

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 Protect 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.

A. Project Identification

<i>Federal Action Agency</i>		<i>Additional Federal Action Agency</i>	
<i>Agency Contact(s)</i>			
USFWS: Ashley Mills at 812-756-2712 and Ashley_Mills@fws.gov			
NMFS: Christy Fellas at 727-551-5714 and Christina.Fellas@noaa.gov			
<i>I. Implementing Trustee(s)</i>			
<i>II. Contact Person</i>	<i>III. Phone</i>	<i>Email</i>	
<i>IV. Project Name and ID# (Official name of project and ID number assigned by Trustees in DIVER)</i>			
<i>V. NMFS Office (Choose appropriate office based on project location)</i>		<i>USFWS Office (Choose or write in appropriate office based on project location)</i>	
<i>VI. Project Type #1</i>		<i>Project Type #2, if helpful</i>	
<i>VII. TIG</i>		<i>Restoration Plan</i>	

B. Project Location

<i>I.</i>	<i>Physical Address of action area (If applicable)</i>
<i>II.</i>	<i>State & County/Parish of action area</i>
<i>III.</i>	<i>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])</i>
<i>IV.</i>	<i>Township, range and section of the action area</i>

C. 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:

- 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

Have any federal permits been applied for but not yet obtained, if so which ones and what is the permit number(s)? Yes No

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.



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

- Name of Person Completing this Form:
- Name of Project Lead:
- Date Form Completed:
- Date Form Updated:

D. Description of Action Area

Attach a separate map delineating where the action will occur and where critical habitat, if any, is located. Map or describe all areas that may be directly or indirectly affected by the action. 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). If CH is not designated in the area, then map or 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 the location is in a river or estuary, please approximate the navigable distance from the project location to the marine environment.



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.



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.

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.

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.






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.).

g. *Marine Mammals*
 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>

E. Project Description

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

II. Describe the Proposed Action: 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. 3. Attach a separate map showing project footprint, avoidance areas, construction accesses, staging/laydown areas. ****If construction involves overwater structures, pilings and sheetpiles, boat slips, boat ramps, shoreline armoring, dredging, blasting, artificial reefs or fishery activities, list the method here, but complete the next section(s) in detail.**



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

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

- i. *Is the proposed use of this structure for a docking facility or an observation platform?*
- ii. *If no, is this a fishing pier? Public or Private? How many people are expected to fish per day? How do you plan to address hook and line captures?*
- iii. *Use of "Dock Construction Guidelines"? http://sero.nmfs.noaa.gov/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 (saft)?*



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



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 (saft) beneath the boats that will be shaded.)*

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.)*

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.*



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.*



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.)*

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



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)).*

F. NOAA Species & Critical Habitat and Effects Determination Requested

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area.
2. Attach a separate map identifying species/critical habitat locations within the action area.

For information on species and critical habitat under 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)	DETERMINATION (see definitions below)
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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 = 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 = 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.

Critical Habitat Destruction or Adverse Modification = Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features.

G. USFWS Species & Critical Habitat and Effects Determination Requested

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area.
2. Attach a separate map identifying species/critical habitat locations within the action area.

For information on species and critical habitat under USFWS jurisdiction, visit <http://www.fws.gov/endangered/species/>.

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)	DETERMINATION (see definitions below)
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H. Effects of the proposed project to the species and habitats

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.)*



II. *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 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.*

I. Actions to Reduce Adverse Effects

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

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.)*



J. 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

Is your activity likely to impact 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

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) *Building or enhancing areas for water-related recreational use or fishing opportunities (e.g. fishing piers, bridges, boat ramps, marinas)*

f) *Aquaculture*

g) *Dredging or in-water construction activities to change hydrologic conditions or connectivity, create breakwaters and living shorelines, etc.*

h) *Restoration of barrier islands, levee construction or similar projects*

i) *Fresh-water river diversions*

- 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>

- IV. Are any measures planned to mitigate potential impacts to marine mammals? If yes, NO YES
provide text in box below.

K. 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

L. Migratory Birds

Identify the species anticipated in the action area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). If species are present and impacts to individuals or habitat could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized. Use additional tables on the next page if needed.

l. Species/Species Group Behavior Species/Habitat Impacts and Conservation Measures to Minimize Impacts

M. Migratory Birds

Continuation page if needed.

//.	<u>SPECIES/SPECIES GROUP</u>	<u>BEHAVIOR</u>	<u>SPECIES/HABITAT IMPACTS and CONSERVATION MEASURES TO MINIMIZE IMPACTS</u>

N. Best Practices

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 practices you'll be using in your project.

O. Submitting the BE Form

NMFS ESA § 7 Consultation

We request that all ESA §7 consultation requests/packages be submitted electronically to: **Christina.Fellas@noaa.gov**

Questions about consultation status may be directed to the email address above or by phone: Christy Fellas: 727-551-5714

USFWS ESA § 7 Consultation

We request that all consultation requests/packages to USFWS be submitted electronically to: **Ashley_Mills@fws.gov**.

You will be notified when we receive your Biological Evaluation. Upon receipt, we will conduct a preliminary review and provide any comments and feedback, including any requests for modifications or additional information. If modifications or additional information is necessary, we will work with you until the Biological Evaluation form is considered complete. Once complete, we will send your Biological Evaluation to the appropriate Field Office to conduct consultation.

Questions about consultation status may be directed to the email address above or by phone: Ashley Mills: 812-756-2712

Endangered Species Act Programmatic Biological Opinion

Deepwater Horizon Oil Spill Restoration

National Marine Fisheries Service

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. By checking all boxes below that apply to this project you are confirming that PDCs are incorporated into the project design and construction. The entire Biological Evaluation Form must be completed and include any information necessary to verify that all applicable PDCs are incorporated into the project. If the project incorporates more than one type of restoration, check boxes in all appropriate categories.

Are you using this form to request approval for use of NMFS PDCs for this project? Yes No

You must receive NMFS approval before proceeding with your project. Note that this PDC checklist does not apply to ESA consultation with USFWS.

Full text of the PDCs can be reviewed at: http://sero.nmfs.noaa.gov/protected_resources/section_7/freq_biop/documents/DWH_bo/appendix_a.pdf

Oyster Reef Creation and Enhancement Yes No

Marine Debris Removal Yes No

Construction of Living Shorelines

Yes

No

Marsh Creation and Enhancement

Yes

No

Construction of Non-Fishing Piers

Yes

No

Check the box to confirm that all applicable requirements are met and a streamlined consultation with NMFS is requested:

Name of person(s) completing this form:

Date form completed:

***You must receive NMFS approval before proceeding with your project ***

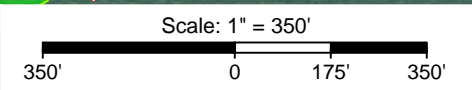
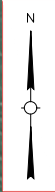
BIOLOGICAL EVALUATIONS FORM ATTACHMENTS

*ESTIMATED FILL AREA QUANTITIES		
SITE	VOLUME (CY)	AREA (ACRES)
FA	136,583	33

*ESTIMATED ROCK (DOTD 250LB RIPRAP) QUANTITIES			
SITE	VOLUME (CY)	LENGTH (LF)	AREA (ACRES)
RCD	8,729	4,904	2.9
BREAKWATERS	12,245	1,070	1.5

*STAGING AREAS		
STAGING AREA	LENGTH (FT)	AREA (ACRES)
WEST	508	1.8
EAST	789	2.6

* THE ESTIMATED TOTALS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.

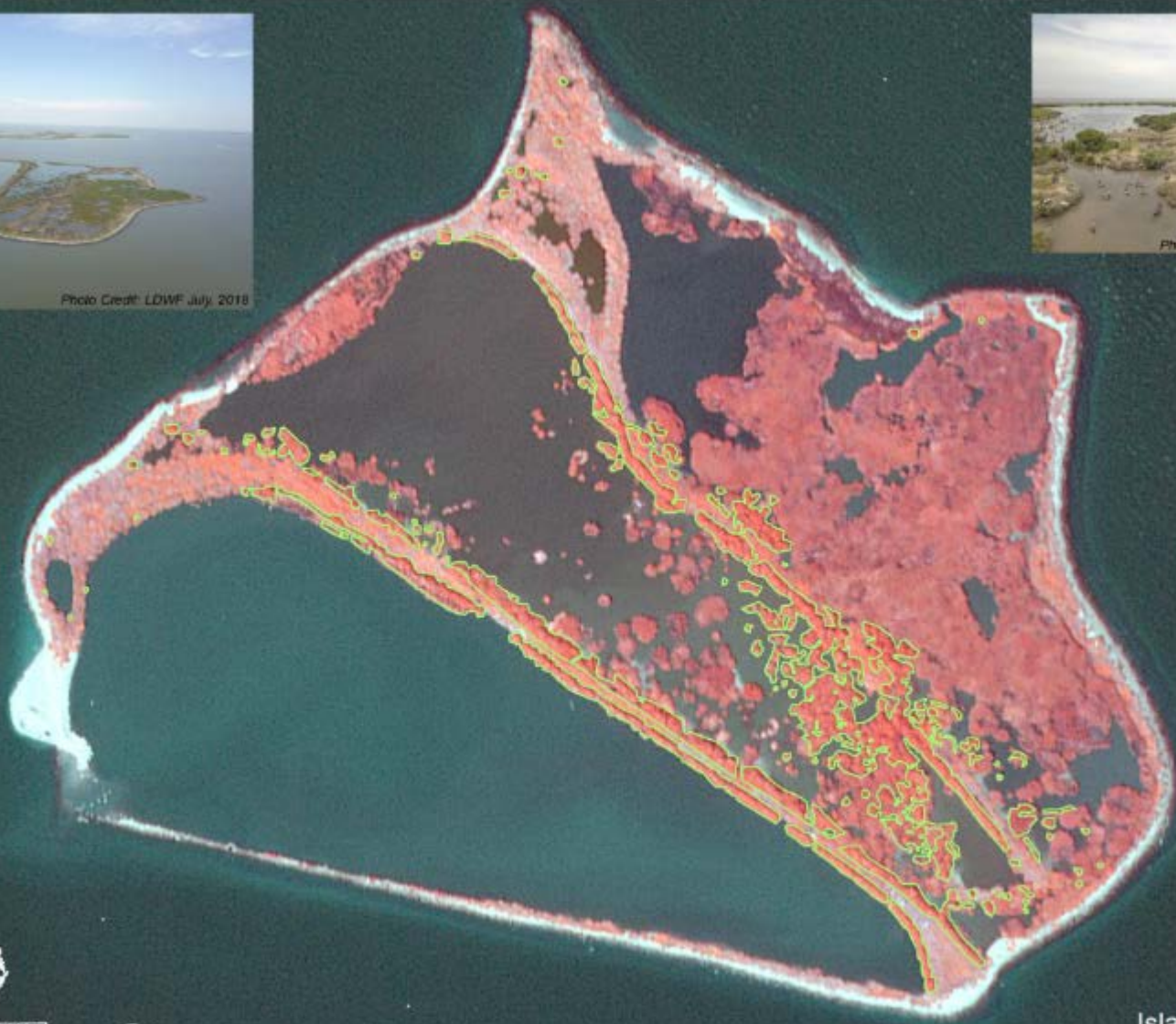


- NOTES:
1. MODIFICATIONS TO EQUIPMENT ACCESS ALIGNMENTS SHALL REQUIRE PRIOR APPROVAL BY THE ENGINEER.
 2. MARSH NOURISHMENT AREA ELEVATION NOT TO EXCEED +1.5' NAVD88. EXCESS MATERIAL SHALL BE REMOVED BY CONTRACTOR AT CONTRACTOR'S EXPENSE.
 3. DECANTED WATER FROM THE FILL AREA SHALL BE DISCHARGED INTO ADJACENT MARSH NOURISHMENT AREA.

PRELIMINARY
 NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.

C. H. FENSTERMAKER & ASSOCIATES, L.L.C.
 135 Regency Square
 Lafayette, La. 70508
 Phone: (337) 237-2200

ENGINEER: AMANDA PHILLIPS
 LICENSE #: 0031764
 DATE: 08/01/2018



1:2,500

0 65 130 260 390 520 Feet

Scrub-Shrub Vegetation

 Black Mangrove/Marsh Elder/Groundsel Bush (~2.56 acres)

Queen Bess Island Restoration (BA-0202)

Source:
Coastal Protection and Restoration
Authority of Louisiana (CPRA)
Imagery: 2016 1M DOQQ
Map Date: August 13, 2018

PDARP/PEIS Chapter 6 – Appendix A – Best Management Practices

Birds

Migratory Birds

- Use care to avoid birds when operating machinery or vehicles near birds.
- During the project design phase, coordinate with the USFWS and the state trust resource agency to site and design projects to avoid or minimize impacts to migratory bird nesting habitats or important feeding/loafing areas.
- If vegetation clearing is necessary, clear vegetation outside the migratory bird nesting season (approximately mid-February through late August) or have a qualified biologist inspect for active nests. If no active nests are found, vegetation may be removed. If active nests are found, vegetation may be removed after the nest successfully fledges.
- Avoid working in migratory bird nesting habitats during breeding, nesting, and fledging (approximately mid-February through late August). If project activities must occur during this timeframe and breeding, nesting, or fledging birds are present, contact the state trust resource agency to obtain the most recent guidance to protect nesting birds or rookeries, and their recommendations will be implemented. Conservation areas may already be marked to protect bird nesting areas. Stay out of existing marked areas.

Piping Plover

- Provide all individuals working on a project with information in support of general awareness of piping plover presence and means to avoid birds and their critical or otherwise important habitats.

Mammals

Bottlenose Dolphin

- For projects with any in-water construction activities, dredging, or wetland/barrier island creation and nourishment, follow the most current version of the NMFS Southeast Region's *Measures for Reducing Entrapment Risk to Protected Species*.
- For projects that enhance recreational and commercial vessel based activities, follow NMFS's *Southeast U.S. Marine Mammal and Sea Turtle Viewing Guidelines*.

Tortoises/Turtles

Sea Turtle

- In Water Implement the following guidelines: NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (revised March 23, 2006), NMFS's *Measures for Reducing Entrapment Risk to Protected Species* (revised May 22, 2012) and NMFS's *Vessel Strike Avoidance Measures and Reporting for Mariners* (revised February 2008).

Invasive Species

- Implement an Integrated Pest Management (IPM) approach to facility design, sanitation, and maintenance to prevent and control invasive and pest species.
- Inspect sites, staging, and buffer areas for common invasive species prior to the onset of work. Map any invasive species detected and note qualitative or quantitative measures regarding abundance.
- Implement a control plan, if necessary, to ensure these species do not increase in distribution or abundance at a site due to project implementation. Inspect sites periodically to identify and

control new colonies/individuals of an invasive species not previously observed prior to construction.

- Prior to bringing any equipment (including personal gear, machinery, vehicles, or vessels) to the work site, inspect each item for mud or soil, seeds, and vegetation. If present, clean the equipment, vehicles, or personal gear until they are free from mud, soil, seeds, and vegetation. Inspect the equipment, vehicles, and personal gear each time they are being prepared to go to a site or prior to transferring between sites to avoid spreading exotic, nuisance species.
- Have the appropriate state agency inspect any equipment or construction materials for invasive species prior to use.
- Inspect and certify propagated or transplanted vegetation as pest and disease free prior to planting in restoration project areas.

General Construction Measures

Protected Species

- Provide all individuals working on a project with information in support of general awareness of and means to avoid impacts to protected species and their habitats present at the specific project site.
- Survey for other at-risk or imperiled species. If found on site, contact the USFWS and state trust resource agency to determine if avoidance or minimization measures or a Candidate Conservation Agreement with Assurances may be appropriate.

Maintenance and Conduct

- Develop and implement a spill prevention and response plan, including conducting daily inspections of all construction and related equipment to ensure there are no leaks of antifreeze, hydraulic fluid, or other substances and cleaning and sealing all equipment that would be used in the water to rid it of chemical residue. Develop a contract stipulation to disallow use of any leaking equipment or vehicles.

Wetland and Aquatic Resource Protection

- Complete an engineering design and post-construction inspection for projects where geomorphic elevations are restored in wetlands, marshes, and shallow water habitats to ensure the success of the restoration project. Manage elevation of fill material to ensure projected consolidation rates are accomplished and that habitat suitable for wetland and marsh vegetation is developed.
- Avoid and minimize, to the maximum extent practicable, placement of dredged or fill material in wetlands and other aquatic resources.
- Design construction equipment corridors to avoid and minimize impacts to wetlands and other aquatic resources to the maximum extent practicable.
- To the maximum extent possible, implement the placement of sediment to minimize impacts to existing vegetation or burrowing organisms.

Land and Vegetation Protection

- Develop and implement an erosion control plan to minimize erosion during and after construction and where possible use vegetative buffers (100 feet or greater), revegetate with native species or annual grasses, and conduct work during dry seasons.

- Prohibit use of hazardous materials, such as lead paint, creosote, pentachlorophenol, and other wood preservatives during construction in, over or adjacent to, sensitive sites during construction and routine maintenance.
- Where landscaping is necessary or desired, use native plants from local sources. If non-native species must be used, ensure they are noninvasive and use them in container plantings.
- Apply herbicide in accordance with the direction and guidance provided on the appropriate U.S. Environmental Protection Agency (EPA) labels and state statutes during land-based activities.
- Evaluate methods prior to dredging to reduce the potential for impacts from turbidity or tarballs. Perform maintenance of generators, cranes, and any other stationary equipment operated within 150 feet of any natural or wetland area, as necessary, to prevent leaks and spills from entering the water.
- Use silt fencing where appropriate to reduce increased turbidity and siltation in the project vicinity. This would apply to both on land and in water work.
- Upon completion of construction activities, restore all disturbed areas as necessary to allow habitat functions to return.
- Incorporate containment levees for fill cells for projects using marsh creation or other barrier island restoration. Remove these containment levees after construction to allow for the restoration of natural tidal exchange.
- Make all efforts to reduce the peak sound level and exposure levels of fish to reduce the potential impact of sound on fish present in the project areas.

Conservation Measures for Coast Guard Obstruction Lighting

1. Lighting should be minimized to the greatest extent practicable.
 - a. minimize the number of obstruction lights to what is necessary
 - b. install obstruction lighting out away from the island to the greatest extent practicable
 - c. install directional lighting and shading to direct light outward away from the island
 2. Use flashing lights with longer off-cycles (time between blinks)
 3. Avoid using red and yellow lights. Use white lights or low-intensity/lower-wavelength blue or turquoise lights. Lower wavelengths tend not to disrupt the magnetic orientation of several families of birds.
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From MMS 2010:

The avian magnetic compass is responsive to specific wavelengths of light, with disorientation occurring under red light (especially if the bird is not used to the red light) and yellow light, but no effect occurring under green light.

Light of a particular wavelength is needed for magnetic-compass orientation to work (Beason 2003; Wiltschko et al. 1993, 2004; Wiltschko and Wiltschko 1999, 2001; Muheim et al. 2002). Based on the literature, MMS (2010) concluded birds have been shown to be disoriented by longer-wavelength (i.e., red) light that may interfere with the bird's magnetic compass.

Starlight is a celestial cue (i.e., stellar compass) that also may aid in navigation during migration (Alerstam 1990, Gill 1995, Weidensaul 1999, Wiltschko and Wiltschko 2003).

Many birds are strictly nocturnal migrants, requiring a strong sense of stellar cues (Emlen 1967a, 1967b, cited in Wiltschko and Wiltschko 2003). The importance of such cues is reflected in the fact that many birds become disoriented and attracted to other sources of light when the sky becomes cloudy or foggy (Overing 1936, 1938; Alerstam 1990).

Spatial disorientation may be the result of a bird using lights as a visual reference after losing its visual cues to the horizon, as suggested by Herbert (1970).

Attraction of seabirds to offshore oil and gas platforms also has been recorded in the Gulf of Mexico (Ortego 1977, Russell 2005). . . . In the Gulf of Mexico, the dominant species being attracted are passerines migrating over the Gulf, with seabirds being a minor component.

Results [from Russell 2005] showed that weather had an important effect on the number of birds circulating around the platforms. Large numbers of birds were attracted during overcast nights, especially with rain, whereas clear nights attracted birds infrequently. During haze or extensive cloud cover and on moonless nights, birds tended to circle the platforms.

Birds appeared to be attracted to platform lights and were unwilling or unable to leave the cone of broadcasted light. The authors concluded that, during overcast nights, birds may become spatially disoriented by bright light due to the loss of navigational reference points such as stars and the moon.

Birds have been shown to be differentially attracted to both light type and color spectrum. With regard to FAA obstruction lighting on wind farms and communication towers, continuous (non-flashing) lights at night were more attractive than flashing lights. Red incandescent lighting may be more attractive than white strobes are, but this hypothesis has not been tested in a controlled experiment (Kerlinger and Hatch 2001, Kerlinger 2004). In addition, lights with shorter off-cycles (time between blinks) may be more attractive to night migrants than are lights with longer off-cycles (Kerlinger and Hatch 2001).

Beason (1999) stated that birds can be attracted to communication towers based on lighting color and the duration (i.e., flashing, strobe, or continuous). He believed that red lights may be more attractive than white lights, and that strobe lights may be less attractive than continuous lighting, but these conclusions have not been proven experimentally. Disorientation is another potential impact of artificial lighting. For five species of birds, he showed that disorientation or a change in direction of orientation may be produced by longer wavelengths such as red or orange. He suggested that these wavelengths may interfere with the magnetic compass.

Wiltschko et al. (1993) and Gauthreaux and Belser (2006) also concluded that red lights may cause disorientation in birds.

Poot et al. (2008) showed that bird orientation was influenced more by white and red light than by green and blue light.

Noted in the MMS (2010) Joop Marquenie (pers. com.) of NAM (Nederlandse Aardolie Maatschappij; owned by Shell and ExxonMobil) has initiated and directed a research team, including research scientist Hanneke Poot, which has experimented with the attraction of birds to artificial light in the Netherlands, with eventual potential application to lighting of offshore oil platforms. The study demonstrated that birds reacted most strongly to white and red light and the most weakly to green and blue light. For all artificial light colors, responses were strongest on overcast nights.

Bright lights near some seabird colonies can potentially cause disruption of breeding activities, increased predation by gulls and owls, and/or a reluctance of nocturnal birds to visit the colony because of high predation rates (Watanuki 1986, Rojek 2001, Montevecchi 2006).

In the Hawaiian Islands, fledgling Newell's shearwaters (*Puffinus newelli*) are attracted to streetlights and other external illumination around the New Moon (Telfer et al. 1987).

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Additional Resources:

<https://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

<https://www.faa.gov/news/updates/?newsId=85204&cid=TW413>

<http://www.tc.faa.gov/its/worldpac/techrpt/tctn12-9.pdf>