



State of Louisiana

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

**2012/2013 Annual Inspection
Report**

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

State Project Number CS-11b
Priority Project List 5

June 12, 2013
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, 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, 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.

An inspection of the Sweet Lake/Willow Lake Hydrologic Restoration Project (CS-11b) was held on June 12, 2013. In attendance were Mel Guidry, Stan Aucoin and Dion Broussard from CPRA, Frank Chapman and Brandon Samson 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 along 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).

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 land-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 Sweet Lake and Willow Lake, 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

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since January 2000, the construction completion date of the Sweet/Willow Lake Hydrologic Restoration Project (CS-11b).

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

V. Inspection Results

The dikes are in reasonably good condition. (See Appendix B, Photo 1-3). 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 along with 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 shallow water terraces feature of the project was not inspected at this time. The terraces were not visible during prior inspections.

VI. Conclusions and Recommendations

The foreshore rock dike feature of the Sweet Lake/Willow Lake Hydrologic Restoration Project is in good condition and functioning as designed. The areas along the foreshore rock dike identified as being below constructed height were noted in previous inspections and will continue to be monitored. The earthen terraces deteriorated shortly after construction due to the long fetch across both Sweet Lake and Willow Lake. With the degradation of the earthen terraces, the vegetative plantings were washed away by the wave energy and were unsuccessful in establishing as well.

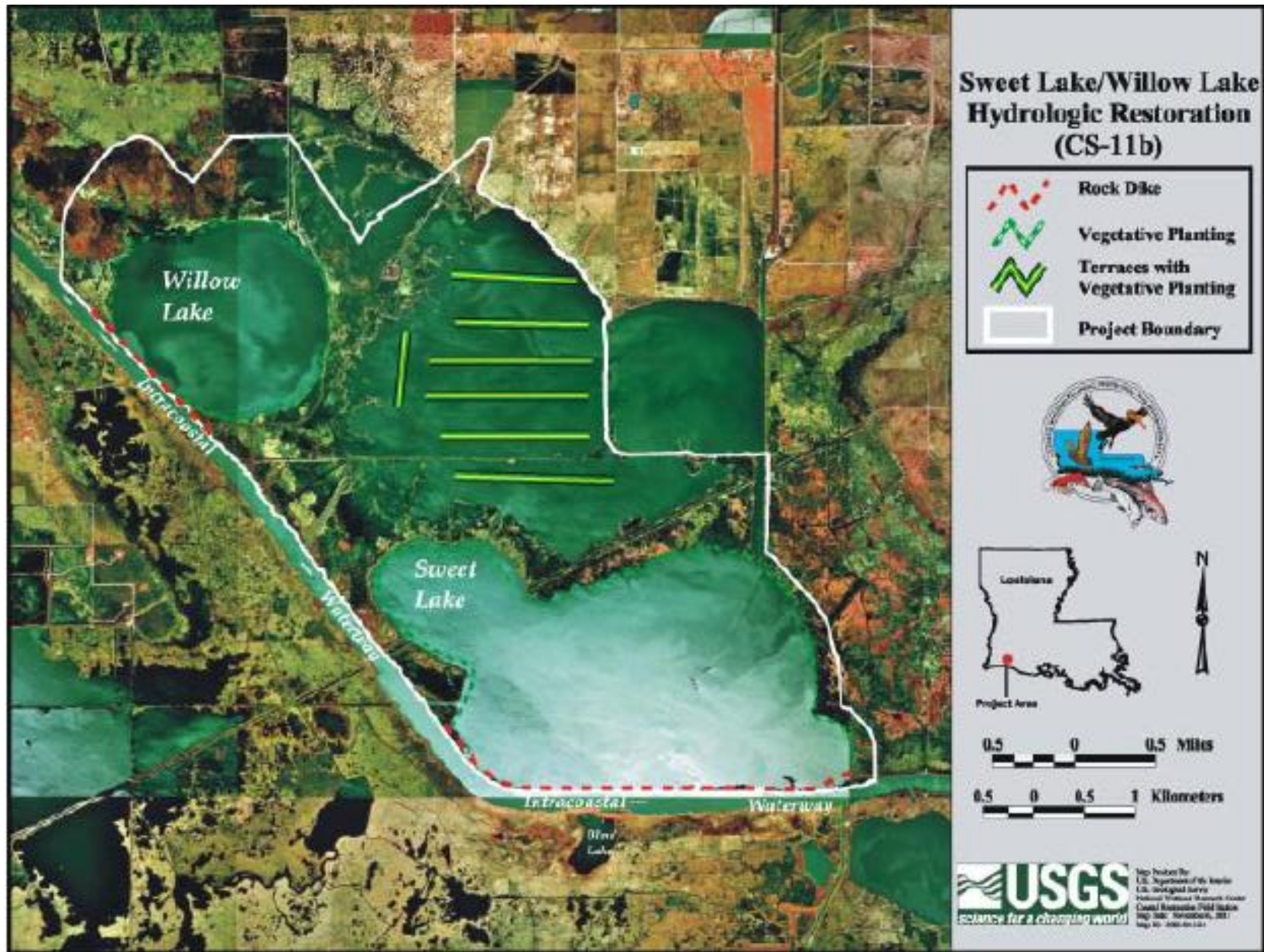
Lesson learned in this project with regard to shallow water earthen terraces:

Earthen Terraces constructed along lake shorelines which are subject to wind induced fetch should not be considered as a project feature in the future unless some sort of lakeside slope armoring is included.

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Appendix A

Project Features Map



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Appendix B

Photographs



Photo No. 1, (Sweet Lake) Typical rock dike



Photo No. 2, Western End of Sweet Lake Rock Dike



Photo No. 3, Willow Lake Rock Dike (Southeastern End)

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Appendix C

Three Year Budget Projection

SWEET LAKE/WILLOW LAKE SP/ CS-11B / PPL 5
Three-Year Operations & Maintenance Budgets 07/01/2013 - 06/30/2016

<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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	2013/2014 (-13)	2014/2015 (-14)	2015/2016 (-15)
Maintenance Inspection	\$ 6,457.00	\$ 6,651.00	\$ 6,851.00
Structure Operation			
State Administration		\$ -	\$ -
Federal Administration			

Maintenance/Rehabilitation

13/14 Description: Add a staff gage.

E&D	\$ 7,500.00
Construction	
Construction Oversight	
Sub Total - Maint. And Rehab.	\$ 7,500.00

14/15 Description:

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

15/16 Description:

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

	2013/2014 (-13)	2014/2015 (-14)	2015/2016 (-15)
Total O&M Budgets	\$ 13,957.00	\$ 6,651.00	\$ 6,851.00

O & M Budget (3 yr Total)	\$ 27,459.00
Unexpended O & M Budget	\$ 443,541.00
Remaining O & M Budget (Projected)	\$ 416,082.00

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Appendix D

Field Inspection Form

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FIELD INSPECTION CHECK SHEET										
Project No. / Name:		Sweet Lake/Willow Lake Hydrologic Restoration CS-11B			Date of Inspection:		6/12/2013		Time:	11:00 AM
Structure No.					Inspector(s):		Mel Guidry, Stan Aucoin, & Dion Broussard (CPRA) Frank Chapman, Brandon Samson (NRCS)			
Structure Description:		Rock Dike			Water Level:		Inside:	N/A	Outside:	N/A
Type of Inspection:		Annual			Weather Conditions:		Sunny and warm			
Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks					
Earthen Terraces	N/A				Terraces were not included in the inspection.					
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	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?										