



Coastal Protection and
Restoration Authority of Louisiana

State of Louisiana

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

**2011/2012 Annual Inspection
Report**

for

**EAST MARSH ISLAND MARSH
CREATION PROJECT (TV-21)**

State Project Number TV-21
Priority Project List 14

March 13, 2012
Iberia Parish

Prepared by:

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I. Introduction

The East Marsh Island Marsh Creation (TV-21) project is located approximately 14 miles (22.53 km) southeast of Cypremort Point in Iberia Parish, Louisiana, and is part of the larger (77,000 acres) uninhabited Marsh Island which is bordered on the north by Vermilion Bay, West Cote Blanche Bay, East Cote Blanche Bay and to the south by the Gulf of Mexico. (Appendix A). The total project area which is situated on the northeast corner of Marsh Island comprises approximately 362 acres of marsh creation and 665 acres of nourished marsh.

The East Marsh Island Marsh Creation 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 fourteenth Priority Project List. The East Marsh Island Marsh Creation Project has a twenty year (20 year) economic life, which began in December 2010.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the East Marsh Island Marsh Creation Project (TV-21) 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 East Marsh Island Marsh Creation Project are outlined in Section IV.

An inspection of the East Marsh Island Marsh Creation Project (TV-21) was held on March 13, 2012 under foggy conditions and mild temperatures. In attendance were Darrell Pontiff, Dion Broussard and Jody White from CPRA, Cassidy Lejeune, Edmond Mouton, Jen Hogue and Tison Couch from LDWF, Paul Kaspar from EPA, and Charles Slocum from NRCS. Parties met at the Burns Point Boat launch and traveled to the east end of Marsh Island. The annual inspection began at the northwestern corner of Marsh Creation Cell No. 1.

The field inspection included a visual inspection of the project site. Staff gauge readings were used, when available, to determine approximate elevations of water, marsh floor, and containment dikes. 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

Marsh Island is an uninhabited island and is owned by the State of Louisiana and constitutes the Marsh Island Wildlife Refuge, which was established by the Louisiana Department of Wildlife and Fisheries as a sanctuary for migratory birds. Recent aerial surveys have documented approximately 30,000 geese and 50,000 ducks utilizing the island (Martin 2008).

Between 1930 and the present, the hydrology of Marsh Island has changed due to tidally influenced erosion, subsidence, and oil and gas exploration (Barrilleaux 2004 and 2005). As a result of oil exploration in the 1950's, oil field canals were constructed and the spoil was deposited along these canals to form continuous banks. The newly created banks disrupted the surface water flow and created ponding in the interior marshes (Barrilleaux 2004 and 2005).

In 2001, the Marsh Island Hydrologic Restoration (TV-14) project was constructed to help restore the historical hydrology of Marsh Island by stabilizing the northeastern shoreline of Marsh Island and plugging nine oilfield access canals (Barrilleaux 2004 and 2005). Average marsh loss rates within the project area were historically low (-0.29% per year); however, after Hurricane *Lili* in 2002, aerial photography revealed that substantial areas of interior emergent marsh had been converted to open water (Martin 2008). Hurricanes *Rita* in 2005 and Hurricane *Ike* in 2008 further aggravated this erosion problem. To help stabilize this area, the EPA, NRCS and CPRA proposed to create and nourish 362 acres of marsh in two containment cells. During construction, the amount of unobligated CWPPRA construction funds and an abundance of borrow material available allowed nourishment of 665 acres of additional marsh north and west of the original containment cells. The TV-21 project will work synergistically with the recently completed TV-14 project to help reduce the effects of lateral erosion in existing marsh areas.

The objectives of the East Marsh Island Marsh Creation (TV-21) project are to re-create brackish marsh in the open water and mud flat areas of the interior marsh primarily formed by hurricane damage and to nourish additional adjacent marsh (Gillen 2008). The use of dredged material for marsh creation has been an important technique in restoration for decades in the United States.

The principal project features include:

1. 362 acres of marsh creation in two confined cells referenced as Fill Areas No. 1 & 2.

2. An earthen plug located at the end of the North-South Pipeline Canal within the northern boundary of the Fill Area No. 2 containment dike
3. 665 acres of marsh nourishment in four different partially confined areas referenced as Additional Fill Areas No. 1-4 which were located north and west of the original marsh creation cells
4. 55,000 vegetative plantings within the two confined cells (3,257 actually planted during the construction phase of the project)

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since December 2010, the construction completion date of the East Marsh Island Marsh Creation Project.

None as yet required.

Structure Operations:

There are no active operations associated with this project.

V. Inspection Results

Site 1—Marsh Creation Cells (Fill Areas No. 1&2)

The two marsh creation cells are in good condition since the project was completed in 2010. The containment dikes are stable and the natural vegetation continues to expand within the cells. It is estimated that there is seventy (70%) per cent natural vegetation cover. The one year post construction surveys have been completed by T. Baker Smith. The survey data indicates the marsh platform is settling as expected and is near the target healthy marsh elevation of +1.7 NAVD88. (Photos: Appendix B, Photo 1-5)

Site 2—Nourished Areas (Additional Fill Areas No. 1-4)

The nourished areas were not visited during this inspection. However, the December 2011 survey data from T. Baker Smith indicate that the marsh platform is settling as follows: Area No. 1 + 0.54, Area No. 2 +0.92, Area No. 3 +1.11, and Area No. 4 +1.04. Additional 2012 site visits by Louisiana Wildlife and Fisheries have identified four interior plugs which will need to be cut to allow water exchange.

Site 3—Earthen Plug

The earthen plug at the end of the North-South Pipeline Canal is holding up well with no differential settlement taking place. (Photos: Appendix B, Photo 4)

Site 4—Vegetation plantings

NRCS prepared plans and specifications to install 55,000 vegetative plants (five different species) which was bid in December 2010, awarded in January 2011, and mobilization to the project site on July 2011; however, only 3,257 plants were actually installed before the contractor defaulted on the project. No further planting project was pursued within the two marsh creation cells Fill Areas No. 1 & 2 such that the natural vegetation was flourishing.

VI. Conclusions and Recommendations

The East Marsh Island Marsh Creation Project is in very good condition and functioning as intended. Additional surveys will be performed in Year 3 post construction to determine the settlement of the marsh creation and marsh nourishment areas as well as the accumulation of material in the borrow area.

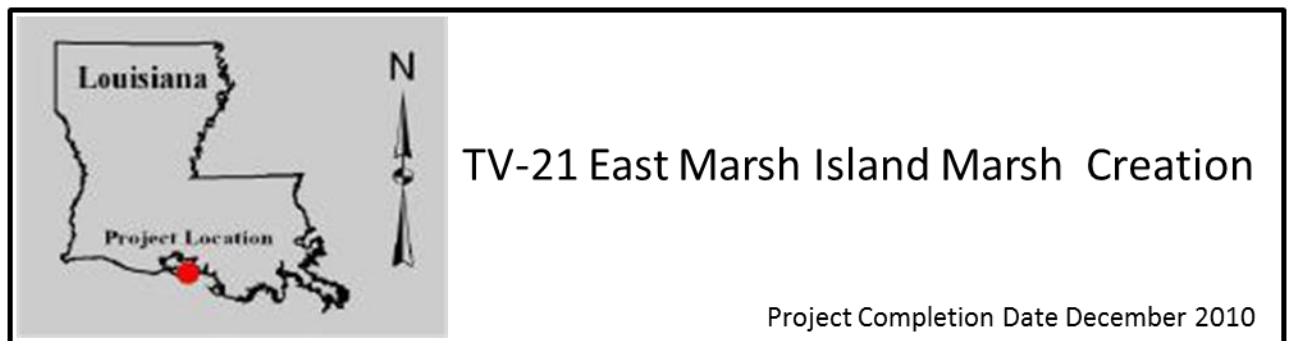
A maintenance event is planned for 2012-2013. Plans and specifications are being developed for the following:

- Lower an existing gap labeled “Gap N” in the Fill Area No. 2 containment dike
- Remove the timber mats used during construction to repair a containment dike breach. Create an additional gap at the timber mat location at Hawkins Lake (mats will be removed and disposed of off-site). Cut gaps in two remaining interior plugs in the Additional Fill Area No. 2 nourished area as well as two plugs in the Oil and Gas Pipeline Canal in the Additional Fill Area No.1 to allow water exchange.

Cost estimates are being prepared by T. Baker Smith for options to protect the Northeast corner of the Fill Area No. 1 along the Gulf shoreline near “Gaps A & B”. If adequate funds are available, plans and specifications for armoring the containment dike will be included in the maintenance event mentioned above.

There is no additional degrading planned for the containment dikes located along the exterior boundary of Fill Areas No. 1 & 2; therefore, NRCS is moving forward with planting woody species along the crown of the remaining containment dikes in spring 2013.

Appendix A
Project Features Map



Appendix B

Photographs



Photo No. 1, Marsh Creation Cell



Photo No.2, Containment Dike along Pipeline Canal



Photo No. 3, Marsh Creation Cell



Photo No. 4, Earthen Plug at End of Pipeline Canal.



Photo No. 5, Aerial View, Both Marsh Creation Cells (March 2012)

Appendix C

Three Year Budget Projection

EAST MARSH ISLAND MARSH CREATION/ TV-21 / PPL 14
Three-Year Operations & Maintenance Budgets 07/01/2012 - 06/30/2015

Project Manager	O & M Manager	Federal Sponsor	Prepared By
Pat Landry	Darrell Pontiff	NRCS	Darrell Pontiff

	2012/2013(-1)	2013/2014 (-2)	2014/2015 (-3)
Maintenance Inspection	\$ 6,269.00	\$ 6,457.00	\$ 6,651.00
Structure Operation			
State Administration	\$ 5,000.00		\$ 10,397.00
Federal Administration	\$5,000.00	\$ -	\$ 18,614.00

Maintenance/Rehabilitation

12/13 Description: Degrade dikes, vegetative plantings, engineering monitoring

E&D	\$253,011.00	Incl. \$203,289 of Engineering Monitoring
Construction	\$147,500.00	
Construction Oversight	\$20,000	
<i>Sub Total - Maint. And Rehab.</i>	<u>\$ 420,511.00</u>	

13/14 Description

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
<i>Sub Total - Maint. And Rehab.</i>	<u>\$ -</u>

14/15 Description: Vegetative plantings, engineering monitoring.

E&D	Incl. \$197,522 of Engineering Monitoring	\$ 236,731.00
Construction		\$ 200,000.00
Construction Oversight		\$ -
<i>Sub Total - Maint. And Rehab.</i>		<u>\$ 436,731.00</u>

	2012/2013(-1)	2013/2014 (-2)	2014/2015 (-3)
Total O&M Budgets	<u>\$ 436,780.00</u>	<u>\$ 6,457.00</u>	<u>\$ 472,393.00</u>

O & M Budget (3 yr Total)	<u>\$ 915,630.00</u>
Unexpended O & M Budget	<u>\$ 1,361,231.00</u>
Remaining O & M Budget (Projected)	<u>\$ 445,601.00</u>

Annual Inspection Report
 EAST MARSH ISLAND MARSH CREATION PROJECT
 State Project No. TV-21

OPERATION AND MAINTENANCE BUDGET WORKSHEET

EAST MARSH ISLAND MARSH CREATION / PROJECT NO. TV-21 / PPL NO. 14 / 2012/2013

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$6,269.00	\$6,269.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	1	\$253,011.00	\$253,011.00
Operations Contract	LUMP	0	\$0.00	\$0.00
Construction Oversight	LUMP	1	\$20,000.00	\$20,000.00

ADMINISTRATION

LDNR / CRD Admin.	LUMP	1	\$5,000.00	\$5,000.00
FEDERAL SPONSOR Admin.	LUMP	1	\$5,000.00	\$5,000.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL ADMINISTRATION COSTS:				\$10,000.00

MAINTENANCE / CONSTRUCTION

SURVEY

SURVEY DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
TOTAL SURVEY COSTS:				\$0.00	

GEOTECHNICAL

GEOTECH DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
TOTAL GEOTECHNICAL COSTS:				\$0.00	

CONSTRUCTION

CONSTRUCTION DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Degrade dikes and remove timber mats, vegetative plantings, and engineering monitoring.				
	Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE
	Rock Dike	0	0.0	0	\$0.00
	Bank Paving	0	0.0	0	\$0.00
		0	0.0	0	\$0.00
	Filter Cloth / Geogrid Fabric	SQ YD	0	\$10.00	\$0.00
	Navigation Aid	EACH	0	\$0.00	\$0.00
	Signage	EACH	0	\$0.00	\$0.00
	General Excavation / Fill	CU YD	0	\$0.00	\$0.00
	Dredging	CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)		0	\$0.00	\$0.00
	Timber Piles (each or lump sum)		0	\$0.00	\$0.00
	Timber Members (each or lump sum)		0	\$0.00	\$0.00
	Hardware	LUMP	0	\$0.00	\$0.00
	Materials	LUMP	0	\$0.00	\$0.00
	Mob / Demob	LUMP	1	\$10,000.00	\$10,000.00
	Contingency	LUMP	1	\$29,500.00	\$29,500.00
	General Structure Maintenance (25%)	LUMP	0	\$0.00	\$0.00
	Degrade dikes and remove timber mats	LUMP	1	\$8,000.00	\$8,000.00
	Vegetative Plantings	LUMP	1	\$100,000.00	\$100,000.00
	OTHER			\$0.00	\$0.00
TOTAL CONSTRUCTION COSTS:				\$147,500.00	

TOTAL OPERATIONS AND MAINTENANCE BUDGET: \$436,780.00

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 EAST MARSH ISLAND MARSH CREATION PROJECT
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OPERATION AND MAINTENANCE BUDGET WORKSHEET

EAST MARSH ISLAND MARSH CREATION / PROJECT NO. TV-21 / PPL NO. 14 / 2014/2015

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$6,651.00	\$6,651.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	1	\$236,731.00	\$236,731.00
Operations Contract	LUMP	0	\$0.00	\$0.00
Construction Oversight	LUMP	0	\$0.00	\$0.00

ADMINISTRATION

CPRA Admin.	LUMP	1	\$10,397.00	\$10,397.00
FEDERAL SPONSOR Admin.	LUMP	1	\$18,614.00	\$18,614.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL ADMINISTRATION COSTS:				\$29,011.00

MAINTENANCE / CONSTRUCTION

SURVEY

SURVEY DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
TOTAL SURVEY COSTS:					\$0.00

GEOTECHNICAL

GEOTECH DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
TOTAL GEOTECHNICAL COSTS:					\$0.00

CONSTRUCTION

CONSTRUCTION DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Vegetative plantings, and engineering monitoring.				
	Rip Rap	LIN FT	TONS	UNIT PRICE	
	Rock Dike	0	0.0	\$0.00	\$0.00
	Bank Paving	0	0.0	\$0.00	\$0.00
		0	0.0	\$0.00	\$0.00
	Filter Cloth / Geogrid Fabric	SQ YD	0	\$10.00	\$0.00
	Navigation Aid	EACH	0	\$0.00	\$0.00
	Signage	EACH	0	\$0.00	\$0.00
	General Excavation / Fill	CU YD	0	\$0.00	\$0.00
	Dredging	CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)		0	\$0.00	\$0.00
	Timber Piles (each or lump sum)		0	\$0.00	\$0.00
	Timber Members (each or lump sum)		0	\$0.00	\$0.00
	Hardware	LUMP	0	\$0.00	\$0.00
	Materials	LUMP	0	\$0.00	\$0.00
	Mob / Demob	LUMP	0	\$0.00	\$0.00
	Contingency	LUMP	0	\$0.00	\$0.00
	General Structure Maintenance (25%)	LUMP	0	\$0.00	\$0.00
	Vegetative Plantings	LUMP	1	\$200,000.00	\$200,000.00
	OTHER	LUMP	0	\$0.00	\$0.00
	OTHER				\$0.00
TOTAL CONSTRUCTION COSTS:					\$200,000.00

TOTAL OPERATIONS AND MAINTENANCE BUDGET: \$472,393.00

Appendix D
Field Inspection Form

Annual Inspection Report
 EAST MARSH ISLAND MARSH CREATION PROJECT
 State Project No. TV-21

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-21 East Marsh Island Marsh Creation

Date of Inspection: March 13, 2012 Time: 12:05 p.m.

Structure No. N/A

Inspector(s): Darrell Pontiff, Dion Broussard, Jody White (CPRA)
 Cassidy Lejeune, Edmond Mouton, Jen Hogue, Tison Couch (LDWF)
 Charles Slocum (NRCS), Paul Kaspar (EPA)

Structure Description: Marsh Creation

Water Level N/A
 Weather Conditions: Foggy and mild

Type of Inspection: Annual

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Timber Bulkhead / Caps	N/A				
Steel Grating	N/A				
Salinity Readings	N/A				
Concrete Mats	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Vegetation	Good			1,2,3	Vegetaion continues to expand within the cells.
Settlement Plates	Good				
Marsh Creation Cells	Good			5	In good condition.
Earthen Embankment	Good			4	Containment dikes in good condition.

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?