

State of Louisiana Coastal Protection and Restoration Authority

2019 Annual Inspection Report

for

Delta Management at Fort St. Philip (BS-11)

State Project Number BS-11 Priority Project List 10

August 23, 2019 Plaquemines Parish

Prepared by:

Ernest Blanche, E.I. Coastal Protection and Restoration Authority New Orleans Regional Office CERM, Suite 311 2045 Lakeshore Drive New Orleans, LA 70122



2019 Annual Inspection Report for Delta Management at Fort St. Philip (BS-11)

Table of Contents

I.	Introduction	1
II.	Project Description and History	1
III.	Inspection Purpose and Procedures	4
IV.	Inspection Results	4
V.	Conclusion	5
VI.	Recommendation	5

Appendices

Appendix A	Project Features Maps
Appendix B	Aerial Imagery
Appendix C	Three Year Budget Projection
Appendix D	Field Inspection Forms





I. Introduction

The Delta Management at Fort St. Philip Project (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 10th Priority Project List. The project's federal sponsor is the US Fish and Wildlife Service (USFWS), with CPRA as the local sponsor.

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 (see Appendix A). The westernmost area (Subarea 1), north of Fort St. Philip in Bay Denesse, consists of three crevasses and 19,500 linear feet of terraces. The other area (Subarea 2), approximately 4.5 miles east of Subarea 1 near Little Coquille Bay, consists of three crevasses. Both areas are fed by over-bank flow from the Lower Mississippi River.

II. Project Description and History

The BS-11 project was constructed in two locations on the east side of the Mississippi River near Fort St. Philip, across from Fort Jackson. At the time of construction, Subarea 1 consisted of 174 acres of emergent marsh and 678 acres of open water. Subarea 2 contained three triangular-shaped sections that consist of 126 acres of emergent marsh and 327 acres of open water. The project's objective is to enhance marsh growth by diverting fresh, sediment-laden water through dredged crevasses into shallow, openwater receiving areas. Earthen terraces were constructed in Subarea 1 to trap sediments and promote marsh-building processes, thereby offsetting land loss.

The project has a 20-year life which began in 2006.

The principal project features include:

- 98 terraces located in the receiving bay of Crevasse 1A
- 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 Subarea 1.
 - 98 terraces, each constructed to 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.
- The terraces were designed with a minimum distance to the marsh edge of 50 ft. and a minimum lateral pipeline clearance of 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 conditions during the 20-year lifetime.

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 Subarea 1.* 2,000 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 Subarea 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 Subarea 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.





- E. Crevasse Alt. 2A *Project Subarea 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 Subarea* 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 between 25 feet to 175 feet on either side of the crevasse to a maximum elevation of +5.0 ft. NAVD 88.
- G. Crevasse 2C *Project Subarea* 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. Two site maps in Appendix A show the project boundaries and labels all project features.

Summary of Maintenance Projects

No maintenance has been performed on BS-11 to date. In 2015, CPRA and USFWS decided that it is not feasible to perform any maintenance construction on this project. This decision was made because the original access routes over the Mississippi River USACE Olga Revetment were deemed no longer practical due to shoal conditions identified in a 2014 survey. Alternative access routes from the shallow bays to the north require flotation channel dredging as well as the acquisition of oyster leases impacted by those routes. Due to the anticipated costs and delays of oyster lease and landrights acquisitions, the project team decided to forego crevasse maintenance and not request an O&M budget increase to conduct this work. They have instead decided to adjust these funding amounts to provide additional funding for monitoring activities.





III. 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 typical annual inspection report also contains a summary of previous maintenance projects and an estimated, projected budget for maintenance for the upcoming three years. The three year projected operation and maintenance budget is shown in Appendix C.

Due to the aforementioned issues with access, an on-site visual inspection of the Delta Management at Fort St. Phillip Project (BS-11) was not held this year. Instead, CPRA and USFWS agreed that observations for the 2019 inspection would be made by viewing aerial imagery. This imagery was provided by Gulf Coast Aerial Mapping (GCAM), and taken on October 11, 2018. The images provided by GCAC were compared with 2006 Google Earth images in order to evaluate progress and impacts made by the project features. These images are included in Appendix B of this report.

IV. Inspection Results

- A. <u>Terraces</u>: As viewed from aerial imagery provided by GCAM, the terrace field appears to be intact and dense vegetation covers each terrace.
- **B.** <u>Crevasse No. 1A</u>: This crevasse appears to be funneling river water directly into the Bay Denesse terrace field.
- C. <u>Crevasse No. 1B</u>: This crevasse has infilled. The channel outfall shows colonization of emergent vegetation.
- **D.** <u>Crevasse No. 1C</u>: The crevasse remains intact. Dense growth of emergent vegetation was observed just beyond the outfall, and healthy marsh grass rings the entire perimeter of this site.
- E. <u>Crevasse No. Alt. 2A</u>: The crevasse remains intact, channel banks are well-vegetated, and significant emergent vegetation was observed in the receiving area.
- **F.** <u>Crevasse No. 2B</u>: The crevasse remains intact. Dense growth of emergent vegetation was observed in the receiving bay.
- **G.** <u>Crevasse No. 2C</u>: The crevasse appears to have begun infilling. The receiving area appears to have large areas of emergent vegetation near the crevasse outfall.





4

V. Conclusion

Although maintenance dredging was once considered for some crevasses (as mentioned in the 2014 BS-11 Annual Inspection Report), it was decided that maintenance construction for this project is not feasible as detailed in Section II of this report. Observations made from GCAM Aerial Imagery confirm that the project is achieving its goal of diverting sediment-laden water into the receiving bays and adjacent marsh.

VI. Recommendation

The recommendation from the project team is to continue annual inspection and assessment of site conditions utilizing updated aerial imagery





5

Appendix A

Project Features Maps





Appendix B Aerial Imagery (2006 & 2018)



Subarea 1 (Google Earth Aerial Imagery from 2006)



Subarea 1 (GCAM Aerial Imagery from 2018)



Subarea 2 (Google Earth Aerial Imagery from 2006)



Subarea 2 (GCAM Aerial Imagery from 2018)

Appendix C

Three Year Budget Projection

Delta Management at Fort St.	Phillip (BS-:	11)																				
Federal Sponsor: USFWS																						
Construction Completed : Novemb	ber 20, 2006																					
																					OCPR Project	CWPPRA Allocated
																					Estimate	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
June 2011	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Budget	(Sum YR 0 to YR 19)
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	\$6,038	\$6,216	\$6,453	\$6,785	\$6,962	\$7,143	\$7,328	\$560,279	\$560,279
Corps Admin																					\$20,039	\$20,039
Federal S&A																					\$0	\$0
Total																					\$580,318	\$580,318
																					Remaining	Current 3 year Request
Projected O&M Expenditures																					Project Life	(FY12, 13, 14)
Maintenance Inspection														\$6,038	\$6,216	\$6,453					\$18,707	\$0
General Maintenance																					\$0	\$0
Structure Operation																			L		\$0	\$0
Federal S&A																			L		\$0	\$0
State S&A																			L		\$0	\$0
E&D																					\$0	\$0
Surveys																			L		\$0	\$0
Construction																			L		\$0	\$0
Construction Oversight																					\$0	\$0
Total									\$0	\$0	\$0	\$0	\$0	\$6,038	\$6,216	\$6,453	\$0	\$0	\$0	\$(\$18,707	\$0
Total O&M Expenditures from COE Report (Inception to present) \$4,197.62 From 5/23/11		.1	Current O&M Budget less COE Admin					\$560.279				Current Project Life Budget less COE Admin				\$560,279						
State O&M Expenditures not subm	nitted for in-	kind credit		\$0			(State O&M Currently Funded + Fed S&A Currently Funded)					led)	+				(State O&M Porject Life Budget + Fed S&A Project Life Budget)			+		
Federal Sponsor MIPRs (if applicable) (REQUESTED MONEY)				Remaining Available O&M Budget						\$556.081				Total Projected Project Life Budget				\$22.905				
Total Estimated O&M Expenditures (as of May 2011)			\$4,197.62	\$4,197.62 (Current O&M - Total Est. O&M Expenditures))		\$556,661				(Remaining Project Life + Total Estimated O&M Expe				M Expenditures)	s) \$22,503		
Incremental Funding Request Amount FY12-F				FY14		\$ (556,081.40) Unexpended				Project Life Budget Request Amount			nount		-\$537,374							

Appendix D

Field Inspection Forms

			FIELD INSPECTION CHECK SHEET						
Project No. / Name:	BS-11 Delta M	gmt. @ Ft. St. Philip	Date of Inspection:	8/19/2019	Time:	N/A			
Structure No.:		Area 1	Inspector(s):	Ernest Blan	ry from GCAM)				
Structure Description:	Crevasses	& Terrace Field	River Stage:	N/A	Time:	N/A			
Type of Inspection:	<i>F</i>	Annual	Weather Conditions:						
Item	Condition	Physical Damage	Ob	servations and R	emarks				
Terrace Field	Good	None	Terrace seems to be preserved and vegetation covers the terrace field.						
Crevasse 1A	Excellent	None	Crevasse clearly remains intact and continues to carry water into the terrace field.						
Crevasse 1B	Fair	None	Crevasse has infilled; however, dense growth of emergent vegetation was observed in the rec						
Crevasse 1C	Good	None	The channel is well-vegetated. Emergent v	egetation was obs perimeter of this	erved, and healthy site	/ marsh grass rings the entire			

FIELD INSPECTION CHECK SHEET											
Project No. / Name:	BS-11 Delta Mg	gmt. @ Ft. St. Philip	Date of Inspection:	8/19/2019	Time:	N/A					
Structure No.:	ŀ	Area 2	Inspector(s):	Ernest Blan	ry from GCAM)						
Structure Description:	Cre	evasses	River Stage:	N/A	N/A						
Type of Inspection:	A	Annual	Weather Conditions:								
ltem	Condition	Physical Damage	Observations and Remarks								
Crevasse 2A Alt.	Good	None	Channel bank seems well-vegetated. Emergent vegetation was observed throughout the re-								
Crevasse 2B	Good	None	Crevasse is preserved. Dense growth of vegetation was observed throughout the receiving								
Crevasse 2C	Fair	None	Both channel banks were vegetated, l significar	but the crevasse so at growth of emerge	eems to be infilling ent vegetation.	g. Receiving area shows					