



**State of Louisiana
Department of Natural Resources
Coastal Engineering Division**

2005/2006 Annual Inspection Report

**SWEET LAKE/ WILLOW LAKE
HYDROLOGIC RESTORATION
PROJECT
(CS-11b)**

State Project Number CS-11b
Priority Project List 5

October 21, 2005
Calcasieu Parish

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I. Introduction

The Sweet Lake/Willow Lake Hydrologic Restoration Project is composed of approximately 6000 ac of open water and freshwater wetlands surrounding Sweet Lake and Willow Lake in north eastern Cameron Parish. The project area is bounded on the south and west by the Gulf Intracoastal Waterway (GIWW), and on the north and east by Pleistocene prairie formations along LA Hwy. 384 and LA Hwy. 27. (See Appendix A)

The Sweet Lake/Willow Lake 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 fifth Priority Project List. The Sweet Lake/Willow Lake Project has a twenty –year (20 year) economic life, which began on January 27, 2000.

II. Inspection Purposes and Procedures

The purpose of the annual inspection of the Sweet Lake/Willow Lake Hydrologic Restoration Project (CS-11b) 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, LDNR 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, 2002). The annual inspection report also contains a summary of maintenance projects, if any, 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.

In 2003, the CWPPRA Task Force determined, due to the fact that LDNR was responsible for the operation and maintenance phase of the vast majority of CWPPRA projects, that LDNR would be the responsible party for all Post Storm/Hurricane Assessments. After Hurricanes Katrina and Rita, every project appeared to have been impacted by the storms; therefore, LDNR determined that all projects should be assessed for damages (Broussard, 2006). With concurrence from the federal sponsor, LDNR has decided to use the information obtained during this post hurricane assessment in this Annual Maintenance Inspection.

An inspection of the Sweet Lake/Willow Lake Hydrologic Restoration Project (CS-11b) was held on October 21, 2005. In attendance were Stan Aucoin, Mel Guidry, and Darrell Pontiff from LDNR, and Marty Floyd from NRCS. The annual inspection began at approximately 11:00 a.m. on the eastern boundary of the project area.

The field inspection included a complete visual inspection of the entire rock dikes from the GIWW. Staff gauge readings were not available to be used to determine approximate elevations of water and

rock dikes. Photographs were taken (see Appendix B) and a Field Inspection form was completed in the field to record measurements and deficiencies (see Appendix D). Vegetative plantings and earthen terraces were partially inspected.

III. Project Description and History

Wetlands in their natural state are among the most productive areas on earth, and they are central to the culture and development of south Louisiana. The Coastal Wetlands Planning, Protection and Restoration Act provides a substantial federal commitment to help Louisiana save its coastal wetlands. The wetlands are a fragile environment, which is disappearing at a rate of over 25 square miles of marsh a year in Louisiana, which is 80 percent of the nation's annual coastal wetland loss. The wetlands provide many benefits including commercial and recreational value, wildlife habitat, wintering habitat for millions of the continent's migratory ducks and geese, nursery habitat for one of America's largest fish and shellfish harvests, erosion control, flood protection and acting as storm buffers. Additionally the wetlands help maintain water quality.

In the early 1990's, Sweet Lake and Willow Lake were essentially lank-locked lakes surrounded by coastal freshwater marsh on the northern edge of the Cameron-Creole estuary (USDA/NRCS 1997). The introduction of water and sediment into the project area was influenced mainly by precipitation, local drainage, and wind and tide generated water exchange extending across the Cameron-Creole estuary from Calcasieu Lake through overland flow and small, meandering bayou. Marsh elevation was maintained through vegetative biomass production which compensated for losses caused by subsidence and sea level rise (USDA/NRCS 1997).

When the GIWW was constructed in the early 1900's, its route lay just south of the southern shorelines of both lakes, but the high energy associated with the navigation channel has and continues to impact the lakes and surrounding marshes. Erosion of the banks of the GIWW, caused by the water level drawdown effect and wave wash from the wakes created by passing boats and barges along with the widening and deepening of the channel from its original dimensions of 40 ft. wide x 5 ft. deep, to 125 ft. wide x 12 ft. deep in the 1940's and subsequent erosion of its banks, has resulted in the breaching of the narrow strip of marsh and spoil bank between the canal and the southern shoreline of both lakes.

The principal project features include:

- 4,000 linear ft. of rock embankment along the north bank of the GIWW adjacent to Willow Lake
- 14,200 linear ft. of rock embankment along the north bank of the GIWW adjacent to Sweet Lake
- 24,300 linear ft. of vegetative planting along the north shore line of Sweet Lake
- 25,500 linear ft. of earthen terraces

IV. Summary of Past Operation and Maintenance Projects

There have been no past maintenance projects and there are no active operations associated with this project.

IV. Inspection Results

The dikes are in reasonably good condition. There are a few low places along the length of the rock dike with the most significant stretches along the open water areas adjacent to Sweet Lake. There is an area approximately 50 feet wide along the very eastern end of the project area in which the dike appears to have been “pushed back” 10-12 feet apparently by a barge. There is another area approximately 4 feet wide in which the dike appears to have been removed by hunters or fishermen. Several settlement plates are either broken or leaning and are of no use. No gauges were available in the vicinity to determine water levels. The condition of the shallow water terraces feature of the project was unable to be determined due to high water conditions. (Photos: Appendix B, Photos 1, 2 & 3).

V. Conclusions

The rock portion of the Sweet Lake/Willow Lake Hydrologic Restoration Project is in good condition and functioning as designed. Overall, the rock dike feature appeared to be in the same condition as to what existed prior to Hurricane RITA and did not sustain any discernable damage.

VI. Recommendations

- 1) Run a structural assessment survey in the year 2006.
- 2) Install two staff gauges.
- 3) On future projects of this type, consideration should be given to installing shorter settlement plates.

Immediate Repairs

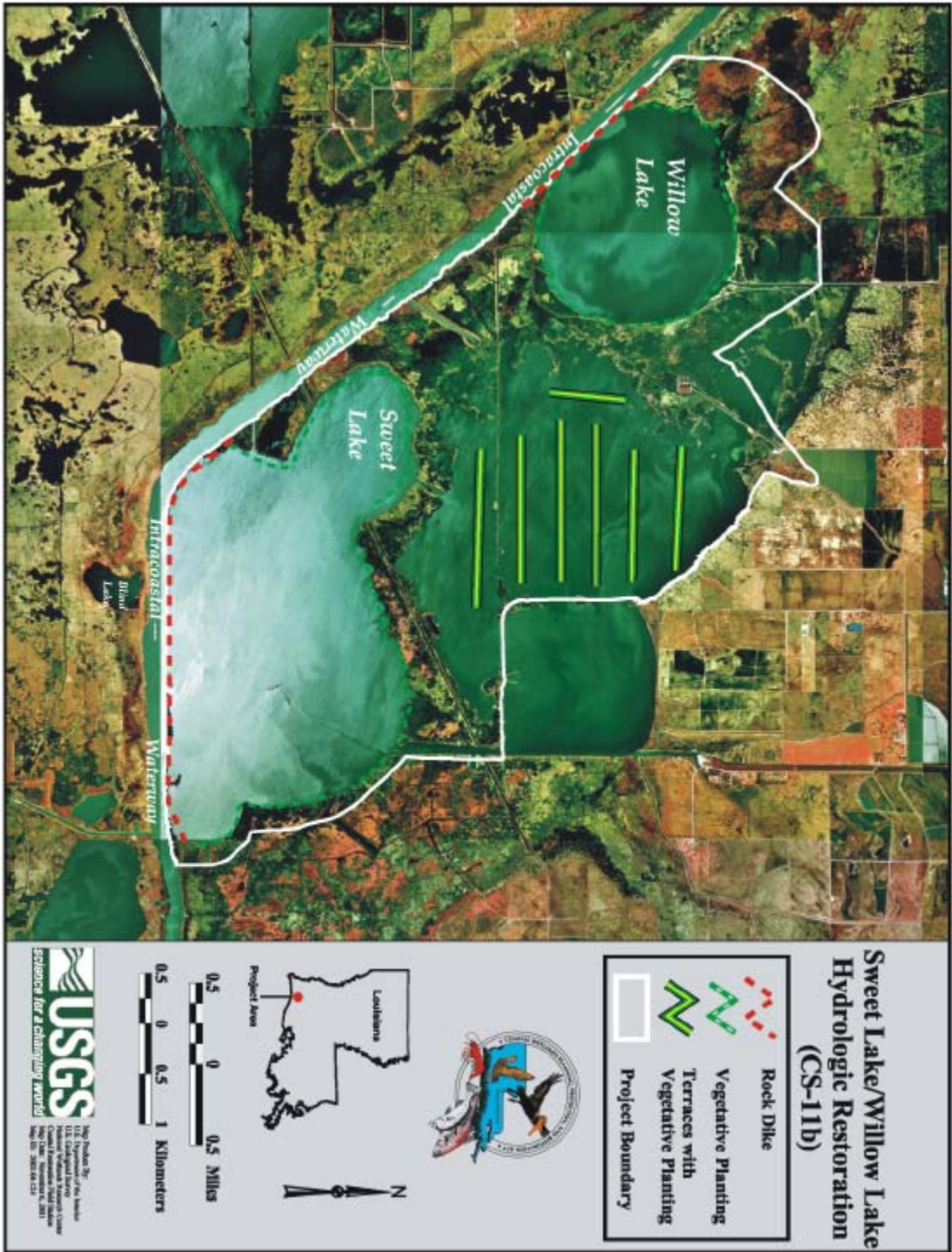
- The areas mentioned above will be monitored, but as of now are in no need of any immediate repairs.

Programmed Maintenance

- None

Appendix A

Project Features Map



Appendix B

Photographs

Annual Inspection Report
SWEET LAKE/WILLOW LAKE HYDROLOGIC RESTORATION
State Project No. CS-11b



Photo No.1, Area of rock dike pushed back by barge.



Photo No.2, Typical rock dike section.



Photo No. 3, Typical shallow water earthen terrace.

Appendix C

Three Year Budget Projection

SWEET LAKE/WILLOW LAKE SP/ CS-11B / PPL 5
Three-Year Operations & Maintenance Budgets 07/01/2005 - 06/30/08

<u>Project Manager</u> Pat Landry	<u>O & M Manager</u> Mel Guidry	<u>Federal Sponsor</u> NRCS	<u>Prepared By</u> Mel Guidry
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	2005/2006	2006/2007	2007/2008
Maintenance Inspection	\$ 4,955.00	\$ 5,250.00	\$ 5,407.00
Structure Operation			
Administration		\$ -	\$ -
Maintenance/Rehabilitation			

05/06 Description:

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

06/07 Description: Structural Assessment/Install Staff Gages

E&D	\$ 25,000.00
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ 25,000.00

07/08 Description:

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

	2005/2006	2006/2007	2007/2008
<u>Total O&M Budgets</u>	\$ 4,955.00	\$ 30,250.00	\$ 5,407.00

<u>O & M Budget (3 yr Total)</u>	\$ 40,612.00
<u>Existing O & M Budget</u>	\$ 463,517.00
<u>Remaining O & M Budget (Projected)</u>	\$ 422,905.00

OPERATION AND MAINTENANCE BUDGET WORKSHEET
 SWEET LAKE/WILLOW LAKE SP / PROJECT NO. CS-11b / PPL NO. 5

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$5,250.00	\$5,250.00
General Structure Maintenance	LUMP	1	\$0.00	\$0.00
Engineering and Design	LUMP	1	\$0.00	\$0.00
Operations Contract	LUMP	1	\$0.00	\$0.00
Construction Oversight	LUMP	1	\$0.00	\$0.00

ADMINISTRATION

LDNR / CRD Admin.	LUMP	1	\$0.00	\$0.00
FEDERAL SPONSOR Admin.	LUMP	1	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$2,000.00	\$0.00
OTHER				\$0.00
TOTAL ADMINISTRATION COSTS:				\$0.00

MAINTENANCE / CONSTRUCTION

SURVEY

SURVEY DESCRIPTION:					
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	
Structural Assessment/Report	LUMP	1	\$25,000.00	\$25,000.00	
TOTAL SURVEY COSTS:				\$25,000.00	

GEOTECHNICAL

GEOTECH DESCRIPTION:					
Borings	EACH	0	\$0.00	\$0.00	
OTHER				\$0.00	
TOTAL GEOTECHNICAL COSTS:				\$0.00	

CONSTRUCTION

CONSTRUCTION DESCRIPTION:						
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE		
	0	0.0	0	\$0.00	\$0.00	
	0	0.0	0	\$0.00	\$0.00	
	0	0.0	0	\$0.00	\$0.00	
Filter Cloth / Geogrid Fabric	SQ YD	0	\$0.00	\$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	\$0.00	\$0.00		
Contingency	LUMP	1	\$0.00	\$0.00		
General Structure Maintenance	LUMP	1	\$0.00	\$0.00		
OTHER			\$0.00	\$0.00		
OTHER			\$0.00	\$0.00		
OTHER			\$0.00	\$0.00		
TOTAL CONSTRUCTION COSTS:				\$0.00		

TOTAL OPERATIONS AND MAINTENANCE BUDGET:

\$30,250.00

Appendix D

Field Inspection Form

FIELD INSPECTION CHECK SHEET

Project No. / Name: Sweet Lake/Willow Lake HR CS-11B

Date of Inspection: 10/21/2005 Time: 11:00 AM

Structure No. _____

Inspector(s): Stan Aucoin, Mel Guidry, Darrell Pontiff, LDNR

Structure Description: Rock Dike

Water Level: Inside: N/A Outside: N/A

Type of Inspection: Annual

Weather Conditions: Clear and Cool

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Earthen Terraces	Fair			3	Unable to determine condition of terraces due to high water.
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/Support	N/A				
Rip Rap(fill)	N/A				
Earthen Embankment	N/A				
Foreshore Dike	Good			1 & 2	300 Linear feet of dike on eastern edge of Willow is low,. Also, there is a 50 foot section of rock dike that has apparently been pushed back. Another 4 foot section is missing in another area.

- 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?