



Coastal Protection and  
Restoration Authority of Louisiana

**State of Louisiana  
Office of Coastal Protection and  
Restoration  
Operations Division**

## **2012 Annual Inspection Report**

for

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

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

August 7, 2012  
Plaquemines Parish

Prepared by:

Kyle Breaux, E.I.  
CPRA, Operations Division  
New Orleans Regional Office  
CERM, Suite 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<sup>th</sup>) 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 Densse, 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 May 22<sup>nd</sup>, 2012. Skies were clear; winds were out of the WNW at 5 mph. At 8:00 AM the Mississippi River Gage at the Venice, La. station recorded +2.39 feet NAVD 88. Melissa Hymel and Kyle Breaux of CPRA, and Kevin Roy of USFWS were in attendance. The team used a 15 foot airboat 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°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°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°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°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°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°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 northeastern side with soft, unsuitable material have developed some washout areas within some terraces. The terraces on the southern end – at the end of crevasse 1A – are degrading due to their placement as the front row of the terrace field. Their original constructed elevations have slightly decreased. Vegetation densely covers each terrace.
- B. Crevasse No. 1A: This crevasse is the longest of all, and funnels river water directly into the Bay Denesse terrace field. Currents through this crevasse were swift and appeared to be carrying plenty of river sediment. The November 2011 survey indicates that this crevasse has deepened since construction.
- C. Crevasse No. 1B: This crevasse, which is the shortest of all, feeds a small area of marsh. Grasses have sprouted on the island formed in the crevasse after the 2011 high river event. Mudflats within the receiving bay are visible above the water surface.
- D. Crevasse No. 1C: The 2011 survey indicates this crevasse has begun infilling. The channel outfall shows emergent vegetation, active with wildlife.
- E. Crevasse No. Alt. 2A: Flow is maintained within the channel. The channel has begun infilling. The SAV blooms throughout the receiving area are evidence of sediment deposits filling in the bay.
- F. Crevasse No. 2B: Flow is maintained within the channel. Sporadic vegetated islands are emerging within the receiving bay. The channel has begun filling in; the deepest part of the channel runs along the northern bank.
- G. Crevasse No. 2C: The channel has begun infilling, but flow is maintained within the channel. As more sediment gets deposited, grass growth is becoming more visible throughout much of the receiving bay.

#### **VI. Conclusions and Recommendations**

As a result of the inspection, the inspection team concluded that maintenance dredging of the crevasses should be considered to keep the project functioning as designed. Surveys from November of 2011 of the crevasses indicate that shoaling is occurring within the crevasses. The operations and monitoring teams will be submitting a cost estimate for maintenance dredging of all six crevasses. Alternatives will be discussed in which some crevasses will be eliminated from further maintenance.

**Appendix A**  
**Project Features Map**



## **Appendix B Photographs**



**Terrace Field (12/08/2011)**



**Terrace Field in Bay Dénesse Looking West (2010 Stock Photo)**



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



**Terrace Field in Bay Denesse**



**Crevasse 1-B Channel shoaling**



**Crevasse 1-C**



**Crevasse Alt 2-A Channel with vegetated spoil bank**



**Crevasse 2-B Channel outlet, interior marsh growth.**



**Crevasse 2-C Interior marsh growth**



**Crevasse 2-C Interior marsh growth**



**Terrace Field (12/08/2011)**



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



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



**Terrace Field in Bay Denesse**



**Crevasse 1-B Channel shoaling**



**Crevasse 1-C**



**Crevasse Alt 2-A Channel with vegetated spoil bank**



**Crevasse 2-B Channel outlet, interior marsh growth.**



**Crevasse 2-C Interior marsh growth**



**Crevasse 2-C Interior marsh growth**

**Appendix C**  
**Three-Year Operation & Maintenance Budget**

																				OCPR Project	CWPPRA Allocated		
<b>Current Approved O&amp;M Budget</b>																				Project Life Budget	Currently Funded (Sum YR 0 to 19)		
June 2011	Year - 0 FY07	Year - 1 FY08	Year -2 FY09	Year -3 FY10	Year -4 FY11	Year -5 FY12	Year -6 FY13	Year -7 FY14	Year -8 FY15	Year -9 FY16	Year -10 FY17	Year -11 FY18	Year -12 FY19	Year -13 FY20	Year -14 FY21	Year -15 FY22	Year -16 FY23	Year - 17 FY24	Year -18 FY25	Year -19 FY26	Budget		
State O&M	\$4,500	\$4,617	\$4,737	\$4,860	\$209,909	\$5,116	\$5,249	\$5,386	\$5,526	\$5,666	\$5,817	\$5,968	\$6,123	\$6,282	\$287,238	\$6,613	\$6,785	\$6,962	\$7,143	\$7,328	\$601,826	\$601,826	
Corps Admin																					\$20,039	\$20,039	
Federal S&A																					\$0	\$0	
<b>Total</b>																					<b>\$621,865</b>	<b>\$621,865</b>	
<b>Projected O&amp;M Expenditures</b>																				Remaining Project Life	<b>Current 3 year Request (FY12-FY14)</b>		
Maintenance Inspection	\$4,500	\$4,617	\$4,737	\$4,860	\$209,909	\$5,116	\$5,249	\$5,386	\$5,526	\$5,666	\$5,817										\$261,383	\$16,133	
General Maintenance																					\$0	\$0	
Structure Operation																					\$0	\$0	
Federal S&A																					\$0	\$0	
State S&A																					\$0	\$0	
E&D									\$15,000												\$15,000	\$15,000	
Surveys						\$31,058			\$25,000												\$25,000	\$25,000	
Construction									\$400,000												\$400,000	\$400,000	
Construction Oversight									\$5,500												\$5,500	\$5,500	
<b>Total</b>						\$36,175	\$5,249	\$5,386	\$451,026	\$5,666	\$5,817	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$706,883	\$461,633	
Total O&M Expenditures from COE Report (Inception to present)				\$8,421.48	From Lana Report				<b>Current O&amp;M Budget less COE Admin</b> <i>(State O&amp;M Currently Funded + Fed S&amp;A Currently Funded)</i>								\$601,826	Current Project Life Budget less COE Admin <i>(State O&amp;M Porject Life Budget + Fed S&amp;A Project Life Budget)</i>				\$601,826	
State O&M Expenditures not submitted for in-kind credit				\$0					<b>Remaining Available O&amp;M Budget</b> <i>(Current O&amp;M - Total Est. O&amp;M Expenditures)</i>								\$593,405	Total Projected Project Life Budget <i>(Remaining Project Life + Total Estimated O&amp;M Expenditures)</i>				\$715,331	
<b>Total Estimated O&amp;M Expenditures (as of May 2011)</b>				<b>\$8,421.48</b>					<b>Incremental Funding Request Amount FY12-FY14</b>								<b>\$ (131,744.09)</b>	Negative = surplus				<b>Project Life Budget Request Amount</b>	<b>\$113,405</b>

## Appendix D Field Inspection Form

FIELD INSPECTION CHECK SHEET					
Project No. / Name: <u>Delta Mgt. at Ft. St. Phillip, BS-11</u>		Date of Inspection: <u>May 22, 2012</u> Time: <u>10:00 AM</u>			
Crevasse No. <u>See Report Section III</u>		Inspector(s): <u>CPRA: Kyle Breaux, Melissa Hymel USFWS: Kevin Roy</u>			
Crev. / Terr. Specs. <u>See Report Section III</u>		Water Level: <u>2.39' NAVD 88 at Venice, La.</u> Time: <u>8:00 AM</u>			
Type of Inspection: <u>2012 Annual Inspection</u>		Weather Conditions: <u>Sunny, Wind WNW @ 5 mph</u>			
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 into the Bay Denesse terrace field. Currents through this crevasse were swift and appeared to be carrying plenty of river sediment. The November 2011 survey indicates that this crevasse has deepened since construction.
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. Grasses have sprouted on the island formed in the crevasse after the 2011 high river event. Mudflats within the receiving bay are visible above the water surface.
Crevasse # 1C	Good	None	700 ft X 75 ft by 6.0' NAVD 88		The 2011 survey indicates this crevasse has begun infilling. The channel outfall shows emergent vegetation, active with wildlife.
Crevasse # Alt. 2A	Excellent	None	732 ft X 75 ft by 8.0' NAVD 88	Appendix B	Flow is maintained within the channel. The channel has begun infilling. The SAV blooms throughout the receiving area are evidence of sediment deposits filling in the bay.
Crevasse # 2B	Good	None	500 ft X 75 ft by 6.0' NAVD 88	Appendix B	Flow is maintained within the channel. Sporadic vegetated islands are emerging within the receiving bay. The channel has begun filling in; the deepest part of the channel runs along the northern bank.
Crevasse # 2C	Good	None	2,000 ft X 75 ft by 6.0' NAVD 88	Appendix B	The channel has begun infilling, but flow is maintained within the channel. As more sediment gets deposited, grass growth is becoming more visible throughout much of the receiving bay.
Terraces	Very Good	None	<u>98 Terraces</u> Length 200 ft. Width 52 ft. Height 3.5 ft. Total Length= 19,500 Lin. Ft.	Appendix B	Terraces built on the northeastern side with soft, unsuitable material have developed some washout areas within some terraces. The terraces on the southern end – at the end of crevasse 1A – are degrading due to their placement as the front row of the terrace field. Their original constructed elevations have slightly decreased. Vegetation densely covers each terrace.