State of Louisiana
Office of Coastal Protection and Restoration
Operations Division

2011 Annual Inspection Report

for

DELTA MANAGEMENT AT FORT ST. PHILIP (BS-11)

State Project Number BS-11
Priority Project List PPL-10

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Plaquemines Parish

Prepared by:

Thomas L. Bernard, P.E., Kyle Breaux, E.I.
CPRA, Operations Division
New Orleans Regional Office
CERM, Suit 309
2045 Lakeshore Dr.
New Orleans, La 70122

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I. Introduction

Delta Management at Fort St. Philip (BS-11) 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. The Delta Management at Fort St. Philip Project was approved on the tenth (10^{th}) Priority Project List.

The project area is located within two separate areas, both in Plaquemines Parish, La, across the river from Fort Jackson at River Mile 19.5 AHP. The western-most area (Area 1), north of Fort St. Philip in Bay Denesse, consists of three (3) crevasses and 19,500 linear feet of terraces. The other area (Area 2), approximately 4.5 mile east of Area 1 near Little Coquille Bay, consists of three (3) crevasses. Both areas are fed by over-bank flow from the Lower Mississippi River.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Delta Management at Fort St. Philip Project (BS-11) is to evaluate the constructed project features and identify any deficiencies in a detailed annual report. Any recommended corrective actions are listed as conclusions in the report. Should corrective actions be reported, CPRA will provide a detailed cost estimate for engineering, design, supervision, inspection, construction contingencies, and an assessment of the urgency of such repairs (O&M Plan May 13, 2007). The annual inspection report also contains a summary of maintenance projects and an estimated projected budget for operation, maintenance and rehabilitation for the upcoming three (3) years. The three (3) year projected operation and maintenance budget is shown in Appendix C. The summary of any past maintenance projects since completion of the initial construction of the Delta Management at Fort St. Philip Project in 2006 will be outlined in Section IV.

This annual inspection of the Delta Management at Fort St. Philip Project (BS-11) was held on August 24, 2011. Skies were cloudy with an isolated thunderstorm delaying the inspection for one hour. Winds were SW at 3-5 mph. At 8:00 AM the Mississippi River Gage at the Venice, La. station recorded +3.09 feet NAVD 88. Tom Bernard and Kyle Breaux of CPRA were in attendance. The team used an 18 foot tunnel boat for inspection. Photographs of the inspection are included in Appendix B.

III. Project Description and History

This project was constructed in two areas on the east side of the Mississippi River near Fort St. Philip, across from Fort Jackson. Area 1 consists of 174 acres of emergent marsh and 678 acres of open water. Area 2 contains three triangular-shaped sections that consist of 126 acres of emergent marsh and 327 acres of open water. This project's objective is to enhance marsh growth by diverting fresh, sediment-laden water through dredged crevasses into shallow, open-water receiving areas. Earthen terraces were constructed in Area 1 to trap sediments and promote marsh-building processes, thereby, offsetting land loss.

The project has a twenty-year (20 year) economic life, which began in 2006.

The principal project features include:

- Terraces: 98 terraces, 200 ft. in length, 10 ft. crown width, 52 ft. base width
- Crevasse 1A: 2000 ft. x 75 ft. x -8.0 ft. NAVD 88
- Crevasse 1B: 400 ft. x 75 ft. x -6.0 ft. NAVD 88
- Crevasse 1C: 700 ft. x 75 ft. x -6.0 ft. NAVD 88
- Crevasse Alt.2A: 732 ft. x 75 ft. x -8.0 ft. NAVD 88
- Crevasse 2B: 500 ft. x 75 ft. x -6.0 ft. NAVD 88
- Crevasse 2C: 2000 ft. x 75 ft. x -6.0 ft. NAVD 88

A. Terraces – *Project Area 1*.

- 98 terraces, each 200 ft. in length, with a crown width of 10 ft., tapering at a slope of 1 vertical to 6 horizontal to a base width of 52 ft.
- 50 ft. separation between ends of each terrace.
- Terraces were built to an initial elevation of +3.5 ft. NAVD 88, with a target settled elevation of +3.0 ft. NAVD 88.
- Aggregate length of constructed terraces is 19,500 linear ft.
- Minimum distance to shoreline was 50 ft. and minimum pipeline clearance was 50 ft. Within these constraints, the locations of individual terraces were left to the discretion of the construction manager. In order to maintain the minimum clearance from the existing pipelines, three of the terraces were scaled down a total of 100 ft.

Note: *Terraces are not subject to maintenance or rehabilitation* under the Cost Sharing Agreement or permits. The above information is provided as a record of post-construction conditions. CPRA will monitor terrace condition during the 20-year life time.

Vegetative plantings on the terraces were contracted out separately from the construction contract and *are not subject to maintenance or rehabilitation* by CPRA or USFWS.

B. Crevasse 1A – *Project Area 1*. 2000 ft. long x 75 ft. base width x -8.0 ft. NAVD 88. Marsh elevation was assumed to be +1.5 ft. NAVD 88. The crevasse, dredged from the center of the channel, passes through a reference point defined by the pre-construction shoreline (X = 3,875,963.63 ft., Y = 322,516.09 ft. NAD 83), and extends along a bearing of N47^{o}W. Dredge material was placed between 25-175 feet on either side of the crevasse to a maximum elevation of +5.0 ft. NAVD 88.

C. Crevasse 1B – *Project Area 1*. 400 ft. long x 75 ft. base width x -6.0 ft. NAVD 88. Marsh elevation was assumed to be +1.5 ft. NAVD 88. The crevasse, dredged from the center of the channel, passes through a reference

point defined by the pre-construction shoreline (X = 3,875,557.544 ft., Y = 320,705.6253 ft. NAD 83), and extends along a bearing of N22^{o}W. Dredge material was placed between 25-175 feet on either side of the crevasse to a maximum elevation of +5.0 ft. NAVD 88.

D. **Crevasse 1C –** *Project Area 1*. 700 ft. long x 75 ft. base width x -6.0 ft. NAVD 88. Marsh elevation was assumed to be +1.5 ft. NAVD 88. The crevasse, dredged from the center of the channel, passes through a reference point defined by the pre-construction shoreline (X = 3,873,382.42 ft., Y = 320,246.83 ft. NAD 83), and extends along a bearing of S77^{o}W. Dredge material was placed between 25-175 feet on either side of the crevasse to a maximum elevation of +5.0 ft. NAVD 88.

D. **Crevasse Alt. 2A –** *Project Area 2*. 732 ft. long x 75 ft. base width x -8.0 ft. NAVD 88. Marsh elevation was assumed to be +1.5 ft. NAVD 88. The crevasse, dredged from the center of the channel, passes through a reference point defined by the pre-construction shoreline (X = 3,891,269.92 ft., Y = 322,243.99 ft. NAD 83), and extends along a bearing of N50^{o}E. Dredge material was placed between 25-175 feet on either side of the crevasse.

F. **Crevasse 2B –** *Project Area 2*. 500 ft. long x 75 ft. base width x -6.0 ft. NAVD 88. Marsh elevation was assumed to be +1.5 ft. NAVD 88. The crevasse, dredged from the center of the channel, passes through a reference point defined by the pre-construction shoreline (X = 3,888,519.61 ft., Y = 320,569.13 ft. NAD 83), and extends along a bearing of S69^{o}E. Dredge material was placed within 175 ft. no closer than 25 ft. on either side of the crevasse to a maximum elevation of +5.0 ft. NAVD 88.

G. **Crevasse 2C –** *Project Area 2*. 2000 ft. long x 75 ft. base width x -6.0 ft. NAVD 88. Marsh elevation was assumed to be +1.5 ft. NAVD 88. The crevasse, dredged from the center of the channel, passes through a reference point defined by the pre-construction shoreline (X = 3,891,138.38 ft., Y = 321,807.44 ft. NAD 83), and extends along a bearing of S77^{o}E. Dredge material was placed between 25-175 feet on either side of the crevasse to a maximum elevation of +5.0 ft. NAVD 88.

Project features covered by this inspection are identified as the Delta Management at Fort St. Philip Project (BS-11). The goal of each annual inspection is to ensure that the project is delivering the anticipated benefits. Project maintenance is not required beyond the 20-year economic life; except that it is not left as a hazard to navigation or a detriment to the environment. A site map in Attachment II shows the project boundary and labels all project features of the Delta Management at Fort St. Philip.

IV. Summary of Past Maintenance Projects

There has been no past maintenance on this project (BS-11)

V. Inspection Results Dredged Crevasses

(See Appendix B for Project Photos)

A. Terraces: Terraces built on the north side with soft, unsuitable material have developed some washout areas in their perimeter. Their original constructed elevations remain unchanged. Vegetation densely covers each terrace. Flow is evident through the terrace field.

B. Crevasse No. 1A: This crevasse is the longest of all, and funnels river water directly into Bay Denesse/terrace field. Currents through this crevasse were swift and appeared to be carrying plenty of river sediment. Soundings showed that depth is maintained throughout the length of the crevasse. The crevasse spoil was well vegetated.

C. Crevasse No. 1B: This crevasse, which is the shortest of all, feeds a small area of marsh. Alluvial deposits from the most recent river floods are visible above the water line in three quarters of this channel. The channel outfall is heavily vegetated.

D. Crevasse No. 1C: Flow is maintained within the channel. Soundings show that water depth remains consistent with constructed depths. The channel outfall shows emergent vegetation, active with wildlife.

E. Crevasse No. Alt. 2A: Flow is maintained within the channel. The channel is wide open and has poorly defined banks. Grass growth along the right bank is evidence of some sediment deposition. The channel maintains its designed depth.

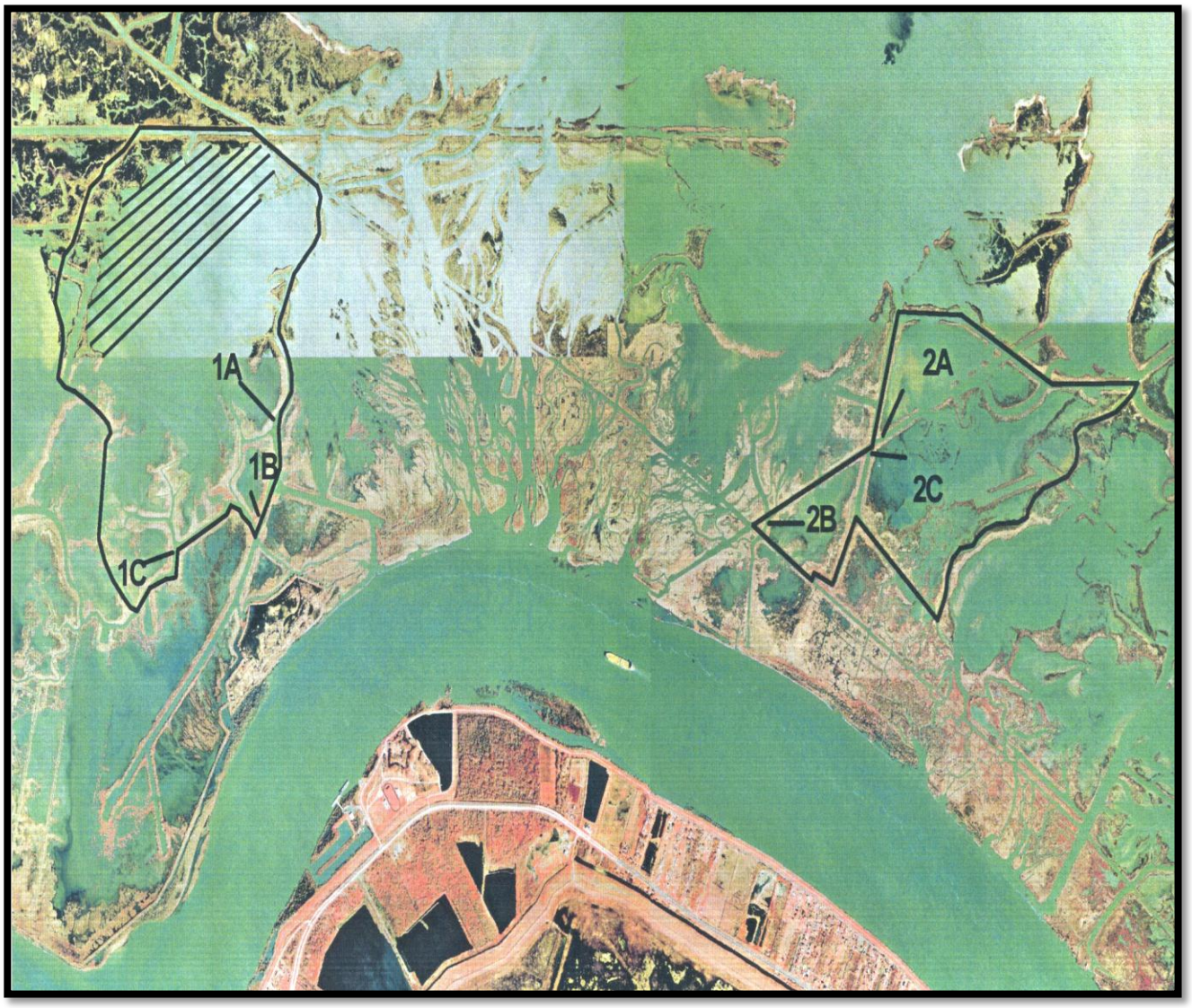
F. Crevasse No. 2B: Flow is maintained within the channel. Sporadic vegetated islands are emerging within the receiving bay. The channel maintains its designed depth.

G. Crevasse No. 2C: Flow is maintained within the channel. The channel is wide open and has poorly defined banks. Grass growth along the right bank is evidence of some sediment deposition. The channel maintains its designed depth.

VI. Conclusions and Recommendations

As a result of the inspection, the inspection team concluded that all project features are functioning as designed. The operations and monitoring teams will be submitting a scope of services for surveying of select locations within the project boundaries. Proposed work includes surveying all six (6) crevasses and two (2) receiving bays at Crevasses 1A and Alt. 2A – the terrace field and a receiving bay.

Appendix A
Project Features Map


1A
1B
1C
2A
2B
2C

Appendix B
Photographs

Terrace Field in Bay Denesse Looking South (2010 Stock Photo)

Terrace Field in Bay Denesse Looking West (2010 Stock Photo)

Channel 1-A exiting into the Terrace Field in Bay Denesse

Terrace Field in Bay Denesse

Crevasses 1-B Channel shoaling

Crevasse 2-A Channel with vegetated spoil bank

Crevasse 2-B Channel outlet, interior marsh growth.

Crevasse 2-C Interior marsh growth

Appendix C
Three-Year Operation & Maintenance Budget

2011 Annual Inspection Report
DELTA MANAGEENT AT FORT ST. PHILIP
State Project No. BS-11

Delta Management at Fort St. Phillip (BS-11)
Federal Sponsor: USFWS
Construction Completed : November 20, 2006

																				OCPR Project	CWPPRA Allocated Money
Current Approved O&M Budget	Year - 0	Year - 1	Year -2	Year -3	Year -4	*Year -5*	*Year -6*	*Year -7*	Year -8	Year -9	Year -10	Year -11	Year -12	Year -13	Year -14	Year -15	Year -16	Year - 17	Year -18	Year -19	Project Life	Currently Funded (Sum YR 0 to YR 19)
June 2011	FY07	FY08	FY09	FY10	FY11	*FY12*	*FY13*	*FY14*	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Budget	
State O&M	$4,500	$4,617	$4,737	$4,860	$209,909	$5,116	$5,249	$5,386	$5,526	$245,546	$5,817	$5,968	$6,123	$6,282	$287,238	$6,613	$6,785	$6,962	$7,143	$7,328	$841,706	$841,706
Corps Admin																					$20,039	$20,039
Federal S&A																					$0	$0
Total																					$861,745	$861,745

Projected O&M Expenditures																					Remaining Project Life	***Current 3 year Request (FY12,***
Maintenance Inspection						$5,116	$5,249	$5,386													$15,751	$0
General Maintenance																					$0	$0
Structure Operation																					$0	$0
Federal S&A																					$0	$0
State S&A																					$0	$0
E&D																					$0	$0
Surveys																					$0	$0
Construction																					$0	$0
Construction Oversight																					$0	$0
Total						$5,116	$5,249	$5,386	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,751	$0

Total O&M Expenditures from COE Report (Inception t	$4,197.62	From 5/23/11
State O&M Expenditures not submitted for in-kind cre	$0	
Federal Sponsor MIPRs (if applicable)	$0	
Total Estimated O&M Expenditures (as of May 2011)	**$4,197.62**	

Current O&M Budget less COE Admin *(State O&M Currently Funded + Fed S&A Currently Funded)*	$841,706	
Remaining Available O&M Budget *(Current O&M - Total Est. O&M Expenditures)*	$837,508	
Incremental Funding Request Amount FY12-FY14	**$ (837,508.36)**	3 year surplus

Current Project Life Budget less COE Admin *(State O&M Porject Life Budget + Fed S&A Project Life Budge*	$841,706
Total Projected Project Life Budget *(Remaining Project Life + Total Estimated O&M Expenditures,*	$19,949
Project Life Budget Request Amount	**-$821,757**

Appendix D
Field Inspection Form

FIELD INSPECTION CHECK SHEET

Project No. / Name:	Delta Mgt. at Ft. St. Phillip, BS-11	Date of Inspection:	August 24, 2011 Time: 10:00 AM
Crevasse No.	**See Report Section III**	Inspector(s):	OCPR: Tom Bernard & Kyle Breaux
Crev. / Terr. Specs.	See Report Section III	Water Level:	3.09' NAVD 88 at Venice, La. Time: 8:00 AM
Type of Inspection:	2011 Annual Inspection	Weather Conditions:	Cloudy/Isolated T-storm, Wind SSW @ 5 mph

Item	Condition	Physical Damage	Dimensions	Photo	Observations and Remarks
Crevasse # 1A	Excellent	None	2,000 ft X 75 ft by 8.0' NAVD 88	Appendix B	This crevasse is the longest of all, and funnels river water directly to the terraces in Bay Denesse. Currents through this crevasse remain swift. Soundings indicate that crevasse has gotten deeper (~10'). The crevasse spoil is densely vegetated.
Crevasse # 1B	Poor	None	400 ft X 75 ft by 6.0' NAVD 88	Appendix B	This crevasse, which is the shortest of all, feeds a small area of marsh. Currents through this cut were light. A shallow
Crevasse # 1C	Very Good	None	700 ft X 75 ft by 6.0' NAVD 88		Flow is maintained through this crevasse. Soundings indicate that has maintained its design depth. Dredge spoil from the crevasse has vegetated nicely.
Crevasse # Alt. 2A	Excellent	None	732 ft X 75 ft by 8.0' NAVD 88	Appendix B	Flow is maintained through this crevasse. The channel is very wide with poorly defined banks. Soundings show that the inlet of the crevasse is still approximately one foot shallower than its constructed depth.
Crevasse # 2B	Very Good	None	500 ft X 75 ft by 6.0' NAVD 88	Appendix B	Currents are moderate through this crevasse. Soundings also show that this crevasse has maintained its original depth throughout. Sporadic vegetated islands have formed in the receiving bay.
Crevasse # 2C	Good	None	2,000 ft X 75 ft by 6.0' NAVD 88	Appendix B	It has maintained its constructed depth throughout its length. The spoil form the crevasse escavation has dense vegetation. The chanel is becoming shallow along the poorly-defined right bank.
Terraces	Excellent	None	98 Terraces Length 200 ft. Width 52 ft. Height 3.5 ft. Total Length= 19,500 Lin. Ft.	Appendix B	Channel 1-A has a strong flow into the terrace field. There are terraces that were built on the north side with soft / unsuitable material that have developed some washout areas in their perimeter; however, most of the terraces are in excellent condition. Terrace heights above the bay indicated that they had maintained their original elevations.