

FINAL REPORT

Delta Wide Crevasses

NOAA Grant No. NA87FZ0023

CWPPRA Project No. MR-09

I. Executive Summary

The Delta Wide Crevasses project consists of the construction and maintenance of new, as well as the maintenance of existing crevasses in the Mississippi River Modern Delta, south of Venice, Louisiana.

II. Introduction

The project area is located in the Mississippi River Modern Delta south of Venice, Louisiana. The total project area includes the US Fish and Wildlife Service managed Delta National Wildlife Refuge and the Pass a Loutre Wildlife Management Area managed by the Louisiana Department of Wildlife and Fisheries. The total project area is approximately 5,210 acres with 783 acres (15%) of marsh and 4,427 acres (85%) open water at the time of the project's initiation (according to the project's WVA report).

Artificial crevasse construction is an attempt to mimic the natural crevasse formation process that was responsible for building more than eighty percent of the active Mississippi River Delta. Between 1750 and 1927, natural crevasses commonly occurred in the delta during high river stages, producing various sizes of wetland areas. Since 1927, extensive rock-armored levees constructed along the Mississippi River have prevented most of the regular flooding and over banking events that historically created crevasses.

III. Purpose

- A. Problem Description : Since 1927, extensive rock-armored levees constructed along the Mississippi River have prevented most of the regular flooding and over banking events that historically created crevasses.
- B. Project Objectives : The objective of this project was to promote the formation of emergent freshwater and intermediate marsh in place of the shallow open water areas.

IV. Approach

- A. Description of Work Performed:
 - 1. Survey data collection for the first phase of this project was accomplished by the LDNR engineering section during the engineering and design phase of this project. Copies of the project data collection and analysis deliverables

were provided to Pat Williams of NMFS.

Survey data collection for the second phase of this project was accomplished by C&C (working as a subcontractor to BCG) and Pyburn and Odom. Copies of the project survey data collection deliverables were provided to Cheryl Brodnax of NMFS

- 2a. The project engineering, plan development (Draft Engineering Report dated November 1997), and specifications for the first phase of construction of project features were conducted by LDNR Engineering Section in Baton Rouge, Louisiana. A mandatory pre-bid meeting was held at the DNR Building in Baton Rouge on April 22, 1999 at 10:00 am. An optional site visit was held on April 27, 1999 leaving Cypress Cove Marina in Venice, Louisiana at 9:00 am. The bid opening for this project was held at State Purchasing in Baton Rouge on May 7, 1999. The low bidder for this project was C. F. Bean Corporation of New Orleans, Louisiana in the amount of \$113,150 (File Number F 22676 DL, Purchase Order Number 3397561) who received a notice to proceed on July 1, 1999. A pre-construction conference was held on June 16, 1999.
- 2b. The project engineering, plan development and specifications (plans and specifications dated March 2, 2004) for the second phase of construction of project features were completed by the LDNR Engineering Section in Baton Rouge, Louisiana. A mandatory pre-bid meeting and site visit was held on May 5, 2004 leaving Cypress Cove Marina in Venice, Louisiana at 9:00 am. The bid opening for this project was held at State Purchasing in Baton Rouge on May 19, 2004. The low bidder for this project was Coastal Dredging of Slidell, Louisiana in the amount of \$854,947.65 (Purchase Order # was 3748885, File # K25635DL, Solicitation # 2188250) who received a notice to proceed on July 9, 2004. A pre-construction conference was held on July 6, 2004.
3. Landrights for this project were completed by LDNR Land Section. The LDNR Land Section was supported by contract landman Harold Anderson.

Agreements for the project were taken with the Louisiana Department of Wildlife and Fisheries; Mr. Don Delesdernier; and the Pilottown Development Corporation. A letter of no objection was provided by the Louisiana Office of State Lands on September 3, 1998.

- 4a. Permits for the first phase of construction for this project were prepared by LDNR and submitted with the National Marine Fisheries Service as the permit holder. Permits for the first construction event for this project were acquired from CMD (Consistency C980418, dated July 2, 1999); USCOE (Permit # EB-19-980-4565, dated October 2, 1998), USFWS (Special Use Permit 43555-SLR-055-98, dated May 1, 1998), and LDEQ (Water Quality

Certification, dated March 4, 1999).

- 4b. Permits for the second phase of construction for this project were prepared by LDNR and submitted with the National Marine Fisheries Service as the permitholder. Permits for the second construction event for this project were acquired from CMD (Consistency C20030079, dated April 21, 2003); USCOE (Permit #EC-20-030-1862, dated May 26, 2004); LDEQ (Water Quality Certification MB 030312-06/Agency Interest AI 107931, dated May 23, 2003); LDWF (letter dated June 9, 2003); and USFWS (letter dated May 2, 2003).
- 5a. Construction of the first phase of this project was initiated by C.F. Bean Inc. of New Orleans, Louisiana on June 21, 1999 and was completed on July 14, 1999 and consisted of excavation of 15 new crevasses (Crevasses Nos. 6, 7, 8, 9, 11, 12, 15, 20, 24, 31, 36, 38, 51, 53 and 54) and plugging of one existing crevasse (Crevasse No. 22). Note that Crevasse 27 was eliminated due to pipeline crossings and Crevasse 45 was eliminated due to lack of access. Construction inspection services were conducted by the LDNR Baton Rouge Office. The LDNR Baton Rouge office was supported in construction inspection services by Gulf South Engineers Inc. whose tasks included inspection of project features during layout, construction, and preparation of inspection reports.
- 5b. Construction of the second phase of this project was initiated by Coastal Dredging Inc. of Slidell, Louisiana on October 6, 2004 and completed on March 17, 2005 and consisted of excavation of two (2) new crevasses and maintenance of four (4) existing crevasses and deposition of dredged material for marsh creation (Purchase Order # was 3748885, File # K25635DL, Solicitation # 2188250). Construction inspection services were provided by the LDNR New Orleans Field Office. The LDNR New Orleans Field Office was supported in construction inspection services by Hydro Consultants, Inc. whose tasks included inspection of project features during layout, construction, and preparation of inspection reports.
6. A Monitoring Plan was developed for this project by the Monitoring Section of the Louisiana Department of Natural Resources. This plan was reviewed by the Technical Advisory Group at a TAG meeting at the LDNR in Baton Rouge, Louisiana on March 2, 1999.
7. An Operations, Maintenance and Rehabilitation Plan was developed for this project by the Operations and Maintenance Section of the LDNR This plan was done in coordination with all of the project team members. The Louisiana Department of Natural Resources will conduct regular inspections of the project features and will perform maintenance and rehabilitation actions in coordination with NMFS staff.

B. Project Management : The overall project management responsibility for the work performed under this grant was assigned to the Louisiana Department of Natural Resources. Specific activities accomplished through the implementation of this project include the following:

1. A grant application (including scope of services and grant application forms) was prepared and sent to NOAA for this project on June 30, 1997. NOAA approved the grant on April 29, 1998 and the grant was executed by LDNR on May 28, 1998. The first grant amendment was approved by NOAA on January 8, 2003 and executed by LDNR on January 22, 2003 extending the period of performance to allow for construction completion. The second grant amendment was approved by NOAA on January 22, 2004 and executed by LDNR on January 27, 2004 extending the period of performance to allow for construction completion.
2. Preliminary engineering for this project was completed by engineers from the LDNR Baton Rouge office. Final engineering services for this project were provided by the LDNR Baton Rouge office. These tasks included: topographic and bathymetric surveys; geotechnical field investigation; geotechnical analysis; hydraulic and hydrologic analysis; and the development of final plans, specifications and construction documents.

On the first phase of construction for this project survey services were conducted by the LDNR Baton Rouge office staff.

On the second phase of construction for this project survey services were contracted out to C&C Surveyors (a subcontractor to BCG Engineers) and Pyburn and Odom.

V. Findings

A. Accomplishments and Findings :

1. Construction of the first phase of this project was initiated by C.F. Bean Inc. of New Orleans, Louisiana on June 21, 1999 and was completed on July 14, 1999 and consisted of excavation of 15 new crevasses (Crevasses Nos. 6, 7, 8, 9, 11, 12, 15, 20, 24, 31, 36, 38, 51, 53 and 54) and plugging of one existing crevasse (Crevasse No. 22).
2. Construction of the second phase of this project was initiated by Coastal Dredging Inc. of Slidell, Louisiana on October 6, 2004 and completed on March 17, 2005 and consisted of excavation of two (2) new crevasses and maintenance of four (4) existing crevasses and deposition of dredged material for marsh creation.
3. Monitoring of this project continues as described in the Monitoring Report

for this project.

B. Problems Encountered :

1. There were some unavoidable delays in completing the second phase of engineering and design of this project, mostly due to the required interagency coordination. However, the project was better as a result of the interagency coordination.
2. There were some delays in construction completion during the second phase of construction mainly due to the contractor overextending his resources. Once the contractor focused his resources on this project, he was able to complete the project within schedule. Additionally, during clean out and extension dredging of one of the previously constructed crevasses, the contractor encountered a significant amount of trees that had floated into the crevasses. We did not foresee that possibility and our construction engineers granted the contractor a time extension due to the site conditions.

VI. Evaluation and Conclusion

The project was successful in constructing the project features as authorized. After constructed the crevasses with two different techniques (bucket dredges and hydraulic dredges), it is our opinion that when possible, crevasses should be constructed and maintained using hydraulic dredges. This allows for immediate and beneficial impact of the sediments dredged from the crevasse and longer term benefits from distribution of water, sediments and nutrients into the receiving basin. Close supervision and inspection of the construction contractor is required during construction to ensure proper placement of the material and construction of the project feature.

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