State of Louisiana
Office of Coastal Protection and Restoration

2009 Annual Inspection Report

for

LAKE CHAPEAU SEDIMENT INPUT AND HYDROLOGIC RESTORATION PROJECT

State Project Number TE-26
Priority Project List 3

June 1, 2009
Terrebonne Parish

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I. Introduction

The Lake Chapeau Sediment Input and Hydrologic Restoration Project encompasses 13,549 acres of intermediate and brackish marsh and open water on Point au Fer Island, in the vicinity of Lake Chapeau, located approximately 30 miles south of Morgan City, Louisiana, in Terrebonne Parish. The project area is bounded by Four League Bay to the north, Atchafalaya Bay to the west, Locust Bayou and a network of canals to the south, and Wildcat Bayou and an oil field canal to the east (Project Features Map - Appendix A).

The Lake Chapeau Marsh Creation and Hydrologic Restoration (TE-26) project is a marsh creation and hydrologic restoration project consisting of the creation of approximately 168 acres of marsh using dredge material from the Atchafalaya Bay and construction of seven (7) rock weirs across various oil field canals within the project area. The project was designed to restore the marshes west of Lake Chapeau by re-establishing a hydrologic separation between Locust Bayou and the Alligator Bayou watersheds. This was partially accomplished by hydraulically dredging sediments from the Atchafalaya Bay and filling large open water areas on the interior island near Lake Chapeau. Another objective of the Lake Chapeau project was to restore the islands natural hydrologic flow patterns by constructing weirs, spoil bank gapping and maintenance dredging of natural bayous within the project area.

The Lake Chapeau Marsh Creation and Hydrologic Restoration (TE-26) project is co-sponsored by the National Marine Fisheries Service (NMFS) and the Louisiana Office of Coastal Protection and Restoration (OCPR). The project 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 Lake Chapeau Project was approved on the third (3^{rd}) Priority Project List (LDNR O&M Plan, 2002).

As a result of the wide-spread ecological and structural damage caused by Hurricanes Gustav and Ike, the CWPPRA Task Force authorized emergency funding, through the OCPR, to conduct post-storm damage assessment inspections of all constructed CWPPRA projects which were believed to have sustained damage from the 2008 storms. The purpose of the damage assessment is to determine the extent of damages to existing project features, if any; provide a full accounting of the necessary corrective actions to repair storm damages along with estimated project costs, and to initiate contact with the Federal Emergency Management Agency (FEMA) for potential storm related claims. The annual inspection of the Lake Chapeau project usually occurs in the first quarter (March/April) of each year. However, due to the damage caused by Hurricane Gustav and Ike, a damage assessment was performed immediately following the storms in September 2008. With concurrence from the federal sponsor, the OCPR has decided not to perform the annual inspection in the first quarter of 2009, but rather use the field information gathered on the damage assessment field trip on September 24, 2008 to produce the 2009 Annual Inspection Report.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Lake Chapeau Sediment Input and Hydrologic Restoration (TE-26) project is to evaluate the constructed project features and identify any deficiencies, prepare a report detailing the condition of project features, and recommended corrective actions needed. 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, and contingencies and an assessment of the urgency of such repairs (O&M Plan, 2002). The annual inspection report also contains a summary of past projects completed in the maintenance phase and an estimated projected 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 past operation and maintenance projects undertaken since the completion of the Lake Chapeau Project are outlined in Section IV.

The annual inspection of the Lake Chapeau Sediment Input and Hydrologic Restoration Project (TE-26) took place on September 24, 2008. The inspection began at approximately 9:45 a.m. at Structure No.1, on the interior of the island, and ended around 1:00 p.m. near Structure No.4 on the west shoreline of Four League Bay. The inspection included features located on the interior island (Weir sites 1, 3, 4, 5, 6, 7 & 9) and the corridor closure along the east shoreline of the Atchafalaya Bay. In attendance were Shane Triche, Brian Babin, and Elaine Lear from OCPR and Joy Merino with the National Marine Fisheries Service (NMFS).

The field inspection included a complete visual inspection of the hydrologic restoration features of the project. The interior marsh creation feature of the project was not inspected due to the remote location of the fill area and difficulty in accessing the area. The crest elevations of the rock weirs on the interior of the island were not measured because the timber barricade system in front of the structures prevented access to the rock weirs. Where available, staff gauge readings were used to determine water elevations at the time of the inspection. Photographs taken during the inspection are compiled in Appendix B.

III. History and Project Description

Marsh loss rates throughout Point au Fer Island between 1932 and 1974 peaked at 45 acres per year and occurred as a direct result of oil exploration activities (NMFS, n.d.). The rate of interior marsh loss has decreased since that time and is currently estimated to be approximately 20 acres per year (NMFS, n.d.). Shoreline erosion along Lake Chapeau was estimated to be approximately 3 ft/yr. between 1932 and 1983 (NMFS, n.d.). Oil and gas access canals cut into the interior of Point au Fer Island have deteriorated the hydrologic separation between the Locust Bayou and Alligator Bayou watersheds and dramatically altered the island's natural drainage pattern. Sheet flow and over bank flow were drastically reduced by artificial levees, which in turn impounded marsh and led to degradation due to soil water logging (NMFS, n.d.). Due to unnatural hydrologic patterns, the abundant sediment load generated by the Atchafalaya River circulating through the island's interior have not been effectively utilized. Some other causes of land loss in this area can be contributed to natural subsidence and natural shoreline erosion (NMFS, n.d.).

The Lake Chapeau Hydrologic Restoration and Marsh Creation Project (TE-26) project was designed to restore the marshes west of Lake Chapeau and partially re-establish a hydrologic separation (land bridge) between the Locust Bayou and Alligator Bayou watersheds by utilizing sediment input by means of dredging and fill operations and restoring the islands hydrology through the construction of plugs/weirs, spoil bank gapping, and maintenance dredging of a natural bayou (NMFS. n.d.).

The final design of the Lake Chapeau project consisted of three (3) components, with additional project features added to address problems encountered during and after construction:

1. To re-establish a land bridge between Locust Bayou and Alligator Bayou, the first component was to hydraulically dredge approximately 721,931 cubic yards of material from the Atchafalaya Bay and spread to an average of two (2) feet thick to create approximately 168 acres of marsh between these two bayous (D. Burkholder, Final Report n.d.).

2. The second component of the project (hydrologic restoration) consisted of the construction of seven (7) rock weirs in manmade canals around the perimeter of Lake Chapeau and gapping existing spoil banks in one channel. The rock weirs and spoil bank gappings are designed to help restore the natural circulation and drainage pattern within the central portion of Point au Fer Island (D. Burkholder, Final Report n.d.). The principle project features of this component are:

    - Site No. 1 – Rock weir – 150 linear feet (LF)
    - Site No. 3 – Rock weir – 229 LF
    - Site No. 4 – Rock weir – 174 LF
    - Site No. 5 – Rock weir – 70 LF
    - Site No. 6 – Rock weir – 145 LF
    - Site No. 7 – Rock weir – 157 LF
    - Site No. 9 – Rock weir – 240 LF

3. The third component of the project consisted of dredging a 6,700 foot long silted section of Locust Bayou to its original navigable depth. This was done to accommodate the increase flows resulting from the re-establishment of the island's natural drainage patterns. A total of 59,218 cubic yards of material was dredged and placed in 1.5 ft. high by 80 ft. wide spoil banks on both sides of the bayou. The spoil banks were gapped periodically so not to impede the flow of natural waterways and drainage (D. Burkholder, Final Report n.d.)

Engineering, Design and Construction Administration for the Lake Chapeau project was performed by Burk-Kleinpeter (BKI) of New Orleans, La. under contract to the Department of Natural Resources (LDNR). BKI utilized two subcontractors during the design phase of the project. T. Baker Smith, Inc. of Houma, La. performed the field surveys and Eustice Engineering Company, Inc. of Metairie, La. performed the geotechnical investigation of the

weir sites. The sediment coring and geotechnical analysis of the borrow site in the Atchafalaya Bay were performed by C-K Associates, Inc. of Baton Rouge, La. and was completed through an indefinite delivery contract with NMFS. Landrights necessary for construction of the project were obtained by the LDNR and included servitude agreements with three (3) landowners: Point au Fer LLC/Archdiocese of New Orleans; Terrebonne Parish School Board; and the Louisiana Department of Wildlife and Fisheries. A letter of no objection was also obtained from the Louisiana State Lands Office for the dredging and placement of spoil material on state lands (D. Burkholder, Final Report n.d.).

Below is a timeline of significant events:

September 1995	Engineering design activities began.
September 1996	Preliminary design report and deliverables submitted by BKI
June 1997	Final Design Completed
April 1998	All landrights necessary to proceed with construction completed.
June 1998	Advertising for bids.
July 1998	Bids for construction opened.
September 1998	Notice to Proceed with construction issued to River Road Construction.
January 1999	Breach 3 repaired/ safety buoy installed (Change Order)
October 1999	Notice of Acceptance was issued by LDNR.

IV. Summary of Past Operation and Maintenance Projects

Below is a summary of maintenance projects completed since October 1999, the Notice of Acceptance date for the Lake Chapeau Sediment Input and Hydrologic Restoration Project (TE-26).

June 2000 – Repair of spoil bank breach by constructing a rock weir (breach site 3) and the repair and maintenance of five spoil bank areas by bucket dredging material in a canal located southwest of Lake Chapeau just west of plug Site No. 9. This work was performed by Johnny F. Smith Truck & Dragline Service, Inc. of Slidell, LA as part of the Point au Fer Project (TE-22) Phase III construction contract. Notice of Acceptance for this work was issued by LDNR in September 2000.

October 2004 – the first maintenance project on the Lake Chapeau project consisted of the removal and replacement of existing warning buoy system. The purpose of this project was to provide a more rigid barricade system at six (6) of the seven (7) weir sites for navigation safety and to prevent passage around the structure. The timber barricade system included timber piles driven every 20 ft across the existing channel with 4” diameter horizontal steel piping connecting the vertical timber piling. Each structure was marked with warning signs and reflective tape to allow visibility at night. The project was designed by Piciolla and Associates of Larose, La. and constructed by Dupre Brothers Construction Co., Inc. of Houma, La. The project was completed in October 2004 at a total cost of $330,745.50 (Includes: Engineering, Design, Bidding, Construction Administration, Inspection and

Construction)

September 2005 – the second maintenance project included a breach repair on the south side of Structure No.3. The purpose of the project was to extend the rock weir by 50 linear feet on the south side of the structure. Articulated concrete mats were also used on the south side to slow future shoreline erosion and potential breaching. This work was perform in conjunction with maintenance work on the Point au Fer Project (TE-22), which consisted of breach closures adjacent to the rock dikes along Mobil and Transco Canals and the extension of the bulkhead at Structure No. 8. This work was performed by Luhr Bros., Inc. with construction oversight services provided by Picciolla and Associates, Inc. of Larose.

Other Non-Maintenance Projects constructed within the Lake Chapeau project area

November 2007 – Dedicated Dredge Program – Point au Fer Island

The Department of Natural Resources Dedicated Dredge Program was initiated in FY 98/99 and is funded 100% by the State of Louisiana through its statutorily dedicated Wetlands Conservation and Restoration Fund. The goal of this program is to use a small, mobile hydraulic dredge to move sediment from small inland waterways within the coastal zone of Louisiana and deposit the material to nourish and/or rebuild the threatened coastal marsh that are located immediately adjacent to those waterways.

The Point au Fer Island Dedicated Dredge Project is located on Point au Fer Island between the Atchafalaya Bay and Lake Chapeau in Terrebonne Parish. The project consisted of dredging approximately 295,000 cubic yards to fill a 60 acre site adjacent to the original Lake Chapeau dredge site and the linear corridor connecting the proposed fill area to the Atchafalaya Bay. Below is the construction cost estimate involved with the Point au Fer Island Dedicated Dredge Project:

Construction Cost:	$2,461,650
Construction Administration:	$ 107,000
Total:	$2,568,650

V. Inspection Results

Site No. 1 – Rock Weir

Overall, the rock weir appeared to be in good condition with no apparent erosion or breaching around the ends of the weir. The timber barricade system and warning signs were also in good condition with no visible damage or corrosion. We did notice that the galvanized metal cap on the top of two (2) of the timber piles were missing. With the timber barricade system extending across the channel, we were unable to access the rock weir to measure water depths above the crest of the structure. The latest elevation data available from the 2004 survey profile of the structure indicates that the crest of the rock weir has settled approximately 1.39' since 1999. The water level data at the time of the inspection was not available. The TE26-03 data recorder station adjacent the structure was severely damaged during the 2008 storms

(Appendix B, Photos 1 - 4).

Site No. 3 – Rock Weir with Boat Bay

Prior to Hurricanes Gustav and Ike, the OCPR was in the process of receiving bids to close a 60 ft. wide breach on the north side of Structure No.3 and armoring approximately 200 linear feet of shoreline to the north. Following the 2008 storms, the existing shoreline on the north side of the structure had sustained significant land loss, leaving a 350 ft. wide breach on the north side. Considering the change in the scope of the breach repair project, the bids were subsequently canceled. After discussions with the federal sponsor (NMFS), it was determined that repairing the structure was no longer and option due to the amount of land loss along the shoreline north of the structure. With erosion rates in this area exceeding 60 ft/year, it is no longer feasible to maintain Structure No.3. We are proposing that the structure be permanently removed. It is recommended that all sign supports be removed and the rock rip rap and aggregate material be uniformly spread along the channel bottom to an elevation that would not interfere with navigation in the channel. (Appendix B, Photos 5 - 8).

Site No. 4 – Rock Weir

The rock weir appeared to be in good condition with no breaching around the ends. As in previous inspections, we found that the existing marsh connecting the structure to land on the south side of the weir was thin. Situated between Four League Bay and an open body of water, there is a potential for breaching to develop should erosion continue on the south side of the structure. The erosion rates at this location are not nearly as high as in the area adjacent to Structure No.3 estimated to be 60 ft/ year. From shoreline erosion data over the past few years, the marsh on the south side of Structure No.4 has eroded at an estimated rate of 13 ft/ year since 1998. Based on the condition of the marsh at this time and the short-term predicted erosion rates, we believe that the shoreline will eventually erode beyond the structure causing the weir to become ineffective. However, at this time, the weir appears to be functioning as designed with no indication that breaching will occur in the immediate future; therefore, we are not recommending that the structure be removed or the marsh tie-ins repaired until the weir in no longer functioning.

The timber barricade system and signage appeared to be in good condition. As reported in previous inspections, the two (2) center pilings were found to be slightly unstable. A combination of the inadequate embedment depths and poor soil conditions could have caused the instability in these piles. With the lateral support provided by the two (2) horizontal steel pipe members, we do not believe that minor instability in the center piles is a cause for concern at this time. The inspection team will continue to monitor the stability of the timber pile supports on future field trips. (Appendix B, Photos 9 - 12).

Site No. 5 – Rock Weir

The rock plug, tie-ins, earthen embankments, barricade system, warning signs and supports appeared to be in good condition with no visible signs of marsh erosion adjacent to the structure or damage to the barricade system. The latest elevation data from the 2004 survey profile of Structure No.5 indicates that the structure has settled on average of 0.14’ from the designed elevation. (Appendix B, Photos 13 - 15)

Site No. 6 – Rock Weir
It was discovered during the 2008 Annual Inspection that the timber barricade system in from of the structure had been vandalized. A ten (10) foot section of the two (2) steel pipe cross members between the center piles had been cut with a torch and were missing. It remains our opinion that any attempt to repair the damage to the barricade system, preventing access across the weir, would be unsuccessful; therefore, we are not recommending repairs to the steel pipe cross members. Other than the damage to the barricade system, the rock weir, earthen embankments, warning signs and supports were in very good condition. From the 2004 profile survey of the structure, it was determined that the rock weir had settled an average of approximately 1.1 ft. (Appendix B, Photos 16 - 18)

Site No. 7 – Rock Weir
The rock weir, earthen embankments, timber barricade system and signs and supports were all in very good condition with no apparent structure damage or erosion problems. Based on a survey profile of the rock weir in 2004, the structure has settled approximately 1.7' from its designed elevation. (Appendix B, Photos 19 - 21).

Site No. 9 – Rock Weir
The rock weir at this location was in good condition with no noticeable damage to the timber barricade system or erosion around the ends of the weir. Based on the 2004 survey profile of the structure, it was determined that the rock weir had settled an average of 1.7' from the designed elevation. (Appendix B, Photos 22 - 26).

VI. Conclusions and Recommendations

Overall, the structural components of the project (Structures No. 1, 5, 6, 7 & 9) located on the interior of island sustained no structural damage or marsh erosion. The rock structures appear to be in good condition with no indication of settlement, erosion around the structures or rock displacement. The timber barricade system and signage at each site was also in good condition. As previously reported, the timber barricade system at Structure 6 was vandalized in late 2007 resulting in an opening in the horizontal steel pipe in the center of the structure.

Structure No.4, located on the west bank of Four League Bay, was in good condition with no apparent storm damage other than moderate erosion of the marsh platform connecting the rock weir to the land. Contrary to our assessment in the 2008 Annual Inspection Report stating that the marsh tie-in will likely erode in a couple of years, we are currently uncertain and unable to predict at time-frame that the shoreline will erode to a point where the structure is rendered ineffective. Based on the current short-term shoreline erosion rates from 1998 to 2008, there is a possibility that shoreline adjacent to structure No.4 may remain intact for the remainder of the project life, barring any extreme storm events. Based on the newly acquired erosion data, we are not recommending maintenance, corrective actions or removal of Structure No.4. The inspection team will continue to monitor the condition of the marsh platform adjacent to Structure No.4 on future site visits.

In the case of Structure No.3, there was significant erosion of the marsh platform adjacent to

the weir, particularly on the north side of the structure. The existing breach on the north side, which was approximately 70' wide prior to the 2008 storms, had increased in width to approximately 350'. Prior to Hurricanes Gustav and Ike, the Office of Coastal Protection and Restoration (OCPR) was in the process of receiving bids for the repair of the breach and extension of the rock revetment northward. Due to the substantial change in the scope of the project, the bids were canceled in late September 2008.

After the initial damage assessment of Structure No.3, three (3) alternatives and cost proposals were prepared to address the 350' breach closure. These alternatives included the following:

- Constructing a 350' breach closure and 200' long shoreline revetment northward along the existing bankline. The overall estimated project cost for this alternative is approximately $800,000.

- Relocate the existing weir (Structure No.3) further inland between Four League Bay and Crab Lake. The channel width and depth at the selected site was approximately 290' and 25', respectively. This alternative would require demolition of the existing structure by spreading the rock weir material along the bottom of the bay to prevent underwater obstructions at the mouth of the channel and removal of all signs and supports. The overall estimated project budget for this alternative is approximately $1,298,000.

- Remove the structure entirely. This would require that the existing structure be demolished by spreading the existing rock material along the bottom of the bay in such a manner that there is no interference to marine navigation. The cost associated with this alternative is approximately $295,000.

In evaluating each alternative, the OCPR considered the initial cost of repairs and/or replacement of the structure, the implications of removing the structure and the affects on the island hydrology, and the anticipated future maintenance of the structure. A review of the conclusions in the 2007 Operation, Maintenance and Monitoring Report revealed that the project objectives and goals of restoring the historical hydrology of the island is inconclusive at this time and that land water analysis indicated continued land loss inside the project boundary (Lear E., T. Folse and B. Babin, 2007). Based on this analysis, the OCPR does not believe that removing Structure No.3 will significantly worsen the hydrologic conditions of the island. Regarding alternatives 1 and 2, the reconstruction of Structure No.3 at the current location or moving further inland towards Crab Lake will most likely require significant maintenance and possible expansion along the shoreline to protect the structure from breaching as the shoreline retreats. As the marsh on the south side of the structure continues to erode at an estimated 60ft/year, it will become more difficult and expensive to prevent breaching around the structure. Considering that project benefits are inconclusive and the cost of maintaining the structure for the remaining 20 year project life will be exorbitant, the OCPR is recommending that the third alternative of complete removal of the structure be implemented.

References:

D. Burkholder, n.d., Final Report, the Louisiana Department of Natural Resources, Baton Rouge, Louisiana.

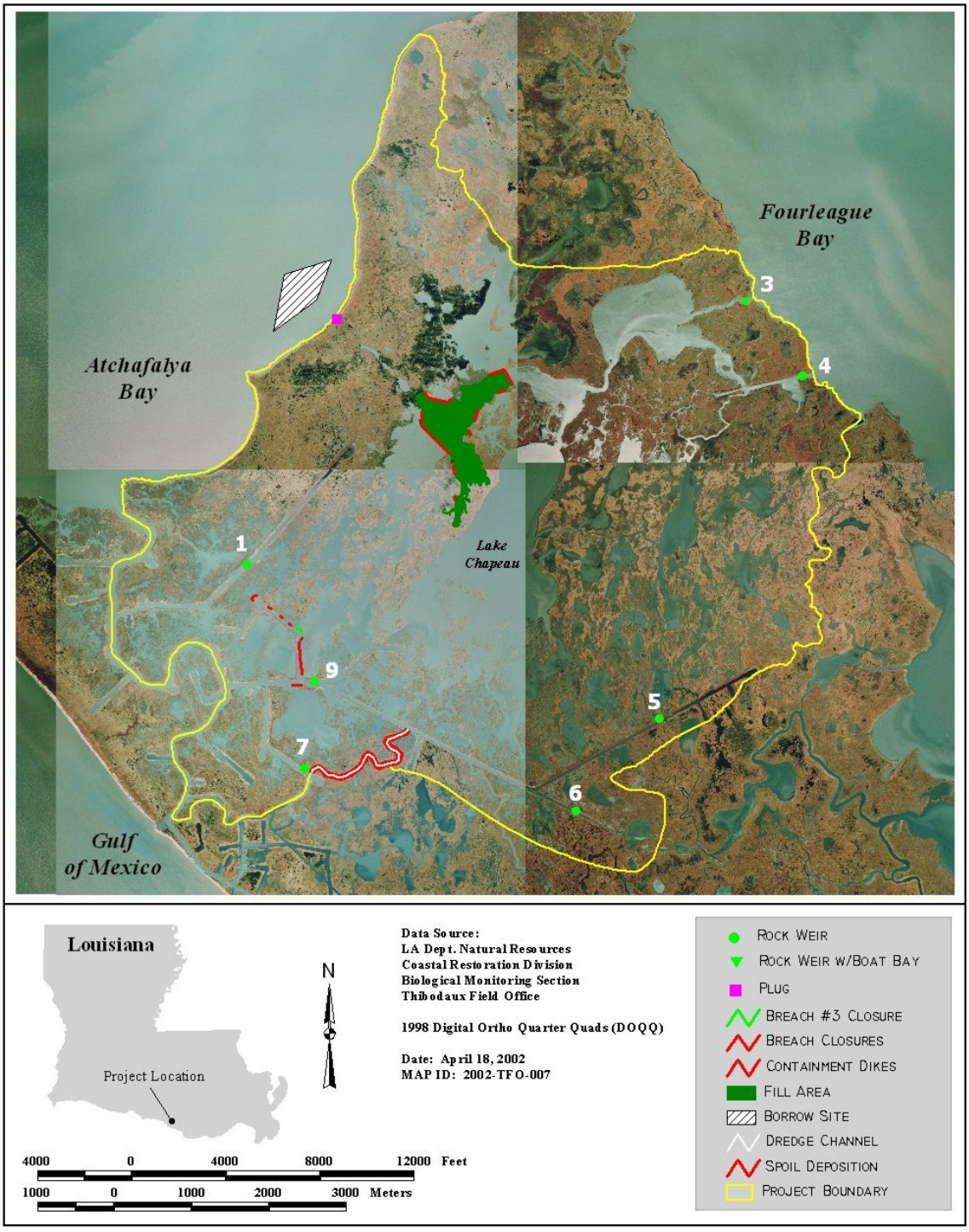
Lear, E., T. Folse, and B. Babin. 2007. *2007 Operations, Maintenance, and Monitoring Report for Lake Chapeau Sediment Input and Hydrologic Restoration, Point Au Fer Island (TE-26), Louisiana Department of Natural Resources, Coastal Restoration Division and Coastal Engineering Division, Thibodaux, Louisiana. 48 pp. plus appendices.*

National Marine Fisheries n.d., Coastal Wetlands Planning, Protection, and Restoration Act: Proposed Project Information Sheet. 9 pp.

Appendix A

Project Features Map

2009 Annual Inspection Report
Lake Chapeau Sediment Input and Hydrologic Restoration
State Project No. TE-26



Appendix B

Photographs

Photo No.1 – view of damaged sonde station near Structure No.1

Photo No.2 – view of the barricade system and rock weir tie-in on the east end of Structure No.1

Photo No.3 – view of the barricade system and rock weir tie-in on the west side of Structure No.1

Photo No.4 – view of the barricade system and rock weir of Structure No.1

Photo No. 5 – view of large breach opened after Hurricane Gustav on the north side of Structure No.3. Due to high tides during the inspection, the north side of the rock weir is at the water surface elevation and is not visible.

Photo No. 6 – rock weir and concrete mats on the south side of Structure No.3. The rock structure is barely visible due to high tides at the time this photo was taken.

Photo No. 7 – view of the existing shoreline on the north side of the weir structure and breach at Structure No.3.

Photo No. 8 - view of the existing shoreline on the north side of Structure No.3

Photo No.9 – view of the barricade system and rock weir on the north side of Structure No.4.

Photo No. 10 – view of the barricade system and rock weir at Structure No.4 looking southwest.

Photo No. 11 – rock weir tie-in and barricade system on the south side of Structure No.4

Photo No. 12 – view of the rock weir tie-in to the existing marsh and barricade system on the south side of Structure No.4

Photo No. 13 – rock weir tie-in to marsh and barricade system on the south side of Structure No.5.

Photo No.14 – rock weir tie-in to marsh and barricade system on the north side of Structure No.5.

Photo No. 15 – overall view of the Structure No.5 weir and barricade system looking east.

Photo No. 16 – rock weir tie-in to marsh and barricade system on the south side of Structure No.6.

Photo No. 17 – rock weir tie-in to marsh and barricade system on the north side of Structure No.6.

Photo No.18 – overall view of Structure No.6 and steel pipe cross members cut by vandals.

Photo No. 19 – barricade system and rock weir tie-in to marsh on the south side of Structure No.7.

Photo No. 20 – barricade system and rock weir tie-in to marsh on the north side of Structure No.7.

Photo No. 21 – Overall view of barricade system and rock weir of Structure No.7.

Photo No.22 – barricade system and rock weir tie-in along the east bank of Structure No.9

Photo No.23 – barricade system and rock weir tie-in along the west bank of Structure No.9.

Photo No.24 – barricade system and rock weir of Structure No.9 looking west.

Photo No.25 – barricade system and rock weir of Structure No.9 looking east.

Photo No.26 – overall view of the barricade system and rock weir at Structure No.9.

Appendix C

Three Year Budget Projection

Lake Chapeau Marsh Creation/ Hydrologic Restortaion/ TE-26 / PPL 3
Three-Year Operations & Maintenance Budgets 07/01/2009 - 06/30/12

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

	2009/2010	2010/2011	2011/2012
Maintenance Inspection	$ 5,908.00	$ 6,085.00	$ 6,268.00
Structure Operation			
Administration	$9,080.00	$ 2,121.00	$ 2,251.00
Maintenance/Rehabilitation			

09/10 Description: Removal of Structure No.3

E&D	$15,000.00
Construction	$283,750.00
Construction Oversight	$6,000.00
Sub Total - Maint. And Rehab.	$ 304,750.00

10/11 Description: Annual Inspection

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

11/12 Description: Annual Inspection

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

	2009/2010	2010/2011	2011/2012
Annual O&M Budgets	**$ 319,738.00**	**$ 8,206.00**	**$ 8,519.00**

O &M Budget (3 yr Total)	**$ 336,463.00**
Unexpended O & M Funds	**$ 538,151.00**
Remaining O & M Budget (Projected)	**$ 201,688.00**

OPERATIONS & MAINTENANCE BUDGET WORKSHEET

Project: TE-26 Lake Chapeau Marsh Creation and Hydrologic Restoration

FY 09/10 –

Administration	$ 9,080
O&M Inspection & Report	$ 5,908
Operation:	$ 0
Maintenance:	$304,750

Operation and Maintenance Assumptions: Includes an unplanned maintenance event to remove Structure No.3 entirely. Method of construction includes removing all signage and supports and degrading the rock weir by spreading rip rap material along the bottom of the channel and bay to an elevation that would not interfere with navigation.

Construction Cost:	Mobilization and Demobilization:	$150,000
	Degrading weir:	$ 70,000
	Survey:	$ 7,000
	Sub-Total Construction:	$227,000
	25% contingency:	$ 56,750
	Total Estimated Construction Cost:	**$283,750**

Engineering and Design:	$ 10,000
Construction Oversight:	$ 6,000
LDNR Construction Administration:	$ 5,000

Overall Project Budget for Structure No.3 Removal: $304,750

FY 10/11 –

Administration	$ 2,121
O&M Inspection & Report	$ 6,085
Operation:	$ 0
Maintenance:	$ 0

Operation and Maintenance Assumptions:
2010/2011 Annual Inspection and Report
NMFS administration: $2,121 from Beast Report.

FY 11/12 –

Administration	$	2,251
O&M Inspection & Report	$	6,268
Operation:	$	0
Maintenance:	$	0

Operation and Maintenance Assumptions:
2011/2012 Annual Inspection and Report
NMFS Administration: 2,251 from Beast Report

Unexpended funds from Lana Report:	$	579,023
FY09 Expenditures by LDNR	$	-34,872
FY09 Expenditures by NMFS	$	-6,000
Estimated Unexpended Funds:	$	538,151