



**State of Louisiana**

**Coastal Protection and Restoration  
Authority of Louisiana**

## **Operations, Maintenance, and Rehabilitation Plan**

for

### **OYSTER BAYOU MARSH RESTORATION PROJECT (CS-59)**

State Project Number CS-59  
Priority Project List 21

September 2014  
Cameron Parish

Prepared by:

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## **OPERATION, MAINTENANCE, AND REHABILITATION PLAN FOR THE MARSH RESTORATION PROJECT (CS-59)**

The Coastal Protection and Restoration Authority (CPRA) and the National Marine Fisheries Service (NMFS) agree to carry out the terms of this Operation, Maintenance, and Rehabilitation Plan (hereinafter referred to as the “Plan”) of the accepted, completed project features in accordance with the **Cost Sharing Agreement xxxxxxxxxxxxxxxxxxxxxxxx dated xxxxxxxxx. (Attachment )**.

The project features covered by this plan are inclusive of and are identified as the Oyster Bayou Marsh Restoration Project (CS-59). The intention of the provisions of this plan is to maintain this project in a condition that will generally provide the anticipated benefits that the project was based on. Reports will be generated and recommendations made to adaptively manage the project. There is no requirement that this project function to any standard beyond the twenty-year (20 year) economic life which began on **????????????**; except that it is not left as a hazard to navigation or a detriment to the environment.

Construction of the Oyster Bayou Marsh Restoration Project was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended. This project was approved on the Priority Project List 21.

### **1. PROJECT DESCRIPTION, PURPOSE, LOCATION, AND GOALS**

#### **Description:**

The Oyster Bayou Marsh Restoration Project is located in Cameron Parish, LA, north of LA Hwy 82, and approximately 3 miles east of the community of Holly Beach. The project area encompasses approximately 809 acres. Project features consist of marsh constructed to an elevation of +2.5’ NAVD88 and terraces constructed to +3.5’ NAVD88. Trenasses will be constructed and ponds will be preserved to enhance ecological function.

#### **Purpose:**

Approximately 133,343 acres (28%) of the Calcasieu Sabine hydrologic basin wetlands were lost to open water from 1932 to 2010 with an average loss rate of -1710 ac/yr (-



1.3%/yr) due to subsidence, saltwater intrusion from the Calcasieu Ship Channel, and hurricane damage (Couvillion et al. 2011). Land loss in the project area has been continuous throughout this time frame but was punctuated by high loss rates during the hurricanes of 2005 and 2008. The Calcasieu-Sabine Basin lost 28 square miles (17,920 acres) (4.4%) as a result of Hurricane Rita (Barras et al. 2006). While land was lost in the project area during this event, continued interaction with the Gulf of Mexico via the Calcasieu Ship Channel has also played a large role in land loss. Many of the bayous that connect Calcasieu Lake to the surrounding wetlands have water control structures to prevent the high salinity lake water from damaging interior wetlands. However, Oyster Bayou, which directly impacts the project area via Oyster Lake, is unrestricted (CPRA Master Plan 2012).

The purpose of the project is to create sustainable emergent marsh through the use of dredged sediments from an offshore brought site in the Gulf of Mexico. The project will restore brackish and saline marsh habitat in areas converted to open water primarily by hurricane damage, saltwater intrusion, and tidal scouring. The project will also create 14,140 linear feet of earthen terraces to reduce fetch and slow tidal forces. The project will aid in the prevention of further interior land loss by reinforcing the gulf shoreline, possibly avoiding a breaching event and reducing the excessive tidal exchange from the Calcasieu Ship Channel through Oyster Lake and Oyster Bayou into the project and surrounding areas. The benefits provided by the project include the re-creation of degraded wetlands that provide important wetland habitat for marine organisms and the enhancement of storm protection for inland areas. The Oyster Bayou Marsh Restoration (CS-0059) project will work in conjunction with other projects in the area to reduce salt water intrusion, tidal exchange, and erosion within the Calcasieu Sabine Basin; specifically the newly constructed beach nourishment project directly south of the project area.

The created areas will be planted with brackish marsh vegetation as needed to accelerate the development and maintenance of vegetative cover and diversity throughout the project life. In order to meet the project goals of a marsh elevation that is comparable to the marsh elevation of nearby healthy marsh, 1.5ft NAVD88 (Geoid 12a) has been identified as the target marsh elevation.

### **Goals:**

The specific project goals are:

1. Create 510 acres of saline marsh in recently formed shallow open water.
2. Nourish 90 acres of existing saline marsh.

3. Create 14,140 linear feet of terraces.
4. Reduce wave/wake erosion.

## 2. CONSTRUCTION COMPLETION

The Oyster Bayou Marsh Restoration Project (CS-59) completion report is included in the Attachment III of this plan and “As Built” drawings are included in Attachment IV. Within this completion report is a summary of information and significant events including: project personnel; final as-built project features and benefited acres; final dimensions/bathymetry of the borrow site; construction cost and CWPPRA project estimates; construction oversight costs; construction activities and change orders; pipeline and utility crossing owner information; and other significant milestone dates and comments.

The project “As-Built” construction drawings are updated with all field changes and modifications that occurred.

## 3. PROJECT PERMITS

Project permit applications were completed and submitted to appropriate agencies and permits were received prior to construction. These permits and permit applications, as well as permit modifications, are included in Attachment. Provisions for renewal of certain Federal and State Permits may be required.

## 4. ITEMS REQUIRING MAINTENANCE AND REHABILITATION

The following completed structural components and project features jointly accepted by CPRA and NOAA will require operation, maintenance, repair, and/or rehabilitation throughout the twenty (20) year life of the project.

- A. **Containment Dike:** Approximately 45,000 linear feet of containment dike to be gapped as agreed upon after construction.
- B. **Post Construction Surveys:** Topographic surveys will be performed on the marsh creation sites at years 1, 3, 5, and 14.

5. **OPERATION, MAINTENANCE, AND REHABILITATION BUDGET**

The cost associated with the Operations, Maintenance, and Rehabilitation of the features outlined in Section 4 of this plan for the twenty (20) year project life is included and summarized in Attachment I.

6. **OPERATION OF STRUCTURES**

There are no operations associated with this project.

7. **RESPONSIBILITIES – MAINTENANCE, AND REHABILITATION**

A: CPRA will:

1. In accordance with the **Cost Sharing Agreement** outlined in Attachment , assume all responsibilities for maintenance and rehabilitation of the accepted completed project features identified in Section 4.
2. Conduct joint site inspections with NOAA of the project site at times as determined.
3. Perform or have performed any corrective actions needed, if such corrective actions have been approved by CPRA and NOAA. NOAA will participate with CPRA, or its appointed representative, in the engineering and design phases of the corrective actions for the project features for which CPRA is responsible. Oversight of engineering and construction of the corrective actions for said project features will be the responsibility of CPRA or its appointed representative. At least thirty (30) calendar days prior to the date of formal request for construction bids, CPRA or its appointed representative shall provide final copies of all corrective action designs and specifications for review and concurrence by NOAA. CPRA shall approve the final design and specifications prior to proceeding with bid solicitations on all project corrective action construction contracts in coordination with NOAA. Any plan and/or specification change both before and after award of construction contracts shall be approved by CPRA in coordination with NOAA.
4. The representatives appointed above shall meet as necessary during the period of construction for corrective actions and shall make such recommendations, as they deem necessary.

5. Provide a total contribution equal to the amount outlined in the **Cost Sharing Agreement** for the maintenance and rehabilitation cost needed for the twenty (20) year life of the project

B. NOAA will:

1. Conduct joint site inspections with CPRA of the project site at times as determined.
2. Review preliminary design of any operation and maintenance project, and provide concurrence prior to formal request for construction bids on any corrective actions for the project.
3. Provide a total contribution equal to the amount outlined in the **Cost Sharing Agreement** for the maintenance and rehabilitation cost needed for the twenty (20) year life of the project.
4. Review the reports and provide concurrence on any corrective action for the project.

The undersigned parties, acting on behalf of their respective agencies, agree to operate, maintain, and rehabilitate the Oyster Bayou Marsh Restoration Project (CS-59) according to this document, referenced **Cooperative Agreement**, plans, and all applicable permits and laws.

NOAA

By: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

COASTAL PROTECTION AND RESTORATION AUTHORITY

By: \_\_\_\_\_

Date: \_\_\_\_\_

Ignacio Harrouch, P.E.

Title: Operations Division Chief



# **Attachment I**

## **Budget**

DRAFT



## O&M BUDGET ASSUMPTIONS

### INSPECTIONS/ADMINISTRATION

Assume five (5) joint inspections throughout the life of the project and administration during the survey years:

\$10,800/event (includes Federal and State) x 5

**TOTAL \$54,000.00**

### SURVEYING

This estimate duplicates the survey transects across the marsh creation sites as shown in the 30% plans. It assumes using a day rate of \$7,500/day and an expectation of completing 10,000 linear feet of survey per day. There exists approximately 116,320 linear feet of transects which would require 12 days of work.

YEAR	TODAY'S COSTS
1	\$90,000.00
3	\$90,000.00
5	\$90,000.00
14	\$90,000.00

**TOTAL \$360,000.00**

No money is included for surveys through the terrace field or the borrow area.

### DIKE DEGRADING

Using the numbers provided by the fully funded cost estimate in the PPL21 worksheet:

4,577CY at a price of \$3.50/CY	\$16,020.00
Mobilization	\$25,000.00
25% Contingency	\$10,255.00
Administration (15% of construction)	\$7,691.25
<b>TOTAL</b>	<b><u>\$58,966.25</u></b>

**TOTAL O&M \$472,966.25**

