State of Louisiana
Coastal Protection and Restoration Authority

2016 Annual Inspection Report

for

Fritchie Marsh Restoration

State Project Number PO-06
Priority Project List 2

May 31, 2016
St. Tammany Parish

Prepared by:

Luke Prendergast, E.I.
Coastal Protection and Restoration Authority
New Orleans Regional Office
CERM, Suite 309
2045 Lakeshore Drive
New Orleans, LA 70122

2016 Annual Inspection Report
Fritchie Marsh Restoration
(PO-06)

Table of Contents

Appendices

I. Introduction

The Fritchie Marsh Restoration Project (PO-06) project area contains intermediate and brackish marsh, and is located southeast of Slidell in St. Tammany Parish (Appendix A). The area is bounded by US Hwy 190 to the north, US Hwy 90 to the south and east, and LA Hwy 433 to the west and south.

II. Project Description and History

From 1956 to 1984, 2,260 acres (915-ha) of emergent marsh within the Fritchie Marsh project area were converted to open water, with the greatest loss occurring in the northern project area. This loss reflects a pattern of marsh deterioration from north to south due to a reduction of freshwater and sediment input into the northern part of the project area. Natural hydrologic patterns have been disrupted by the construction of the perimeter highways. These embankments isolate the marsh from the West Pearl River, and have restricted inflow of freshwater, nutrients, and sediment. Additionally, saltwater from Lake Pontchartrain enters the marsh through the W-14 canal and Little Lagoon during high tides and strong winds. As a result, the project converted from a predominantly fresh marsh in 1956 to a predominantly brackish marsh in 1990.

The objective of the Fritchie Marsh Restoration Project is to reduce marsh loss by restoring more natural hydrologic conditions in the project area through management of available freshwater. Specific objectives are (1) to increase freshwater flow and promote water exchange into the area from West Pearl River by enlarging the culvert at U.S. Highway 90 and by dredging portions of Salt Bayou, and (2) to increase freshwater flow into the northern project area by diverting flow from the W-14 canal.

The Fritchie Marsh Restoration Project was constructed in one phase beginning in October 2000 and completed in March 2001. The project has a 20-year economic life which began in March 2001.

The principal project features include:

- A 72-inch diameter by 136-foot long concrete culvert under U.S. Highway 90, rock riprap lining of the Salt Bayou channel bottom and pipe outlets, and installation of 308 linear feet of sheet piling to form a bulkhead.
- Dredging of approximately 5,300 linear feet of Salt Bayou.
- Installation of a weir in the W-14 canal. The weir consists of 108 linear feet of sheet pile with a 20-foot wide boat bay.
- Dredging approximately 400 linear feet of the W-14 diversion channel.

Other project features include:

- 5 water flow monitoring stations

- 2 staff gauges
- 4 continuous recorders

In August 2005, Hurricane Katrina passed directly over the Fritchie Marsh project area. The forces created by this storm caused significant damage to the marsh, but not to any of the project features. Large areas of marsh were converted to open water, whereas sections of sheared marsh were deposited into the natural bayous and canals creating a number of blockages. Existing breaches on the banks of Salt Bayou were enlarged and new breaches were created, which diverted water away from the natural conveyance channels. The previously established hydrology within the project area has been significantly altered.

Past Maintenance Projects

The warning signs and directional arrows at the W-14 weir were repaired in Spring 2015 due to weathering of the reflective surfaces and faded coloring. Eight (8) new sign faces and mounting hardware were purchased at a cost of $2,195.99 and installed by CPRA personnel over a two-day field effort.

III. Inspection Purpose and Procedures

The purpose of the annual inspection of the Fritchie Marsh Restoration Project (PO-06) is to evaluate the constructed project features, to identify any deficiencies, and to prepare a report detailing the condition of project features and recommending corrective actions. Should it be determined that corrective actions are needed, CPRA shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan July 10, 2002). The annual inspection report also contains a summary of maintenance projects and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since completion of the project are outlined in Section II.

An inspection of the Fritchie Marsh Restoration Project (PO-06) was conducted on May 19, 2016 by Luke Prendergast of CPRA, Doug Baker from NRCS, David Brunet with St. Tammany Parish (STP), and Joseph Guillory (STP engineering consultant). Access to the project area was accomplished via an airboat provided by CPRA.

IV. Inspection Results

Hwy 90 Culvert and Stone Revetment

There is little change in this structure from the previous inspection. The bank scour reported in previous inspections appeared to have progressed very little, even with the extremely high water experienced during the Spring 2016 flooding. This area deserves continued observation during future inspections.

Salt Bayou Dredging

The inspection team travelled up Salt Bayou via airboat and noted that the bayou appeared to be in generally good condition for much of the CWPPRA-dredged length. An inspection in December 2015 determined that significant siltation of the bayou begins at approximately 4,500 feet downstream of the culvert and remains shallow for several thousand feet beyond the end of dredging at 5,300 feet downstream of the culvert. This condition appeared to be relatively unchanged. A steady flow of water was observed flowing into the project area.

W-14 Weir

The weir structure was mostly surrounded by aquatic vegetation, but the boat bay was navigable. The visible portion of the handrails appeared to be in good condition. The new warning signs were in very good condition. No maintenance is required in this area at this time.

W-14 Diversion Channel Dredging

The channel inlet was shallow, but free of significant obstructions. Emergent aquatic vegetation was present in the channel outfall. The diversion channel appeared to be in generally good condition.

V. Conclusions

The project appears to be meeting the goal of diverting fresh water into the Fritchie Marsh area. While a portion of Salt Bayou has experienced siltation, water is entering the project area through the bayou.

VI. Recommendations

Continue to inspect the project features on an annual basis. Coordinate with resource agencies and gather data on potential upcoming projects within Fritchie Marsh area to assess potential impacts on Salt Bayou and project hydrology.

Immediate Repairs

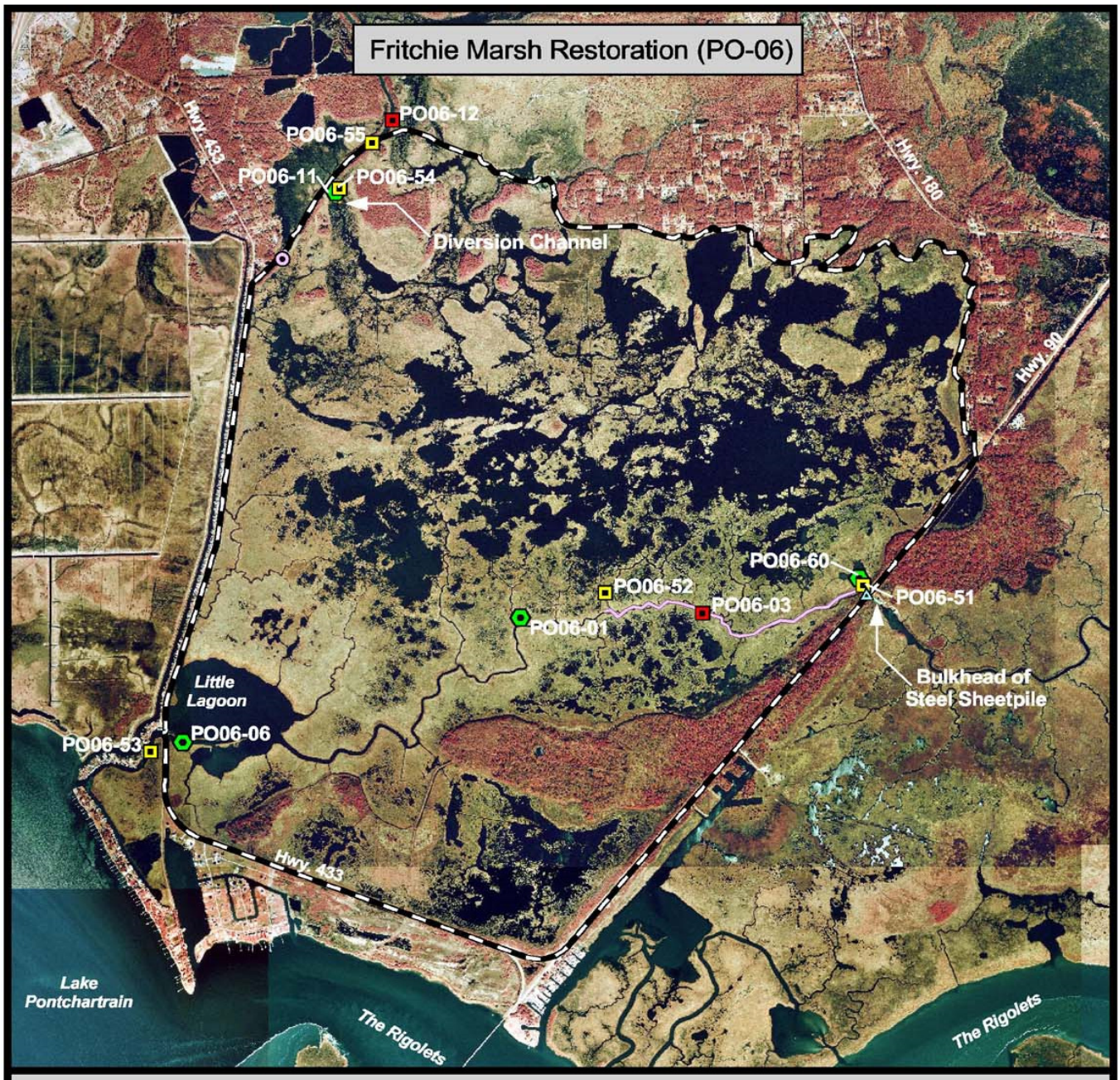
- None at this time.

Programmed Maintenance

- None at this time.

Appendix A

Project Features Map



Data Source:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
and
Louisiana Department of Natural Resources
Coastal Restoration Division
Baton Rouge, LA

1998 DOQQ Imagery

Map Date: April 23, 2004
Map ID: USGS-NWRC 2004-04-0148

0.5 0 0.5 Miles

0.5 0 0.5 1 Kilometers

N

LEGEND

- PO-06 Project Boundary
- 5300 ft. Dredge Area on Salt Bayou
- 400 ft. Dredge Area on the W-14 Diversion Channel
- Bulkhead of Steel Sheetpile
- 72" Concrete Culvert
- Steel Sheetpile Weir with Boat Bay
- Water Flow Monitoring Stations
- Staff Gauge Only
- Continuous Recorder

Appendix B

Photographs

May 19, 2016

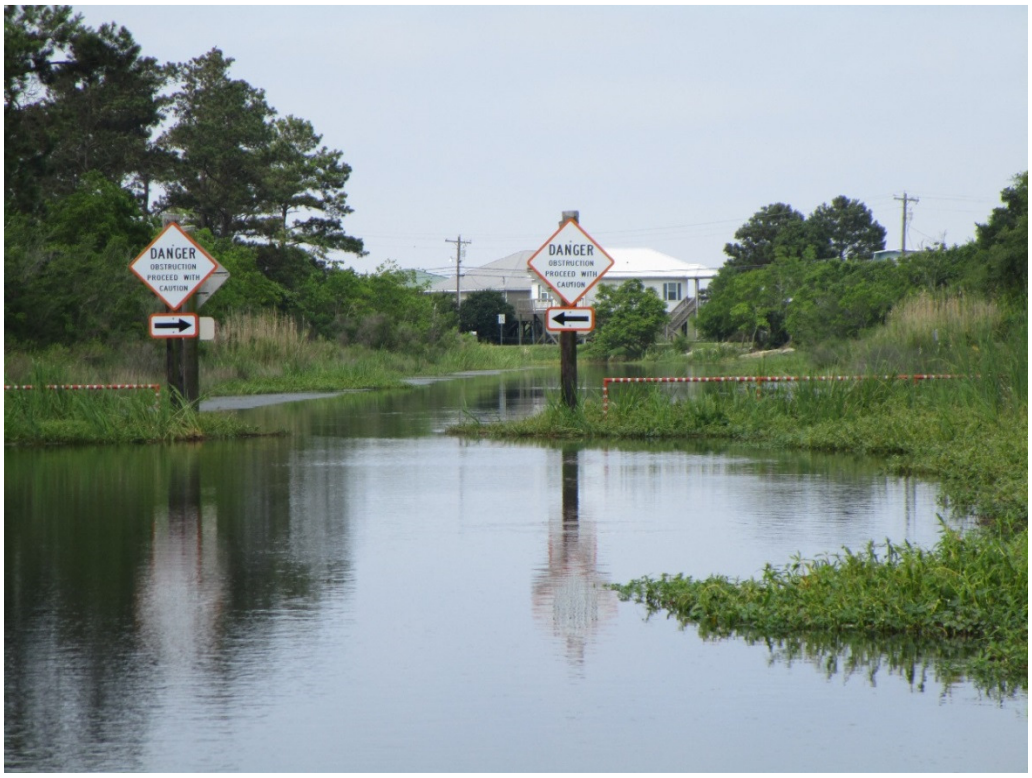


Photo 1: W-14 Weir and Warning Signs

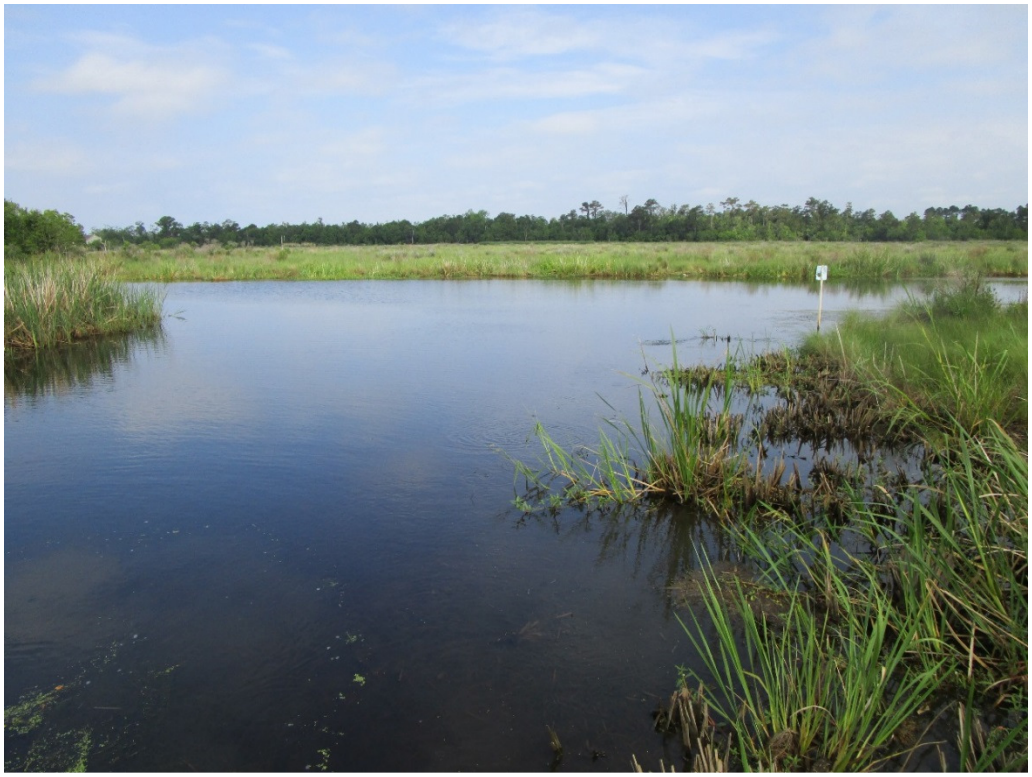


Photo 2: W-14 Diversion Canal

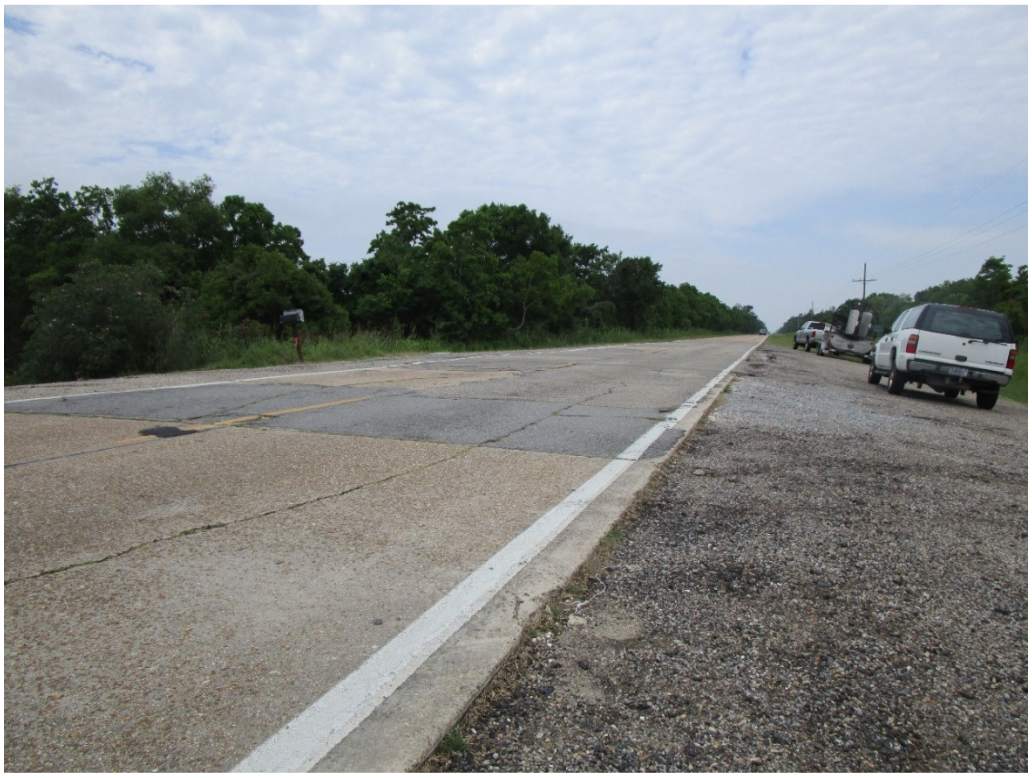


Photo 3: Hwy. 90 Road Surface Above Culverts

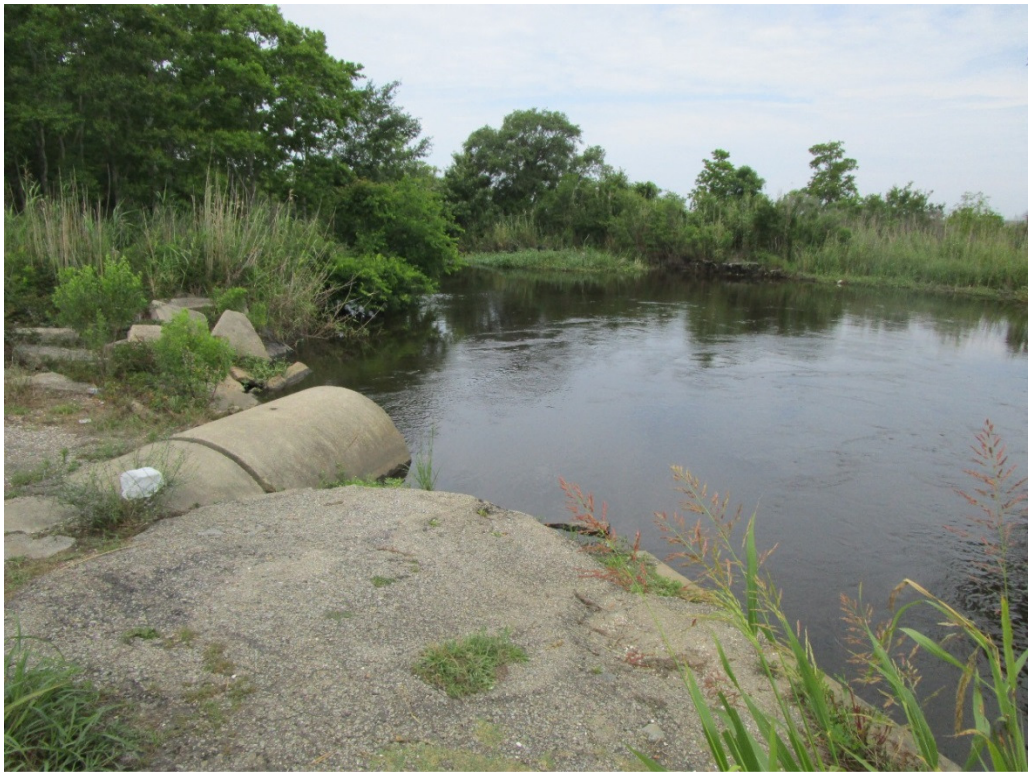


Photo 4: Culverts Below Hwy. 90

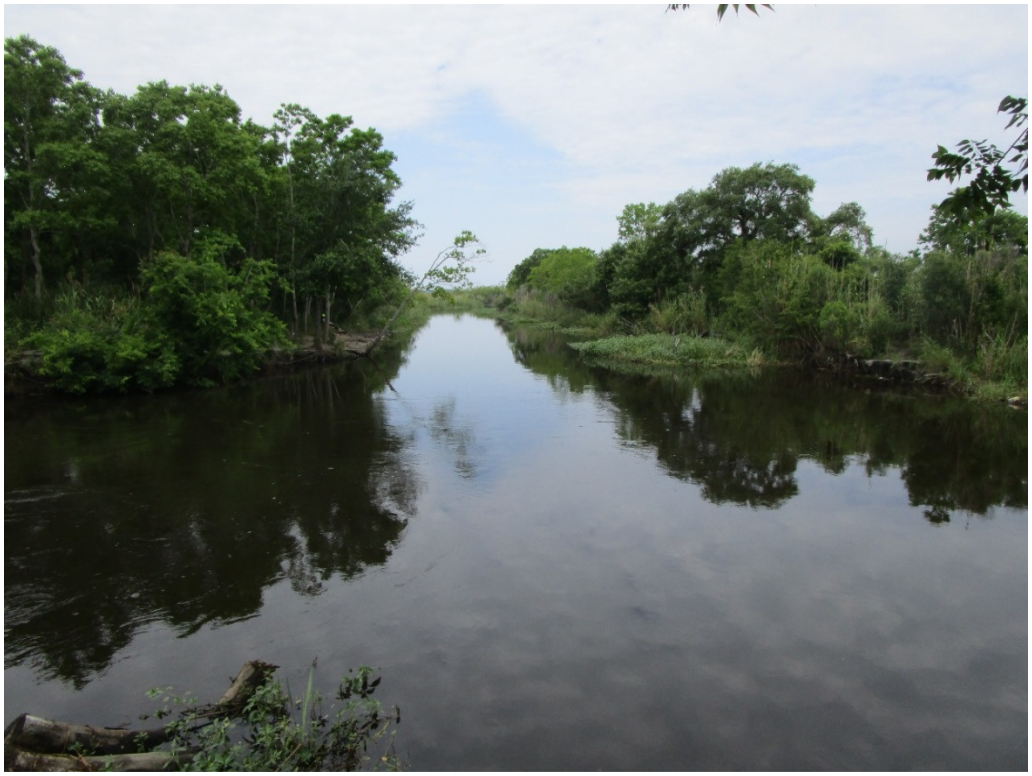


Photo 5: Salt Bayou Flowing into Project Area

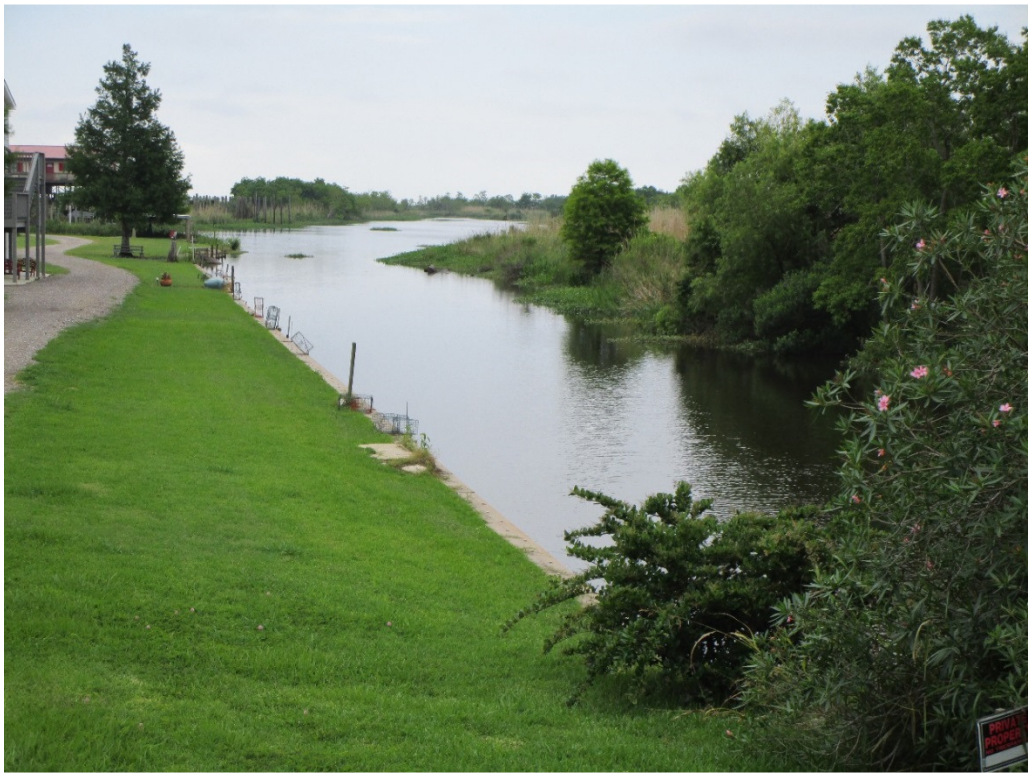


Photo 6: Bulkhead on Southeast Side of Hwy. 90

Appendix C

Three Year Budget Projection

Fritchie Marsh Hydrologic Restoration (PO-06)
Federal Sponsor: NRCS
Construction Completed : March 6, 2001
PPL 2

Current Approved O&M Budget June 2009	Year 0 FY02	Year - 1 FY03	Year -2 FY04	Year -3 FY05	Year -4 FY06	Year -5 FY07	Year -6 FY08	Year -7 FY09	Year -8 FY10	Year -9 FY11	Year -10 FY12	Year -11 FY13	Year -12 FY14	Year -13 FY15	Year -14 FY16	Year -15 FY17	Year -16 FY18	Year - 17 FY19	Year -18 FY20	Year -19 FY21	Project Life Budget
State O&M																					$225,211
Corps Admin																					$0
Federal S&A																					$0
Total																					$225,211

Projected O&M Expenditures																					Remaining Project Life
Maintenance Inspection																$4,316	$4,428	$4,543	$4,661	$4,782	$22,731
General Maintenance																					$0
Surveys																					$0
Sign Replacement																					$0
Federal S&A																					$0
Maintenance/Rehabilitation																					$0
E&D																					$0
Construction																					$0
Construction Oversight																					$0
Total																$4,316	$4,428	$4,543	$4,661	$4,782	$22,731

O&M Expenditures from COE Lana Report	$131,617
State O&M Expenditures not submitted for in-kind credit	$0
Federal Sponsor MIPRs (if applicable)	$0
Total Estimated O&M Expenditures (as of March 2016)	$131,617

Current O&M Budget	$225,211
Estimated O&M Expenditures	$131,617
Remaining Available O&M Budget	**$93,594**

Current Project Life Budget	$225,211
Total Projected Project Life Budget	$154,348
Project Life Budget Surplus (Shortfall)	**$70,863**

Appendix D

Field Inspection Form

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: **PO-06 Fritchie Marsh**

Date of Inspection: 5/19/2016 Time: 9:00am

Structure No. n/a

Inspector(s): Prendergast (CPRA), Baker (NRCS), Brunet (STP), Guillory (DDG)

Structure Description: **HWY 90 Culvert & Salt Bayou Bulkhead**

Water Level Inside: n/a Outside: n/a

Type of Inspection: **Annual**

Weather Conditions: Warm, partly cloudy

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	Good	None	None	6	No significant defects noted.
Handrails, Grating, Hardware, etc.	Good	None	None	1	No significant defects noted.
Signage, Supports	Very Good	None	None	1	Signs and timber support piles appeared to be in very good condition.
RipRap channel lining	Good	None		4	Good condition. Rip-rap covered by concrete debris on South bank.
W-14 Weir structure	See remarks	See remarks		1	Structure was mostly hidden by emergent vegetation; strong flow was visible in channel.
W-14 diversion channel dredge	Good	None		2	Channel entrance is shallow but unobstructed. Emergent vegetation was present in outfall.
Salt Bayou dredging	See remarks	N/A		5	Salt Bayou was deep and unobstructed for about 4,500 feet downstream (marsh side) of culverts at US Hwy 90. Siltation was noted beginning at approx. Sta. 45+00 and continued southwest to Sta. 53+00.
72" Diameter culvert	Good	None		4	No significant defects noted; water appeared to be flowing freely through culvert.
HWY 90 road surface	Good	None		3	No significant change since last inspection.