State of Louisiana

Coastal Protection and Restoration Authority of Louisiana (CPRA)

2012/2013 Annual Inspection Report

for

EAST SABINE LAKE HYDROLOGIC RESTORATION PROJECT (CS-32)

State Project Number CS-32
Priority Project List 10

October 11, 2012
Cameron Parish

Prepared by:

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I. Introduction

The proposed project is located in the western third of the Sabine National Wildlife Refuge (NWR) in Cameron Parish, Louisiana. The project area is bounded on the east by the Burton Sutton Canal, to the south by Starks South Canal, to the west by the eastern Sabine Lake shoreline, and to the north by the approximate northern boundary of Sabine NWR. (See Appendix A).

The East Sabine 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 first Priority Project List. The East Sabine Lake Hydrologic Restoration Project has a twenty–year (20 year) project life, which began in June 2009.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the East Sabine Lake Hydrologic Restoration Project (CS-32) 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 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 Sabine Lake Hydrologic Restoration Project are outlined in Section IV.

An inspection for the Earthen Terrace Field portion of the East Sabine Lake Hydrologic Restoration Project (CS-32) was held on October 11, 2012 under clear skies and mild temperatures. The structures were not visited during this site inspection. In attendance were Jody White, Dion Broussard, and Mike Miller from CPRA, Dale Garber, Cindy Steyer, and Mitchell Mouton from NRCS, and Dan Greenwell from USFWS. Two air boats were launched at Willow Bayou Launch at approximately 10:50am. The inspection began on the south end near CU1A Row 10-3 of the earthen terrace field and concluded on the northern end of CU1.

The field inspection included an inspection of the earthen terrace field and vegetation. Staff gage readings and existing temporary benchmarks where available were used to determine approximate elevations of water, embankments, and other project features. Photographs were taken (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 lower salinity marshes in the project area are converting to shallow, open water due to elevated salinity events and subsidence. Navigation channels provide a direct route for salt water to infiltrate the marsh, disrupt natural water circulation, and allow rapid runoff of fresh water. The larger Sabine-Neches Waterway and the Gulf Intracoastal Waterway (GIWW) have allowed saltwater intrusion into the project area's fresh and intermediate marshes. Elevated tidal fluctuations in these channels have led to increased water flow, which has increased the conversion of marsh to open water. Marsh loss within the project area is also caused by wave action along Sabine Lake and interior marsh shorelines and other natural causes (i.e., subsidence).

To prevent further marsh loss and restore intermediate and brackish marshes, the project features will include: installing a rock weir at Pines Ridge Bayou; installing culverts with stop logs and flap gates at Bridge Bayou; installing rock rip-rap breakwater along the Sabine Lake shoreline at Willow Bayou; installing a weir at the opening at Starks South Canal Section 16 levee; and installing 230,000 linear feet of vegetated earthen terraces in the vicinity of Green's Lake.

Project Objectives

1. Protect and restore intermediate and brackish marshes within the project area.

Specific Goals

The following measurable goals were established to evaluate project effectiveness:

1. Reducing excessive elevated salinities within the Double Island Gully, Pines Ridge, and Green's Lake portions of the project area.

2. Reducing water level variability within the Double Island Gully and Pines Ridge portions of the project area.

3. Reducing the erosion rate along the Sabine Lake shoreline by 50% from Johnson's Bayou to a point north of Pines Ridge.

4. Stopping erosion of the Sabine Lake shoreline from the mouth of Willow Bayou to a point approximately 2,955 feet to the north.

5. Creating 68 acres of marsh in shallow open water areas by the end of the 20 year project life.

6. Increase fisheries and estuarine organism access without adversely affecting salinity levels in the western portion of Sabine NWR.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since June 2009, the construction completion date of the East Sabine Lake Hydrologic Restoration Project (CS-32).

2007 - Hurricane Rita Repairs to Pines Ridge Bayou Weir and Willow Bayou Rock Realignment – F. Miller Construction - This maintenance project included placing 146 tons of R-300 rock rip-rap along with 794 LF of PVC sheet pile wall at Pines Ridge Bayou Weir. Rock realignment was performed at each end of the dike and rock gaps were placed in two other locations along the shoreline. This maintenance project was a result of damages sustained from Hurricane Rita in 2005 and other maintenance work required. The costs associated with the engineering, design and construction of the Pines Ridge Bayou and Willow Bayou Maintenance Project are as follows:

Construction (CWPPRA)	$ 74,700.00
Construction (FEMA)	$143,032.00
E & D, construction oversight, as-builts	$ 35,026.65
Project Total	**$252,758.65**

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

V. Inspection Results

Foreshore Rock Dike

This feature was not visited during the inspection.

Rock Weir at Pines Ridge

This feature was not visited during the inspection.

Double Island Plug

This feature was not visited during the inspection.

Bridge Bayou Culverts

This feature was not visited during the inspection.

Earthen Terraces

Overall the vegetation is in good condition. (Appendix B: Photo No. 1) From discussion with the team members after the site inspection it was estimated that approximately 90% coverage was present. At this time it doesn't appear that additional planting is required. The terraces are in good condition with somewhat more significant narrowing or settling of the terraces seen in CU1 than in CU1A. During this inspection, salinity and soil samples were collected by NRCS at four locations noted on the Terrace Field Site Map in Appendix A.

CU1A:
Typically the terraces are in good condition with slight narrowing or settling. On CU1A Rows 1-3 & 5 there were a few gaps where the terraces were bare with good vegetation on either side. (Appendix B: Photo No. 2) CU1A Rows 3, 7, & 8 show signs of narrowing where Row 8 has a cut bank on the south side. (Appendix B: Photo No. 4) There are a couple of segments on the west side of CU1A Row 10 that have been washed away by wave action. (Appendix B: Photo No. 5)

CU1:
The southern end of CU1 tended to have narrower widths than the northern end of the terrace field. On Row 1B – Row 6, the terrace width and vegetation were in very good condition. (Appendix B: Photos No. 6) Narrowing of the terrace width has occurred on Rows 10, 12, & 13. (Appendix B: Photos No. 7) There were small segments of terraces with bare spots on Row 10 – Row 14A. Some locations were bare with vegetation on either side where as some locations were bare on the terrace crown with vegetation growth expanding outward into the water. (Appendix B: Photos No. 8)

VI. Conclusions and Recommendations

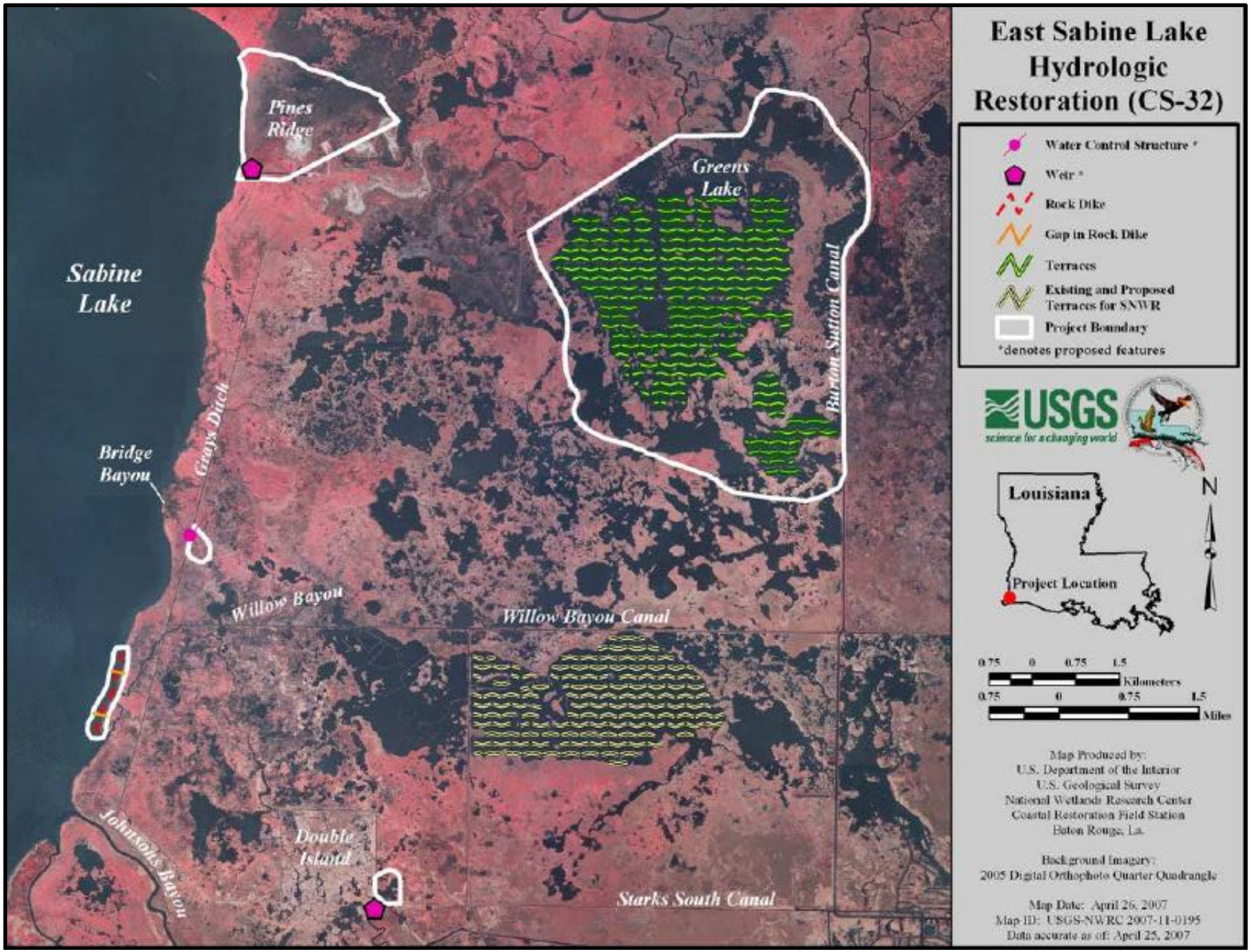
Overall, the Earthen Terrace Field portion of the East Sabine Lake Hydrologic Restoration Project is in good condition. The vegetation was in a much better condition than expected due to previous performance recorded in past site inspections. The plants have recovered well with significantly better coverage. No additional planting is anticipated at this time. Some sporadic bare locations remain without an obvious cause. Wave energy has impacted the southern rows of CU1A and washed away terrace segments in that area. Despite narrowing and settling in some areas, the terraces appear to be functioning as intended. The majority of these locations have well established vegetative cover.

A site inspection for the remaining project features is planned for fall of 2013.

Considering lessons learned for future projects, it is recommended that a 300 foot separation between terrace rows is considered to reduce wave action.

Appendix A

Project Features Map


East Sabine Lake Hydrologic Restoration (CS-32)
Water Control Structure *
Weir *
Rock Dike
Gap in Rock Dike
Terraces
Existing and Proposed Terraces for SNWR
Project Boundary
*denotes proposed features
Pines Ridge
Greens Lake
Sabine Lake
Bridge Bayou
Grays Ditch
Willow Bayou
Willow Bayou Canal
Burton Sutton Canal
Double Island
Johnsons Bayou
Starks South Canal
USGS
science for a changing world
Louisiana
Project Location
N
0.75 0 0.75 1.5
Kilometers
0.75 0 0.75 1.5
Miles
Map Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, La.
Background Imagery:
2005 Digital Orthophoto Quarter Quadrangle
Map Date: April 26, 2007
Map ID: USGS-NWRC 2007-11-0195
Data accurate as of: April 25, 2007

Label Legend

CU-1A

CU-1

Soil Samples

CS-32 East Sabine Lake Hydrologic Restoration

Earthen Terraces

Inspection Site Visit 10-11-2012

Appendix B
Photographs

Photo No.1 –Typical Terrace in CU1A - Row 1 (Northern Most Row)

Photo No. 2 –CU1A Bare Segments

Photo No. 3 - CU1A Rows Slightly Narrowed with Good Vegetation

Photo No. 4 - CU1A Row 8 Cut Bank on South Side

Photo No. 5 - CU1A Row 10 (Southern End of CU1A Terraces – West Side of Row)

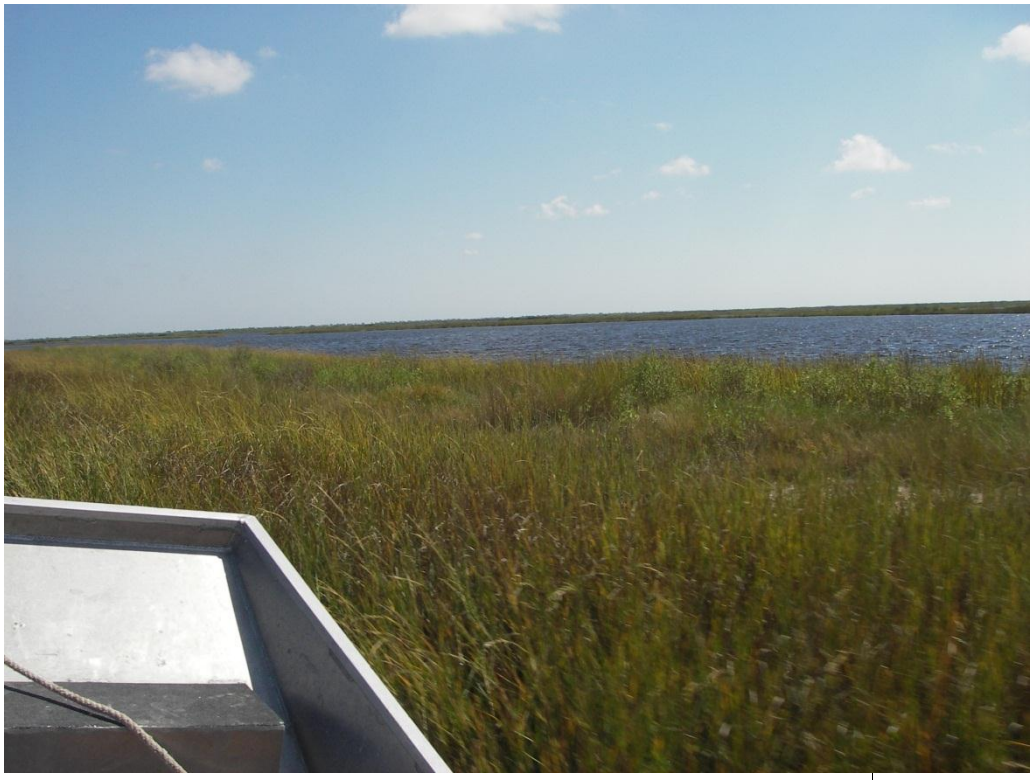


Photo No. 6 - CU1 - Typical Terrace in Row1B-Row 6

Photo No. 7 - CU1 – Narrowing Terrace Widths - Typical Terrace in Rows 10, 12, & 13

Photo No. 8 - CU1 – Typical Bare Spots in Row 10 - Row14A

Appendix C

Three Year Budget Projection

EAST SABINE LAKE HR/ CS-32 / PPL 10

Three-Year Operations & Maintenance Budgets 07/01/2013 - 06/30/2016

Project Manager	O & M Manager	Federal Sponsor	Prepared By
Pat Landry	*Jody White*	*USFWS*	*Jody White*

	2013/2014 (-4)	2014/2015 (-5)	2015/2016 (-6)
Maintenance Inspection	$ 6,457.00	$ 6,651.00	$ 6,851.00
Structure Operation			
State Administration		$ -	$ -
Federal Administration		$ -	$ -
Maintenance/Rehabilitation			

13/14 Description:

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

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 (-4)	2014/2015 (-5)	2015/2016 (-6)
Total O&M Budgets	**$ 6,457.00**	**$ 6,651.00**	**$ 6,851.00**

O &M Budget (3 yr Total)	**$ 19,959.00**
Unexpended O & M Budget	**$ 236,072.00**
Remaining O & M Budget (Projected)	**$ 216,113.00**

Appendix D

Field Inspection Form

Annual Inspection Report
EAST SABINE LAKE HR
State Project No. CS-32

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name:CS-32 East Sabine Lake HR

Structure No.

Structure Description: Rock Dike, Terraces, Culverts, Rock Weir

Type of Inspection: Annual

Date of Inspection: 10-11-2012 Time: 10:50am
Inspector(s): Jody White, Dion Broussard and Mike Miller (CPRA)
Dale Garber, Cindy Steyer, and Mitchell Mouton (NRCS)
Dan Greenwell (USFWS)
Water Level Inside: Outside:
Salinity Levels: S01- 5.3ppt, S02- 4.9ppt, S03- 4.5ppt, S04- 6.8ppt
Weather Conditions: Clear and Mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Bridge Bayou Culverts	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				
Pines Ridge Weir	N/A				
Signage /Supports	N/A				
Foreshore Rock Dike	N/A				
Earthen Terraces	Good			#1 - 8	Vegetative Cover was estimated at 90% coverage with some bare segments. Narrowing and settling of some terraces have taken place, but overall good condition.

What are the conditions of the existing levees?	N/A
Are there any noticeable breaches?	N/A
Settlement of rock plugs and rock weirs?	N/A
Position of stoplogs at the time of the inspection?	N/A
Are there any signs of vandalism?	No