



State of Louisiana

**Coastal Protection and Restoration
Authority of Louisiana (CPRA)**

**2014/2015 Annual Inspection
Report**

for

**MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
(TV-14)**

State Project Number TV-14
Priority Project List 6

June 25, 2015
Iberia Parish

Prepared by:

Dion Broussard, Engineer Intern
Darrell J. Pontiff, P.E., Engineer 6
CPRA
Lafayette Field Office
635 Cajundome Blvd.
Lafayette, LA 70596



Table Of Contents

I. Introduction.....	1
II. Inspection Purpose and Procedures	1
III. Project Description and History.....	2
IV. Summary of Past Operation and Maintenance Projects.....	2
V. Inspection Results	4
VI Conclusions and Recommendations	5

Appendices

- Appendix A Project Features Map
- Appendix B Photographs
- Appendix C Three Year Budget Projections
- Appendix D Field Inspection Notes

I. Introduction

The Marsh Island Hydrologic Restoration Project is located in Iberia Parish approximately six miles south of Cypremort Point. The project area encompasses approximately 6,697 acres (2,710 ha) of wetlands in the vicinity of the northwest area of Marsh Island east of Bayou Blanc.

The Marsh Island Hydrologic Restoration Project was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended and approved on the sixth Priority Project List. The Marsh Island Hydrologic Restoration Project has a twenty year (20 year) project life, which began in December 2001.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Marsh Island Hydrologic Restoration Project (TV-14) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. 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. The annual inspection report also contains a summary of maintenance projects which were completed since completion of constructed project features 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 Marsh Island Hydrologic Restoration Project are outlined in Section IV.

An inspection of the Marsh Island Hydrologic Restoration Project (TV-14) was held on June 25, 2015 under partly cloudy skies and warm temperatures. In attendance were Dion Broussard representing CPRA; and Cassidy Lejeune representing LDWF. Representatives for the USACE were not able to attend. The annual inspection began at approximately 10:30 a.m. at Structure No. 9 and ended at Structure No. 1 at approximately 11:30 a.m.

The field inspection included a complete visual inspection of most of the project features. Staff gage readings and existing temporary benchmarks where available were used to determine approximate elevations of water, embankments and weir features. Photographs were taken at each project feature (see Appendix B) and Field Inspection notes were completed in the field to record measurements and deficiencies (see Appendix D).

III. Project Description and History

The Marsh Island Hydrologic Restoration Project is located in Iberia Parish approximately six miles south of Cypremort Point. The project area encompasses approximately 6,697 acres (2,710 ha) of wetlands on the northeast tip of Marsh Island east of Bayou Blanc. It comprises 5,034 acres (2,037 ha) of brackish marsh and 1,663 (673 ha) acres of open water, based on the Louisiana Department of Natural Resource's GIS data for 1984. Common plant species found in the project area include *Juncus roemerianus* (needlegrass rush), *Spartina patens* (saltmeadow cordgrass), *Schoenoplectus maritimus* (cosmopolitan bulrush), *Schoenoplectus americanus* (chairmaker's bulrush), *Spartina alterniflora* (saltmarsh cordgrass), and *Vigna luteola* (hairypod cowpea) (United States Department of Agriculture, Natural Resources Conservation Service. 2002, Chabreck and Linscombe 1988).

Between 1930 and the present, the hydrology of Marsh Island has changed due to tidal influenced erosion, subsidence, and oil and gas exploration (Orton 1959, SCS 1978). Several oil field canals were constructed to facilitate oil and gas exploration in the project area during the 1950's. Recent deterioration and subsidence of the spoil banks deposited in the 1950's have resulted in cuts in the spoil banks that have become conduits for rapid tidal exchanges between the surrounding bays and the interior marshes. These rapid exchanges have resulted in tidal scouring and the loss of marsh vegetation through erosion and subsidence. Lake Sand and a number of interior lakes also supported a significant amount of submerged aquatic vegetation (SAV). Today these lakes are almost devoid of SAV, presumably due to the effects of increased tidal exchange and increased turbidity. Erosion has also lead to the deterioration of the northeast end of Marsh Island and the north rim of Lake Sand, leaving exposed a highly organic brackish marsh.

During the life of the 20 year project, 408 acres (168 ha) of wetlands will be protected (USACE 1994). The project consists of the construction of 9 plugs in oil and gas canals at the northeast end of Marsh Island, the protection of the northeast shoreline of Marsh Island, and isolating Lake Sand from Vermilion Bay with a free-standing rock breakwater (figure 1). Project construction began on July 25, 2001 with the construction of approximately 4,000 linear feet (1291 m) of rock breakwater to protect the north shoreline on Lake Sand by contractor Tacon Company, Inc. of Bartlett, Tennessee and subcontractor Luhr Brothers, Inc. of Columbia, Illinois. A total of seven canals were plugged with rock armor. An additional closure, constructed of painted steel sheetpile and rock armor, was constructed at the mouth of an oil exploration canal on the eastern end of the project area. Construction of the \$2.9 million project was completed on December 12, 2001.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since December 2001, the construction completion date of the Marsh Island Hydrologic Restoration Project (TV-14).

2005 Maintenance Project–Grillot, Inc. (Through lease agreement with Bertucci Contracting Corp.) This maintenance project included the placement of paving stone (18” thick) spread out around the wingwalls of the plug at Lake Sand Canal No. 5 Closure to “harden” the area while still allowing flow in extreme tidal events to pass around the structure without washing away the existing bank. Also included was the

extension of the rock dike on the southern end of Canal No. 5. Approximately 4,000 tons of 1000# stone was placed on Lake Sand Closure No. 4 to reconstruct the rock dike where stone was displaced. This maintenance project was a result of damages that occurred during Hurricane LILI in 2002. The costs associated with the engineering, design and construction of the Marsh Island Maintenance Project are as follows:

Construction (FEMA)	\$267,059.11*
Construction (CWPPRA)	\$ 64,092.00
E & D, construction oversight, as-builts	\$ 30,262.00
Project Total	\$361,413.11

*This cost was reimbursed by FEMA

2008 Repair of Closure No. 8 Breach – This repair work included placing spoil material on the southern end of the rock plug from the dredging of the north-south access canal adjacent to this closure. The work was performed by Renaissance Petroleum Co. as part of their CUP application for a new oil and gas well on the east end of Marsh Island. Additional dredge material was also placed along the entire reach of the west levee of the proposed TV-21 project as well as on the northern end of Closure No. 8 towards the bay connecting to an existing rock dike. Hydraulic dredge material was also pumped behind Structure No. 7 to create marsh behind the rock dike. In addition, spoil material from the bucket dredge operation was placed on the west side of the north-south access canal to bridge a small area of marsh that connects to Structure No. 7. This work was completed in November 2008 and was performed at no cost to CWPPRA and CPRA.

2009 Maintenance Project – Antill Pipeline Construction - This maintenance project included placing 175 tons of 130# rock at Closure No. 1, 370 tons of 130# rock at Closure No. 2, 2,270 tons of 130# rock at Closure No. 4, and 570 tons of 130 # rock at Closure No. 6. Bank paving (using 30# rock) was placed at the ends of all of the closures as part of this project which was completed in February 2009. This maintenance project was a result of damages sustained from Hurricane Rita in 2005 and other required routine maintenance. The costs associated with the engineering, design and construction of the Marsh Island Maintenance Project are as follows:

Construction (FEMA)	\$113,083.30
Construction (CWPPRA)	\$358,041.70
E & D, construction oversight, as-builts	\$ 44,627.14
Project Total	\$515,752.14

Structure Operations: There are no operations associated with this project.

V. Inspection Results

Closure No. 1

The erosion problems and Hurricane Rita damages have been repaired through the recent maintenance project that was completed in February 2009. The dike was capped and bank paving installed on both ends of the closure. This site is in good condition since this work was performed. (Photos: Appendix B, Photo 1).

Closure No. 2

This closure was not inspected due to thunderstorms.

Closure No. 3

This closure was not inspected due to thunderstorms.

Closure No. 4

This closure was not inspected due to thunderstorms.

Closure No. 5

This closure was not inspected due to thunderstorms.

Closure No. 6

This closure was not inspected due to thunderstorms.

Closure No. 7

This closure site is in good condition and spoil material from the dredging of the north-south canal in 2008 was placed along the eastern end of the rock dike in an effort to stabilize this section of shore. In addition dredge spoil material was pumped behind the rock dike as part of this same access dredging and a small area of marsh creation was formed which is now starting to vegetate. There is some settlement along two (2) 150 foot lengths of the rock dike. (Photos: Appendix B, Photo 2).

Closure No. 8

A maintenance event on the adjacent TV-21 project required the closure to be removed for access. At the conclusion of the TV-21 maintenance event, the contractor replaced the closure and added additional rock to repair the breach. There has been some settlement at the canal opening. (Photos: Appendix B, Photos 3 & 4).

Closure No. 9

The rock riprap shoreline protection dike constructed on the south shoreline of Marsh Island was noted to now sit out further into the waters of the Gulf as discussed in the last inspection. Conditions were such that the feature was functioning well and that sediment had accreted and a growth of marsh vegetation had extended over the new fill. This rock shoreline feature will still function as a breakwater and extend the life of the earthen pipeline closure to the north. The recent construction of the TV-21 East Marsh Island Marsh Creation project has helped to reinforce the breach that had occurred on the southeast corner of the pipeline canal since the last inspection. The pipeline canal north of the rock breakwater was filled in with sediment from the marsh creation project and construction of containment dikes have now closed off the breach at the shoreline. No maintenance will be necessary at closure No. 9 as a result of the work performed through the TV-21 project. (Photos: Appendix B, Photo 5).

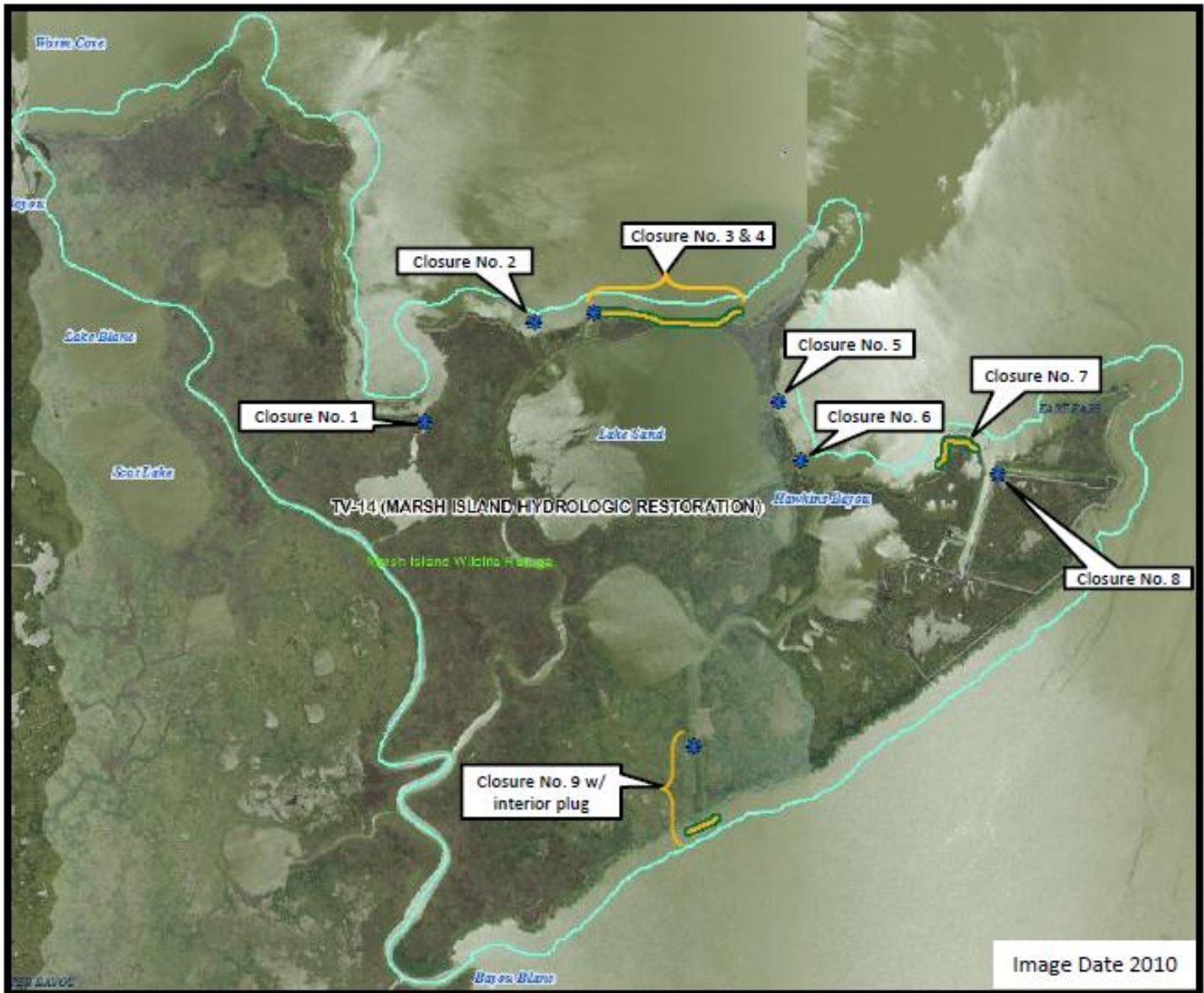
VI. Conclusions and Recommendations

Overall, the Marsh Island Hydrologic Restoration Project is in good condition with most features still functioning as designed after repair. However, there are a few areas of concern that if left unattended, could lead to more serious problems occurring; particularly at Closure 6 and between Closures 2 & 3. CPRA and the COE agree that a maintenance event is necessary. There is not enough money in the project budget to accommodate the estimated cost of the maintenance event. Discussion of the proposed maintenance event is ongoing.

Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14

Appendix A
Project Features Map

Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14



TV-14 Marsh Island Hydrologic Restoration

Project Completion Date December 2001



Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14

Appendix B

Photographs

Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14



Photo No. 1, Closure No. 1



Photo No. 2, Closure No. 7

Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14



Photo No. 3, Closure No. 8



Photo No. 4, Closure No. 8

Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14



Photo No. 5, Closure No. 9

Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14

Appendix C

Three Year Budget Projection

Annual Inspection Report
 MARSH ISLAND HYDROLOGIC
 RESTORATION PROJECT
 State Project No. TV-14

MARSH ISLAND/ TV-14 / PPL 6
Three-Year Operations & Maintenance Budgets 07/01/2015 - 06/30/2018

<u>Project Manager</u> Pat Landry	<u>O & M Manager</u> Dion Broussard	<u>Federal Sponsor</u> COE	<u>Prepared By</u> Dion Broussard
--------------------------------------	--	-------------------------------	--------------------------------------

	2015/2016 (-14)	2016/2017 (-15)	2017/2018 (-16)
Maintenance Inspection	\$ 6,851.00	\$ 7,057.00	\$ 7,269.00
Structure Operation			
State Administration	\$ -		\$ -
Federal Administration	\$ -		\$ -

Maintenance/Rehabilitation

15/16 Description:

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

16/17 Description :

E&D	
Construction	
Construction Oversight	
Sub Total - Maint. And Rehab.	\$ -

17/18 Description:

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

	2015/2016 (-14)	2016/2017 (-15)	2017/2018 (-16)
Total O&M Budgets	\$ 6,851.00	\$ 7,057.00	\$ 7,269.00

O & M Budget (3 yr Total)	\$ 21,177.00
Unexpended O & M Budget	\$ 468,709.00
Remaining O & M Budget (Projected)	\$ 447,532.00

Annual Inspection Report
MARSH ISLAND HYDROLOGIC
RESTORATION PROJECT
State Project No. TV-14

Appendix D

Field Inspection Form

Annual Inspection Report
 MARSH ISLAND HYDROLOGIC
 RESTORATION PROJECT
 State Project No. TV-14

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: June 25, 2015 Time: 11:00 AM

Structure No. 1

Inspector(s): Dion Broussard (CPRA)
 Cassidy Lejeune (LDWF)
 (USACE) Not present

Structure Description: Rock Plug

Type of Inspection: Annual

Water Level Inside: _____ Outside: _____
 Weather Conditions: cloudy and warm

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Good			1	The site is in good condition.
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

Annual Inspection Report
 MARSH ISLAND HYDROLOGIC
 RESTORATION PROJECT
 State Project No. TV-14

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: June 25, 2015 Time: 11:00 AM

Structure No. 7

Inspector(s): Dion Broussard (CPRA)
 Cassidy Lejeune (LDWF)
 (USACE) Not present

Structure Description: Rock Dike

Type of Inspection: Annual

Water Level Inside: _____ Outside: _____
 Weather Conditions: cloudy and warm

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Dike	Good			2	The site is in good condition.
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

Annual Inspection Report
 MARSH ISLAND HYDROLOGIC
 RESTORATION PROJECT
 State Project No. TV-14

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: June 25, 2015 Time: 10:45 AM

Structure No. 8

Inspector(s): Dion Broussard (CPRA)
 Cassidy Lejeune (LDWF)
 (USACE) Not present

Structure Description: Rock Plug

Type of Inspection: Annual

Water Level Inside: _____ Outside: _____
 Weather Conditions: cloudy and warm

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Plug	Good			3,4	Breach on southern end of closure was repaired in conjunction with TV-21 maintenance event.
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

Annual Inspection Report
 MARSH ISLAND HYDROLOGIC
 RESTORATION PROJECT
 State Project No. TV-14

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: June 25, 2015 Time: 10:30 AM

Structure No. 9

Inspector(s): Dion Broussard (CPRA)
 Cassidy Lejeune (LDWF)
 (USACE) Not present

Structure Description: Rock Plug

Type of Inspection: Annual

Water Level Inside: _____ Outside: _____
 Weather Conditions: cloudy and warm

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Dike	Fair			5	Dike is settling in some areas. Breach is closed and shoreline looks good since the TV-21 project.
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?