



**State of Louisiana
Department of Natural Resources
Coastal Engineering Division**

**2005 Bi-Annual Inspection
Report**

for

**ATCHAFALAYA SEDIMENT
DELIVERY**

State Project Number AT-02
Priority Project List 2

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St. Mary Parish

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I. Introduction

The Atchafalaya Sediment Delivery Project (AT-02) is a distributary channel maintenance and delta lobe creation project consisting of approximately 2,182 acres of freshwater wetlands and shallow open water. The project is located in the northeastern region of the Atchafalaya Delta within the Louisiana Department of Wildlife and Fisheries Atchafalaya Delta Wildlife Management Area in the southeast corner of St. Mary Parish, Louisiana. The project is bounded on the north by Mile Island, the west by East Pass, and to the east and south by the Atchafalaya Bay (O&M Plan, 2004). A map of the project boundary and features are shown in Appendix A.

The Atchafalaya Delta is bisected by the Lower Atchafalaya River which is maintained by the U.S. Corps of Engineers for navigation purposes. The continued dredging and placement of spoil material along the banks of the river has caused sediment deprivation in the delta environments. The Atchafalaya Sediment Delivery Project was designed to enhance natural delta building process by restoring the Natal Channel and Castille Pass Channel to functional tertiary distributary channels and utilizing the dredge material to create delta lobe islands as wetlands that area suitable for establishment of emergent marsh. (O&M Plan, 2004).

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Atchafalaya Sediment Delivery Project (AT-02) is to evaluate the constructed project features, identify any deficiencies and prepare a report detailing the condition of such features and to recommend corrective actions needed, if any. Should it be determined that corrective actions are needed, LDNR shall provide, in report form, a detailed cost estimate for engineering, design, supervision, inspection, construction contingencies, and an assessment of the urgency of such repairs (O&M Plan, 2002). The annual inspection report also contains a summary of maintenance projects undertaken since the constructed features were completed and an estimated project budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of the 2003 bi-annual inspection and past operation and maintenance projects undertaken since the completion of the Atchafalaya Sediment Delivery Project (AT-02) are outlined in Appendix IV.

An inspection of the Atchafalaya Sediment Delivery Project (AT-02) was held on July 18, 2005 under partly cloudy skies and warm temperatures. In attendance were Herbert Juneau, Dewey Billodeau, Stanley Aucoin and Darrel Pontiff of the LDNR Lafayette Field Office, Dr. John Foret and Richard Hartman of NMFS, Cassidy Lefeune, Edmond Mouton, Wayne Desota and Paul Cook with the LDWF, Dr. Bruce Thompson and Dr. Gary Peterman, LSU Fisheries Biologist and Brian Babin, Daniel Dearmond, Shane Triche and Glen Curole of the LDNR Thibodaux Field Office. The attendees met at the Berwick Public Boat Launch in St. Mary Parish. The inspection began at approximately 9:30 a.m. and ended at 1:30 p.m.

The field inspection included an inspection of various distributary channels and existing disposal areas within the project boundary. No attempt was made to measure the geometry of the channels other than periodic depth measurements recorded using a hand-held fathometer provided by LDWF. Staff gauge readings, where available, were used to determine approximate water elevations. Soundings were then taken to determine the approximate elevations of the channel bottoms. The gauge reading at Amerada Hess was 1.9' NAVD. Photographs were taken at each project feature and compiled in Appendix B of this report.

III. Project Description and History

The Atchafalaya Delta is bisected by the Lower Atchafalaya River which is maintained by the U.S. Corps of Engineers to an elevation of -20.0 NGVD with a 400 foot bottom width for navigation purposes. The continued dredging and placement of spoil material along the banks of the river has caused sediment deprivation in adjacent delta environments.

The projects were constructed as a Coastal Wetlands, Planning, Protection, and Restoration Project (CWPPRA) with the Louisiana Department of Natural Resources as the local state sponsor and the National Marine Fisheries Service of the Department of Commerce as the federal sponsor. The general contractor for the construction of the projects, which were accomplished under one contract by the State of Louisiana Division of Administration, and administered by the Louisiana Department of Natural Resources (LDNR) was River Road Construction Co. of Mandeville, LA. The Atchafalaya Sediment Delivery Project (AT-02) and the Big Island Mining Project (AT-03) were constructed during the period of January 28, 1998 and October 27, 1998. Final cost of the construction contract for both projects was \$7,238,449.36. The design, engineering, and construction oversight for the projects was performed under an engineering services contract with LDNR by Brown, Cunningham, and Gannuch Engineers.

The principle project features of the Atchafalaya Sediment Delivery project include:

- Natal Channel – 5,100 linear ft. dredge channel with a 170 ft. wide bottom width and with a branch channel of 1,500 linear ft. oriented to the northeast from Station 74+00. Bottom width of this branch channel was 150 feet.
- Castille Pass – 2,000 linear ft. dredge channel with a 125 ft. wide bottom width.
- Marsh Creation – 668,683 cubic yards of dredge material from Natal Channel placed at four (4) sites creating approximately 257 acres of wetlands.
- Marsh Creation – 32,242 cubic yards of dredge material from Castille Pass placed on a location southeast of the channel and creating approximately 20.5 acres of wetlands.

IV. Summary of 2003 Bi-annual Inspection Report

In 2005, duties of bi-annual inspections, in the past coordinated by the LDNR Lafayette Field Office (LFO), were transferred to the LDNR Thibodaux Field Office (TFO). Transfer of operation and maintenance duties from LFO to the TFO was initiated to provide better coordination between the field engineering and biological monitoring sections of LDNR in that the field engineering section and biological monitoring section would be stationed in the same field office and better able to manage projects effectively. The new operation and maintenance manager for this project is Brian Babin, who shall be responsible for all maintenance duties, on behalf of LDNR, outlined in the operation and maintenance plan.

Prior to presenting the inspection results for the 2005 Bi-annual Inspection, a brief summary of the 2003 inspection report written by Mr. Herbert Juneau, the past O&M manager, will outline the findings and theories of the inspection team in 2003.

By use of a fathometer borrowed from C.H. Fenstermaker and Associates, Inc. of Lafayette, the 2003 inspection team was able to complete a cursory investigation of depths in the existing primary and secondary distribution channels of the Atchafalaya Sediment Delivery Project.

The 2003 Bi-Annual Inspection was performed on October 28, 2003 with representatives from LDNR, LDWF and NMFS present. In route to the project area, a substantial “sand bar” was discovered at the mouth of East Pass on the left descending bank of the Atchafalaya River where depth measurements indicated approximately -3.0 to -3.5 feet of water for an estimated distance of 150 to 200 feet to the east of East Pass. Beyond the “sand bar” into East Pass, the depths remained consistent at -6 to -10 feet to the mouth of Natal Channel.

As the inspection team proceeded to enter Natal Channel, the water depths immediately sloped upwards to -5.0 feet and then remained at -6.0 to -7.5 feet until they passed the “natural old outlet” which continues to the northeast into an open water area near Ivory’s Island, then depths of water decreased drastically to near -3.0 feet a distance around the curve and down Natal Channel. The theory of the 2003 inspection team is that perhaps the natural old outlet has redeveloped and possibly captured the flow of the upstream portion of Natal Channel. As the inspection team continued down Natal Channel, they encountered a new spoil area created by the COE during the 1998 maintenance dredging season. The water depths down the right leg of the “fork” at the end of Natal Channel were -6.0 to 6.5 feet for a distance. The inspection team believes that this small channel has scoured and lengthened to the south. The 2003 inspection team proceeded to inspect the left leg of the “fork” at the end of Natal Channel in an easterly direction. The channel depth of the left “fork” ranged from -5 to -10 feet of water with similar scouring conditions as the right “fork”. If this is the case, with the natural old outlet closed, this area can be a potential site for future marsh creation area, as natural channel scour indicates significant flow condition. Further investigation is required to determine the source of scour. Was the scour caused by wheel-washing performed by the COE or was it natural due to high velocities in the channel?

The inspection team then traveled to the Castille Pass Channel. The water depths in the Castille Pass channel were found to be in the range of -4.0 feet of water at the mouth of Natal Channel and approximately -11.0 feet south of Natal Channel to the reach of the channel in the vicinity of the pipeline (Trunk line's 20" pipeline) and the end of the initial dredging performed on the Castille Pass Channel.

The 2003 inspection team concluded that the Atchafalaya Sediment Delivery Project (AT-02) was working well after five (5) years of existence. The LDNR O&M Manager also noted that the Atchafalaya Delta had not experienced a significant "high water" event from the Atchafalaya River since the initial construction work was completed in late 1998. Since 1997, drought conditions in the upper basins of the Mississippi and Red Rivers have limited the lower Atchafalaya River to very low flows, and thus low sediment contributions available to the project. No immediate repairs or maintenance were recommended in the 2003 inspection report.

No maintenance projects have been undertaken on the Atchafalaya Sediment Delivery Project (AT-02) since the project was completed in October 1998.

V. 2005 Inspection Results

Upon arrival to the head of East Pass, we did observe a large "sand bar" noted in the 2003 biannual inspection. The "bar" appeared to be the size previously noted and very shallow in depth. The channel deepened as we continued southward towards Natal Channel. Only periodic depth measurements were taken in this reach of the channel. The disposal areas adjacent to East Pass were heavily vegetated with plenty of sub-aquatic vegetation present. We proceeded to Castille Pass where we observed moderate water depths at the head of the pass and shallower depths leading into the bay. The vegetation, both marsh and sub-aquatics, were plentiful and healthy with a large build up of water hyacinth at the mouth. No maintenance is proposed at this time.

An inspection of Natal Channel revealed similar conditions as Castille Pass with heavy vegetated marsh and an abundance of sub-aquatic vegetation. The water depths in Natal Channel appeared to be 4 and 6 feet deep with the shallower depths at the mouth of the channel near East Pass. No maintenance is proposed at this time.

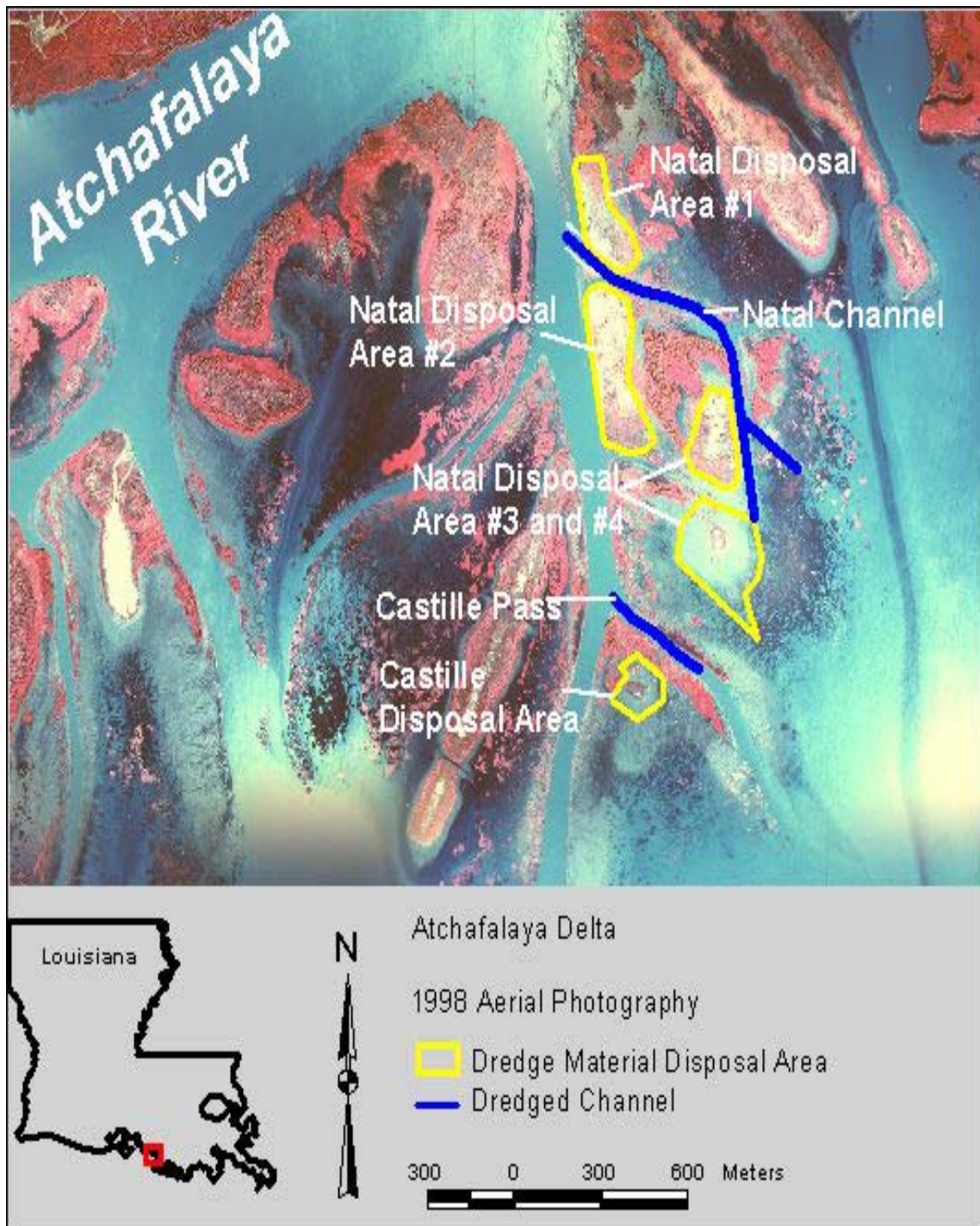
VI. Conclusions and Recommendations

Overall, the Atchafalaya Sediment Delivery Project (AT-02) appeared to be in fair condition with significant shoaling at the mouth of East Pass and minor silt deposition in Natal Channel and Castille Pass.

No maintenance of existing distributary or tertiary channels is recommended at this time. However, LDNR is recommending that a bathymetric survey of the mouth of East Pass, Natal Channel and Castille Pass be performed prior to the next bi-annual inspection to ascertain areas which are silting in and determine if corrective actions are required to open existing distributary channels. To avoid unnecessary duplication of efforts, the proposed survey to identify maintenance needs should be included in the scope of services currently under development by the biological monitoring section of LDNR scheduled to begin in late 2006. The scope of service includes topographic and bathymetric surveys of the existing distributary channels associated with the Atchafalaya Sediment Delivery (AT-02) and Big Island Mining (AT-03) projects.

Appendix A

PROJECT FEATURES MAP



Appendix B

PHOTOGRAPHS



Channel – photo of marsh vegetation located at the end of Natal Channel looking northeast.



Channel – photo of marsh vegetation at the end of Natal Channel looking east.



Pass – photo of marsh vegetation and sub-vegetation at the end of East Pass looking east.

Appendix C

Three (3) Year Budget Projections

ATCHAFALAYA SEDIMENT DELIVERY PROJECT (AT-02)
Three-Year Operations & Maintenance Budgets 07/01/2005 - 06/30/08

Project Manager	O & M Manager	Federal Sponsor	Prepared By
	Brian Babin	NMFS	Brian Babin

	2005/2006	2006/2007	2007/2008
Maintenance Inspection	\$ 4,825.00	\$ 4,955.00	\$ 5,250.00
Structure Operation	\$ -	\$ -	\$ -
Administration	\$ -	\$ -	\$ -

Maintenance/Rehabilitation

05/06 Description: Survey (\$20,000 @ 75% = \$15,000)

E&D	\$ 15,000.00
Construction	
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ 15,000.00

06/07 Description: Maintenance dredging of Castile Pass and Natal Channel; estimated costs shall be completed when recommended surveys or performed.

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

07/08 Description:

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

	2003/2004	2004/2005	2005/2006
Total O&M Budgets	\$ 19,825.00	\$ 4,955.00	\$ 5,250.00