APPENDIX A

Draft Monitoring and Adaptive Management Plan
Cypremort Point State Park Improvements Project

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1 INTRODUCTION

The State of Louisiana acquired 40 acres and established the Cypremort Point State Park in 1970. In 2004, the State of Louisiana entered a new lease for an additional 330 acres. The Cypremort Point State Park is one of the few places on the Louisiana Gulf Coast that can be accessed by road. It provides multiple recreational opportunities for both day-use and overnight visitors—including picnicking, fishing, crabbing, water skiing, windsurfing, sailing, camping, and bird and wildlife viewing—via its 0.5-mile-long human-made beach, six cabins with boat slips, two pavilions, picnic area, sailboat launch, and convenient access to the Cypremort Point boat ramp just outside of the park's entrance. However, recreational opportunities have been diminished due to the deteriorating conditions at the park.

Improvements to Cypremort Point State Park are needed in areas constantly exposed to erosional forces and storms, which have resulted in degraded conditions in several key areas of the park. Since the creation of the 0.5-mile-long human-made beach, storms and continuous erosional forces have significantly reduced the size and appeal of the exposed beach area, thereby reducing recreational opportunities and use. In addition, the clay sub-soil underneath the beach has been exposed and has also begun to erode. This erosion has reached a historic level and has undercut two beach shade pavilions that are closed as a result. Similarly, the south side of Beach Lane has experienced constant erosion along Quintana Canal from storms and increased boat traffic from the Cypremort Point boat ramp at the head of the canal. This was exacerbated by inadequate erosion protection along the north bank and could cause future safety issues for the park's only access route. In addition, the park's existing 100-foot-long fishing pier, which is located in the southwest portion of the park where Quintana Canal opens into Vermilion Bay, has been damaged from storms to the point that it is unsafe to use, significantly diminishing pier-based fishing opportunities at the park. All of these conditions have had a negative effect on recreational use of the park's facilities and threaten the long-term viability of the park's use.

In response to the decreased recreational opportunities, the Louisiana Office of State Parks is proposing the Cypremort Point State Park Improvements Project (Cypremort Improvements Project, or project), which would include:

1) reinforcing and extending the existing rock jetty along the north bank of the Quintana Canal and south side of Beach Lane at the entrance to Cypremort Point State Park to prevent further erosion on the Quintana Canal side and protect the park road and park property;
2) restoring the degraded beach area to its pre-eroded condition to support existing recreational access for swimming, sunbathing, paddle boarding, and other water-based activities, as well as shorebird habitat;
3) installing a new wooden boardwalk and trail (approximately 6 feet wide, with a total length of approximately 3,000 feet) within the park's marsh area, with seating, required toe and hand rails, and interpretive signage throughout to replace the park's fishing pier that has been damaged by storms and provide improved fishing and other shoreline-based recreational opportunities, including Americans with Disabilities Act (ADA)-compliant access where possible;
4) repairing and upgrading existing roads, parking lots (including base repairs requiring approximately 37,600 square feet of fill, a minimum 2-inch overlay, and restriping), and sidewalks damaged by repeat flooding and to provide access to the park including the beach access, cabins, pavilions, picnic area, sailboat launch, and restrooms, and preserve public access and recreational opportunities to the park's natural resources;

5) constructing an RV campground consisting of 30 new paved pull-through campsites with sewer, water, and electrical services to provide recreational infrastructure and support recreational opportunities;
6) constructing two mobile bathhouses with toilets, showers, and laundry equipment and ADA-compliant access (bathhouses would be mobile to permit movement during storm events) to support recreational use and experiences at the park;
7) installing water, sewer, and electrical tie-ins from the RV campground and mobile bathhouses to the park's existing onsite water well, sewer, and electric systems (i.e., utilities) to provide proper capacity for other proposed elements; and
8) constructing an 8-foot-wide, 300-foot-long (approximately 0.1 acre) boat dock/fishing pier with required toe and hand rails that connects to the RV campground area through a 15-foot gangway, which would provide ADA-compliant access from the park to the boat dock/fishing pier, to provide recreational opportunities and improve public access to natural resources.

The Cypremort Improvements Project is located in both St. Mary and Iberia Parishes approximately 1.5 miles northeast of Cypremort Point in Vermilion Bay (Figure A-1). The Cypremort Improvements Project would be located just west of the intersection of Louisiana Highway 319 and Beach Lane and extend along Quintana Canal and the west-east and north-south segments of Beach Lane. The project would also include the park's beach area, starting from the northern-most beach parking area and ending near the southern day-use parking area, plus a portion of the marsh area on the east side of the park, and an area of the park between the north-south segment of Beach Lane and along the marsh shore on the east side of the park, for a total area of 18.5 acres (see Figure A-1). The project address is 306 Beach Lane, Cypremort Point, Louisiana 70538.

The Cypremort Improvements Project would restore shoreline uses and boating opportunities, restore and enhance fishing and recreational opportunities, provide new opportunities for recreational and educational use, restore beach habitat for both recreation and wildlife, provide recreational infrastructure, and increase and enhance the public's ability to access a variety of recreational resources. The project would repair and protect existing park infrastructure that provide shoreline use, boating, fishing and recreational opportunities and provide additional terrestrial recreational opportunities. These components would restore and improve the public's access to recreational waterbodies, fishing, and other recreational opportunities; increase recreational use opportunities; and enhance the quality of future recreational visits to the area. Each of the proposed Cypremort Improvements Project components are further described below.

A preliminary design for the Cypremort Improvements Project has already been developed. The permit application for the project was submitted in September 2019. Once the permit is issued and the LA TIG approves the Cypremort Improvements Project through their decision on the Final Supplemental RP/EA, final design would take approximately 6 months, and project construction would take approximately 8 months. The order of construction for various proposed elements would be scheduled in a manner to ensure success (i.e., beach reclamation would occur after the jetty is reinforced). All work would be subject to approval of permits and environmental review. The construction schedule would include contracting, pre-construction, and construction activities.

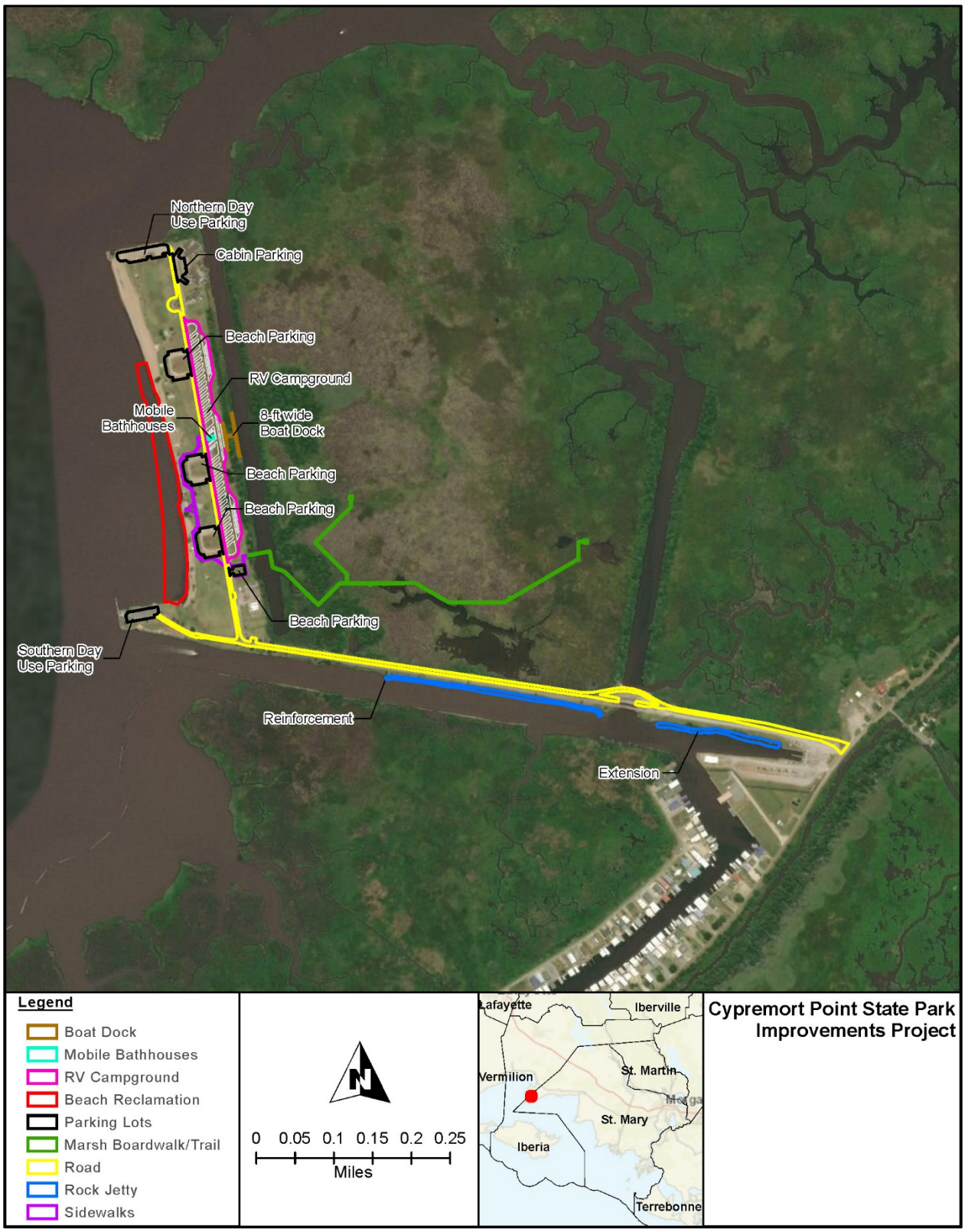

Figure A-1. Location of the proposed Cypremort Point State Park Improvements Project

The recreational benefits of the Cypremort Improvements Project would be broadly available to the public through existing park entrance fees ($3 per person) plus an estimated campsite fee ranging from $33 Friday through Saturday (year-round), $30 Sunday through Thursday (April through September), and $25 Sunday through Thursday (October through March) per campsite per night, plus applicable local and state taxes. The charges associated with the RV campsites under Alternative B would allow for enhanced recreational use and experiences in terms of expanded year-round recreational opportunities, as well as improved public access to natural resources.

The Cypremort Improvements Project has been evaluated for compliance with the Oil Pollution Act of 1990 (OPA) and the National Environmental Policy Act (NEPA) in the *Louisiana Trustee Implementation Group Draft Supplemental Restoration Plan and Environmental Assessment: Cypremort Point State Park Improvements Project Modification* (Louisiana Trustee Implementation Group [LA TIG] 2020), hereafter referred to as the Draft Supplemental RP/EA.

1.2 Rock Jetty

The proposed rock jetty improvement would consist of extension and reinforcement of the existing inadequate rock jetty along the north bank of the Quintana Canal and south side of Beach Lane at the entrance to the Cypremort Point State Park. After improvements, the total rock jetty would be approximately 4,400 feet long, 15 feet wide, and 18 inches deep. Rock jetty improvements would provide protection to existing park infrastructure. Improving and expanding the existing erosion protection along Beach Lane and Quintana Canal is needed to prevent compromising the entry to the State Park. Materials for jetty construction would be transported and staged via barge in the adjacent Vermillion Bay. Improving the existing rock jetty would include:

- an approximate 1,000-foot-long extension of the existing rock jetty from the cross-canal bridge east to the northern edge of the Cypremort Point boat ramp constructed with medium to large rocks; and
- approximately 3,300 feet of reinforcement of the existing rock jetty from the cross-canal bridge west to the northern end of the Quintana Canal and park entrance constructed with medium to large rocks matching the existing material.

Approximately 5,000 to 6,000 tons of medium to large rocks, which would match the existing material, would be needed for construction of the rock jetty extension and reinforcement.

1.3 Beach Reclamation

The proposed beach reclamation would restore the degraded beach area to its pre-eroded condition. The beach length is approximately 2,390 feet long and would be restored to approximately 78 feet wide using approximately 8,630 cubic yards of sand to reach a depth of 12 inches. The reclamation would include replacing the sub-soil layer as necessary, backfilling and compacting soil under the pavilions experiencing undercutting, and spreading imported sand across the approximately 186,420-square-foot beach shoreline.

This beach is a very popular swimming spot, and continued erosion would further degrade beach habitat and continue to threaten nearby recreational structures (i.e., pavilions, restrooms, and other existing park infrastructure). The beach provides recreational access for swimming, sunbathing, paddle boards, and other water-based activities, as well as shorebird habitat.

1.4 Marsh Boardwalk and Trail

The proposed marsh boardwalk and trail system would provide improved recreational fishing opportunities at the inland marsh area north of Beach Lane and east of the Cypremort Point State Park grounds. The Louisiana Office of State Parks determined that replacing or upgrading the existing fishing pier would not eliminate the future threat of similar damaging forces that destroyed the existing pier and protection from destruction was not feasible. An inland wooden boardwalk is proposed in the marsh area in the eastern portion of the park to replace and enhance fishing and other shoreline-based recreational opportunities provided by the existing fishing pier. The boardwalk/trail is intended to provide access to several marsh microenvironments and different inshore waterbodies and would be connected to the existing southern portion of the park's grounds by a bridge across the canal to the west. The boardwalk/trail would restore recreational fishing opportunities for all visitors and improve other recreational uses, such as bird and wildlife viewing and educational opportunities.

The proposed boardwalk/trail would be approximately 3,000 feet in length with most of the boardwalk/trail constructed above water, with mixed media and other areas constructed at ground level with crushed stone. Construction of the marsh boardwalk would include:

- an approximate 3,000-foot-long wooden boardwalk with a width of approximately 6 feet constructed from approximately six-hundred 7- to 8-inch piles driven into the sand bottom to support the boardwalk and either 6×6 or 8×8 marine-grade pressure-treated members and stainless-steel fasteners;
- ground-level trails, where possible, with a width of approximately 6 feet constructed from crushed stone;
- seating, toe rails, and handrails throughout the boardwalk;
- interpretive signage; and
- Americans with Disabilities Act (ADA)-compliant access (e.g., ramps).

Materials for construction of the proposed activities would either be stored within nearby parking lots.

1.5 Road, Parking Lot, and Sidewalk Repairs and Upgrades

The Cypremort Point State Park's roads, parking lots, and sidewalks provide access to existing park facilities, including the beach access, cabins, pavilions, picnic area, sailboat launch, and restrooms, and would provide access to other proposed park improvements. Repairs and upgrades to road, parking lots, and sidewalks within Cypremort Point State Park would support continued access to park facilities and address damages associated with repeated flooding. Repairing the park's roads and parking areas is vital for preserving public access and recreational opportunities to the park's natural resources. Road, parking lot, and sidewalk repairs and upgrades would be completed for the following:

Four existing 2-way roads, totaling approximately 1.85 miles, with 12-foot-wide travel lanes. The total area of road surface to be repaired is approximately 410,573 square feet. Road improvements would primarily consist of pothole repairs to the road base, 2-inch asphalt overlays, and restriping of the following areas:

- Approximately 1.37-mile-long Beach Lane (park entry)
- Approximately 0.11-mile-long southern day-use access road
- Three approximately 0.113-mile-long day-use beach parking access roads
- Approximately 0.034-mile-long cabin access road
- Six paved parking areas, totaling 116,337 square feet, pothole repairs as needed, 2-inch asphalt overlays, and restriping in the following areas:
- Approximately 15,360-square-foot southern day-use parking lot
- Three approximately 24,443-square-foot central beach loop parking areas
- Approximately 20,655-square-foot northern day-use beach parking lot
- Approximately 6,993-square-foot cabin parking area
- Sidewalks throughout the park that have been damaged due to flooding or erosion

The total fill area for roads, parking lots and sidewalks repairs and upgrades would be approximately 37,600 square feet, with a total fill volume of approximately 2,080 cubic yards.

1.6 RV Campground with Sewer, Water and Electrical Tie-ins

The RV campground would encompass approximately 4.2 acres and would be located along the north-south segment of Beach Lane—south of existing cabins, parking and sailboat launch, and park superintendent residence, and north of the existing park maintenance area, entrance, and check-in area—all of which would remain in place. A typical RV campsite would include:

- a paved (asphaltic concrete) pull-through RV site approximately 16 feet wide to accommodate a standard motor home, which is typically approximately 8.5 feet wide and 40 feet long;
- a grass recreational area approximately 20 feet wide that includes a firepit, grill, and a concrete patio area (approximately 9×16 feet) with a picnic table; and
- a limestone-surfaced utility area adjacent to the pull-through site with water, sewer, and electrical service hookups.

The paved areas for RV campsites could vary from site to site, depending on the existing base and distance to structures or marsh area, but would not exceed 20 feet wide. The campsite area would be elevated to approximately 1.5 feet, or approximately 18 inches above existing grade. This elevation would match that of adjacent roads constructed or improved under Alternative B. Compacted select fill material would be used to construct the RV campsites to provide proper drainage. Heavy equipment and machinery used to construct the campsite would include a bulldozer or grader, trucks, a backhoe, excavators, roller, generators, small trucks, and hand tools. The total fill area for RV campsite construction would be approximately 150,400 square feet with a total fill volume of approximately 8,320 cubic yards.

Each campsite would have access to existing, on-site electrical services through tie-ins. Electric hookups would be mounted at each campsite in a covered and grounded electrical box that is mounted to a post or in a manufactured assembly that includes a ground fault interrupter. The post would be located on the

driver's side of each campsite spur (i.e., pull-through site) at a point 0 to 15 feet from the rear of the spur. Electrical facilities at each campsite would be sized to comply with National Electrical Code (NEC): Article 551-Recreational Vehicles and Recreational Vehicle Parks: Part VI, 551.71 "Type Receptacles Provided". Electrical tie-ins would be planned and implemented through coordination with utility providers. Each campsite would also have sewer and water tie-ins to the park's existing onsite sewer system and water well. All utility tie-in infrastructure would be buried through trenching, using a trencher and heavy equipment and machinery similar to that previously described for construction of the campground. The depths of disturbance to accommodate electrical and water tie-ins would vary but would be buried at least 3 feet below the new grade. Gravity sewer lines would be buried a minimum of 3 feet below the new grade and as deep as practical based upon downstream elevations. Any upgrades necessary to the park's existing onsite water well, sewer, or electric systems would be completed in conjunction with construction of utility tie-ins.

1.7 Mobile Bathhouses with Sewer, Water and Electrical Tie-ins

Mobile bathhouses would be premanufactured and delivered and installed at the midway point of the RV campground area using a flatbed truck and forklift. Mobile bathhouses would encompass approximately 0.02 acre and would be at or near ground level to provide ADA-compliant access. In the event of a storm, mobile bathhouses would be moved to higher ground to avoid flooding and contamination of stormwater.

Sewer, water, and electrical tie-ins would be installed at the mobile bathhouses using the same methods as described for the RV campground. In the event of a storm, sewer, water, and electrical tie-ins at the mobile bathhouses would be disconnected and capped off, as necessary, and mobile bathhouses would be moved to higher ground to avoid flooding and contamination of stormwater.

1.8 Boat Dock/Fishing Pier

An 8-foot-wide, 300-foot-long boat dock/fishing pier, encompassing approximately 0.1 acre, would be located east of the mobile bathhouses along the RV campground and within the marsh area. Trucks or marsh buggies with cranes and pile drivers and hand tools would be used to construct the boat dock/fishing pier. The number of piles required for the boat dock/fishing pier would be determined during final E&D. Construction of the boat dock/fishing pier, including pile driving, would use similar equipment and methods as the over-water portions of the marsh boardwalk.

2 RESTORATION TYPE GOALS AND PROJECT RESTORATION OBJECTIVES

One of the five programmatic goals for restoration, as outlined by the Deepwater Horizon (DWH) Oil Spill Trustees (DWH Trustees) in the *Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement* (PDARP/PEIS) is to "provide and enhance recreational opportunities" across the Gulf Coast (DWH Trustees 2016:Section 1.5.3). Through the restoration planning process, the DWH Trustees then identified 13 distinct restoration types that pertain to the five programmatic goals, and further identified specific goals for each restoration type. The Cypremort Improvements Project fits within the restoration type

"provide and enhance recreational opportunities." The goals of this restoration type are as follows (DWH Trustees 2016: Section 5.5.14.1):

- Increase recreational opportunities such as fishing, beach-going, camping, and boating with a combination of ecological restoration and creation of infrastructure, access, and use opportunities.
- Use education and outreach to promote engagement in restoration and stewardship of natural resources, which could include education programs, social media, and print materials.

The Cypremort Improvements Project falls within both restoration type goals because it is designed to restore diminishing fishing and recreational opportunities, provide new opportunities for recreational and educational use, restore beach habitat for both recreation and wildlife, provide recreational infrastructure, enhance recreational use and experiences, and improve public access to natural resources. The project would meet the restoration goals outlined in the PDARP/PEIS (DWH Trustees 2016) by constructing infrastructure as a restoration technique to increase the recreational opportunities for shoreline users, fisherman and boaters across the state park.

As described in Chapter 3 of the *Louisiana Trustee Implementation Group Restoration Plan and Environmental Assessment #4: Nutrient Reduction (Nonpoint Source) and Recreational Use* (Louisiana Trustee Implementation Group [LA TIG] 2018), hereafter referred to as RP/EA #4, and Section 3 of the *Louisiana Trustee Implementation Group Draft Supplemental Restoration Plan and Environmental Assessment: Cypremort Point State Park Improvements Project Modification* (LA TIG 2020), the project would meet the Oil Pollution Act (OPA) criteria for the trustee restoration goals and objectives because the project has a strong nexus to the public's lost recreational fishing and access to shoreline uses during the DWH oil spill. Most of the recreational use loss in Louisiana as a result of the spill was to recreational fishing; however, the recreational assessment, discussed in the PDARP/PEIS (DWH Trustees 2016), focuses on loss of multiple shoreline uses and boating. Shoreline use refers to recreational activities conducted by individuals at locations near beaches, along the shoreline, or from shoreline structures, such as piers. These activities include swimming, sunbathing, surfing, walking, kayaking, and fishing. Boating refers to a variety of recreational boating activities that begin at sites providing access to saltwater near the Gulf Coast (boat-based fishing is included in this category).

The proposed project is designed to restore shoreline uses and boating opportunities, restore and enhance fishing and recreational opportunities, and increase and enhance the public's ability to access a variety of recreational resource. The project would repair and protect existing park infrastructure that provide shoreline use, boating, fishing and recreational opportunities. New infrastructure constructed under the project, including additional RV campgrounds, mobile bathhouses, and a boat dock/fishing pier, would support the use of the state park's existing sailboat launch, beach, cabins with boat slips, and day-use facilities and would provide additional terrestrial recreational opportunities. For these reasons, the proposed project's goal of creating and enhancing visitor access to recreational use (fishing) has the added benefit of providing both boat-based and shoreline-based recreational activities and fishing. Therefore, the proposed project has a strong nexus to the public's lost recreational fishing and access to shoreline uses. The recreational opportunities that would be created by the proposed project are similar to the shoreline uses that were lost as a result of the DWH oil spill (e.g., lost user-days of fishing, lost days on the water, and loss of wildlife viewing and shoreline access). Visitors to the park's facilities would be the same regional user population that the DWH oil spill affected and that would benefit from the Cypremort Point State Park Improvements project. Therefore, the project represents in-place, in-kind restoration.

The overall objectives of this project are to provide and enhance public access to natural resources through recreational use, and to use education to promote engagement in stewardship of natural resources. Specific objectives include the following:

- Enhance public access to shoreline recreational activities (such as fishing, boating, and swimming) through infrastructure development of a new boat dock/fishing pier, enhanced beach and roadways, and rock jetty improvements at the state park.
- Enhance public access by increasing visitor use of recreational opportunities for fishing, swimming, and boating within the Cypremort Point State Park.
- Enhance public access by providing expanded recreational opportunities and access through the RV campground and mobile bathhouses, which would support the use of the park's existing facilities.

The objectives of this project must be refined upon completion of the engineering and design phase of project development as more project information is developed.

3 CONCEPTUAL SETTING

The conceptual setting for any restoration project is the interaction and linkages between the project and the environment in which it is implemented. It is important to understand how the ecological system may affect the project and how the project may affect the ecological system. This understanding allows the project proponent to identify potential issues that may arise during the implementation and monitoring phases, as well as any long-term maintenance issues that could occur. Information on the existing environmental conditions and potential environmental impacts of the project can be found in RP/EA #4, Sections 4.1 and 4.6, respectively (LA TIG 2018) and Section 4 of the Draft Supplemental RP/EA (LA TIG 2020).

As noted and approved of in the *Monitoring and Adaptive Management* [MAM] *Procedures and Guidelines Manual Version 1.0* (MAM Manual) (DWH Trustees 2017), the LA TIG has chosen not to include some conceptual setting elements for this type of restoration project. Because this is a Provide and Enhance Recreational Opportunities restoration type, the information necessary to describe the conceptual setting of the project is not as in-depth as some other restoration types. For example, if the project were a Wetlands, Coastal, and Nearshore Habitats restoration type, chemical and biological attributes of the project would need to be considered as part of the conceptual setting. In addition, the critical thresholds of ecological processes and how those thresholds would be affected by the proposed project would also need to be considered.

Some aspects of the ecological system that may be affected include water quality, habitat, and rates of erosion. For example, water quality may be temporarily degraded during in-water construction activities when soil is disturbed, which could increase turbidity or distribute other pollutants into the water column. Water quality may also be impacted during construction of other facilities, such as the parking lot or RV campground, unless erosion control measures are implemented. Disturbed areas, such as those that would be cleared during construction, could create an opportunity for invasive plant species to establish and spread unless monitoring and maintenance activities are conducted to ensure the success of restored temporary impact areas. Post-construction, hydrology at and around constructed facilities could be altered. Disturbance of both aquatic and terrestrial habitat could increase after construction due to increased recreational opportunities that attract a greater number of recreational users. Additional

information about the conceptual setting and impacts to the ecological system should be evaluated and incorporated into this MAM plan as more project information becomes available. The following sections discuss how the project-specific attributes would interact with the environment, and vice versa, as well as what the major drivers are that may influence the outcomes of the project.

3.1 Drivers

Drivers are outside forces, natural or anthropogenic, that have the potential to influence the outcomes of a restoration project (DWH Trustees 2017:Section E.6.3). Drivers tend to be large-scale, long-term forces that are not easily controlled at the scale of a single restoration project (Harwell et al. 2016). When evaluating the proposed project, the following outside drivers and stressors were considered:

- Public acceptance and use
- Sea level rise
- Frequency and intensity of hurricanes
- Public interest or need

This list should not be considered exhaustive; additional drivers may be identified as the project is implemented and/or monitored. These drivers may affect the achievement of the restoration goals and objectives of the project. For example, if the intensity and frequency of hurricanes increase in the region, the enhanced beach, new boat dock/fishing pier and boardwalk, and jetty may not be engineered sufficiently to withstand these natural disasters; therefore, the project could no longer achieve the restoration goal of increasing recreational opportunities such as fishing, swimming, and boating throughout the state park. If any drivers are negatively impacting the project, adaptive management may be necessary to ensure the project's goals and objectives are being achieved. The adaptive management strategy for the project is outlined in Section 3 of this plan.

3.2 Potential Sources of Uncertainty

Project uncertainties, or information gaps, have the potential to affect adaptive management decisions for restoration projects, such as how to improve the likelihood of achieving the goals and objectives of the project, or identifying corrective actions if the project is not performing as intended. When evaluating this recreational use project, the following uncertainties were considered:

- Ability to attract public interest and use of the area
- Potential impacts to the ecosystem as a result of increased use of the area (e.g., impacts to species and habitat)
- Potential need for ecological restoration (e.g., as a result of increased use of the area)
- Potential impact on local community (e.g., noise related to having too many visitors, trash)

This list should not be considered exhaustive; additional uncertainties may be identified as the project is implemented and/or monitored. During the planning phase of the project, it was assumed that the recreational features would attract high rates of public use and better public access to the Cypremort Point State Park. However, anticipated user data for the project were not collected (e.g., boaters and/or fishermen in the area were not polled for anticipated use of the features). Therefore, the ability of the proposed project to increase recreation use in the area is unknown. Likewise, the potential impacts to the

ecosystems as a result of increased use of the area is not fully known at this time. Impacts to the environment are considered in RP/EA #4 (LA TIG 2018) and the Draft Supplemental RP/EA (LA TIG 2020). Best management practices to mitigate the potential environmental impacts of the project are also outlined in the PDARP/PEIS (DWH Trustees 2016), RP/EA #4 (LA TIG 2018), and the Draft Supplemental RP/EA (LA TIG 2020).

As the project is implemented and ongoing success monitoring is conducted, project uncertainties may become apparent. If negative impacts from the project occur, or if the project is unable to attract recreational users, adaptive management may be necessary to ensure the project's goals and objectives are achieved. The focus for adaptive management is on identifying and, where possible, reducing those uncertainties that affect the decisions within the scope of the project. If not addressed, uncertainties may delay the time it takes to achieve the restoration objectives or hinder the project's ability to fully achieve its objectives. The adaptive management strategy for the project is outlined in Section 3 of this plan.

4 PROJECT MONITORING

Monitoring is necessary to determine if the project achieves the restoration goals and objectives outlined by the LA TIG. To conduct successful project monitoring, parameters need to be established to evaluate progress toward the restoration goals. The monitoring parameters that may be considered should be geared toward resolving project uncertainties, explaining outside drivers, optimizing project implementation, supporting adaptive management and decisions about corrective actions, and informing the planning of future DWH natural resource damage assessment (NRDA) restoration projects. The sections below outline the Cypremort Improvements Project's monitoring parameters and the methods for measuring these parameters.

4.1 Monitoring Parameters

As identified in the MAM Manual, the DWH Trustee's identified two types of monitoring parameters under the "Enhance Public Access to Natural Resources for Recreational Use Restoration Approach" (DWH Trustees 2017):

1) Core performance monitoring parameters applicable to recreational use projects. Core performance monitoring parameters are those used consistently across projects in order to facilitate the aggregation of project monitoring results and the evaluation of restoration progress for each restoration type (DWH Trustees 2016:Appendix 5.E.4).
2) Objective-specific performance monitoring parameters that are only applicable to a project based on a particular restoration objective.

The restoration goal and project-specific objective for this project are related to access to and enhancing recreational use in the state park. The project would collect the core performance monitoring parameter of visitor use and access. Visitor use and access, is defined as the "public access to the natural resources or project area and/or the number of visitors using the recreational area" (DWH Trustees 2017: Section E.9.34.1). A second monitoring parameter for the project is specific to the project objective of enhancing recreational access through infrastructure. This parameter—infrastructure completed as designed—relies on project-specific information, such as engineering drawings, permit requirements, and project schedule to determine if the project is achieving its objectives.

The first parameter fit within the "core performance" monitoring type because it can be used consistently across projects for the Provide and Enhance Recreational Opportunities restoration type; establishing increased recreational opportunities at any restoration project site can help determine if the project is successful at meeting the restoration type objectives as outlined in the PDARP/PEIS (DWH Trustees 2016:Section 5.5.14.1). Likewise, because the proposed project objectives include building improved access and recreational features (e.g., enhanced beachfront, new marsh boardwalk and boat dock/fishing pier) to enhance recreation use in the state park, monitoring for visitor use would help determine if the project meets the objectives outlined in Section 1.1 of this MAM plan.

Section 2.2, below, outlines the measurement unit(s) and monitoring methods for each parameter. All methods have been cross-referenced to the Enhance Public Access to Natural Resources for Recreational Use Restoration Approach for the project to ensure the methods are appropriate.

4.2 Monitoring Methods

The monitoring methods for each parameter are outlined below, along with guidance on how, when, and where to conduct monitoring.

4.2.1 Parameter 1: Visitor Use and Access

The recommended methodology for monitoring this parameter is direct observation. Direct observation includes staging monitoring on-site to count and record the recreational users at the proposed project site. Hand counters and data recording forms should be used to note the number of vehicles, boats, and users at the project site. Because the proposed project includes constructing and updating recreational features throughout the state park, information collected on visitor use may need to occur at several different locations. For example, monitors could be stationed at the new marsh boardwalk, as well as fishing piers. Establishing cameras at state park entrance to record access information may also be used to determine if visitor use and access have occurred at the project site. The information generated from remote sensing would not be as accurate as an on-site monitor because only a single pass count of vessels may be recorded, and the total users and recreational activities being undertaken may need to be estimated. For this project, it is recommended that an on-site monitor(s) be used to gauge the visitor use and access. For guidance and methodologies of how to measure visitor use and access, see Cessford and Muhar (2003), Horsch et al. (2017), Leggett (2015, 2017), Moscardo and Ormsby (2004), and U.S. Fish and Wildlife Service (2005).

Because visitor use patterns may vary depending on the activity, the number of individuals engaged, and the areas these activities take place, the counting locations should be identified at strategic locations that are representative of the whole recreational use area. For the project, the priority areas for counts may need to be located at the beach and park entrance. However, the Louisiana State Park staff may also be stationed at the various fishing piers to determine user numbers. At any of the locations the on-site monitor can count the number of vehicles, boats, or other recreational vessels (e.g., kayaks) and recreational users that access the project site. In addition, the monitor can record the types of recreational activities the users are engaged in (such as strictly boating, fishing, etc.).

Data collection should be conducted post-implementation of the facilities and throughout various times of the year; the data collected should be representative of as full a range of site conditions as possible, taking into account varying times of the day, week, or year; seasonal variations; weather variation; and special use occasions such as holidays or community events (DWH Trustees 2017:Section E.9). To accurately

determine the number of recreational users at the project site accessing the new facilities, data should be collected during different seasons and on weekdays, weekends, and holidays. If this methodology is not used, skewed results may occur (e.g., more people recreating on holidays versus a normal weekday). Data should be collected on-site whenever possible, for at least 1 year after project implementation.

Data collection would be conducted in a manner that offers six monitoring sessions per month (two weekend sessions and four weekday sessions). These monthly monitoring sessions would capture recreational usage at varying times of day (morning, mid-day, afternoon/evening) to quantify varying usage rates. The total number of 72 survey sessions would be conducted during the 1-year monitoring period. If after 1 year of monitoring, visitor usage and access to the new facilities does not occur, then corrective actions may be taken. Potential corrective actions could include improving the project infrastructure and/or routine maintenance activities. Table A-1 outlines the preferred monitoring location, duration, frequency, and sample size for the proposed project.

Table A-1. Monitoring Parameter 1 Methodology

Monitoring Parameter	Location	Frequency	Monitoring Session Length	Sample Size	Duration
Visitor use and access	Piers, beach and/or park entrances	72 monitoring sessions: 6 sessions per month, 4 weekday sessions (at least 1 in the morning, 1 in the afternoon, and 1 in the evening), 2 weekend sessions (1 in the morning and 1 in the afternoon)	4 hours	Vehicles, vessels, and user counts within 4-hour periods	1 year

4.2.2 Parameter 2: Infrastructure Completed as Designed

The recommended methodology for this monitoring parameter is direct review of project documents and on-site comparison. Reviewing design plans, contractor reports, and permitting and planning documents (such as RP/EA #4 [LA TIG 2018]) would equip the project monitor with all of the relevant information needed to make a decision on whether the project has been implemented properly. On-site inspections during and after project implementation would need to be conducted to accurately compare the as-built project to the specifications outlined in the engineering drawings, project planning documents, and permits. Monitoring would occur during all design stages and construction activities from start to completion. The construction schedule for this project has not yet been determined because planning and design of the new features are still underway. Once the implementation schedule of the project has been finalized, this MAM plan should be updated to include accurate information regarding monitoring this parameter during construction. If the project is not being constructed as designed, planned, and permitted, then the on-site monitor would work with the construction contractor to ensure that all contract terms and permit requirements are met.

5 ADAPTIVE MANAGEMENT

As outlined in the MAM Manual, it is not appropriate for all projects to have an adaptive management plan. Adaptive management is appropriate for large-scale, complicated projects that propose novel restoration techniques or that have high levels of uncertainty (DWH Trustees 2017: Section 2.4.5). Adaptive management should not be used for projects where learning is unlikely, where decisions are

irreversible, or where no opportunity exists to revise or reevaluate decisions based on new information (Doremus et al. 2011).

The Cypremort Improvements Project proposes to use standard engineering specifications and tried-and-tested construction methodology for constructing the various features recreational features. No novel restoration approaches would be used for this small-scale, localized project. For example, construction of the approximately 3,000-foot-long trail and wooden boardwalk would likely require some in-water work and involve several phases of construction. First, piles would be driven into the marsh sediments along the proposed boardwalk placement, with a set of two piles installed at approximately a 10-foot interval. Each of these piles would be driven past the engineering-set minimum depth into the substrate. These piles would be approximately 6 to 8 feet long to allow for adequate penetration into the marsh sediments, varying water depths, height of water, and vegetation. Construction methods for the boardwalk would be similar to that of other boardwalks and include the use of marine-grade and pressure-treated large timber members and stainless steel fasteners. For additional information regarding the planned construction methodology of the proposed project, see Section 3.3.13 of RP/EA #4 (LA TIG 2018) and Section 2 of the Draft Supplemental RP/EA (LA TIG 2020).

Because the project proposes to establish physical infrastructure, the decision to implement the project is mostly irreversible, as is the opportunity to revise or reevaluate the decision to construct the boardwalk and RV campground and enhance the rock jetty, beach front, and roadways. For these reasons, an adaptive management plan is not included in this MAM plan. However, if monitoring determines that the project is not meeting its goals and objectives, then corrective actions should be used. Suggested corrective actions are described in Section 2 and 5 of this document.

6 EVALUATION

The project would be considered successful if it meets the restoration goals and project-specific objectives as outlined in this document. Project performance would be assessed against the following performance criteria, which are qualitative and based on the project's goals and objectives:

- Provide public access to recreational use of the restoration elements and services provided by the proposed project.
- The Cypremort Improvements Project is designed, constructed, and implemented according to plans and permitting requirements.

Methods for analyzing, evaluating, and interpreting the monitoring data collected for the project to determine if the performance criteria are being met, could include the following:

- Data summarization and characterization: This analysis would include calculation of the basic statistics of the monitoring data (e.g., how many users recreate at the site on a monthly basis). This information would form the basis for more compressive analysis (if needed). Data from this analysis can be presented in both graphical and tabular formats.
- Status determination: This evaluation would help determine if the project is meeting the performance criteria. Observed values from the monitoring efforts would be compared to the performance criteria and perhaps to observed historical values. For example, if the monitoring results indicate no recreational users are visiting the proposed project site, there may be an issue with new recreational features. Or, it may be possible to compare the number of users at the project site to other comparable state parks along the coast of Louisiana, to see if project is

attracting a comparable number of recreational users. This evaluation methodology would involve both expert interpretation and statistical analysis.

- Trends evaluation: This evaluation methodology can be used to address whether increased recreational opportunities have been established over time. This analysis can inform how trends form, and if those trends are randomly occurring.

Data evaluation would be refined at a later date when additional project information becomes available.

7 PROJECT-LEVEL DECISIONS: PERFORMANCE CRITERIA AND POTENTIAL CORRECTIVE ACTIONS

Performance criteria and potential corrective actions have been developed for each monitoring parameter for the project (Table A-2). Additional corrective actions may be identified post-implementation, as appropriate. This section would be updated to reflect changes throughout project implementation.

Table A-2. Performance Criteria and Potential Corrective Actions by Monitoring Parameter

Monitoring Parameter	Final Performance Criteria	Potential Corrective Actions
Visitor use and access	Increased recreational opportunities following implementation of the restoration elements and services.	Implement public outreach and marketing for the project (e.g., news articles or signage promoting the new recreational features at the state park).
Infrastructure completed as designed	Project is designed, constructed, and implemented according to plans and permitting requirements	Work with the construction contractor to ensure that all contract terms and permit requirements are met.

8 MONITORING SCHEDULE

The schedule for the project monitoring is shown in Table A-3, separated by monitoring activity. The duration of monitoring would be determined prior to implementation of this MAM plan. This information would be added and revised as needed whenever monitoring methods are refined or revised.

Table A-3. Project Monitoring Schedule

Monitoring Parameter	Monitoring Timeframe		
	Pre-construction	Construction	Post-construction
Visitor use and access			X
Infrastructure completed as designed	X	X	X

9 DATA MANAGEMENT

Qualitative and quantitative data would be collected as part of this MAM plan. The type of data to be collected, as well as how those data would be collected, processed, reviewed, stored, and shared, is outlined below. Section 3 of the MAM Manual (DWH Trustees 2017) provides detailed guidance on data collection, review, storage, and accessibility, and should be followed, along with this MAM plan.

9.1 Data Description

Descriptions of the data to be collected as part of this MAM plan are described in Table A-4.

Table A-4. Project Data

Monitoring Parameter	Data Description			
	Type of Data	Collection Method	Timing and Frequency	Location and Quantity
Visitor use and access	Total counts of vehicles, boats (or other recreational vessels [e.g., kayaks]), and users	Direct observation conducted in-person and on-site	Six counts per month, post-project implementation: 2 weekend monitoring sessions and 4 weekday sessions) for 1 year	Various locations throughout the project area. 72 observation sessions, each lasting 4 hours, would be conducted during the 1-year period.
Infrastructure completed as designed	Monitoring datasheets confirming construction is completed to the engineering specifications and permit requirements	Direct observation conducted in-person and on-site	During project implementation, daily Once after project is constructed	On-site The quantity would depend on the construction schedule.

All data would be collected either by hand on monitoring forms or by tablet on electronic forms. If data are recorded on hardcopy field datasheets, these entries would be scanned to a Portable Document Format (PDF) file, and archived, along with the hardcopy. All photographs, datasheets, notebooks, and revised data files would be retained. If data are collected electronically, metadata would be developed for consistency. All electronic files would be stored in a secure location in such a way that the LA TIG would have guaranteed access to all versions of the data.

All data would be collected following the standard guidelines that were developed during early restoration, as discussed in the MAM Manual (DWH Trustees 2017:Section 3.2).

9.2 Data Review

A quality assurance project plan (QAPP) would be required by the LA TIG prior to project implementation. This QAPP would outline the appropriate quality assurance/quality control (QA/QC) process in accordance with the data management section of the MAM Manual (DWH Trustees 2017). The plan should include, at minimum, information and guidance on the following QA/QC procedures:

1) Data verification: Ensure the data were collected correctly, errors are identified and addressed appropriately, and that any metadata are in standard format. In addition, if transcription of data is required, then the QAPP should include a process to verify that the transcription process is completely accurately.
2) Data procurement: Ensure that the submittal of data to the DWH Trustees via the online portal, Data Integration Visualization Exploration and Reporting (DRIVER), is done correctly.
3) Data validation and final QA/QC: Ensure that the Louisiana Office of State Parks can adequately conduct a final QA/QC check for non-data entry errors (date/time, latitude/longitude, units, expected value range, etc.).

4) Information package creation: Guidance for Louisiana Office of State Parks to create a public information package.

9.3 Data Storage and Accessibility

MAM data would be stored in the DIVER Restoration Portal or a similar outside data platform. Data would be submitted as soon as possible, but no more than 1 year from when the data were collected. Data would be submitted yearly. Data storage and accessibility would be consistent with the guidelines in Section 3.1.3 of the MAM Manual (DWH Trustees 2017).

9.4 Data Sharing

The LA TIG would ensure that data sharing follows standards and protocols set forth in the Open Data Policy (Trustee Council 2016: Section 10.6.6). No data release can occur if it is contrary to federal or state laws (Trustee Council 2016: Section 10.6.4). The DWH Trustees would provide notification to the Cross-TIG MAM work group when new data and information packages have been uploaded to DIVER (DWH Trustees 2017). In the event of a public records request related to project data and information that are not already publicly available, the trustee to whom the request is addressed would provide notice to the other LA TIG trustees prior to releasing any project data that are the subject of the request.

As noted in Section 7.3, the project's data would be stored in the DIVER Restoration Portal. These data would be shared with the public by publishing the data to the Trustee Council website (Trustee Council 2016: Section 10.6.6). For further instructions on this process, see the DIVER Restoration Portal Manual (National Oceanic and Atmospheric Administration DWH Data Management Team, Undated).

10 REPORTING

Reporting should follow the guidelines set forth in Section 2.6.3 and Attachment D of the MAM Manual (DWH Trustees 2017). Information to be reported includes the following:

1. An introduction that provides an overview of the project, location, and restoration activities, as well as restoration objectives and performance criteria applicable to the project
    a. This information can be taken from this MAM plan and repeated in all reports.
2. A detailed description of the methods used for implementation of the MAM
    a. This information can be taken from this MAM plan and repeated in all reports.
3. Results from the reporting period, or, in the case of the final report, a comprehensive summary of results from the entire MAM plan implementation period
    a. Results should be presented clearly and show progress that has been made toward performance criteria and/or restoration objectives. Information that can be used to present results includes tables or graphs, site visit summaries, and other datasets that support analysis of the project's progress toward meeting performance standard.
4. A discussion of the results (optional for interim reports, required for final report)
5. Conclusions that summarize the findings, progress toward meeting performance criteria and restoration objectives, and recommendations for corrective actions (optional for interim reports, required for final report)

6. Project highlights showcasing lessons learned to inform future project planning and implementation
7. Transmission of data and meta-data used in the report, as well as a description of all data collected during the reporting period, even if they were not used in the report
8. A complete list of references

Three reports should be submitted, excluding any additional reports deemed necessary as a result of corrective actions that require an extension of the monitoring period. The first report should be submitted after the completion of pre-construction monitoring, the second report should be submitted after the completion of construction monitoring, and the third (final) report should be submitted after completion of the 1-year post-construction monitoring.

The DWH Trustees, as stewards of public resources under OPA, should inform the public on the restoration project's progress and performance. Therefore, the LA TIG should report the process of the proposed project via the DIVER Restoration Portal, as outlined in Chapter 7 of the PDARP/PEIS (DWH Trustees 2016).

11 ROLES AND RESPONSIBILITIES

The LA TIG is responsible for "addressing MAM objectives that pertain to their restoration activities and for communicating information to the Trustee Council or Cross-TIG MAM work group" (DWH Trustees 2016). This includes reviewing and approving MAM plans, identifying MAM priorities for the Louisiana Restoration Area, ensuring that MAM implementation is compatible with the MAM Manual guidelines and that data are submitted to the Restoration Portal, aggregating and evaluating MAM data, ensuring quality control of MAM data, and communicating regarding implementation status and results of MAMs with the Trustee Council and Cross-TIG MAM work group.

As the implementing trustee, the Louisiana Office of State Parks is responsible for developing the MAM plan, conducting all monitoring activities, evaluating project progress toward restoration objectives using the identified performance criteria, identifying the need for and proposing corrective actions to the LA TIG, and submitting MAM data and project information into the Restoration Portal in accordance with the data management procedures outlined within this MAM (Trustee Council 2016).

The project proponent, the Louisiana Office of State Parks, is responsible for all maintenance activities and costs related to the new and enhanced recreational features, including any repairs needed over the life of the features.

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13 MAM PLAN REVISION HISTORY

Version No.	Date Updated	Reason for Update	Summary of Changes
1	June 1, 2018	Draft MAM Plan	N/A
2	March 5, 2020	Revised Draft MAM Plan	MAM Plan was updated to reflect changes to project components, as analyzed in the Draft Supplemental RP/EA, including the removal of the breakwater system and the addition of the RV campground, mobile bathhouses, sewer, water and electrical tie-ins, and boat dock/fishing pier.