect midwater column fishes and invertebrates at discrete depth intervals by actively sequencing the opening and closing of nets at user selected depths. MOCNESS sampling does not contact the bottom. The 'MOC10' unit that will be used here has a mouth area of 10.05 m^2 (3.17 m wide X 3.17 m tall). The unit consists of a rigid, aluminum I-beam frame, six nets (3-mm mesh) attached to sliding net bars, and a controller unit that releases nets on command via on deck actuation through a 0.68" diameter conducting tow cable. Nets on the unit are rigged such that when a net bar is released, it closes the lower net while opening the next consecutive net. Attached to the MOC10 net frame are environmental sampling instruments (e.g., temperature, depth, salinity/conductivity) that passively read water quality conditions throughout the duration of the MOCNESS deployment. Also attached is a flowmeter that records distance through water of each net individually. In water, the unit is towed at a 45° angle relative to horizontal. The tow angle and distance through water metrics are used to quantify effort (i.e., volume filtered) for each net so that raw catch counts can be standardized by volume filtered prior to analysis. The MOC10 can be deployed and used from surface waters (0 m) down to depths of ~1,500m. The MOC10 is generally towed at a speed of 1.5 kts or less (slower if the vessel is capable) while ship's speed and winch speed are continuously adjusted during deployment and retrieval to maintain a constant mouth angle. Winch speed during deployment is generally 30 m wire out min^{-1} while retrieval is ~ 10 m wire in min^{-1}. Net speed over ground, strong currents notwithstanding, is approximately equal during deployment and retrieval (~1.5 kts). For each deployment, the MOC10 takes about 1.5 hours to get to the deepest sampling interval (assuming 1,500 m) during which the first net is open. Upon reaching the max depth, the first net is closed as the second net is opened and towed for approximately 40-50 min while sampling the targeted depth interval, after which the net is closed and the next consecutive net is opened to sample its respective, consecutive depth interval. This process is repeated until all nets have sampled their respective depth intervals up to the water surface and the MOC10 unit is then retrieved into the boat. This process leads to a total deployment duration of ~6 hours or less over a maximum transect length of approximately 6nautical miles or less. MOCNESS sampling will be conducted during daytime and nighttime hours to capture differences in vertical distribution of the targeted fishes and water column invertebrates. The MAM activity description anticipates 3 years of sampling at 2-3 locations (one sampling event annually at each location), each with 5 stations with 10 trawl tracks (5 day, 5 night) per location, for a total of up to 30 trawls annually from 2024-2026, and a total of up to 90 trawls over the course of the MAM activity. Sites have not yet been selected, but the following sites are being considered: Viosca Knolls East, DeSoto Canyon slope and a site in

the northwest banks region.

CPT project objectives likewise expand on 2022 operations during the 2023-2027 period to include diver- and ROVdeployed field propagation tests of lab-reared coral propagules and lab-reared or in situ fragments placed within 500 meters to one kilometer of the sites where mother colonies have been collected. This activity will be co-located with the previously described in situ substrate placement tests. Figure 5, below, shows locations where live corals were collected in 2022 for use in lab husbandry operations. Field propagation tests will be performed in 2023 at a subset of these locations. Propagation tests are planned to be experimental in scale, with footprints up to 100 square meters in at any single test site and placed to avoid existing hard bottom and biogenic structured habitats. Tests are intended to compare performance of methods and materials for enhancement of growth, reproduction, recruitment, and survival of target propagation coral species.

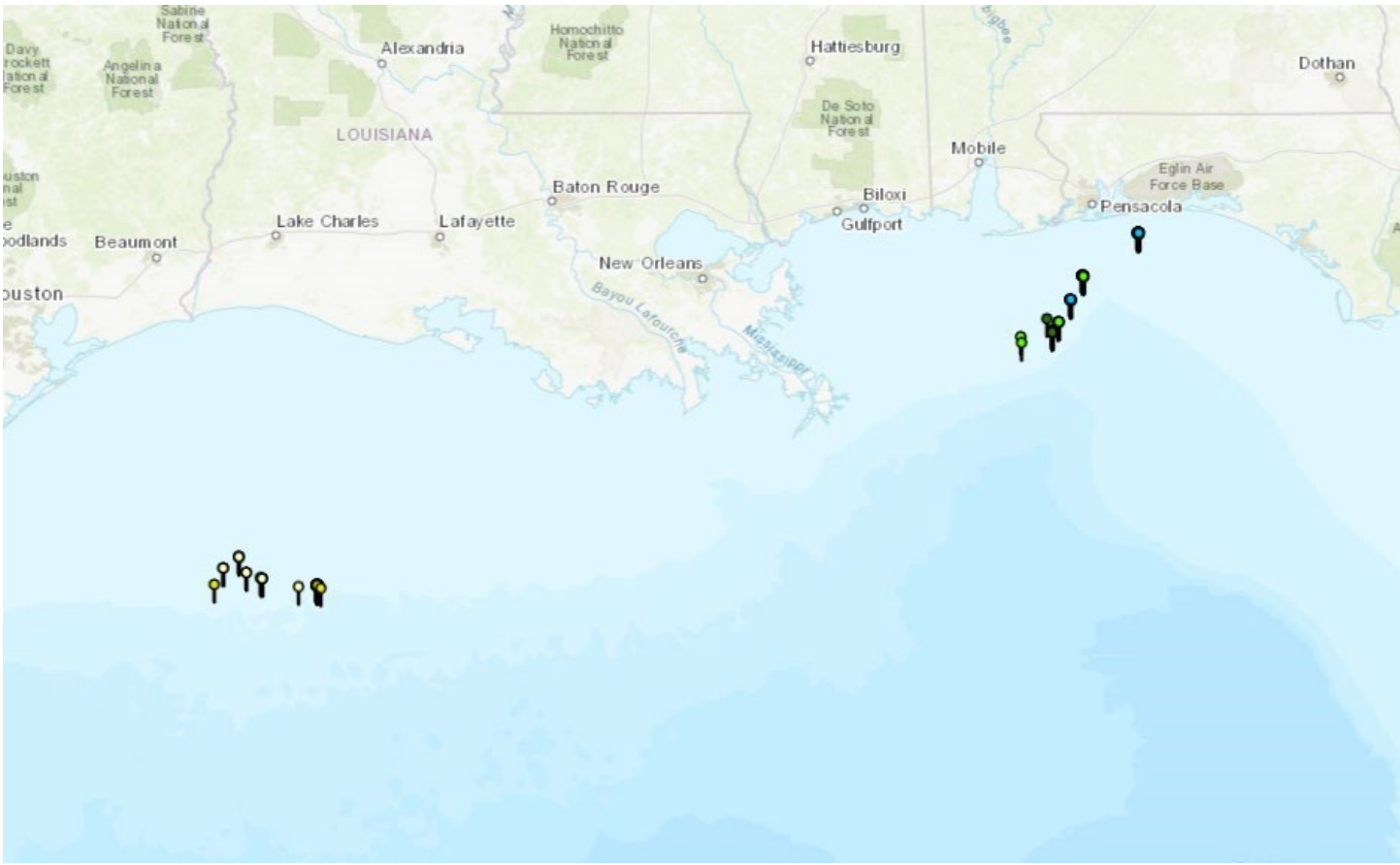


Figure 5. Locations of live coral collections for use in lab husbandry operations by MDBC projects in 2022.

Management activities included in the AMP project for directly addressing threats to MDBC will also be undertaken in 2023-2027. These include mooring buoy installations to reduce damage to MDBCs from anchoring, removal of invasive species such as lionfish, documentation and removal of marine debris and derelict fishing gear, assessing and remediating risks associated with leaking and abandoned oil and gas infrastructure, and enhancing enforcement capacity for protection and

management of MDBCs. These activities are planned in areas where the respective threats to MDBC habitats are documented.

Permanent mooring buoy installations will be performed in areas where anchor damage has been documented due to heavy use for activities such as fishing and diving. For example, installations in 2023 are planned in and around the banks included in the recent expansion of the Flower Garden Banks National Marine Sanctuary, to ensure the general public has a safe way to visit these areas by vessel without damaging the fragile mesophotic habitats below by using mooring buoys instead of their vessel's anchors. Mooring design and placement will follow typical practice of the Office of National Marine Sanctuaries for installations for use by vessels up to 100 feet in length. As shown in Figures 6 and 7, below, each buoy is anchored to the sea floor by a long line attached to a large, metal u-bolt cemented into relic reef rock (i.e., not live rock). Mooring anchor lines will be thick, straight, taught lines that cannot form loops or otherwise entangle marine species. A short, floating pennant line is attached to the top of the buoy to provide a mooring point for vessels. Moorings will not be placed in the vicinity of any ESA-listed corals.

Buoys will not be installed in the Rice's whale core distribution area (CDA)

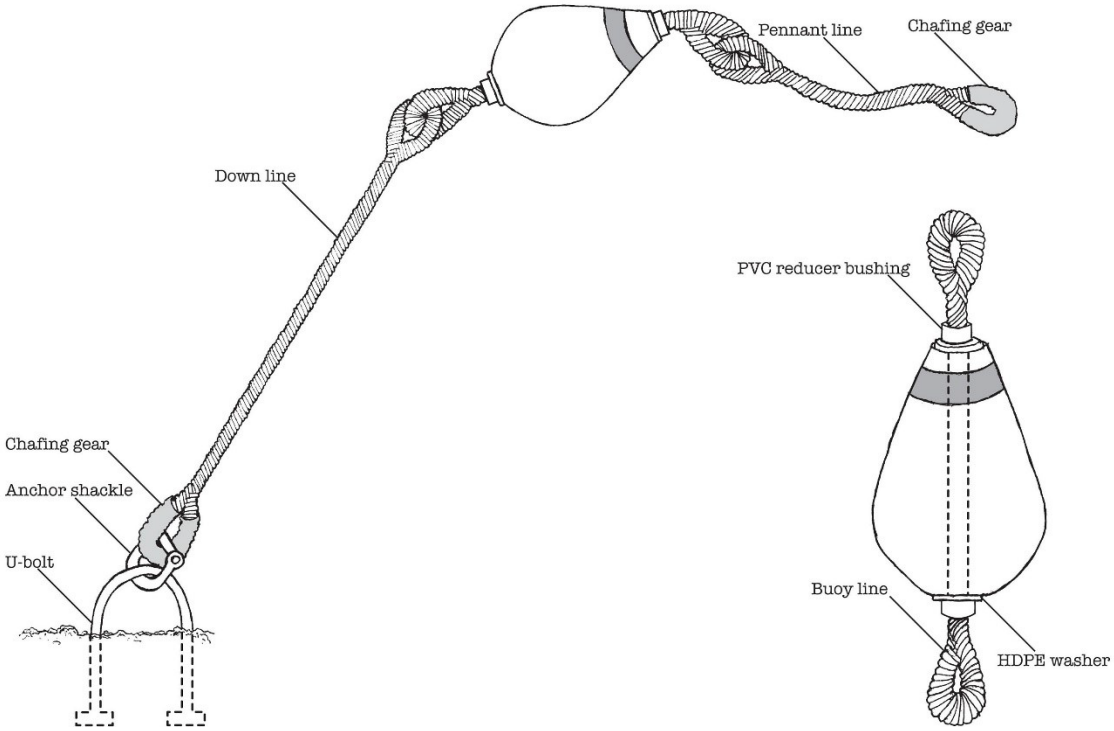


Figure 6. Typical mooring buoy assembly employed by Flower Garden Banks National Marine Sanctuary.

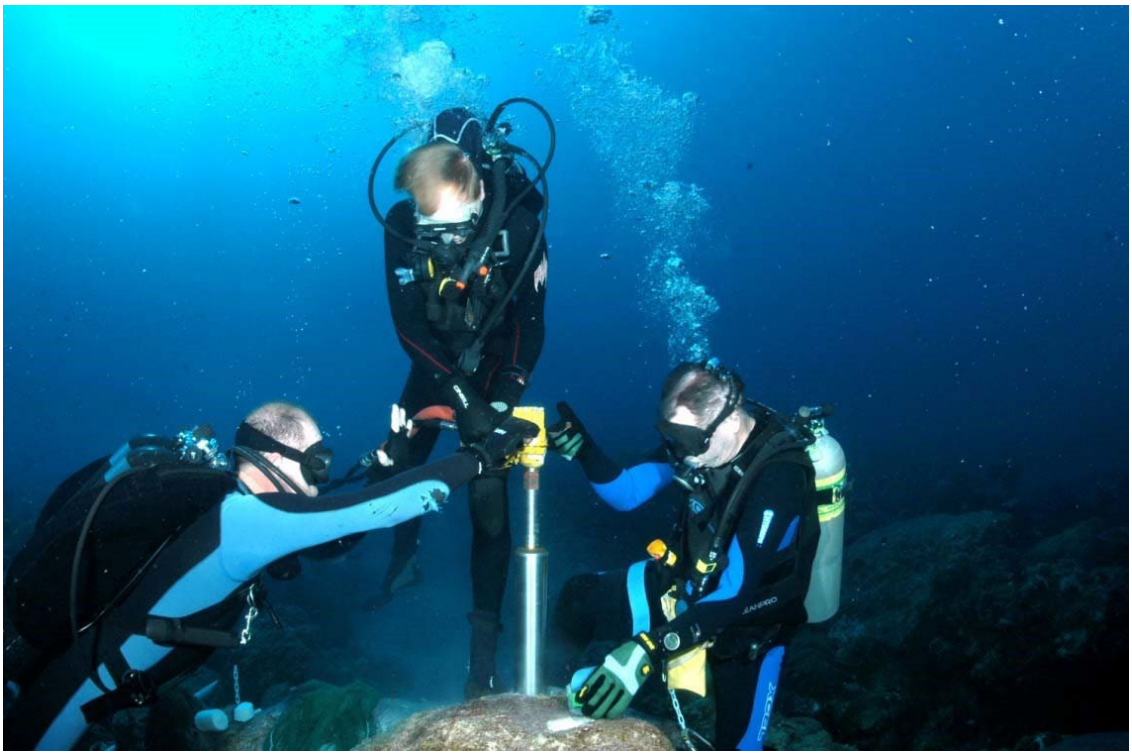


Figure 7. Divers use a coring drill bit to drill into dead reef rock to install a mooring buoy anchor.

Mooring installations even at heavily visited sites such as FGBNMS comprise less than 10 moorings at any given site (e.g., 5 at Stetson Bank, 5 at West Flower Garden Bank, and 7 at East Flower Garden Bank). Mooring installations undertaken through MDBC activities are anticipated to be performed with similar distributions at MDBC sites.

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

The first major phase of field work was performed in 2022. Additional work using the same methods in the same action area, as well as the expanded scope of activities described above, will proceed for the duration of the implementation phase of the projects from 2023-2027. Any additional permits such as Scientific Research Permits (SRPs) or sanctuaries permits will be in place prior to implementation.

These boats generally transit to and from the following ports: Pascagoula, MS; Gulfport, MS; Houma/Cocodrie, LA; Fourchon, LA; Panama City, FL; Houston/Galveston, TX; Tampa, FL

Tentative 2023 work is described in the table below. We expect that this approximate level of work (i.e., up to 200 Days at sea annually) would continue over the next five years (2023-2027):

Vessel	Projects	Tentative Dates	Mission Execution Days (does not include transit to/from homeport, potential in-port	Approximat mission execution days within Rice's whale	Max Depth	Comments and activities

			days, etc.)	**CDA**		
RV *Pelican*	HAE, CPT	3/24 - 4/10	15	0	~400m	Beagle ROV, CTD, shelf edge betwee Bright & Ewing banks, focusing on transects and sampling for diversity
RV *Point Sur*	HAE, CPT, MGM	5/15 - 5/28	14	14	~400m	DeSoto - Mola Mola,; ROV *Beagle*. O AUV mapping, sample for repro, deploy/recover data loggers; outplar live corals, sample diversity. eDNA, CTD?
RV *Point Sur*	HAE, CPT	6/6-6/20	15	0	~1500	15 DAS, GE ROV: Soft sediment transects; core sampling; CTD; SBP; livestock collection @ Dauphin Dom
NOAA Ship *Pisces Leg 1*	HAE , MGM	6/12 - 6/27	15	7	300-1000m	Remus 600 AUV, CTD, MBES, Lander Viosca Knoll, W FL slope
NOAA Ship *Pisces Leg 2*	HAE , MGM	6/29 - 7/13	15	7	300-1000m	Mohawk ROV, Remus 600 AUV, microbiology, CTD, MBES, Viosca Kn W FL slope
NOAA Ship *Pisces Leg 3*	HAE , MGM	7/15 - 7/30	15	7	300-1000m	Mohawk ROV, microbiology, CTD, MBES, Viosca Knoll, W FL slope
Point Sur	HAE, MGM	8/08 - 8/30	21	0	~1500-2000m	USM/OECI sediment, revisit 34 prior stations, CTD, SBP
NOAA Ship *Nancy Foster Leg 1*	HAE, MGM	9/11-9/20	10	0	~1500-2000m	ROV (GE/Odysseus?). Sentry earliest available in GOM 9/20. 1 ROV sampling intensive leg, 2 legs with R & AUV focusing on transects, Deep DeSoto Canyon, W FL escarpment, Henderson Ridge, wrap up impacted areas. Mobe start 9/5.
NOAA Ship *Nancy Foster Leg 2*	HAE, MGM	9/23 - 10/04	10	0	~1500-2000m	Sentry, ROV (GE/Odysseus?). Sentry earliest available in GOM 9/20. 1 RO sampling intensive leg, 2 legs with R & AUV focusing on transects., Deep
						DeSoto Canyon, W FL Shelf escarpme Henderson Ridge, wrap up impacted areas
NOAA Ship *Nancy Foster Leg 3*	HAE, MGM	10/06 - 10/17	10	0	~1500-2000m	Sentry. Sentry earliest available in GOM 9/20. 1 ROV sampling intensive leg, 2 legs with ROV & AUV focusing transects., Deep DeSoto Canyon, W F Shelf escarpment, Henderson Ridge, wrap up impacted areas
RV *Point Sur*	CPT, HAE	10/08 - 10/18	10	7	~1000m	10 days, ROV *Mohawk* for live coral sampling mesophotic Northern Gulf, DeSoto Rim, Pinnacles Trend, microbiology

TBD	AMP, HAE, CPT	10/x - 10/x+20	30	7	<200m for diving, ~2000m for ROV	Saturation diving, Pinnacles Trend, Bright Bank. ROV/AUV, multi project ops

ROV= Remote operated vehicle; AUV = autonomous underwater vehicle; CTD = conductivity, temperature, depth; eDNA = environmental DNA; SPB = sub-bottom profiler

In addition, there may be large-scale mapping done from the NOAA Ships *Ferdinand Hassler* or *Thomas Jefferson* during the period of 2023-27. These vessels are operated by the NOAA Office of Coastal Survey (OCS), and will follow all compliance put in place for that program, including the ESA consultation issued to OCS. The NOAA RC is not requesting compliance reviews for work done on OCS vessels.

III. *Specific In-Water and/or Terrestrial Construction Methods*

Please check yes or no for the following questions related to in-water work and overwater structures

Does this project include in-water work?	YES☒	NO☐
Does this project include terrestrial construction?	YES☐	NO☒
Does this project include construction of an overwater structure?	YES☐	NO☒
Will fishing be allowed from this overwater structure?	YES☐	NO☒
Will wildlife observation be allowed from this overwater structure?	YES☐	NO☒
Will boat docking be allowed from this overwater structure?	YES☐	NO☒

If this is a fishing pier, please provide the following information: public or private access to pier, estimated number of people fishing per day, plan to address hook and line captures of protected species, specific operating hours/open 24 hours, artificial lighting of pier (if any), number of fish cleaning stations, and number of pier attendants (if any).

In-water work includes sampling, mapping, and surveys and collection of non ESA-listed corals and associated species.

Construction: 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. Indicate if work will be done from upland, barge, or both.)

iii. *Use of "Dock Construction Guidelines"?* https://media.fisheries.noaa.gov/dam-migration/dockkey2002.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 (sq ft)?*

NA

b. *Pilings & Sheetpiles: If this project includes installation of pilings or sheets, please provide answers to questions 1-11 listed below*

1. Method of pile installation	NA
2. Material type of piles used	NA
3. Size (width) of piles/sheets	NA
4. Total number of piles/sheets	NA
5. Number of strikes for each single pile	NA
6. Number of strikes per hour (for a single pile)	NA
7. Expected number of piles to be driven each day	NA
8. Expected amount of time needed to drive each pile (minutes of driving activities)	NA
9. Expected number of sequential days spent pile driving	NA
10. Whether pile driving occurring in-water or on land	NA
11. Depth of water where piles will be driven	NA

c. *Marinas and 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.)*

NA

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.)*

NA

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 action area.*

NA

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft2) to be dredged, volume of material (yd3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction)). If digging in the terrestrial environment, please describe fully with details about possible water jetting, vibration methods to install pilings for dune walk-over structure, or other methods. If using devices/methods/turtle relocation dredging to relocate sea turtles, then describe the methods here.*

NA

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.)*

NA

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, long term maintenance plan (periodic clean-up of lost fishing gear/debris]), 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 will occur in.*

NA

i. *Fishery Activities (Describe any use of gear that could entangle or capture protected species. This includes activities that may enhance fishing opportunities (e.g. fishing piers) or be fishery/gear research related (e.g. involve trawl gear, gillnets, hook and line gear, crab pots etc)).*

Mesopelagic water column sampling transects using MOCNESS are towed at speeds below those that could entangle or capture protected species.

G. NOAA Essential Fish Habitat (EFH)

If applicable, describe any designated Essential Fish Habitat within the project area in the text box and answer the questions below about habitat effects, conversions or benefits. If there is no EFH in your project area, enter N/A in the box below and move to section F.

Depending on the effects of your project, EFH consultation with NMFS may be required:
https://www.fisheries.noaa.gov/southeast/consultations/essential-fish-habitat-consultations-southeast
The NMFS and the Gulf of Mexico Fishery Management Council (Gulf Council) have identified and described essential fish habitat (EFH) for a variety of federally managed species that overlaps with the MDBC field operations project area. For those species managed by the Gulf Council, EFH maps were spatially defined based on five eco-regions (Figure 8). Within each eco-region, three habitat zones (estuarine, nearshore, offshore) are recognized, and specific habitat types are mapped within each eco-region and habitat zone. The MDBC field operations project boundary area is located in the offshore habitat zone, and spans all five eco-regions; however, the proposed sediment sampling efforts are concentrated in ecoregions 3 and 4.

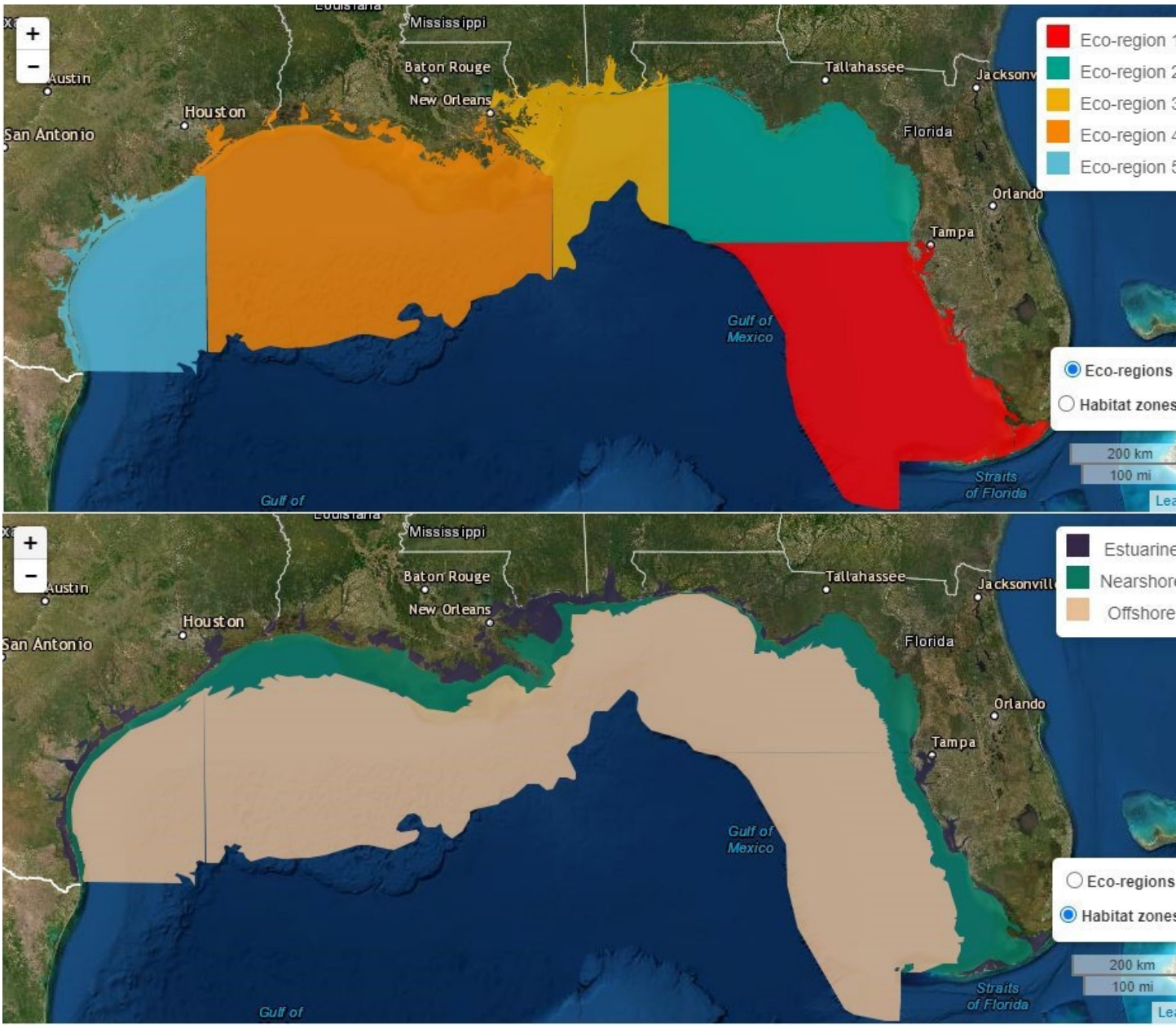


Figure 8. Gulf of Mexico EFH eco-regions (top) and habitat zones (bottom) as described by the Gulf Council

In this table, please use checkboxes to indicate which EFH eco-region(s) and habitat zone(s) in which the project is located. For more information about EFH Eco Regions see the references here:
https://noaasdd.sharepoint.com/:f:/s/tcover/Euupi2PMtXdEqQtJSdKyq-wBdyb42ubMUUbMy7QsijqK7A?e=oYqSsb
https://portal.gulfcouncil.org/EFHreview.html

Gulf of Mexico EFH Eco-Region	**Estuarine**	**Nearshore**	**Offshore**

Eco-Region 1: South Florida (*Florida Keys north to Tarpon Springs, Florida*)	☐	☐	☒
Eco-Region 2: North Florida	☐	☐	☒
(Tarpon Springs, Florida, north and west to Pensacola Bay, Florida)			
Eco-Region 3: East Louisiana, Mississippi, and Alabama *(Pensacola Bay, Florida, west to the Mississippi River Delta)*	☐	☐	☒
Eco-Region 4: East Texas and West Louisiana *(Mississippi River Delta west and south to Freeport, Texas)*	☐	☐	☒
Eco-Region 5: West Texas *(Freeport, Texas south to the U.S./Mexico border)*	☐	☐	☒

Effects to EFH

In this section, please indicate if your project has effects on EFH, either beneficial or adverse. For example, whether the project creates, improves, removes or converts habitat. Please describe the types of habitats that will be affected by the project, including number of acres.

Will this project affect EFH?	YES☒ NO☐
If no, please proceed to section X. (For example, your project is wholly upland or includes only desktop analysis tasks) If yes, please proceed to additional boxes below.	

The offshore marine EFH habitats in the project action area may include vegetated bottoms (e.g., benthic algae), nonvegetated bottoms (e.g., sand/shell bottoms, soft bottoms of mud/clay/silt), live/hard bottoms (e.g., low relief or high relief irregular bottoms), coral and coral reefs (e.g., reef halos, patch reefs, deep reefs), continental shelf/geologic features (e.g., shelf edge, shelf slope, salt domes), marine water column associated, and drift algae (e.g., Sargassum). These habitats areas are associated with various life stages of federally managed species, including all six management units for which the Gulf Council has developed fishery management plans (FMP): coastal migratory pelagics (e.g., cobia and mackerels), red drum, reef fish (e.g., snappers, groupers, jacks, triggerfish, hogfish), shrimp (e.g., brown, white, pink, royal red), spiny lobster, and coral (e.g., hydrozoa and anthozoa).

NMFS is also responsible for identifying and describing EFH in FMPs for highly migratory species (HMS) such as sharks, tunas, and billfish which cross fishery management council boundaries. Due to the highly mobile nature of these species, EFH for HMS is classified by NMFS spatially using point/distribution data to create a probability boundary. As such, the MDBC project area also overlaps with HMS EFH for multiple life stages and species of sharks, tunas, and billfishes.

Additionally, there are two types (HMS and Coral) of EFH Habitat Areas of Particular Concern (HAPCs) that are also included in the MDBC project area. These EFH-HAPCs are described as subsets

of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. The Gulf of Mexico is the only known spawning location for western Atlantic bluefin tuna, and as such it was designated as an EFHHAPC and is the only HAPC designation for HMS in the Gulf. The Gulf Council, through the original Coral FMP and subsequent Amendments, has established HAPCs for coral reef management along with regulations on fishing activities and coral harvest. The original Coral FMP (effective 1984) prohibited harvest of stony coral and seafans, except by scientific permit, and also identified HAPCs in the Gulf where the use of any fishing gear interfacing with the bottom was prohibited (e.g., West and East Flower Garden Banks, Florida Middle Grounds). Subsequent Coral Amendments developed additional harvest regulations and refined definitions for soft corals (e.g., gorgonians), live rock (e.g., assemblage of living marine organisms attached to hard substrate such as dead coral or limestone), and octocorals. Furthermore, Coral Amendment 9 (effective 2020) established 13 new HAPCs with fishing regulations that prohibit deployment of bottom-tending gear and anchoring by fishing vessels (e.g., West Florida Wall, Alabama Alps Reef, L & W Pinnacles and Scamp Reef (combined area),
Mississippi Canyon 118, Roughtongue Reef, Viosca Knoll 826, Viosca Knoll 862/906, AT 047, AT 357, Green Canyon 852, Southern Bank, Harte Bank, and Pulley Ridge South Portion A), and also designated eight new areas without fishing regulations (Figure 9).

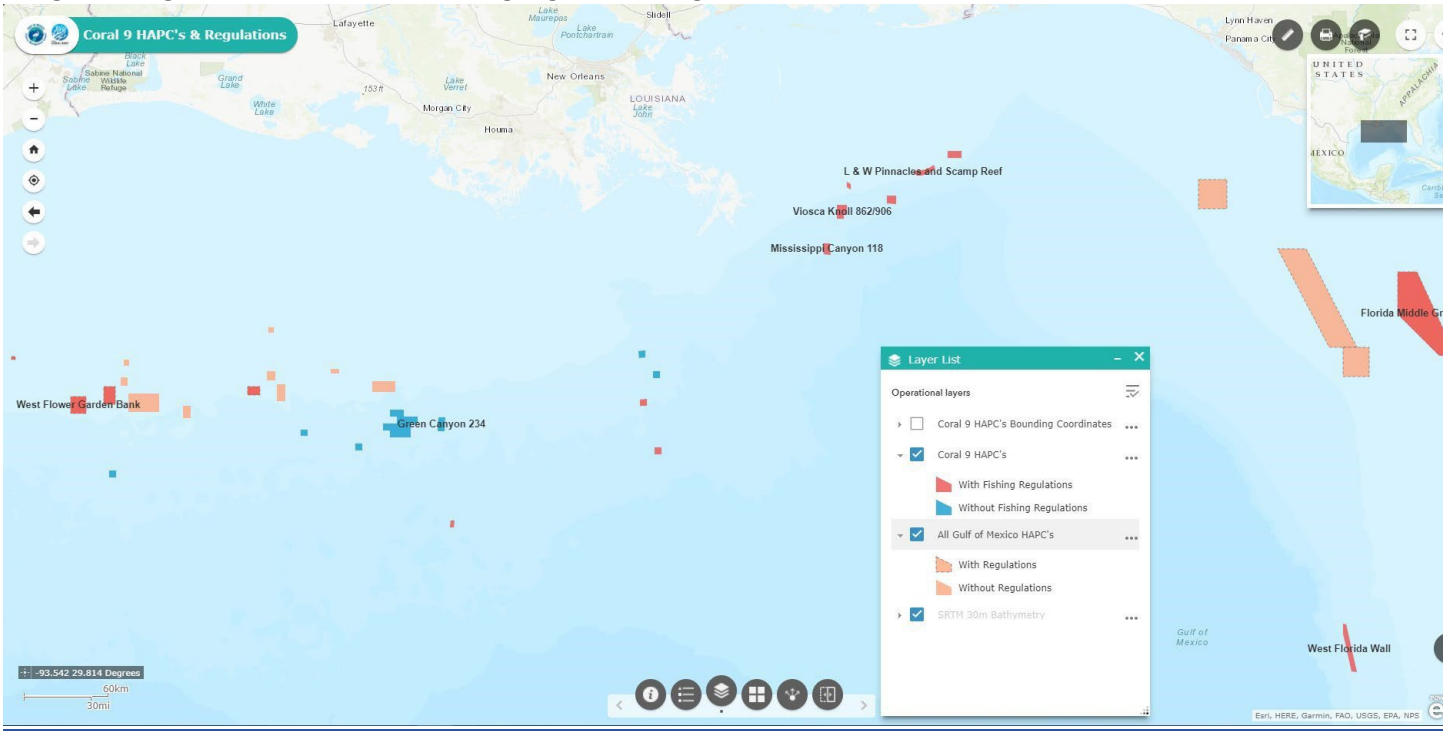


Figure 9. Coral HAPCs in the Gulf of Mexico

Will this project have beneficial effects to EFH?	YES☒ NO☐
If yes, please describe how your project will have beneficial effects the text box below:	

While the MDBC project area does overlap with EFH and EFH-HAPCs for a variety of federally managed species, the scope of the project is restorative in nature and will not have adverse effects on EFH. The limited impacts to EFH for the sediment sampling and coral collection would only be minor and temporary. Scientific collection of corals is allowed in HAPCs, and successful development of coral propagation techniques would lead to additional restoration and management opportunities in the future. Therefore, the cumulative project activities will provide additional information about the mesophotic and deep benthic communities in the project area, and propagation and eventual planting of corals will provide a long term restoration benefit to designated EFH.

Will this project have adverse effects on EFH?	YES☐ NO☒
If yes, please describe what type of adverse effects your project will cause to EFH in the text bow below:	

Click here to enter text.

H. NOAA ESA Species and Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section H. and proceed to Section I.

☐This project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs. For species not included in the drop down menu please add manually to the table.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

If Gulf sturgeon in marine waters may be affected, include them in the table here. If Gulf Sturgeon in riverine/freshwater may be affected include them in the USFWS table below in Section H. If sea turtles in water may be affected include them in the table here. If sea turtles on land may be affected include them in the USFWS table below in Section H.

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon only)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**

Sperm Whale (E)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Giant Manta Ray (T)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Oceanic Whitetip Shark (T)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Rice's Whale (E)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Green Sea Turtle (T)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Loggerhead Sea Turtle		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Leatherback Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Hawksbill Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Kemp's Ridley Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Loggerhead Sea Turtle CH		Marine	No effect	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

Please make the appropriate choice in the drop down menus for both species and designated critical habitat listed in the firs column.

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 = may affect, 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 with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly 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 = may affect, 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 for action with a likely to adversely affect determination, with a biological opinion as the concluding document. 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 is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

I. USFWS Species and Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section I and proceed to Section J.

☐This project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

*1. List all species, critical habitat, proposed species and proposed critical habitat **generated by IPaC** that may be found in the action area*. For species not included in the drop down menu please add manually to the table. The IPaC website can be found here: https://ipac.ecosphere.fws.gov/.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

If Gulf sturgeon in riverine/freshwater waters may be affected, include them in the table here. If Gulf Sturgeon in marine waters may be affected include them in the NMFS table above in Section G. If sea turtles on land may be affected include them in the table here. If sea turtles in water may be affected include them in the NMFS table above in Section G.

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon **only**)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
West Indian Manatee		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Green Sea Turtle		Choose an item.	No Effect	No suitable habitat i action area
Hawksbill Sea Turtle		Choose an item.	No Effect	No suitable habitat i action area
Leatherback Sea Turtle		Choose an item.	No Effect	No suitable habitat i action area
Loggerhead Sea Turtle		Choose an item.	No Effect	No suitable habitat i action area

Kemp's Ridley		Choose an item.	No Effect	No suitable habitat i action area
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
West Indian Manatee CH		Choose an item.	No Effect	No suitable habitat i action area
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

Please make the appropriate choice in the drop down menus for both species and designated critical habitat

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 = may affect, 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 with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly 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 = may affect, 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 for action with a likely to adversely affect determination, with a biological opinion as the concluding document. 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 is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

J. Effects of the Proposed Project to the Species and Actions to Reduce Impacts

NOTE: Species selected as "No Effect" with justification in tables above do not need to be addressed in Section I or J.

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, and cumulative impacts and 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.

Whales

Whales listed in the table above could be present in the action area and have the potential to interact with vessels being used for the proposed work. This is not likely a high risk since work is limited to a small number of vessels (1-3 concurrently) over time for the proposed work, and the vessels will follow the NMFS SERO vessel strike avoidance measures (2021) to further reduce the potential of a vessel strike. Landers or other equipment deployed do not have lines to the surface so there is no likelihood of entanglement. Mooring buoys will be installed with straight, taught lines that are not expected to entangle whales.

Work performed in Rice's whale CDA will follow BMPs determined in consultation with NMFS SERO in 2022 to avoid the possibility of interactions with Rice's whales.

The potential for the entrapment of ESA-listed species in the MOCNESS trawls is considered to be discountable. These exact sampling techniques, performed annually from 2011 to 2019 and more sporadically prior to 2011, have encompassed over 4000 trawls over the past 20 years. During all of this work, no ESA-listed sea turtles, marine fishes, or marine mammals have ever been captured or entangled in the nets or tow cables. Tow speeds are slow, less than 2.5 knots and are generally on the order of 1 to 1.5 knots. All ESA-listed Sea turtles, fish, and marine mammals that may occur in the sampling areas are able to swim much faster than the proposed tow speeds, and are therefore able avoid the nets. Based on these sampling criteria and the fact that no ESA-listed species have ever been taken during over 4000 previous trawling sessions, we believe the potential for the entrapment of ESA-listed species in the MOCNESS trawls is discountable.

Sea Turtles

Sea turtles of multiple life stages and species could be present in the action area and have the potential to interact with vessels being used for the proposed work. This is not likely a high risk since work is limited to a small number of vessels (1-3 concurrently) over time for the proposed work, and the vessels will follow the NMFS SERO vessel strike avoidance measures (2021) to further reduce the potential of a vessel strike. Landers or other equipment deployed do not have lines to the surface so there is no likelihood of entanglement. Mooring buoys will be installed with straight, taught lines that are not expected to entangle sea turtles.

The potential for the entrapment of ESA-listed species in the MOCNESS trawls is considered to be discountable. These exact sampling techniques, performed annually from 2011 to 2019 and more sporadically prior to 2011, have encompassed over 4000 trawls. During all of this work,

no ESA-listed sea turtles, marine fishes, or marine mammals have ever been captured or entangled in the nets or tow cables. Tow speeds are slow, less than 2.5 knots and are generally on the order of 1 to 1.5 knots. All ESA-listed Sea turtles, fish, and marine mammals that may occur in the sampling areas are able to swim much faster than the proposed tow speeds, and are therefore able avoid the nets. Based on these sampling criteria and the fact that no ESA-listed species have ever been taken during over 4000 previous trawling sessions, we believe the potential for the entrapment of ESA-listed species in the MOCNESS trawls is discountable.

Giant Manta Ray and Oceanic White Tip Shark

Giant manta rays and oceanic whitetip sharks could be present in the action area and have the potential to interact with vessels being used for the proposed work. This is extremely unlikely as the only documented vessel strikes with these animals have happened with smaller, fast moving boats (e.g. recreational fishing and pleasure craft). Vessels will follow the NMFS SERO vessel strike avoidance measures (2021) to further reduce the potential of a vessel strike. There are no other likely routes of effects for these species. Landers or other equipment deployed do not have lines to the surface so there is no likelihood of entanglement. Mooring buoys will be installed with straight, taught lines that are not expected to entangle rays or sharks.

The potential for the entrapment of ESA-listed species in the MOCNESS trawls is considered to be discountable. These exact sampling techniques, performed annually from 2011 to 2019 and more sporadically prior to 2011, have encompassed over 4000 trawls. During all of this work, no ESA-listed sea turtles, marine fishes, or marine mammals have ever been captured or entangled in the nets or tow cables. Tow speeds are slow, less than 2.5 knots and are generally on the order of 1 to 1.5 knots. All ESA-listed Sea turtles, fish, and marine mammals that may occur in the sampling areas are able to swim much faster than the proposed tow speeds, and are therefore able avoid the nets. Based on these sampling criteria and the fact that no ESA-listed species have ever been taken during over 4000 previous trawling sessions, we believe the potential for the entrapment of ESA-listed species in the MOCNESS trawls is discountable.

Manatees

West Indian manatee may be present in the nearshore areas where vessels transit for this project. USFWS Standard Manatee In-Water Conditions will be followed. As such, this project may affect but is not likely to adversely affect West Indian manatee.

II. *Explain the actions to reduce adverse effects to each species listed above. For each species for which impacts were identified, describe any Conservation Measures and/or BMPs that will be implemented to avoid or minimize the impacts. Conservation Measures and/or BMPs are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation Measures and/or BMPs 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.*

Frequently Recommended Conservation Measures and BMPs: This checklist provides standard practices recommended by NMFS and USFWS. Please select any BMPs that will be implemented:

☒ **USFWS Standard Manatee In Water Conditions**

☒ **NMFS Protected Species Construction Conditions (2021)**[1]

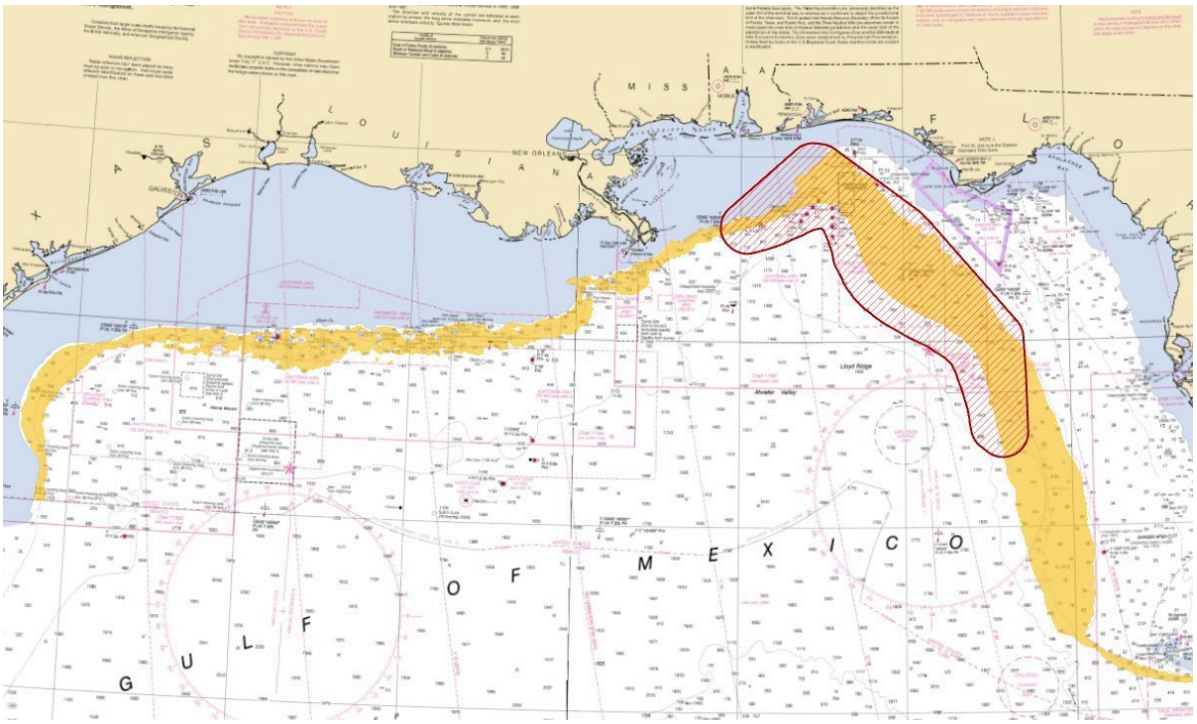
☐ **NMFS Measures for Reducing the Entrapment Risk to Protected Species**[1]

☒ **NMFS Vessel Strike Avoidance Measures (2021)**[1]

Additional BMPs or Conservation Measures

Chapter 6 of the PDARP included an important appendix (6.A) of best practices, see information starting on page 6-173.
http://www.gulfspillrestoration.noaa.gov/sites/default/files/wp-content/uploads/Chapter-6_Environmental- Consequences_508.pdf
Use the box below to indicate which best management practices or conservation measures you'll be using in your project (that were not listed in Section I above)

Based on recent discussions with NMFS Southeast Regional Office and Office of Protected Resources, we understand that there is a concern regarding the potential for vessel strike of the Rice's whale. In order to reduce the potential for this to occur, we would implement the following Best Management Practices (BMPs) for all vessel activity during our 2023-2027 field activities in support of the Mesophotic and Deep Benthic Community restoration projects (Figure 10): 1. Minimize transits in the "Core Distribution Area" (red hatched area) and the 100m - 400m isobath (yellow area)
2. Implement a speed limit of 10 knots in these areas
3. Avoid night time activities in the CDA (red hatched area)
4. Proceed with activities in the 100-400 m isobath (yellow areas) at night at speeds no greater than 8 knots



[1] https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance

Figure 10. The areas of importance for Rice's whale are depicted in this figure. The red hatched area shows the Rice's whale cored distribution area (CDA). The solid yellow area indicates the 100-400 m isobaths area.

For autonomous underwater vehicle (AUV) and remotely operated vehicle (ROV) work, no best management practices (BMPs) will be in place, based on rationale described below:

ROVs
ROVs may be used within the Rice's whale core habitat distribution area and the 100-400 m isobath area without restriction. ROV operation requires the vessel to move at up to 1 knot during work, thus substantially reducing the likelihood of a vessel strike. When possible, ROV operation will be prioritized to occur during the day within the CDA and 100-400 m isobath to minimize movement when Rice's whales are likely to be close to the surface. ROV deployment areas will be planned to reduce transit time between sites. Transit speed between sites will be limited to 8 knots.

AUVs
Mesophotic (<300m) and deep (<6000m) AUVs may be used within the Rice's whale core distribution area and the 100-400 m isobath area without restriction. AUV operations require the vessel to move at idle speed for deployment and recovery of the vehicle. AUVs will conduct surveys at low altitude to the seabed (<20m) at speeds of 3-6 kts using a 330kHz synthetic aperture sonar and camera payload. AUV deployment areas will be planned to reduce transit time between sites. Vessel transit speeds will be limited to 8 knots

K. Effects to Critical Habitats and Actions to Reduce Impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section I or J.

I. *Explain the potential beneficial and adverse effects to critical habitat listed above. Describe what, when, and how the critical habitat will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts to physical and biological features, and where possible, quantify effects (e.g. acres of habitat, miles of habitat).*

Describe your rationale if designated or proposed critical habitats are present and will not be adversely affected.

Click here to enter text.

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.

Click here to enter text.

L. Marine Mammals

I. The Marine Mammal Protection Act prohibits the taking (including disruption of behavior, entrapment, injury, or death) of all marine mammals (e.g.,whales, dolphins, manatees). However, the MMPA allows limited exceptions to the take prohibition if authorized, such as the incidental (i.e., unintentional but not unexpected) take of marine mammals. The following questions are designed to allow the Agencies to quickly determine if your action has the potential to take marine mammals. If the information provided indicates that incidental take is possible, further discussion with the Agencies is required.

Is your activity occurring in or on marine or estuarine waters? ☐NO ☒YES

If yes, is your activity likely to cause large-scale, ecosystem level impacts to the quality (e.g. salinity, temperature) of marine or estuarine waters? ☒NO ☐YES

II. If Yes, describe activities further using checkboxes. Does your activity involve any of the following:

NO	YES	ACTIVITY
☐	☒	*a) Use of active acoustic equipment (e.g., echosounder) producing sound below 200 kHz*
☐	☒	*b) In-water construction or demolition*
☐	☒	*c) Temporary or fixed use of active or passive sampling gear (e.g., nets, lines, traps; turtle relocation trawls)*
☒	☐	*d) In-water Explosive detonation*
☒	☐	*e) Aquaculture*
☒	☐	*f) Restoration of barrier islands, levee construction or similar projects*
☒	☐	*g) Fresh-water river diversions*
☒	☐	*h) Building or enhancing areas for water-related recreational use or fishing opportunities (e.g. fishing piers, bridges, boat ramps, marinas)*
☒	☐	*i) Dredging or in-water construction activities to change hydrologic conditions or connectivity, create breakwaters an living shorelines, etc.*
☒	☐	*j) Conducting driving of sheet piles or pilings*
☒	☐	*k) Use of floating pipeline during dredging activities*

III. If you checked "Yes" to any of the activities immediately above or the activity could impact the quality of marine or estuarine waters, please describe the nature of the activities in more detail or indicate which section of the form already includes these descriptions. See the NOAA Acoustic Guidance for more information: http://www.nmfs.noaa.gov/pr/acoustics/faq.htm

No take of marine mammals is expected from use of acoustic equipment or MOCNESS trawls or installation of buoys.

IV. *Frequently Recommended BMPs for marine mammals (manatees are covered in Section I above): This checklist provides standard BMPs recommended by NOAA. Please select any BMPs that will be implemented:*

☐	NMFS Southeast U.S. Marine Mammal and Sea Turtle Viewing Guidelines[2]
☒	NMFS Protected Species Construction Conditions (2021)[3]
☐	NMFS Measures for Reducing the Entrapment Risk to Protected Species (2012)[3]
☒	NMFS Vessel Strike Avoidance Measures and Reporting for Mariners (2021)[3]
☐	NMFS Reproducing and posting outreach signs: Dolphin Friendly Fishing Tips sign, Don't Feed Wild Dolphins sign[4]

If not listed above, please describe any additional BMPs or conservation measures that may be be implemented for marine mammals. Click here to enter text.

M. Bald Eagles

Are bald eagles present in the action area? ☒NO ☐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 at a distance greater than 660 feet of a nest may result in disturbance. 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.

Will you implement the above measures? ☐NO ☐YES

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, Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

N. Migratory Bird Treaty Act

In accordance with the Migratory Bird Treaty Act of 1918 as amended (16 U.S.C. 703-712), will this project

[2] https://www.fisheries.noaa.gov/topic/marine-life-viewing-guidelines
[3] https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance
[4] https://www.fisheries.noaa.gov/southeast/consultations/protected-species-educational-signs

cause the take of any birds covered under this act? ☒NO ☐YES

If YES, please explain and indicate if the pertinent permits will be or have been obtained:

Project proponent will review the appropriate BMPs and CMs found at this website and implement the appropriate measures to the extent practicable:
https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
☐NO ☐YES

If NO, please explain:

O. Request Approval for Use of NMFS PDCs for This Project

Complete this section only if your project qualifies for streamlined ESA consultation under the ESA Framework Programmatic Biological Opinion completed by NMFS on February 10, 2016.

To be eligible for streamlined ESA consultation with NMFS, you must implement all Project Design Criteria (PDCs) applicable to your project. Check "yes" for PDC categories that apply to the proposed project, and request PDC checklist from NMFS.

NO	YES	ACTIVITY
☐	☐	**Oyster Reef Creation and Enhancement**
☐	☐	**Marine Debris Removal**
☐	☐	**Construction of Living Shorelines**
☐	☐	**Marsh Creation and Enhancement**
☐	☐	**Construction of Non-Fishing Piers**

P. Submitting the BE Form

We request that all BE forms and consultation materials be placed on Sharepoint for review. 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 use the Biological Evaluation form to initiate appropriate consultations.

Questions may be directed to:

NMFS ESA § 7 Consultation
Christy Fellas, National Oceanic Atmospheric Administration

Email: Christina.Fellas@noaa.gov
Phone: 727-551-5714

USFWS ESA § 7 Consultation

Michael Barron, Department of the Interior
Email: michael_barron@fws.gov
Phone: 251-421-7030

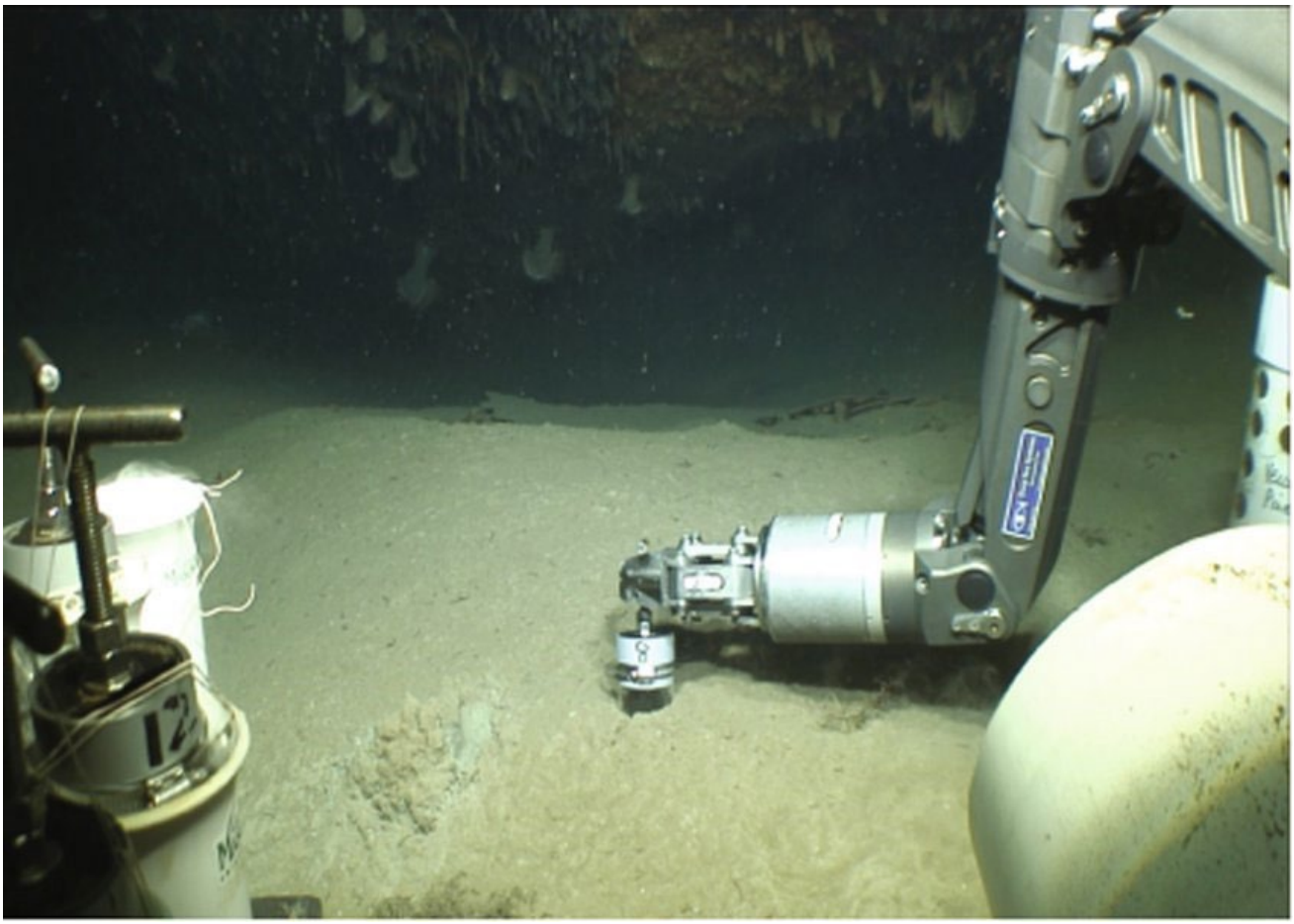
APPENDIX A.
Sediment Sample Collection

The Multicore is an instrument that is lowered to the seafloor from the ship on a winch wire, controlled descent, 30m/min. Once the device hits the seafloor, the slack created trips the top and bottom of the tubes to close. Then the instrument is returned to the ship. The instrument collects 8-12 cores at once. The cores will be processed at sea. Specs are as follows:

Core diameter: 10 cm, **Total core length:** 60cm, **Total sediment depth of interest:** 10cm See image for device.

For the ROV push cores, the ROV deploys the push core using its manipulator. The push core is inserted into the mud, then recovered and inserted into a quiver on the ROV. The ROV will collect 8-12 cores per dive. The cores will be processed at sea. Specs are as follows:
Core diameter: 6.35 cm, Total core length: 30 cm, Total sediment depth of interest: 10 cm

See image of push core inserted into mud. In the image, you can see the white quiver on the left side of the screen, which stores the push core for use and following sampling.



The following BE form is included for reference only. It describes the field activities to support the Mesophotic and
Deep Benthic DWH restoration projects that started in 2022 and will continue into 2023 through 2027.

Biological Evaluation Form

Deepwater Horizon Oil Spill Restoration

U.S. Fish and Wildlife Service & National Marine Fisheries Service

This form will be filled out by the Implementing Trustee and used by the regulatory agencies. The form will provide information to initiate informal Section 7 consultations under the Endangered Species Act (ESA) and may be used to document a No Effect determination or to initiate pre-consultation technical assistance.

It is recommended that this form also be completed to inform and evaluate additional needs for compliance with the following authorities: Migratory Bird Treaty Act (MBTA), Marine Mammal Protection Act (MMPA), Coastal Barrier
Resources Act (CBRA), Bald and Golden Eagle Protection Act (BGEPA) and Section 106 of the National Historic Preservation Act (NHPA).

Further information may be required beyond what is captured on this form. Note: if you need additional space for writing, please attach pages as needed.

For assistance, please contact the
compliance liaisons USFWS: Michael
Barron at michael_barron@fws.gov
NMFS: Christy Fellas at christina.fellas@noaa.gov

A. Project Identification

Federal Action Agency(one or more):USFWS ☒ NOAA ☒ EPA ☐ USDA ☐

Implementing Trustee(s): Click here to enter text

Contact Name: Click to enter text Phone: 000-000-0000 Email: Click to enter text

Project Name: Mesophotic and Deep Benthic Communities (MDBC) Projects:

OO RP2 Mapping, GroundTruthing, and Predictive Habitat Modeling;

OO RP2 Habitat Assessment and Evaluation;

OO RP2 Coral Propagation Technique Development

OO RP2 Active Management and Protection

DIVER ID# 234, 232, 235, 233 TIG: Open Ocean TIG Restoration Plan # OO RP2

B. Project Phase and Supporting Documentation

Please choose the box which best describes the project status, as proposed in this BE form:

Planning/Conceptual ☐ Construction/Implementation ☒ Engineering & Design ☐

If "Engineering & Design" was selected, please describe the level of design that has been completed and is available for review:

Click here to enter text.

Supporting Documentation

Please attach any maps, aerial photographs, or design drawings that will support the information in this BE form. Examples of such supporting documentation include, but are not limited to:

- Plan view of design drawings
- Aerial images of project action area and surrounding area
- Map of project area with elements proposed (polygons showing proposed construction elements) Map of action area with critical habitat units or sensitive habitats overlayed

C. Project Location

I. State and County/Parish of action area

See figures below for the area where this field work would take place. Including Figure 2, which highlights specific sediment sampling areas.

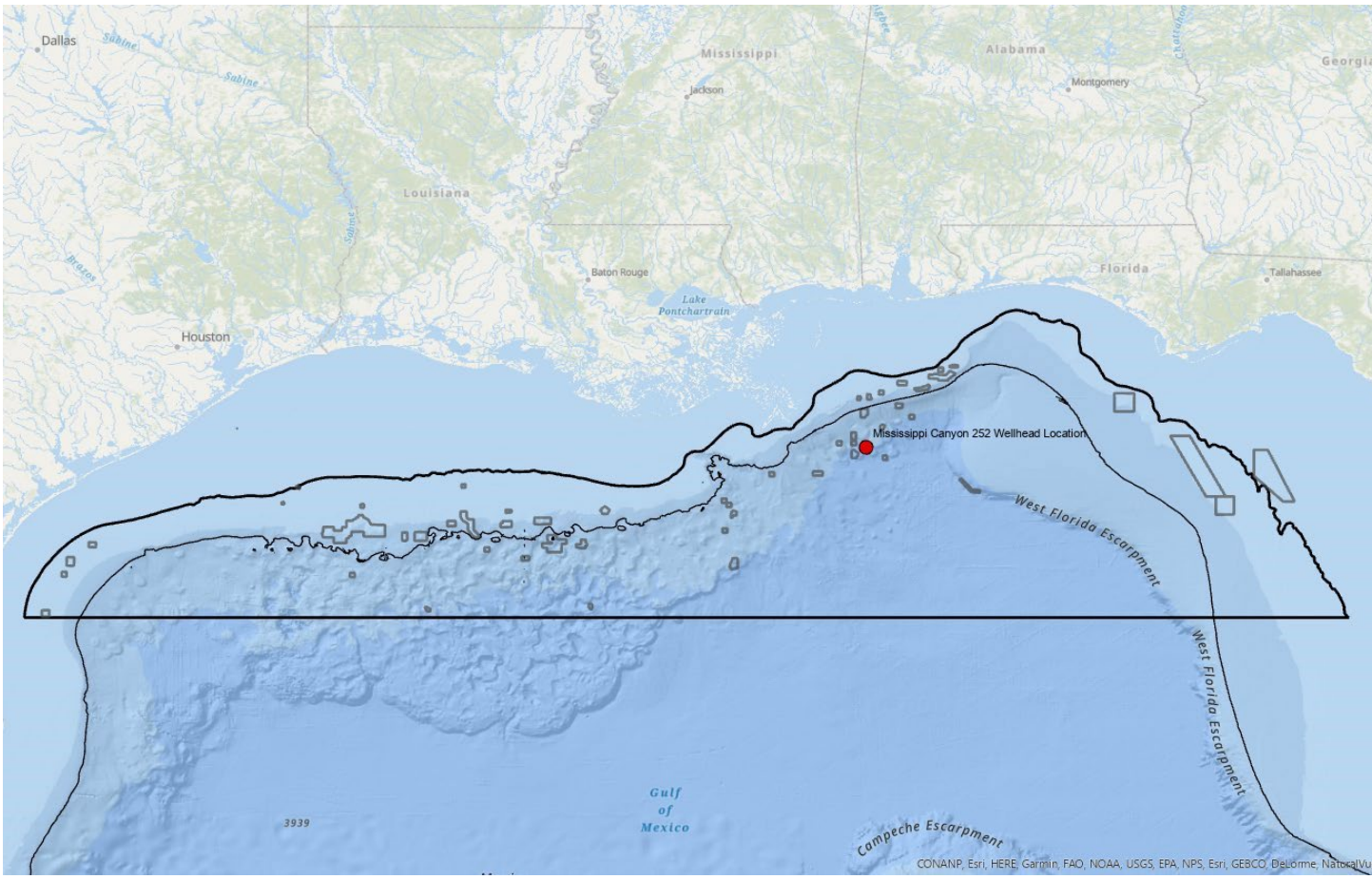


Figure 1. The area for MDBC field operations lies within the territorial waters of the Gulf of Mexico and

is represented by the heavy black polygon (bounded by the north, east, and west by the 50 m isobaths and to the south by the 27th N parallel), and includes slightly shallower depths in the gray polygon extending to the east outside the black line (the Florida Middle Grounds). The gray polygons represent areas with known MDBC habitats encompassing a number of protected or managed areas including both injured sites and areas that may be used as reference sites.

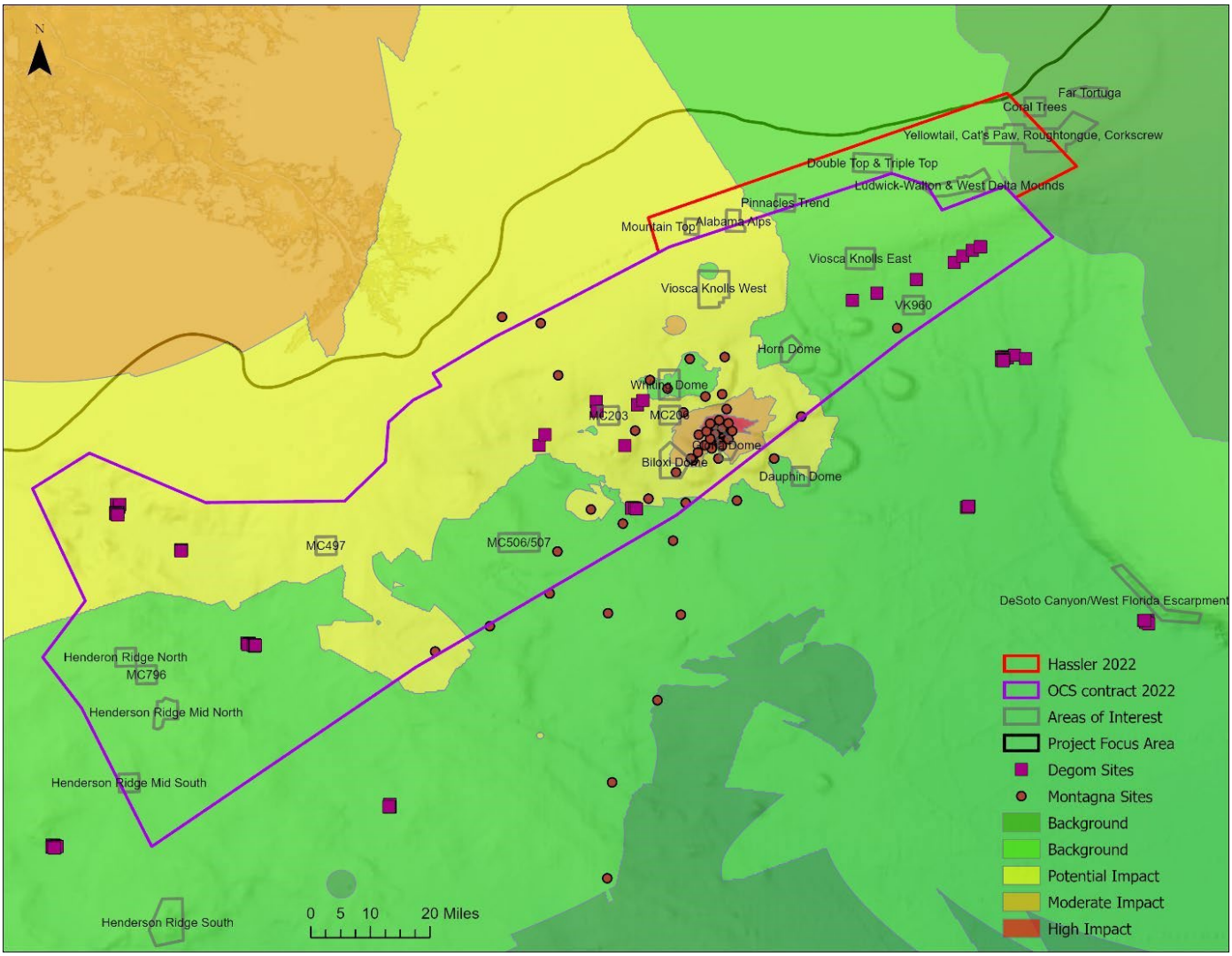


Figure 2. Detailed information of sediment sampling. The majority of sediment sampling would take place in this area adjacent to the wellhead from the DWH spill, as noted in the legend by "Degom sites" and the "Montagna sites".

II. Latitude/Longitude for action area (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83) [online conversion: https://www.fcc.gov/encyclopedia/degrees-minutes-seconds-tofrom-decimal-degrees]

Click here to enter text.

D. Existing Compliance Documentation

NEPA Documents

Are there any existing draft or final NEPA analyses (not PDARP/PEIS) that cover all or part of this project?

YES☒ NO☐

Examples:
-TIG Restoration Plan/EA or EIS (draft or final)
-USACE programmatic NEPA analysis
-USACE Clean Water Act individual permit for the project
-NEPA analysis provided by a federal agency that gave approval, funding or authorization

Permits

Have any federal permits been obtained for this project, if so which ones and what is the permit number(s)?

YES☐ NO☐ Permit Number and Type: Click or tap here to enter text

Have any federal permits been applied for but not yet obtained, if so which ones and what is the permit number(s)?

YES☐ NO☐ Permit Number and Type: Click or tap here to enter text.

If yes to any question above, please provide details in the text box (i.e. link to the NEPA document, or name of the document, year, lead federal agency, POC, copy of the permit or permit application, etc.). This is needed to check for consistency of the project scope across different sources and to facilitate the NEPA analysis. If you do not have a link, email the documents to the TIG representative for the Trustee designated as lead federal agency for the restoration plan.

NEPA analysis and some compliance was included in the Open Ocean TIG RP#2: https://www.gulfspillrestoration.noaa.gov/2019/12/226-million-projects-approved-second-open-oceanrestoration-plan

Additional NEPA review was completed based on the field activities details, in the following NEPA and compliance review document completed Jan 2022: https://www.fws.gov/doiddata/dwh-ar-documents/1195/DWH-ARZ009990.pdf

At the time of the Final OO RP2, compliance reviews were completed, except for the following statutes: NMFS-ESA
NMFS-EFH

NMFS- MMPA
NHPA/106

NHPA/106 reviews were completed on 2/7/2022 for the proposed MDBC field activities.

For mapping and survey work carried out by NOAA's Office of Coastal Survey (OCS), operations will follow the conditions set forth in the NMFS ESA Section 7 consultation to NOAA OCS. At the time of the field operations a new biological opinion may be in place, but if it is not NOAA OCS will rely on their 2013 biological opinion[5] and the conditions therein. For work carried out described below by other NOAA offices, an ESA Section 7 consultation with NMFS will be completed by the NOAA RC, and will be posted to DIVER and the AR.

Any documentation or information provided will be very helpful in moving your project forward.

Name of Person Completing this Form: Christy Fellas/Kris Benson
Name of Project Lead: Kris Benson
Date Form Completed: 10/21/2021
Date Form Updated: Click here to enter text.

E. Description of Action Area

Provide a description of the existing environment (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). Describe all areas that may be directly or indirectly affected by the action.
If CH is not designated in the area, then describe any suitable habitat in the area

a. Waterbody

If applicable. Name the body of water, including wetlands (freshwater or estuarine), on which the project is located. If applicable, please describe water quality, depth, hydrology, current flow, and direction of flow.

The area for MDBC field operations lies within the territorial waters of the Gulf of Mexico and is represented by the heavy black polygon (bounded by the north, east, and west by the 50 m isobaths and to the south by the 27th N parallel).

Does the project area include a river or estuary?

YES☐ NO☒

[5] https://nauticalcharts.noaa.gov/about/docs/regulations-and-policies/coast-survey-esa-section-7-biological-opinion.pdf

If yes, please approximate the navigable distance from the project location to the marine environment. Click or tap here to enter text.

b. Existing Structures

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

Various oil and gas platforms, associated infrastructure, and artificial reef sites are located throughout the MDBC field operations project area, including in the vicinity of the sediment sampling areas (Figure 3).

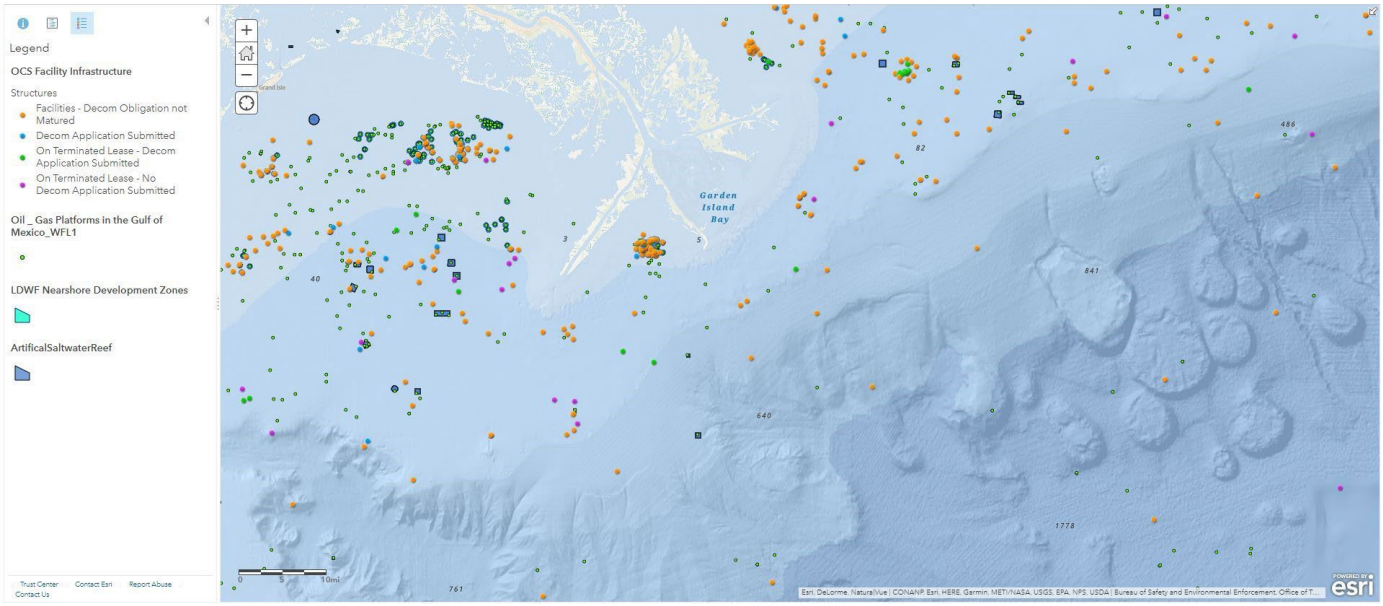


Figure 3. Oil and gas facility infrastructure and artificial reef sites in the MDBC sediment sampling project area.

c. Seagrasses & Other Marine Vegetation

If applicable. Describe seagrasses found in action 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 action area.

Click here to enter text.

d. Mangroves

If applicable. Describe the mangroves found in action 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 action area.

N/A

e. Corals

If applicable. Describe the corals found in action 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 action area. Click here to enter text.

Corals are present in the action area, and have been mapped to some extent (Figure 4), but there is an overall dearth of information on the spatial extent of these understudied mesophotic and deep benthic communities. Therefore, this project seeks to expand on the knowledge and understanding of these communities to facilitate restoration and active management activities in the future. Non ESA-listed corals may be targeted for scientific collection at some of the deep water sites for the coral propagation technique development portion of the MDBC project.

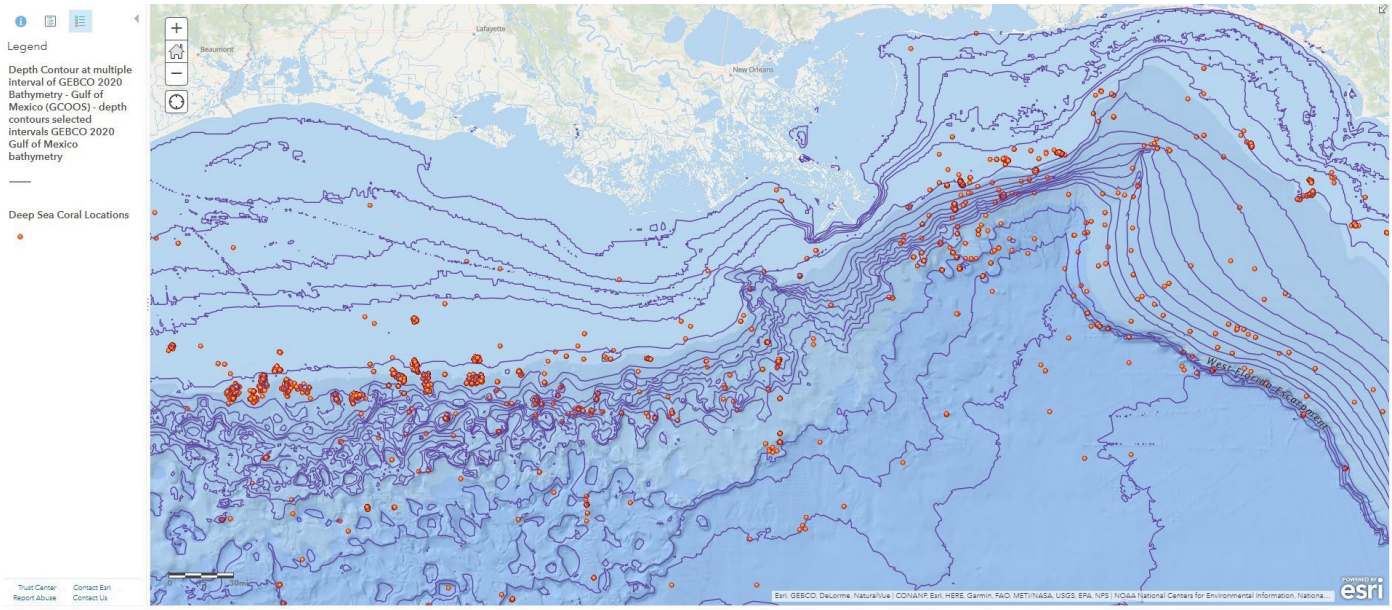


Figure 4. Mapped locations of deep sea corals and sponges in the project area (https://deepseacoraldata.noaa.gov/)

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.).

N/A

g. Marine Mammals

Please select the following marine mammals that could be present within the project area:

Dolphins YES☒ NO☐

Whales YES☒ NO☐
Manatees YES☐ NO☒

If applicable. Indicate and describe the species found in the action area. Use NMFS' Stock Assessment Reports (SARs) for more information, see http://www.nmfs.noaa.gov/pr/sars/region.htm

Marine mammals recorded in NMFS stock assessment report for this action area in the GOM include: Rice's whale (*Balaenoptera ricei*), sperm whale (*Physeter microcephalus*), Cuviers beaked whale (*Ziphius cavirostris*), Blainville's beaked whale (*Mesoplodon densirostris*), Gervais' beaked whale (*Mesoplodon europaeus*), common bottlenose dolphin (*Tursiops truncatus truncatus*), Atlantic spotted dolphin (*Stenella frontalis*), pantropical spotted dolphin (*Stenella attenuate*), striped dolphin (*Stenella coeruleoalba*), spinner dolphin (*Stenella longirostris*), rough-toothed dolphin (*Steno bredanensis*), Clymene dolphin (*Stenella clymene*), Fraser's dolphin (*Lagenodelphis hosei*), killer whale (*Orcinus orca*), false killer whale (*Pseudorca crassidens*), pygmy killer whale (*Feresa attenuata*), dwarf sperm whale (*Kogia sima*), pygmy sperm whale (*Kogia breviceps*), Melon-headed whale (*Peponocephala electra*), Risso's dolphin (*Grampus griseus*), and short-finned pilot whale (*Globicephala macrorhynchus*).

h. Soils and Sediments

If applicable. Indicate topography, soil type, substrate type.

Sediment samples may be taken during field work to identify soils/substrates in these deep water areas. See more information in Appendix A.

i. Land Use

If applicable. Indicate existing or previous land use activities (agriculture, dredge disposal, etc).

N/A

j. Essential Fish Habitat

If applicable. Describe any designated Essential Fish Habitat within the project area

The NMFS and the Gulf of Mexico Fishery Management Council (Gulf Council) have identified and described essential fish habitat (EFH) for a variety of federally managed species that overlaps with the MDBC field operations project area. For those species managed by the Gulf Council, EFH maps were spatially defined based on five eco-regions (Figure 5). Within each eco-region, three habitat zones (estuarine, nearshore, offshore) are recognized, and specific habitat types are mapped within each eco-region and habitat zone. The MDBC field operations project boundary area is located in the offshore habitat zone, and spans all five eco-regions; however, the proposed sediment sampling efforts are concentrated in ecoregions 3 and 4.

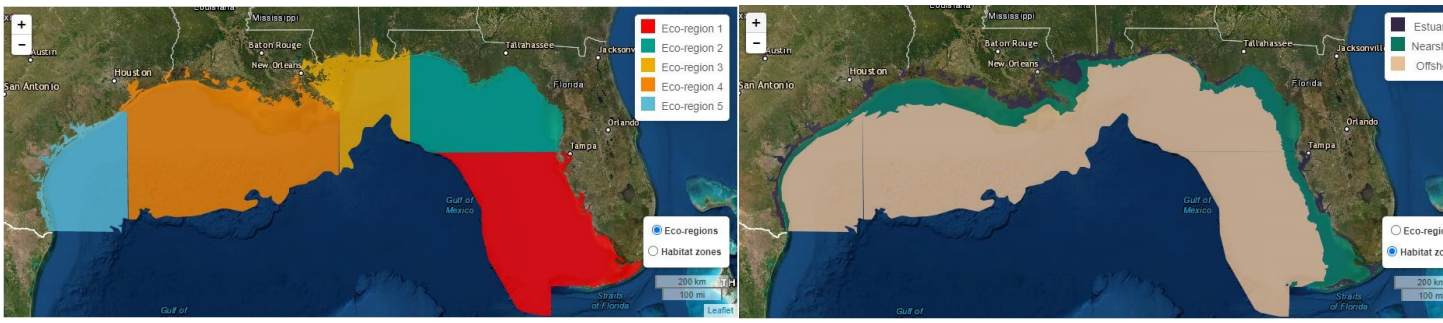


Figure 5. Gulf of Mexico EFH eco-regions (left) and habitat zones (right) as described by the Gulf Council

The offshore marine EFH habitats in the project action area may include vegetated bottoms (e.g., benthic algae), nonvegetated bottoms (e.g., sand/shell bottoms, soft bottoms of mud/clay/silt), live/hard bottoms (e.g., low relief or high relief irregular bottoms), coral and coral reefs (e.g., reef halos, patch reefs, deep reefs), continental shelf/geologic features (e.g., shelf edge, shelf slope, salt domes), marine water column associated, and drift algae (e.g., Sargassum). These habitats areas are associated with various life stages of federally managed species, including all six management units for which the Gulf Council has developed fishery management plans (FMP): coastal migratory pelagics (e.g., cobia and mackerels), red drum, reef fish (e.g., snappers, groupers, jacks, triggerfish, hogfish), shrimp (e.g., brown, white, pink, royal red), spiny lobster, and coral (e.g., hydrozoa and anthozoa).

NMFS is also responsible for identifying and describing EFH in FMPs for highly migratory species (HMS) such as sharks, tunas, and billfish which cross fishery management council boundaries. Due to the highly mobile nature of these species,
EFH for HMS is classified by NMFS spatially using point/distribution data to create a probability boundary. As such, the MDBC project area also overlaps with HMS EFH for multiple life stages and species of sharks, tunas, and billfishes.

Additionally, there are two types (HMS and Coral) of EFH Habitat Areas of Particular Concern (HAPCs) that are also included in the MDBC project area. These EFH-HAPCs are described as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. The Gulf of Mexico is the only known spawning location for western Atlantic bluefin tuna, and as such it was designated as an EFHHAPC and is the only HAPC designation for HMS in the Gulf. The Gulf Council, through the original Coral FMP and subsequent Amendments, has established HAPCs for coral reef management along with regulations on fishing activities and coral harvest. The original Coral FMP (effective 1984) prohibited harvest of stony coral and seafans, except by scientific permit, and also identified HAPCs in the Gulf where the use of any fishing gear interfacing with the bottom was prohibited (e.g., West and East Flower Garden Banks, Florida Middle Grounds). Subsequent Coral Amendments developed additional harvest regulations and refined definitions for soft corals (e.g., gorgonians), live rock (e.g., assemblage of living marine organisms attached to hard substrate such as dead coral or limestone), and octocorals. Furthermore, Coral Amendment 9 (effective 2020) established 13 new HAPCs with fishing regulations that prohibit deployment of bottom-tending gear and anchoring by fishing vessels (e.g., West Florida Wall, Alabama Alps Reef, L & W Pinnacles and Scamp Reef (combined area),
Mississippi Canyon 118, Roughtongue Reef, Viosca Knoll 826, Viosca Knoll 862/906, AT 047, AT 357, Green Canyon 852, Southern Bank, Harte Bank, and Pulley Ridge South Portion A), and also designated eight new areas without fishing regulations (Figure 6).

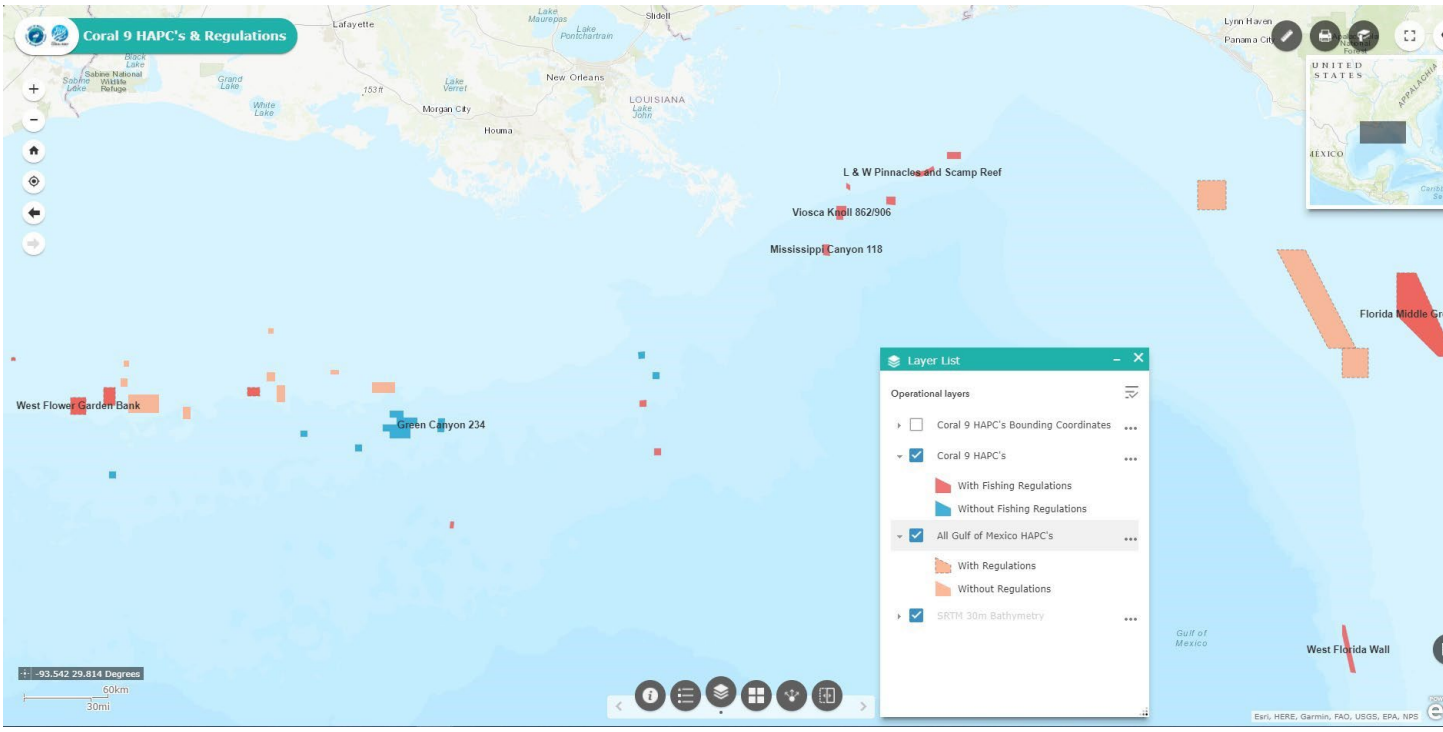


Figure 6. Coral HAPCs in the Gulf of Mexico

While the MDBC project area does overlap with EFH and EFH-HAPCs for a variety of federally managed species, the scope of the project is restorative in nature and will not have adverse effects on EFH. The limited impacts to EFH for the sediment sampling and coral collection would only be minor and temporary. Scientific collection of corals is not disallowed in HAPCs, and successful development of coral propagation techniques would lead to additional restoration and management opportunities in the future. Therefore, the cumulative project activities will provide additional information about the mesophotic and deep benthic communities in the project area, and propagation and eventual planting of corals will provide a long term restoration benefit to designated EFH.

F. Project Description

I. *Describe the Proposed Action/Project Objectives: What are you trying to accomplish and how with this project? Describe in detail the construction equipment and methods** needed; long term vs. short term impacts; duration of short term 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.*

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, artificial reefs or fishery activities, list the method here, but complete the next section(s) in detail.*

See Figure 1 above for the action area. Within that area, the following types of mapping, survey and collection work may take place over the next 5 years, beginning in 2022. If other methodologies or geographic areas are considered in the future, those would undergo an analysis with the new details in a new BE form.

The work described below will support all four identified MDBC projects from OO RP2:
Mapping, Ground-truthing, and Predictive Habitat Modeling (MGM Project)
Habitat Assessment and Evaluation (HAE Project)
Coral Propagation Technique Development (CPT Project)
Active Management and Protection (AMP Project)

The work described here will be implemented by NOAA offices and NOAA funded partners that may include staff and equipment from Southeast Fisheries Science Center, Office of Coastal Survey, National Centers for Coastal Ocean Science, Office of National Marine Sanctuaries, Office of Habitat Conservation, and other agencies/partners as needed. The work may take place on NOAA vessels, NOAA contracted vessels or vessels operated by NOAA funded partners.

MGM Project Field Operations

The goal of the MGM project is to document the abundance and distribution of MDBC and to gain a better understanding of their extent, species composition, and habitat characteristics. The proposed field operations support these goals and further project objectives to map (e.g., high-resolution surveying, backscatter interpretation, and photomosaic assemblage) and ground-truth (i.e., visually and including sample collections) MDBC at sufficiently high-resolution for habitat characterization. Mapping operations will also collect data to refine predictive models to improve the effectiveness and cost efficiency of restoration and mapping efforts.

Mapping operations (OORP2/EA Section 3.8.1.1) will include moderate-resolution (2-16 meter) ship-based exploratory mapping using multi-beam echosounders , underway conductivity, temperature, and depth (CTD) probes, Remotely Operated Vehicle (ROV)-based ground-truthing, high resolution (<2 meter) mapping over potential dive targets using ship- and Autonomous Underwater Vehicle (AUV)-based sensors, and ground-truthing previously mapped sites. AUV operations will include multibeam echosounder or sonar surveys from vehicles flown at low altitude above the seafloor, as well as photo imaging of the sea bed for ground-truthing, photomosaic assemblage, and photogrammetry. Ship-based multi-beam operations will be performed with instruments including the Kongsberg EM2040 (hydrographic surveying in mesophotic depths of 50-300m), Kongsberg EM710 (hydrographic surveying in depths of 300-2000m), Kongsberg ME70 and Kongsberg Simrad EK80 (fish and deep scattering layer characterization, and coarse resolution hydrographic surveying in deep water), and Knudsen CHIRP 3260 (sub-bottom profiling in mesophotic depths). This equipment operates at the following frequency ranges:
Kongsberg EM2040: 200-700kHz
Kongsberg EM710: 40-100kHZ
Kongsberg ME70: 70-120kHz
Kongsberg Simrad EK80: 10-500kHz
Knudsen CHIRP 3260: 3.5-210kHz

Typically, on multi-mission cruises, mapping operations are carried out at night while ROV operations

are carried out during the day, to take advantage of any available light. Multibeam echosounder operations will be carried out to conduct mapping to find seafloor features on which ROV dives will be conducted to meet the objectives of the HAE Project. For mapping only missions, mapping activities take place 24 hours a day.

HAE Project Field Operations

The goal of the HAE Project is to fill critical gaps in our understanding of the health, biodiversity, recovery, and resilience of mesophotic and deep-sea habitats (both hard bottom communities and soft sediment communities) following the DWH oil spill. The proposed field operations further this goal and project objectives by documenting changes to the structure and function of MDBC impacted by the DWH oil spill and other threats and establishing environmental baseline conditions and changes over time around impacted and healthy MDBC.

Habitat assessment operations (OORP2/EA Section 3.8.2.1) will include ROV dives to characterize the fish and water column community including the deep scattering layer, and to perform sub-bottom profiling to characterize sediment and substrate stratigraphy. Visual/image transects will be conducted at previously imaged and new sites and biological, geological, and water column samples (i.e., tissues, organisms, colonies, sediment, substrate, water, eDNA) will be taken to support habitat assessment.

Conductivity, temperature, and depth probes ("CTD casts") and expendable bathythermograph probes ("XBT casts") will be deployed for physical oceanographic data collection both while underway and while stationary. Underway CTD casts will be conducted to collect sound velocity data for multibeam mapping, while CTD rosette deployments will be used to collect water column data from ROV dive locations. Sediment sample collection will be performed using ship-deployed multicores and ROV- or diver-deployed push-cores.

Physical markers will be deployed on the seafloor as targets for ROVs, AUVs, and divers to establish monitoring sites and return to them during repeated surveys. Physical markers are fairly small and include a screw anchors and short length of line to keep the marker upright, but it is not a long enough line to pose any entanglement hazards to marine species (see example photo below). Approximately 30 markers would be deployed for new sentinel/monitoring coral sites over five years. Markers are made from Syntactic foam (floatation material) with reflective tape around the edge to assist with finding them on the seafloor, measure 1-3 feet high. The yellow polypropylene is about 1/4' diameter (max) and a rubber band is used to to secure the marker to the ROV to make sure it doesn't fall off at launch. Line that is bending, but not loopable, is used to hole the plastic wiffle ball. Typical monitoring sites where markers are used are in deep water (minimum depth 50m, max dpth ~2500m, and placement is anticipated to be adjacent to structured deepwater coral habitat.

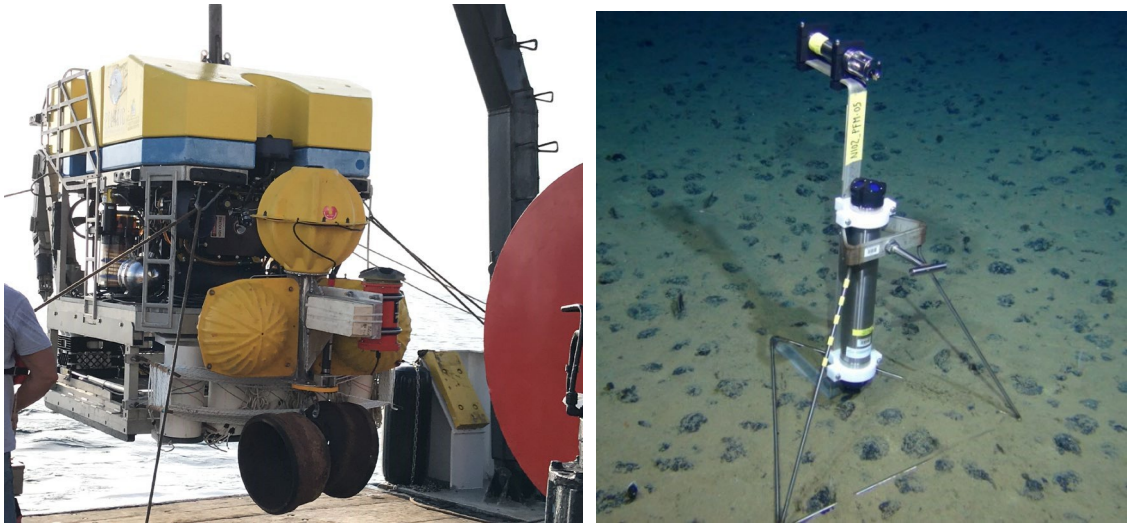
Instrumented landers (frames to which monitoring instrumentation and equipment are attached, see examples below) will be deployed for long term monitoring. In addition, specific corals will be selected at these sites for monitoring using imaging techniques. ROV operations will include transect surveys, video, and still imagery documentation of coral and reef fish communities, with collections of corals, other invertebrates, water samples, and sediment or substrate samples also taken throughout the dives. These operations also support the goals and objectives of the CPT Project.

CPT Project Field Operations

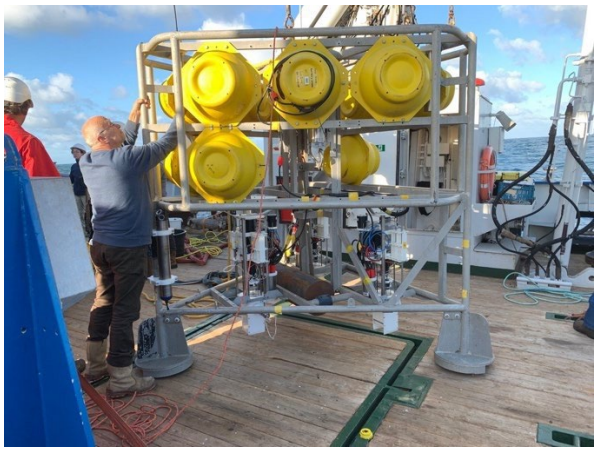
The goals of the CPT Project are to develop techniques to propagate and transplant corals and to enhance larval coral recruitment. Field operations beginning in 2022 advance these goals and support project objectives to develop coral husbandry techniques for priority species and conduct specialized analyses of biological and environmental samples to evaluate potential restoration sites that can maximize survival and recruitment.

Coral propagation technique development-related field operations (OORP2/EA Section 3.8.3.1) will include the targeted collection of coral specimens (whole colonies, fragments for genetics analysis, commensal organisms, associated sediments or substrates, and water containing gametes or larvae) and small-scale deployments of experimental settlement substrates on landers to test coral recruitment potential and performance. Targeted coral collections are planned during cruise missions for laboratory culture and in support of studies of genetic connectivity, life history characteristics, health condition, and trophodynamic linkages among ecosystem components. None of the coral species to be collected are listed under the Endangered Species Act (ESA).

Examples of landers that may be used



Images of the short-term lander systems. Left: bottom lander with orange acoustic Doppler current profiler and sensor under the syntactic foam floatation. Right: micro-lander system with optical fluorometry and turbidity sensor (top) and short-range acoustic Doppler current profiler.



Images of a lander system. Left: this particular lander is outfitted with penetrating sediment samplers, amongst other sensors on the bottom bar; right: instrumented with camera systems and baited traps, demonstrating the flexibility of the system to achieve multiple data streams.

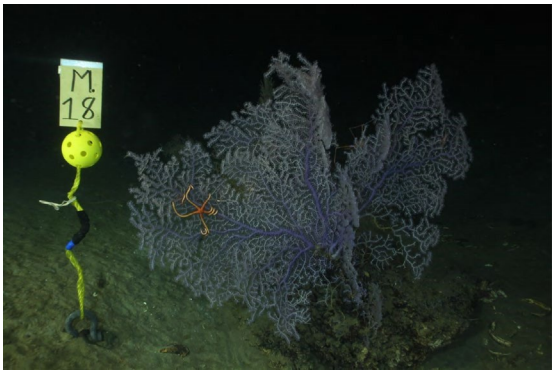


Image of an example physical marker. These markers are generally very small-scale, and may employ components such as screw anchors, short lengths of polypropylene line, and floats to keep the marker upright in the water column.

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

The first major phase of field work will be in 2022. Additional work using the same methods in the same action area are expected in future years. Any additional permits such as SRPs or sanctuaries permits will be in place prior to implementation.

Tentative 2022 work (approximately 230 days at sea) is described in the table below. We expect that this approximate level of work would continue over the next five years (2022-2027):

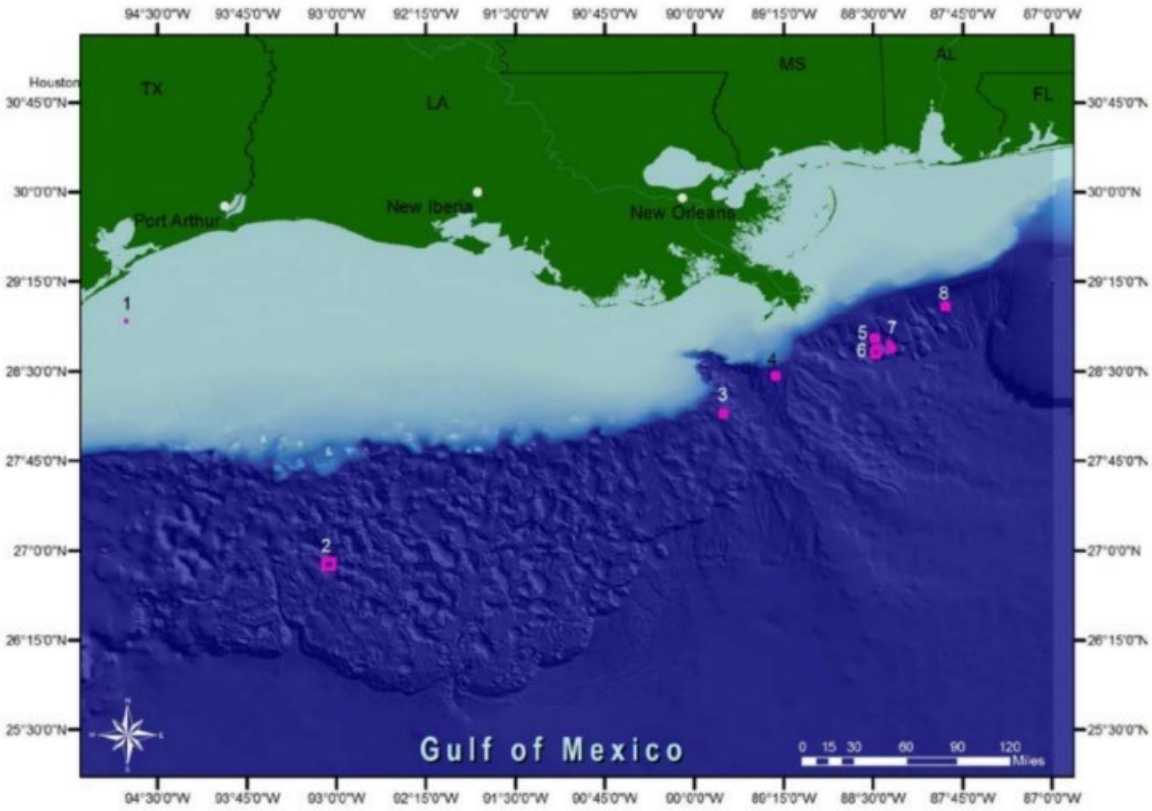
Anticipated Vessel Platforms and Vehicles	Tentative Dates	Mission execution days (does not include transit to/from homeport, potential in-port days, etc.)	Approximate mission execution days within Rice's whale CDA	Existing Compliance Notes (see also Section D above)

NOAA Ship *Ferdinand R. Hassler*	**April through June**	**45**	**25**	OCS will conduct this work and has existing ESA compliance from 2013, and is currentl in the process of getting ESA and MMPA compliance on their program, working with OPR (2021). 2022 work includes Rice's wha BMPs that were negotiated with OPR.
Partner Vessel R/V *Point Sur* w/ ROV *Global Explorer*	**June**	**10**		
NOAA Ship *Pisces* w/ ROV *Mohawk* + REMUS 600 AUV	**June through July**	**30**	**23**	
ONMS R/V *Manta* w/ ROV *Beagle*	**August**	**10**		
NOAA Ship *Nancy Foster* w/ ROV *Global Explorer*	**August**	**30**	**8**	
ONMS R/V *Manta* w/ ROV *Mohawk*	**September**	**5**		
Partner Vessel R/V *Point Sur*	**September**	**20**	**6**	
Partner Vessel R/V *Point Sur* w/ ROV *Mohawk*	**October**	**9**		
OCS Contract Cruise (vessel TBD)	**Summer and Fall**	**36**	**10**	OCS will conduct this work and has existing ESA from 2013, and is currently in the process of getting ESA and MMPA compliance on their program, working with OPR (2021). 2022 work includes Rice's wha BMPs that were negotiated with OPR.

Cultural Resources

The operations will be performed in a deep water, offshore area where few known cultural or historic resources are present on the sea floor. There are a number of historically significant shipwrecks known to exist throughout the area proposed for MDBC field operations, and project activities will be avoided in proximity to these shipwrecks. Project activities (e.g., sediment core collection, lander deployment, ROV landing) will only minimally disturb the bottom and are unlikely to potentially impact any unknown, buried cultural or historic resources. See Appendix A for more information about sediment core collection. Shipwrecks in the vicinity are more fully described in the Flower Garden Banks National Marine Sanctuary EIS, Appendix E. Available at this link: https://flowergarden.noaa.gov/management/sanctuaryexpansion.html

The figure below, from the Flower Garden Banks National Marine Sanctuary EIS, Appendix E shows the locations of 10 shipwrecks in the vicinity of the work proposed in this BE form. The sites are: 1. USS Hatteras; 2. Monterrey wrecks; 3. GulfOil; 4. GulfPenn; 5. Mardi Gras wreck; 6. R. E. Lee & U-166; 7. Deepwater Horizon; 8. Anona.



III. *Specific In-Water and/or Terrestrial Construction Methods*

Please check yes or no for the following questions related to in-water work and overwater structures

Does this project include in-water work?	YES☒	NO☐
Does this project include terrestrial construction?	YES☐	NO☒
Does this project include construction of an overwater structure?	YES☐	NO☒
Will fishing be allowed from this overwater structure?	YES☐	NO☒
Will wildlife observation be allowed from this overwater structure?	YES☐	NO☒
Will boat docking be allowed from this overwater structure?	YES☐	NO☒
Will fishing be allowed from this overwater structure?	YES☐	NO☒

If this is a fishing pier, please provide the following information: public or private access to pier, estimated number of people fishing per day, plan to address hook and line captures of protected species, specific operating hours/open 24 hours, artificial lighting of pier (if any), number of fish cleaning stations, and number of pier attendants (if any).

In water work includes sampling, mapping and surveys and collection of non ESA-listed corals.

Construction: 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. Indicate if work will be done from upland, barge, or both.)

iii. *Use of "Dock Construction Guidelines"?*
http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/documents/dockkey2002.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 (sq ft)?*

N/A

b. *Pilings & Sheetpiles: If this project includes installation of pilings or sheets, please provide answers to questions 1-11 listed below*

1. Method of pile installation	N/A
2. Material type of piles used	
3. Size (width) of piles/sheets	
4. Total number of piles/sheets	
5. Number of strikes for each single pile	
6. Number of strikes per hour (for a single pile)	
7. Expected number of piles to be driven each day	
8. Expected amount of time needed to drive each pile (minutes of driving activities)	
9. Expected number of sequential days spent pile driving	
10. Whether pile driving occurring in-water or on land	
11. Depth of water where piles will be driven	

c. *Marinas and 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.)*

N/A

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.)*

N/A

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 action area.

N/A

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft2) to be dredged, volume of material (yd3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction)). If digging in the terrestrial environment, please describe fully with details about possible water jetting, vibration methods to install pilings for dune walk-over structure, or other methods. If using devices/methods/turtle relocation dredging to relocate sea turtles, then describe the methods here.*

N/A

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.)*

N/A

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, long term maintenance plan (periodic clean-up of lost fishing gear/debris]), 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 will occur in.*

N/A

i. *Fishery Activities (Describe any use of gear that could entangle or capture protected species. This includes activities that may enhance fishing opportunities (e.g. fishing piers) or be fishery/gear research related (e.g. involve trawl gear, gillnets, hook and line gear, crab pots etc)).*

N/A

G. NOAA Species & Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section G. and proceed to Section H.

☐This project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

Identify if Gulf sturgeon are in marine 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 - marine). 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	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon only)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
Sperm Whale (E)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Giant Manta Ray (T)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Oceanic Whitetip Shark (T)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Rice's Whale (E)		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Green Sea Turtle (T)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Loggerhead Sea Turtle		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Leatherback Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Hawksbill Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Kemp's Ridley Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Loggerhead Sea Turtle CH		Marine	No Effect	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

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 = may affect, 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 with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly 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 = may affect, 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 for action with a likely to adversely affect determination, with a biological opinion as the concluding document. 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 is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

Critical Habitat No Destruction = When the proposed action will not diminish the value of critical habitat.

H. USFWS Species & Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section G. and proceed to Section H.

☒This project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

Identify if Gulf sturgeon are in marine 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 - marine). 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	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon only)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
Choose an item.		Choose an item.	Choose an item.	Select Most Appropriate
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

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 = may affect, 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 with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly 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 = may affect, 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 for action with a likely to adversely affect determination, with a biological opinion as the concluding document. 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 is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

Critical Habitat No Destruction = When the proposed action will not diminish the value of critical habitat.

I. Effects of the proposed project to the species and actions to reduce impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section I or J.

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, and cumulative impacts and 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.

For work carried out by NOAA OCS, conditions and BMPs in their current NMFS ESA Section 7 consultation will be followed. For all other work, the effects below will be considered in the NOAA RC consultation to be completed by SERO.

Whales

Whales listed in the table above could be present in the action area and have the potential to interact with vessels being used for the proposed work. This is not likely a high risk since work is limited to a small number of vessels (1-3 concurrently) over time for the proposed work, but the vessels will follow the NMFS SERO vessel strike avoidance measures (2021) to reduce the unlikely occurrence of a vessel strike. Landers or other equipment deployed do not have lines to the surface so there is no likelihood of entanglement.

Sea Turtles

Sea turtles of multiple life stages and species could be present in the action area and have the potential to interact with vessels being used for the proposed work. This is not likely a high risk since work is limited to a small number of vessels (1-3 concurrently) over time for the proposed work, but the vessels will follow the NMFS SERO vessel strike avoidance measures (2021) to reduce the unlikely occurrence of a vessel strike. Landers or other equipment deployed do not have lines to the surface so there is no likelihood of entanglement.

Giant Manta Ray and Oceanic White Tip Shark

Giant manta rays and oceanic whitetip sharks could be present in the action area and have the potential to interact with vessels being used for the proposed work. This extremely unlikely as documented vessel strikes with these animals have happened with smaller, fast moving boats (e.g. recreational fishing and pleasure craft). Vessels will follow the NMFS SERO vessel strike avoidance measures (2021) to reduce the unlikely occurrence of a vessel strike. There are no other likely routes of effects for these species. Landers or other equipment deployed do not have lines to the surface so there is no likelihood of entanglement.

II. *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.*

Frequently Recommended BMPs: This checklist provides standard BMPs recommended by NOAA and USFWS. Please select any BMPs that will be implemented:

☐	USFWS Standard Manatee In Water Conditions
☐	NMFS Protected Species Construction Conditions (2021)[6]
☐	NMFS Measures for Reducing the Entrapment Risk to Protected Species (2012)[3]
☒	NMFS Vessel Strike Avoidance Measures and Reporting for Mariners (2021)[3]

Additional BMPs or Conservation Measures

Chapter 6 of the PDARP included an important appendix (6.A) of best practices, see information starting on page 6-173. http://www.gulfspillrestoration.noaa.gov/sites/default/files/wp-content/uploads/Chapter-6_Environmental- Consequences_508.pdf

Use the box below to indicate which best management practices or conservation measures you'll be using in your project (that were not listed in Section I above)

Click here to enter text.

J. Effects to critical habitats and actions to reduce impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section I or J.

I. *Explain the potential beneficial and adverse effects to critical habitat listed above. Describe what, when, and how the critical habitat will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts to physical and biological features, and where possible, quantify effects (e.g. acres of habitat, miles of habitat).*

Describe your rationale if designated or proposed critical habitats are present and will not be adversely affected.

[6] https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance

The PCEs for Loggerhead sargassum critical habitat will not be affected

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.

Click here to enter text.

K. Marine Mammals

I. The Marine Mammal Protection Act prohibits the taking (including disruption of behavior, entrapment, injury, or death) of all marine mammals (e.g.,whales, dolphins, manatees). However, the MMPA allows limited exceptions to the take prohibition if authorized, such as the incidental (i.e., unintentional but not unexpected) take of marine mammals. The following questions are designed to allow the Agencies to quickly determine if your action has the potential to take marine mammals. If the information provided indicates that incidental take is possible, further discussion with the Agencies is required.

Is your activity occurring in or on marine or estuarine waters? ☐NO ☒YES

If yes, is your activity likely to cause large-scale, ecosystem level impacts to the quality (e.g. salinity, temperature) of marine or

estuarine waters? ☒NO ☐YES

II. If Yes, describe activities further using checkboxes. Does your activity involve any of the following:

NO	YES	ACTIVITY
☐	☒	*a) Use of active acoustic equipment (e.g., echosounder) producing sound below 200 kHz*
☒	☐	*b) In-water construction or demolition*
☒	☐	*c) Temporary or fixed use of active or passive sampling gear (e.g., nets, lines, traps; turtle relocation trawls)*
☒	☐	*d) In-water Explosive detonation*
☒	☐	*e) Aquaculture*
☒	☐	*f) Restoration of barrier islands, levee construction or similar projects*
☒	☐	*g) Fresh-water river diversions*
☒	☐	*h) Building or enhancing areas for water-related recreational use or fishing opportunities (e.g. fishing piers, bridges, boat ramps, marinas)*
☒	☐	*i) Dredging or in-water construction activities to change hydrologic conditions or connectivity, create breakwaters ar living shorelines, etc.*
☒	☐	*j) Conducting driving of sheet piles or pilings*

☒	☐ *k) Use of floating pipeline during dredging activities*

III. If you checked "Yes" to any of the activities immediately above or the activity could impact the quality of marine or estuarine waters, please describe the nature of the activities in more detail or indicate which section of the form already includes these descriptions. See the NOAA Acoustic Guidance for more information: http://www.nmfs.noaa.gov/pr/acoustics/faq.htm

No take of marine mammals is expected from use of acoustic equipment.

IV. *Frequently Recommended BMPs for marine mammals (manatees are covered in Section I above): This checklist provides standard BMPs recommended by NOAA. Please select any BMPs that will be implemented:*

☐	NMFS Southeast U.S. Marine Mammal and Sea Turtle Viewing Guidelines[7]
☐	NMFS Protected Species Construction Conditions (2021)[8]
☐	NMFS Measures for Reducing the Entrapment Risk to Protected Species (2012)[3]
☒	NMFS Vessel Strike Avoidance Measures and Reporting for Mariners (2021)[3]
☐	NMFS Reproducing and posting outreach signs: Dolphin Friendly Fishing Tips sign, Don't Feed Wild Dolphins sign[9]

If not listed above, please describe any additional BMPs or conservation measures that may be be implemented for marine mammals. Click here to enter text.

L. Bald Eagles

Are bald eagles present in the action area? ☒NO ☐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.

[7] https://www.fisheries.noaa.gov/topic/marine-life-viewing-guidelines
[8] https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance
[9] https://www.fisheries.noaa.gov/southeast/consultations/protected-species-educational-signs

4. In some instances, activities conducted at a distance greater than 660 feet of a nest may result in disturbance. 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.

Will you implement the above measures? ☐NO ☐YES

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, Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

M. Request approval for use of NMFS PDCs for this project

Complete this section only if your project qualifies for streamlined ESA consultation under the ESA Framework Programmatic Biological Opinion completed by NMFS on February 10, 2016. To be eligible for streamlined ESA consultation with NMFS, you must implement all Project Design Criteria (PDCs) applicable to your project. Check "yes" for PDC categories that apply to the proposed project, and request PDC checklist from NMFS.

NO	YES	ACTIVITY
☒	☐	**Oyster Reef Creation and Enhancement**
☒	☐	**Marine Debris Removal**
☒	☐	**Construction of Living Shorelines**
☒	☐	**Marsh Creation and Enhancement**
☒	☐	**Construction of Non-Fishing Piers**

N. Submitting the BE Form

We request that all BE forms and consultation materials be placed on Sharepoint for review. 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 use the Biological Evaluation form to initiate appropriate consultations.

Questions may be directed to:

NMFS ESA § 7 Consultation

Christy Fellas, National Oceanic Atmospheric Administration
Email: Christina.Fellas@noaa.gov
Phone: 727-551-5714

USFWS ESA § 7 Consultation

Michael Barron, Department of the Interior
Email: michael_barron@fws.gov
Phone: 251-421-7030

APPENDIX A.

Sediment Sample Collection

The Multicore is an instrument that is lowered to the seafloor from the ship on a winch wire, controlled descent, 30m/min. Once the device hits the seafloor, the slack created trips the top and bottom of the tubes to close. Then the instrument is returned to the ship. The instrument collects 8-12 cores at once. The cores will be processed at sea. Specs are as follows:

Core diameter: 10 cm, **Total core length:** 60cm, **Total sediment depth of interest:** 10cm See image for device.

For the ROV push cores, the ROV deploys the push core using its manipulator. The push core is inserted into the mud, then recovered and inserted into a quiver on the ROV. The ROV will collect 8-12 cores per dive. The cores will be processed at sea. Specs are as follows:
Core diameter: 6.35 cm, Total core length: 30 cm, Total sediment depth of interest: 10 cm

See image of push core inserted into mud. In the image, you can see the white quiver on the left side of the screen, which stores the push core for use and following sampling.