



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

**2014 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

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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 BS-11 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 Dennesse, consists of three (3) crevasses and 19,500 linear feet of terraces. The other area (Area 2), approximately 4.5 miles 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 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 in 2006 will be outlined in Section IV.

This annual inspection was held on May 21<sup>st</sup>, 2014. Skies were clear; winds were out of the SSE at 8 mph. At 11:00 AM the Mississippi River Gage at the Venice, La. station recorded +3.15 feet NGVD29 (+1.55 feet NAVD88). Luke Prendergast, Barry Richard, and Steven Armstrong of CPRA were in attendance. The team used a 20-foot outboard-motor vessel 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.

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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 Appendix A shows the project boundary and labels all project features.

#### **IV. Summary of Past Maintenance Projects**

There has been no past maintenance on this project.

## V. **Inspection Results Dredged Crevasses** (See Appendix B for Project Photos)

- A. Terraces: Due to shallow water adjacent to the terrace field and draft limitations of the vessel, detailed inspection of the terraces was not possible. As viewed from the receiving area at the outfall of Crevasse 1A, vegetation appeared to densely cover 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 moving swiftly and appeared to be carrying a significant sediment load. 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. Channel depth was shallow, but flow was maintained. Thick growths of marsh grass were observed on the channel banks and within the receiving area beyond the channel outfall.
- D. Crevasse No. 1C: Flow was visible in the channel. Tall stands of emergent vegetation were present on both channel banks and in the receiving area, and small vegetated islands have developed near the channel outfall. Due to previously documented siltation, this crevasse is planned for inclusion in the 2014 Maintenance Project.
- E. Crevasse No. Alt. 2A: Channel banks are well-vegetated, and flow is maintained within the channel. Previous annual inspections and a 2011 survey indicate that the channel has begun infilling. Dredging is planned for this channel as part of the 2014 Maintenance Project.
- F. Crevasse No. 2B: Flow is maintained within the channel. Tall stands of vegetation lined both spoil banks, and emergent marsh growth was observed in the receiving area.
- G. Crevasse No. 2C: Channel banks and receiving area are well vegetated, and flow was maintained in the channel. Previous inspections have indicated that the channel has begun infilling; therefore this crevasse is planned for inclusion in the 2014 Maintenance Project.

## VI. **Conclusions and Recommendations**

As a result of prior annual inspections, maintenance dredging of some crevasses was recommended to keep the project functioning as designed. Surveys performed in November of 2011 indicate that shoaling is occurring within several of the channels. The CPRA Engineering Division is developing plans and specifications for maintenance dredging of Crevasses 1C, Alt. 2A, and 2c; this work is planned to begin by the end of 2014.

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





**Appendix B**  
**Photographs**



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



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



**Crevasse 1A with Terrace Field in distant background**



**Terrace Field in Bay Denesse**



**Crevasse 1B**



**Crevasse 1C**



**Crevasse Alt 2A**



**Crevasse 2B**



**Crevasse 2C**

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

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DELTA MANAGEMENT AT FORT ST. PHILIP  
State Project No. BS-11

Delta Management at Fort St. Phillip (BS-11)																					OCPR Project Estimate	CWPPRA Allocated Money
Federal Sponsor: USFWS																						
Construction Completed : November 20, 2006																						
Current Approved O&M Budget 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	Project Life Budget	Currently Funded
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	\$841,700	\$490,502
Corps Admin	\$731	\$754	\$778	\$803	\$829	\$855	\$883	\$911	\$940	\$970	\$1,001	\$1,033	\$1,066	\$1,100	\$1,136	\$1,172	\$1,210	\$1,248	\$1,288	\$2,341	\$21,051	\$10,489
Federal S&A																					\$0	\$0
<b>Total</b>																					\$862,751	\$500,991
Projected O&M Expenditures																					Remaining Project Life	Current 3 year Request (FY14, 15, 16)
Maintenance Inspection								\$5,386	\$5,526	\$5,669	\$5,817	\$5,968	\$6,123	\$6,282	\$6,446	\$6,613	\$6,785	\$6,962	\$7,143	\$7,328	\$82,049	\$17,012
General Maintenance									\$464,331												\$464,331	\$464,331
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
<b>Total</b>						\$0	\$0	\$5,386	\$469,857	\$5,669	\$5,817	\$5,968	\$6,123	\$6,282	\$6,446	\$6,613	\$6,785	\$6,962	\$7,143	\$7,328	\$546,380	\$481,343
Total O&M Expenditures from COE Report (Inception to present)				\$9,110.46	From Lana Report		<b>Current O&amp;M Budget less COE Admin</b>												Current Project Life Budget less COE Admin		\$841,700	
State O&M Expenditures not submitted for in-kind credit				\$0			<i>(State O&amp;M Currently Funded + Fed S&amp;A Currently Funded)</i>												<i>(State O&amp;M Project Life Budget + Fed S&amp;A Project Life Budget)</i>			
Federal Sponsor MIPRs (if applicable) (REQUESTED MONEY)				\$0			<b>Remaining Available O&amp;M Budget</b>												Total Projected Project Life Budget		\$555,490	
<b>Total Estimated O&amp;M Expenditures (as of March 2013)</b>				<b>\$9,110.46</b>			<i>(Current O&amp;M - Total Est. O&amp;M Expenditures)</i>												<i>(Remaining Project Life + Total Estimated O&amp;M Expenditures)</i>			
<b>Incremental Funding Request Amount FY14-FY16</b>												<b>\$ (48.54)</b>								<b>Project Life Budget Request Amount</b>		<b>-\$286,210</b>



## Appendix D Field Inspection Form

FIELD INSPECTION CHECK SHEET			
Project No. / Name:	BS-11 Delta Mgmt. @ Ft. St. Philip	Date of Inspection:	5/21/2014      Time: 11:00 AM
Structure No.:	N/A	Inspector(s):	CPRA: Prendergast, Richard, Armstrong
Structure Description:	Crevasse & Terrace Field	River Stage:	3.15'      Time: 11:00 AM
Type of Inspection:	Annual	Weather Conditions:	Warm, clear w/ scattered clouds, wind SSE @ 8 mph
Item	Condition	Physical Damage	Observations and Remarks
Terrace Field	Very Good	None	Due to shallow water adjacent to the terrace field and draft limitations of the vessel, detailed inspection of the terraces was not possible. As viewed from the receiving area at the outfall of Crevasse 1A, vegetation appeared to densely cover each terrace.
Crevasse 1A	Excellent	None	This crevasse is the longest of all, and funnels river water directly into the Bay Denesse terrace field. Currents through this crevasse were moving swiftly and appeared to be carrying a significant sediment load. The November 2011 survey indicates that this crevasse has deepened since construction.
Crevasse 1B	Poor	None	This crevasse, which is the shortest of all, feeds a small area of marsh. Channel depth was shallow, but flow was maintained. Thick growths of marsh grass were observed on the channel banks and within the receiving area beyond the channel outfall.
Crevasse 1C	Good	None	Flow was visible in the channel. Tall stands of emergent vegetation were present on both channel banks and in the receiving area, and small vegetated islands have developed near the channel outfall. Due to previously documented siltation, this crevasse is planned for inclusion in the 2014 Maintenance Project.
Crevasse 2A Alt.	Good	None	Channel banks are well-vegetated, and flow is maintained within the channel. Previous annual inspections and a 2011 survey indicate that the channel has begun infilling. Dredging is planned for this channel as part of the 2014 Maintenance Project.
Crevasse 2B	Good	None	Flow is maintained within the channel. Tall stands of vegetation lined both spoil banks, and emergent marsh growth was observed in the receiving area.
Crevasse 2C	Good	None	Channel banks and receiving area are well vegetated, and flow was maintained in the channel. Previous inspections have indicated that the channel has begun infilling; therefore this crevasse is planned for inclusion in the 2014 Maintenance Project.