State of Louisiana
Coastal Protection and Restoration Authority

2018 Annual Inspection Report

for

DELTA WIDE CREVASSES (MR-09)

State Project Number MR-09
Priority Project List 6

December 5, 2018
Plaquemines Parish

Prepared by:

Jacinta Gisclair, P.E.
Coastal Protection and Restoration Authority
New Orleans Regional Office
CERM, Suite 309
2045 Lakeshore Drive
New Orleans, LA 70122

2018 Annual Inspection Report
for
Delta Wide Crevasses
(MR-09)

Table of Contents

Appendices

I. Introduction

Delta Wide Crevasses (MR-09) 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 Wide Crevasses Project was approved on the sixth (6th) Priority Project List and project area is located within two wildlife management/refuge areas, both in Plaquemines Parish, La. The northern half of the project is located in the Delta National Wildlife Refuge. The southern half is located in the Pass-a-Loutre State Wildlife Management Area (PALWMA).

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Delta Wide Crevasses Project (MR-09) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of the project features and recommended corrective actions. Should it be determined that corrective actions are needed, CPRA shall provide a detailed cost estimate for the following: engineering, design, supervision, inspection, construction contingencies, and an assessment of the urgency of such repairs (O&M Plan August 1, 2007). The annual inspection report also contains a summary of maintenance projects and a three (3) year projected budget for operation, maintenance, and rehabilitation. The projected operation and maintenance budget is shown in Appendix C. A summary of past maintenance projects since completion of the Delta Wide Crevasses Project in 1999 is outlined in Section IV.

This annual inspection of the Delta Wide Crevasse Project (MR-09) was held on October 29, 2018. Weather conditions were fair with winds varying from SW to NNW at 6 – 9 mph. At 0900 hours the Mississippi River Stage at Pilottown was +1.22 ft. The inspection team met at the Venice Marina and proceeded to the project area by Louisiana Department of Wildlife and Fisheries (LDWF) and U.S. Fish & Wildlife Services (USFWS) vessels. In attendance were Jacinta Gisclair, CPRA; Bryan Gossman, CPRA, Todd Baker, LDWF; Trebor Victorino, LDWF; Cornelius Williams, LDWF; Barret Fortier, USFWS; and Dawn Davis, NMFS.

III. Project Description and History

The project area is located in Plaquemines Parish, southeast of Venice, Louisiana on the active Mississippi River Delta (Appendix A). This project utilizes the major process that forms subaerial land in the lower Mississippi River Delta – the formation of crevasses. Crevasses are breaks in a levee or natural ridge that allow overbank deposition of sediments to occur in adjacent interdistributary receiving bays. This deposition of sediments causes land formation that is controlled by the processes of distributary mouth-bar islands. Coleman and Gagliano (1964) ordered the mouth-bar island process into crevasse sub-delta and crevasse-splay based on relative size. Crevasse sub-deltas consist of relatively large receiving bays that have areal extents of 115-154 sq mi. (300-400 sq km) and depths of 32-49 ft (10-15 m). The process by which these sub-deltas are formed is referred to as “bay filling” (Coleman and Gagliano 1964). Crevasse-splays are a smaller sub-unit that are distinguished from sub-deltas in that their size, frequency, and expected life spans are smaller generally having a receiving bay extent of approximately 0.234 sq mi. (0.59 sq km) (Boyer 1996).

The project consists of maintaining presently existing crevasses, the construction of new crevasses, and future maintenance of selected crevasses in both the PALWMA and the Delta National Wildlife Refuge (DNWR). The PALWMA covers 66,000 ac (26,709 ha) between Pass-A-Loutre and South Pass and is owned and managed by the LDWF. The DNWR covers 48,000 ac (19,425 ha) from just north of Main Pass southward to Pass-A-Loutre and is owned and managed by the U.S. Fish and Wildlife Service (USFWS). It is understood that the natural cycle of crevasse-splays is a temporary event that is rarely

active for more than 10 to 15 years. This process of crevasse-splay deposition, building, and subsidence will all be considered in the evaluation of this project.

The usefulness of crevasses as a tool of wetland and coastal management on the Mississippi River Delta began to be realized in the early 1980's. The Coastal Protection & Restoration Authority of Louisiana (CPRA) constructed three new crevasses in 1986 (on Pass-A-Loutre, South Pass, and Loomis Pass) that produced over 657 ac (266 ha) of emergent marsh from 1986 to 1991, and four crevasses in 1990 (two each on South Pass and Pass-A-Loutre) that produced over 400 ac (162 ha) of emergent marsh from 1990 to 1993 (LDNR 1993; Trepagnier 1994). Thirteen crevasses included in the CPRA Small Sediment Diversions Project cumulatively produced 313 ac (127 ha) of emergent marsh between 1986 and 1993; land growth rates ranged from 28 to 103 ac (11.3 to 41.7 ha) per crevasse for the older crevasses (4 to 10 years old) and 0.5 to 12 ac (0.2 to 4.9 ha) for the younger crevasses (0 to 2 years old) (LDNR 1996). Boyer et al. (1997) concluded that crevasses in the DNWR accumulated land at about 11.6 ac/yr (4.7 ha/yr), but subaerial growth did not occur for 2-3 years after the crevasses were constructed.

The project features covered by this inspection are inclusive of and are identified as the Delta Wide Crevasses (MR-09). The intention of the annual inspection was to maintain the project in a condition that will generally provide the anticipated benefits that the project was based on. There is no requirement that this project function to any standard 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 showing the project boundary within the Delta Wide Crevasses project benefit area is shown in Appendix A identifying all of the project features within the project area.

IV. Summary of Past Maintenance Projects

General Maintenance: Below is a summary of completed maintenance project:

Originally dredged in 1999, crevasses No. 9, 11, and 12 in the PALWMA had completely silted in and did not function as originally intended. The second phase of construction took place in 2005. This dredging contract re-dredged those three crevasses to their original design dimensions and dredged two new crevasses in the same area. Those were NC-1 and NC-3. Also constructed in this second phase of construction contract was crevasse No. 81, which is located on Baptiste Collette in the Delta Wildlife Management Area.

CPRA, NOAA, LDWF, and USFWS met in May of 2012 to discuss locations of new crevasses as well as clean-outs. It was also recommended that the project not return to Baptiste Collette to either maintain or dredge new crevasses – alternate sites can be found in the Pass-A-Loutre area. The strong current and high sediment load funneled through Baptiste Collette shoaled these crevasses within the first high water period after dredging rendering them inefficient for the long term (5-years plus).

For the 2013 Maintenance Project, new or existing sites were recommended to be dredged or cleaned out in the PALWMA and the DNWR. As a result, the new or existing dredge sites, located on Main Pass (MP-1, MP-3), Octave Pass (OP-4, OP-5), Pass-A-Loutre (Sawdust Bend), South Pass, and Johnson Pass were dredged by a CPRA contractor from March 5, 2014 through demobilization on June 10, 2014.

See Appendix A for locations of the maintenance sites.

V. Inspection Results of Crevasses Dredged in 2014 as part of the 2013 Maintenance Project. (See Appendix "B" for Project Photos)

A. Crevasse No. MP-1 (dredged): (1,000 ft. X 100 ft. X -10.0 ft. NAVD 88 as constructed) This crevasse is located on Main Pass at N29 deg 15 min 40.9 sec; W 089deg 13 sec 52.5 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked sounding of 4' appeared to retain some of its originally dredged depth and was adequate to continue carrying sediment to the receiving area.

B. Crevasse No. MP-3 (dredged): (1,000 ft. X 100 ft. X -10.0 ft. NAVD 88 as constructed) This crevasse is located on Main Pass at N29 deg 14 min 29.8 sec; W 089 deg 14 sec 19.6 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 6' to 7' near the mouth and 4' thereafter, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.

C. Crevasse OP-4 (dredged): (400 ft. X 100 ft. X -8.0 ft. NAVD 88 as constructed) This crevasse is located on Octave Pass at N29 deg 12 min 18.7 sec; W 089 deg 14 sec 0.3 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 4', appeared to retain some of its originally dredged depth and was adequate to continue carrying sediment to the receiving area.

D. Crevasse OP-5 (dredged): (840 ft. X 100 ft. X -8.0 ft. NAVD 88 as constructed) This crevasse is located on Octave Pass at N29 deg 12 min 4.4 sec; W 089 deg 15 sec 2.5 min. The spoil areas on each bank were well vegetated. The depth, although not sounded, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.

E. Johnson Pass Crevasse (Maintenance Dredged): (1,200 ft. X 75 ft. X -8.0 ft. NAVD 88 as constructed) This existing crevasse is located on Johnson Pass at N29 deg 7 min 36.3 sec; W 089 deg 12 sec 30.1 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 8', appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.

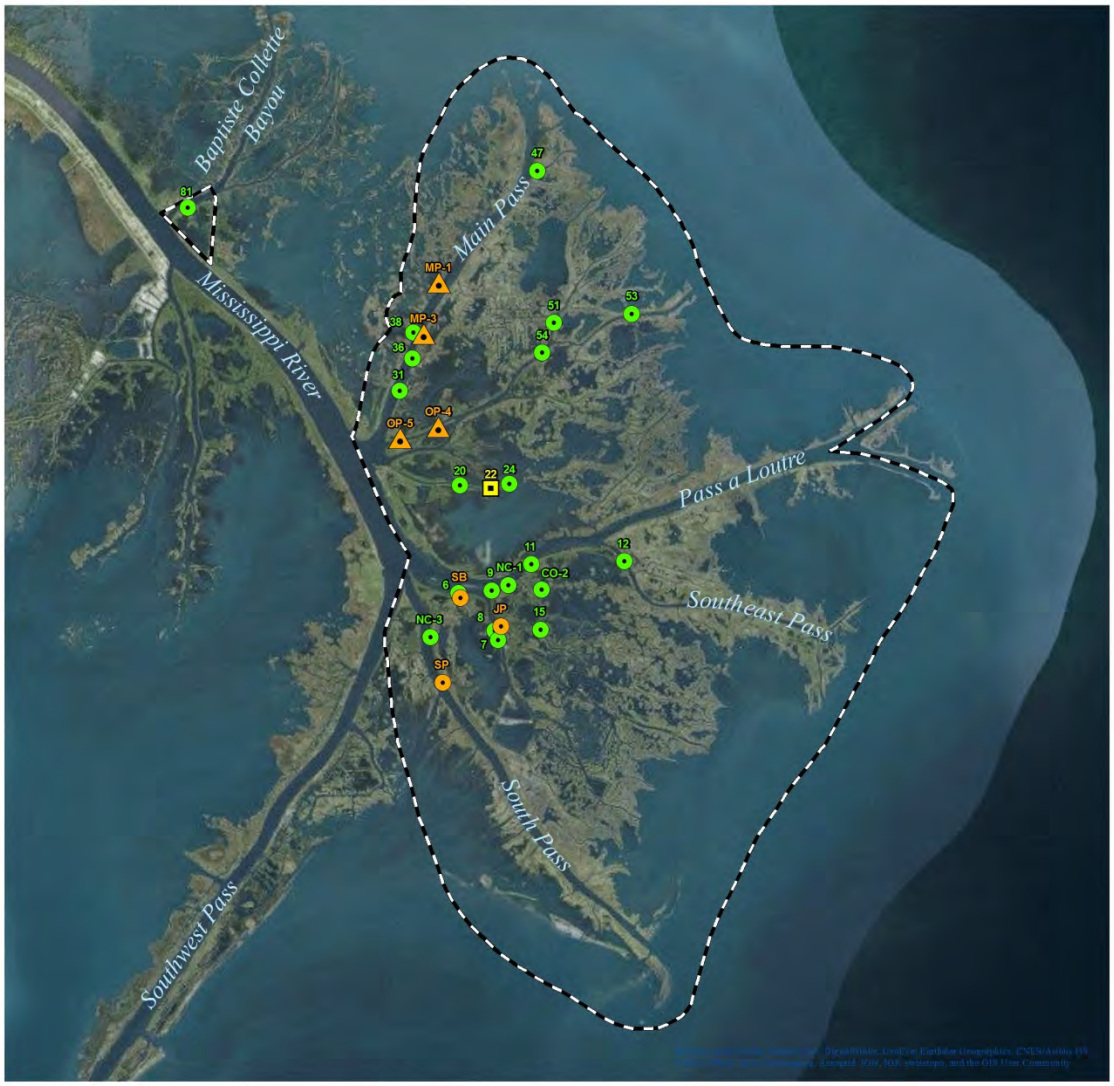
F. Sawdust Bend Crevasse (Maintenance Dredged): (1,550 ft. X 75 ft. X -8.0 ft. NAVD 88 as constructed) This existing crevasse is located on Sawdust Bend at N29 deg 8 min 17.8 sec; W 089 deg 13 sec 33.3 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 5' near the mouth and 6' to 7' thereafter, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.

G. South Pass Crevasse (Maintenance Dredged): (1,000 ft. X 100 ft. X -8.0 ft. NAVD 88 as constructed) This existing crevasse is located on South Pass at N29 deg 6 min 20.2 sec; W 089 deg 14 sec 5.9 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 5' to 7' near the mouth and 6' to 7' thereafter, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.

VI. Conclusions and Recommendations

As a result of the inspection, the team concluded that all project features are functioning and should continue to do so without any immediate maintenance.

APPENDIX A
Project Features Map



Delta Wide Crevasses (MR-0009)

- Previously Constructed Crevasse
- Plug
- New Crevasse (2013)
- Existing Crevasse Maintenance Dredged (2013)
- Project Boundary

5 2.5 0 5 Kilometers

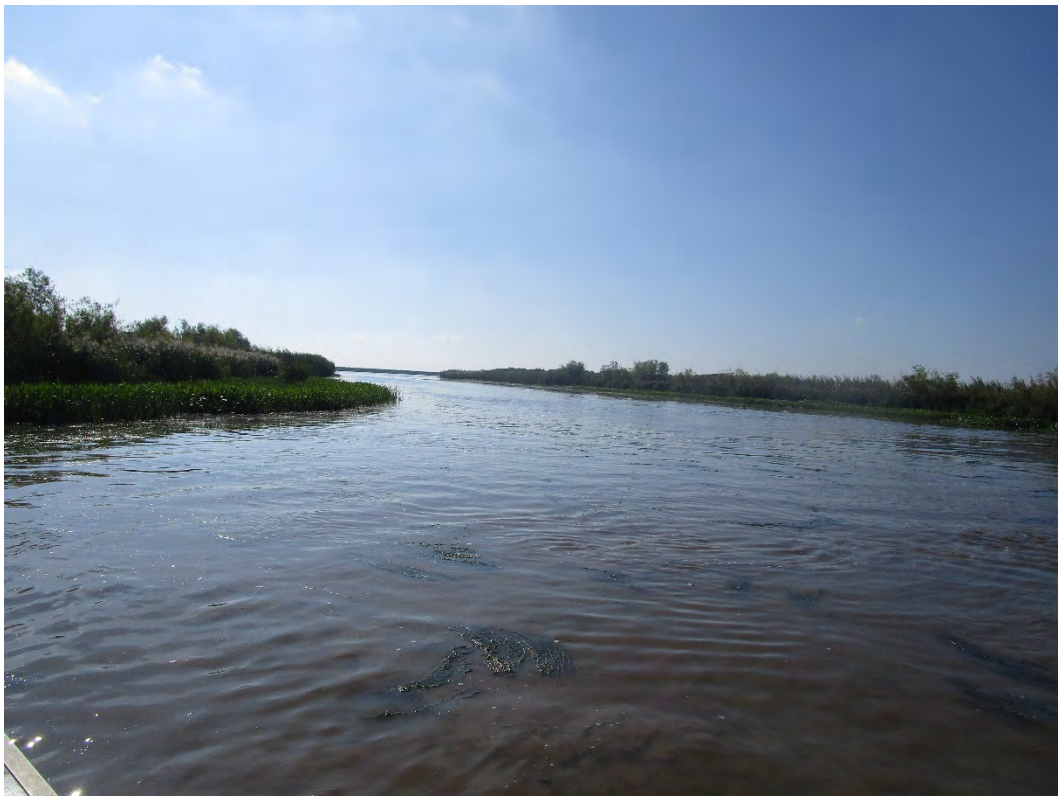
5 2.5 0 5 Miles

Scale: 1:250,000

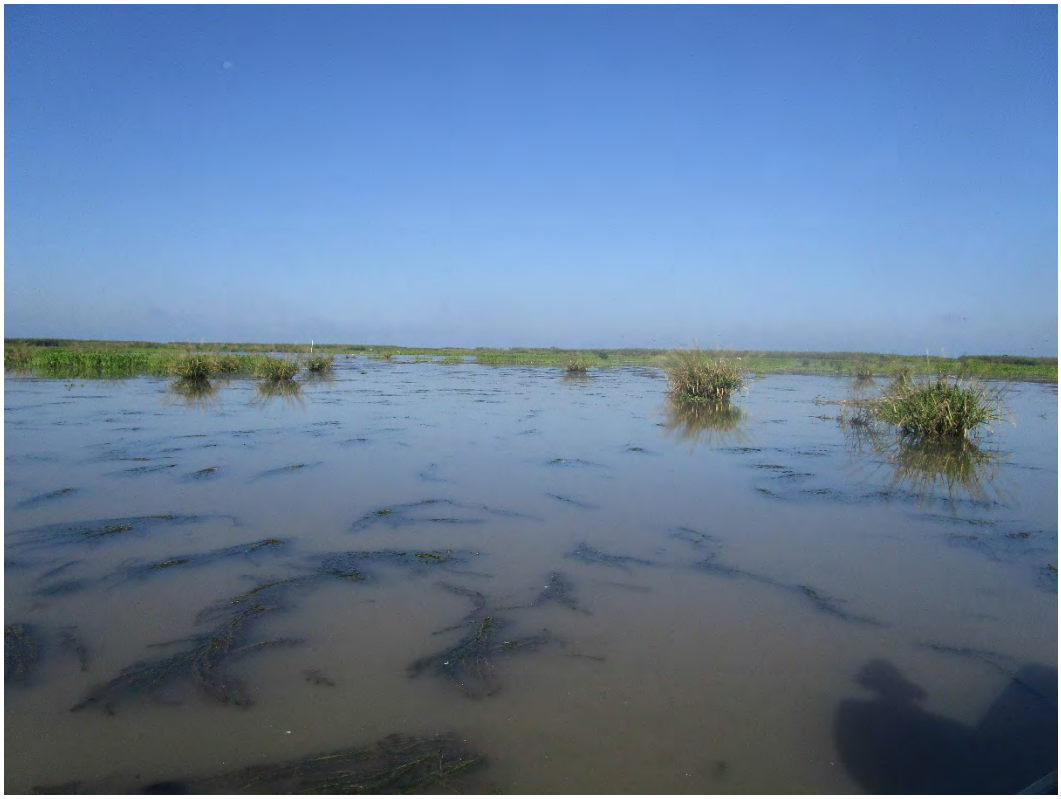
Source:
Coastal Protection and Restoration Authority of Louisiana
Imagery:
ESRI

Map Date: March 21, 2017
File Path: //RID2017040182/

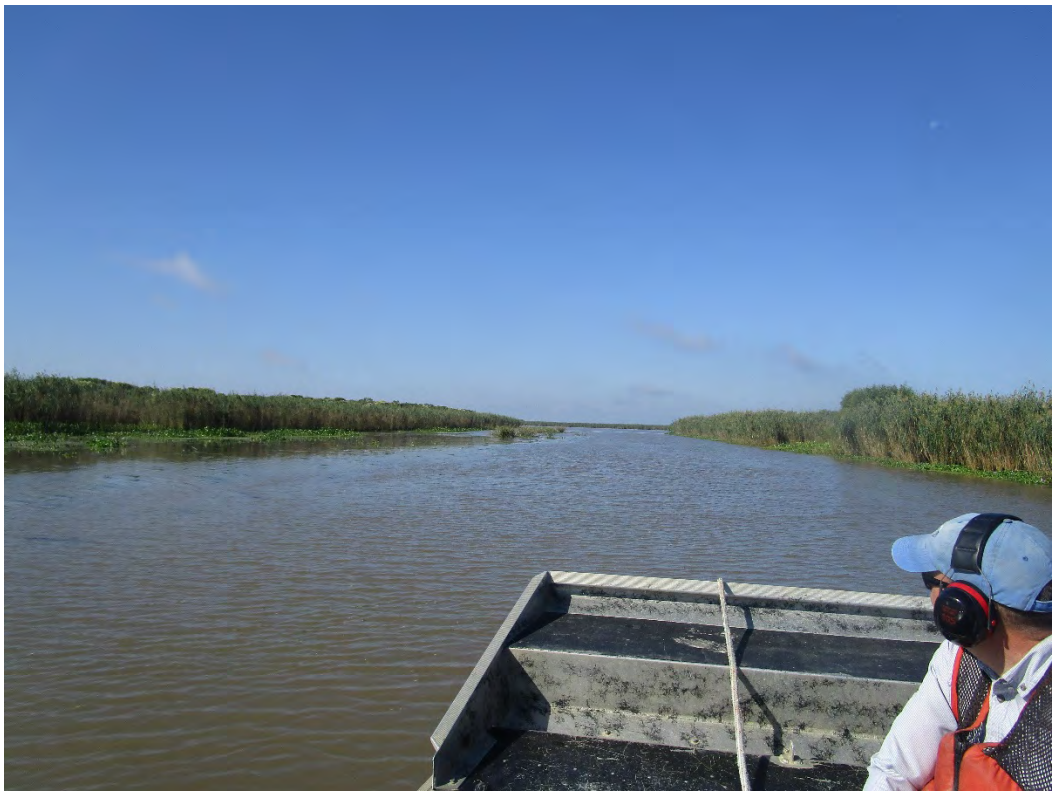
APPENDIX B
Photographs



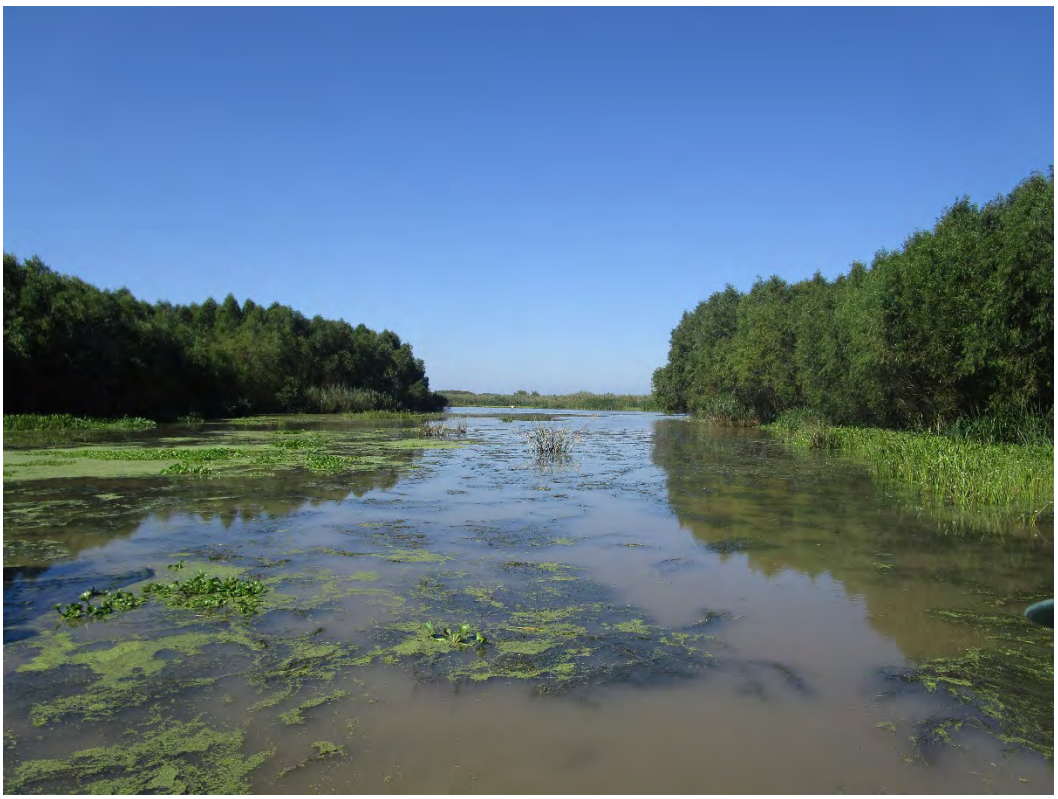
Crevasse No. MP-1 (View 1)



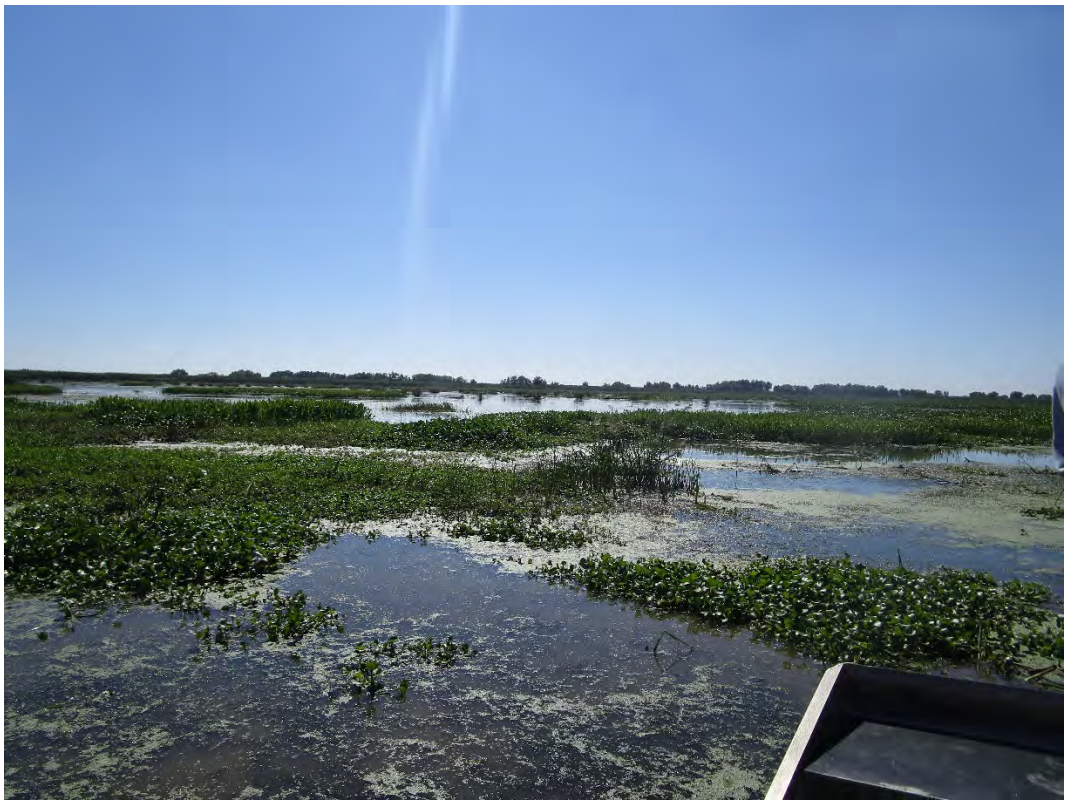
Crevasse No. MP-1 (View 2)



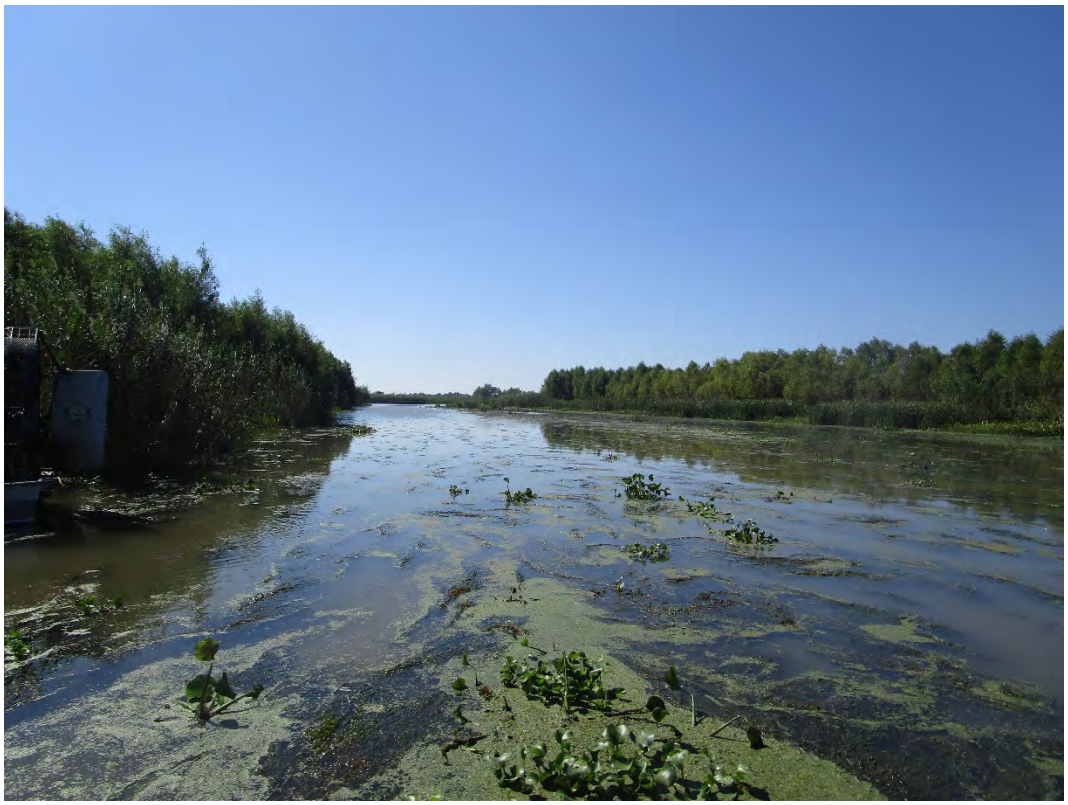
Crevasse No. MP-3



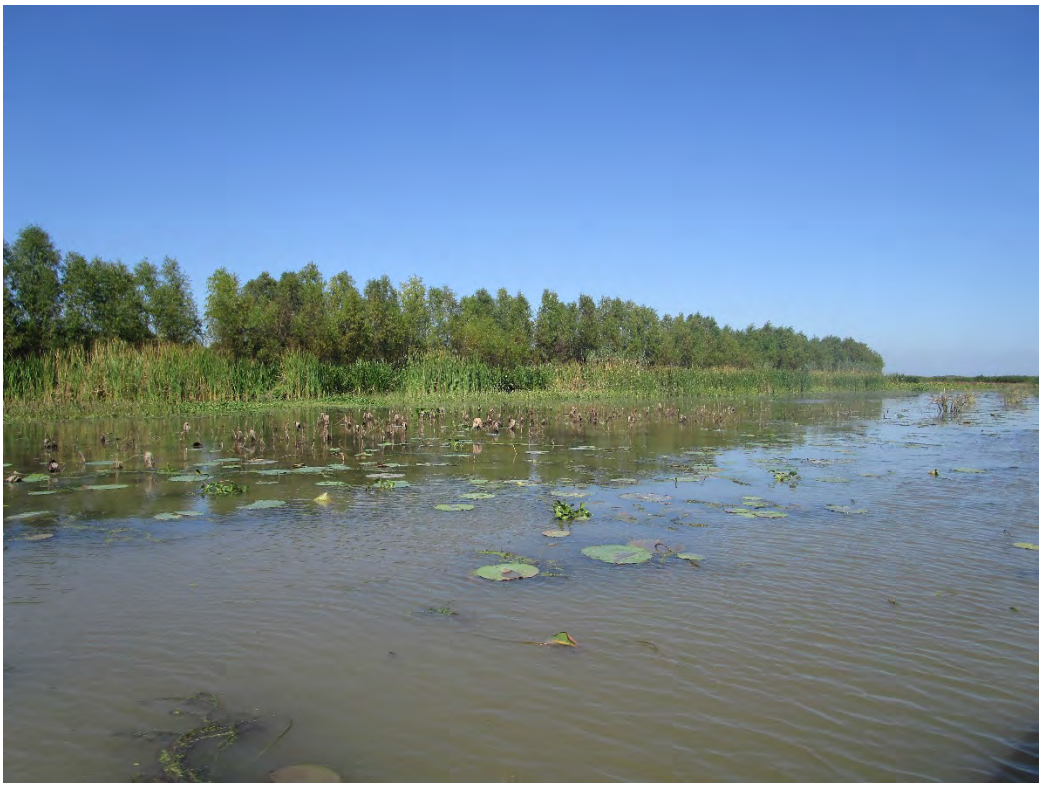
Crevasse No. OP-4 (View 1)



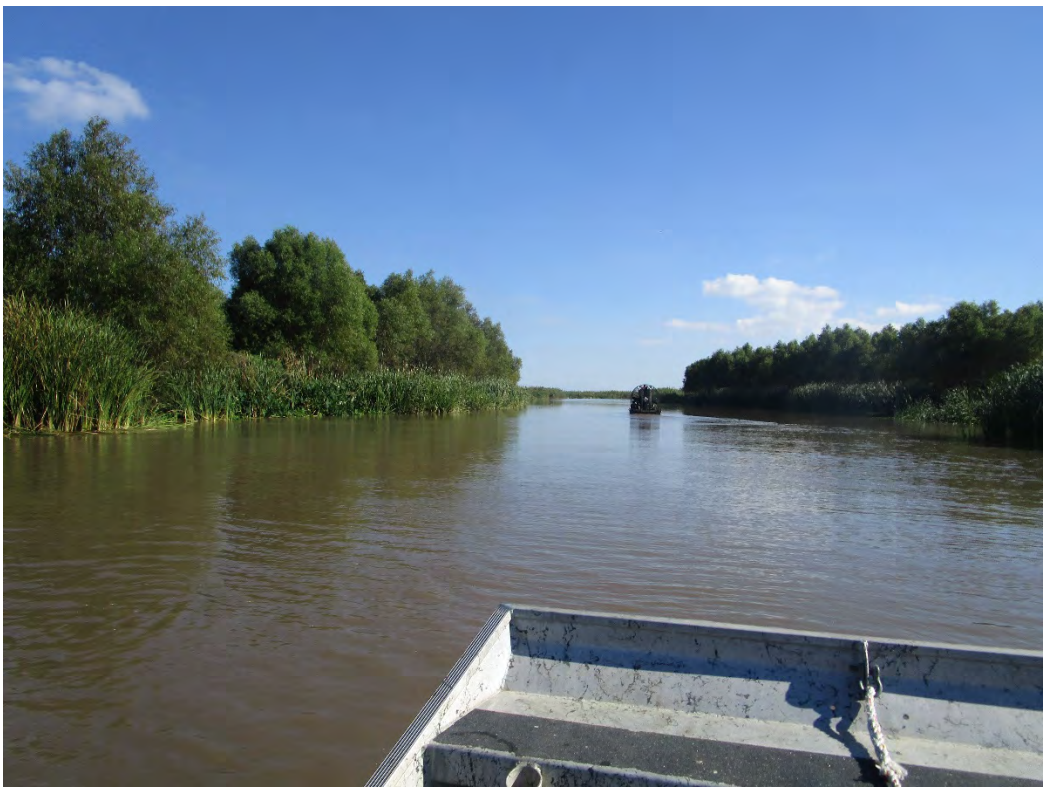
Crevasse No. OP-4 (View 2)



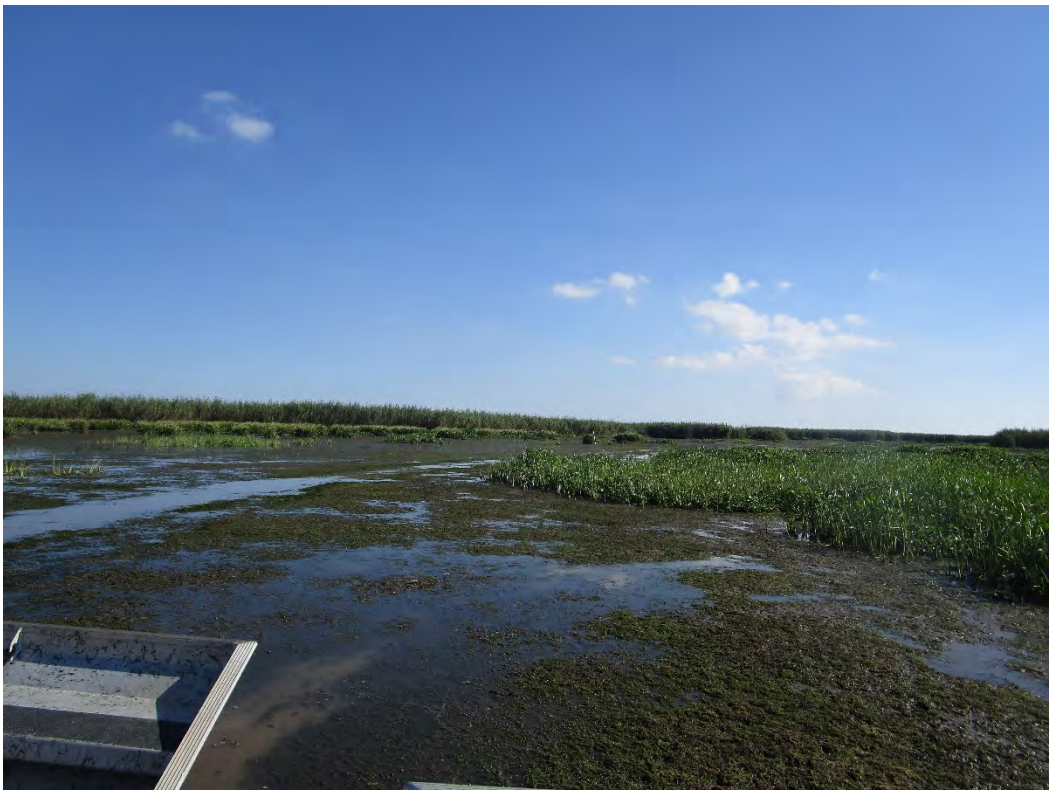
Crevasse No. OP-5 (View 1)



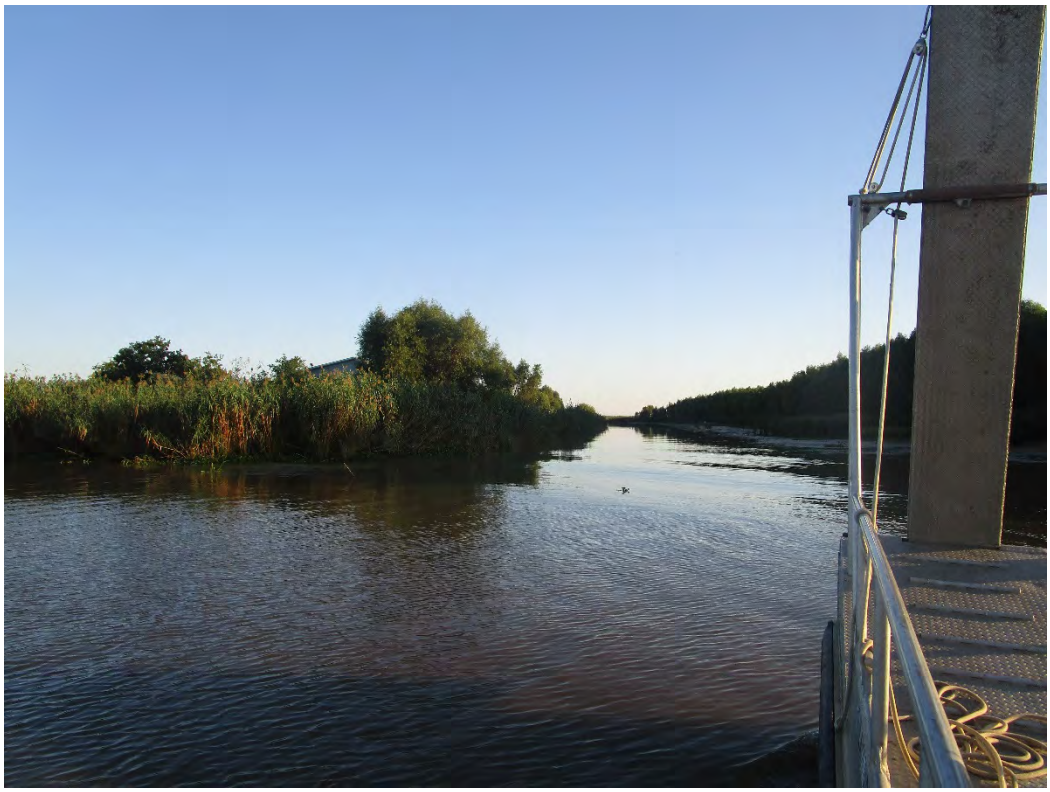
Crevasse No. OP-5 (View 2)



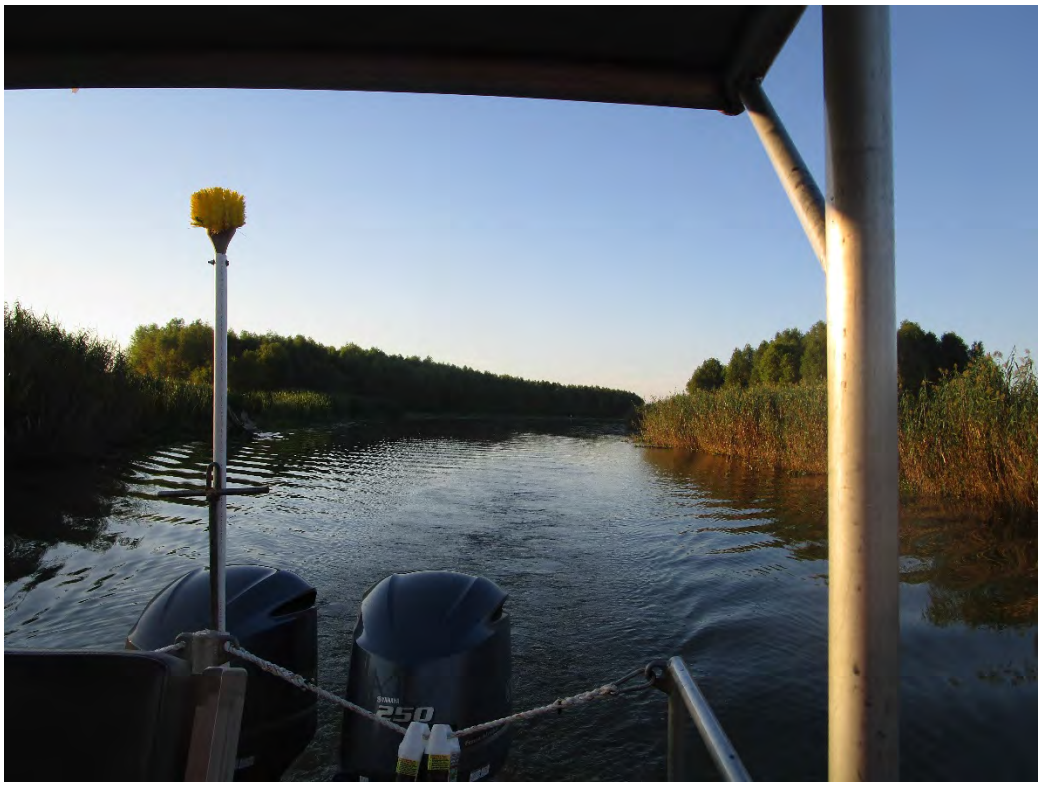
Johnson Pass Crevasse (View 1)



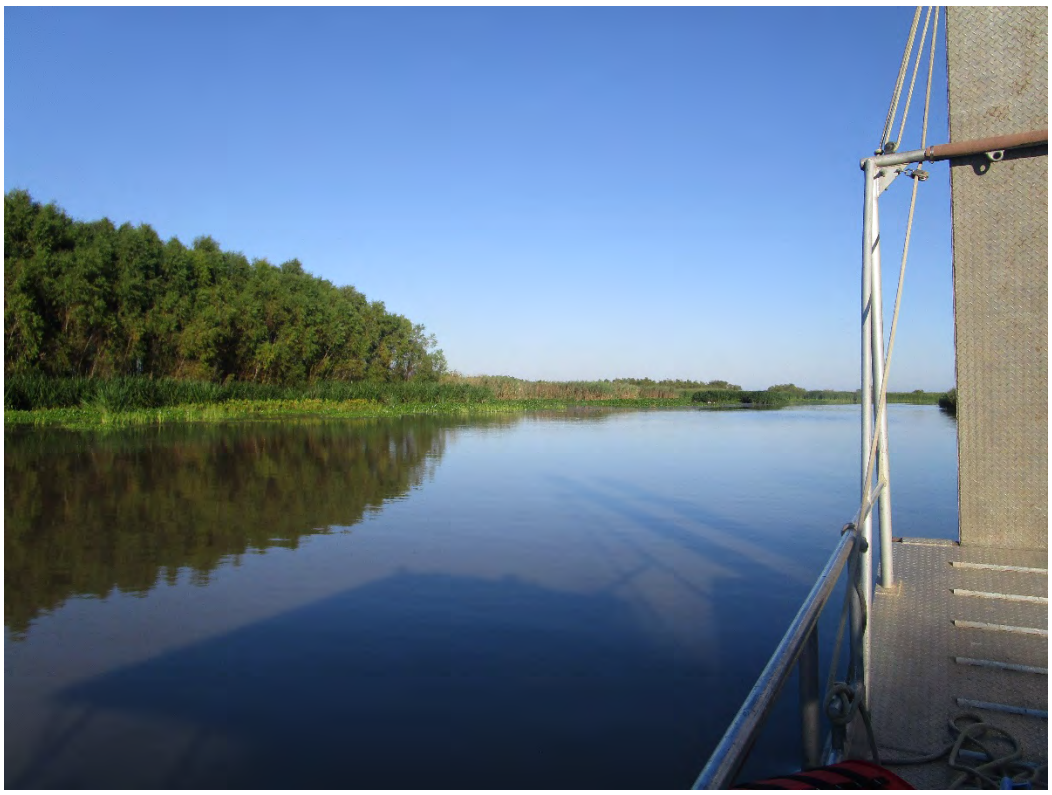
Johnson Pass Crevasse (View 2)

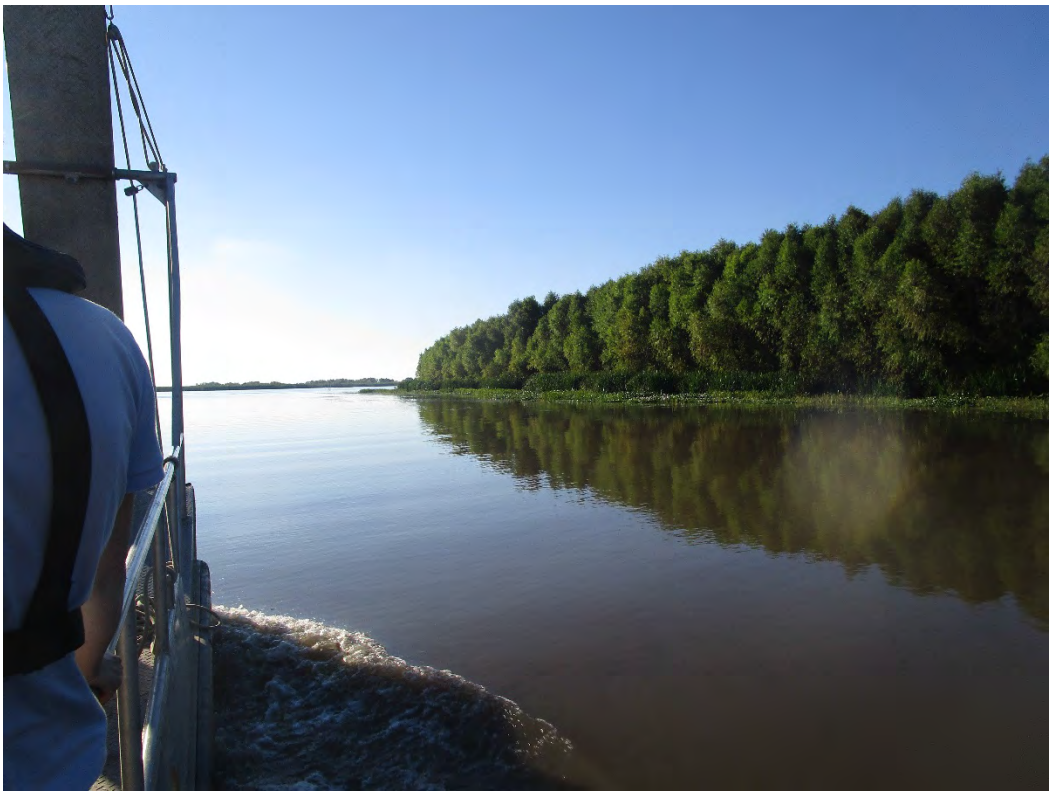


Sawdust Bend Crevasse (View 1)



Sawdust Bend Crevasse (View 2)


South Pass Crevasse (View 1)



South Pass Crevasse (View 2)

APPENDIX C
Three Year Operations & Maintenance Budget

Delta Wide Crevasses (MR-09)
Federal Sponsor: NMFS
Construction Completed : 1999, 2005 (Maintenance Event 2014)
PPL 6

Current Approved O&M Budget June 2009	Year 0 FY06	Year - 1 FY07	Year -2 FY08	Year -3 FY09	Year -4 FY10	Year -5 FY11	Year -6 FY12	Year -7 FY13	Year -8 FY14	Year -9 FY15	Year -10 FY16	Year -11 FY17	Year -12 FY18	Year -13 FY19	***Year -14 FY20***	***Year -15 FY21***	***Year -16 FY22***	Year - 17 FY23	Year -18 FY24	Year -19 FY25	Project Estimate Project Life Budget	CWPPRA Allocated Money Currently Funded (Sum YR 0 to YR 19)
State O&M	$0	$5,530	$0	$5,821	$983,725	$6,128	$0	$6,451	$0	$1,123,693	$0	$7,148	$0	$7,525	$1,282,650	$7,921	$0	$8,338	$0	$8,777	$3,453,707	$3,453,707
Corps Admin																					$0	$0
Federal S&A																					$0	$0
Total																					$3,453,707	$3,453,707
																					Remaining Project Life	***Current 3 year Request (FY20, 21, 22)***
Projected O&M Expenditures																						
Maintenance Inspection		$5,530		$5,821		$6,128		$6,451		$6,790		$7,148		$7,525		$7,921		$8,338		$8,777	$25,036	$7,921
General Maintenance																					$0	$0
Structure Operation																					$0	$0
Federal S&A					$2,832					$3,220					$3,660						$3,660	$3,660
State S&A					$14,159					$16,098					$18,302						$18,302	$18,302
E&D					$81,031					$77,796					$88,449						$88,449	$88,449
Surveys					$14,581					$16,578					$18,848						$18,848	$18,848
Construction					$806,871					$930,162					$1,070,338						$1,070,338	$1,070,338
Construction Oversight					$64,251					$73,049					$83,052						$83,052	$83,052
Total	$0	$5,530	$0	$5,821	$983,725	$6,128	$0	$6,451	$0	$1,123,693	$0	$7,148	$0	$7,525	$1,282,650	$7,921	$0	$8,338	$0	$8,777	$1,307,686	$1,290,571

Total O&M Expenditures from COE Report (Inception to present)	$2,159,971.58	From July 2018 Lana	**Current O&M Budget less COE Admin**	$3,453,707		Current Project Life Budget less COE Admin	$3,453,707
State O&M Expenditures not submitted for in-kind credit	$0		*(State O&M Currently Funded + Fed S&A Currently Funded)*			*(State O&M Prorject Life Budget + Fed S&A Project Life Bud*	
Federal Sponsor MIPRs (if applicable) (REQUESTED MONEY)	$0		**Remaining Available O&M Budget**	$1,293,735		Total Projected Project Life Budget	$3,467,657
Total Estimated O&M Expenditures (as of May 2011)	**$2,159,971.58**		*(Current O&M - Total Est. O&M Expenditures)*			*(Remaining Project Life + Total Estimated O&M Expenditure*	
			Incremental Funding Request Amount FY20-FY22	**$ (3,164.62)**	Unexpended	**Project Life Budget Request Amount**	**$13,951**

APPENDIX D
Field Inspection Check Sheet

FIELD INSPECTION CHECK SHEET

Project No. / Name:	Delta Wide Crevasses MR-09	Date of Inspection:	October 29, 2018	Time:	9:00 AM
Crevasse No.	**See Report Section III**	Inspector(s):	CPRA: Jacinta Gisclair and Bryan Gossman; LDWF: Todd Baker, Trebor Victorino, and Cornelius Williams; USFWS: Barret Fortier; NMFS: Dawn Davis.		
Crev. / Terr. Specs.	See Report Section III	Water Level:	1.22 feet at Pilottown, La.	Time:	9:00 AM
Type of Inspection:	2018 Annual Inspection	Weather Conditions:	Fair, Wind SW to NNW @ 6-9 mph		

Item	Condition	Physical Damage	Dimensions	Photo	Observations and Remarks
Crevasse # MP-1	Good	None	1,000 ft X 100 ft by -10.0' NAVD 88	Appendix B	This crevasse is located on Main Pass at N29 deg 15 min 40.9 sec; W 089deg 13 sec 52.5 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked sounding of 4' appeared to retain some of its originally dredged depth and was adequate to carry sediment to the receiving area.
Crevasse # MP-3	Good	None	1,000 ft X 100 ft by -10.0' NAVD 88	Appendix B	This crevasse is located on Main Pass at N29 deg 14 min 29.8 sec; W 089 deg 14 sec 19.6 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 6' to 7' near the mouth and 4' thereafter, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.
Crevasse # OP-4	Good	None	400 ft X 100 ft by -8.0' NAVD 88	Appendix B	This crevasse is located on Octave Pass at N29 deg 12 min 18.7 sec; W 089 deg 14 sec 0.3 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 4', appeared to retain some of its originally dredged depth and was adequate to carry sediment to the receiving area.
Crevasse # OP-5	Good	None	840 ft X 100 ft by -8.0' NAVD 88	Appendix B	This crevasse is located on Octave Pass at N29 deg 12 min 4.4 sec; W 089 deg 15 sec 2.5 min. The spoil areas on each bank were well vegetated. The depth, although not sounded, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.
Johnson Pass Crevasse	Good	None	1,200 ft X 75 ft by -8.0' NAVD 88	Appendix B	This existing crevasse is located on Johnson Pass at N29 deg 7 min 36.3 sec; W 089 deg 12 sec 30.1 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 8', appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.
Sawdust Bend Crevasse	Good	None	1,550 ft X 75 ft by -8.0' NAVD 88	Appendix B	This existing crevasse is located on Sawdust Bend at N29 deg 8 min 17.8 sec; W 089 deg 13 sec 33.3 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 5' near the mouth and 6' to 7' thereafter, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.
South Pass Crevasse	Good	None	1,000 ft X 100 ft by -8.0' NAVD 88	Appendix B	This existing crevasse is located on South Pass at N29 deg 6 min 20.2 sec; W 089 deg 14 sec 5.9 min. The spoil areas on each bank were well vegetated. The depth, based on spot-checked soundings of 5' to 7' near the mouth and 6' to 7' thereafter, appeared to retain most of its originally dredged depth and was adequate to carry sediment to the receiving area.