



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

**2006 Annual Inspection Report**

**Bayou Sauvage Refuge Restoration  
Phase II**

State Project Number PO-18  
Priority Project List 2

August 15, 2006  
Orleans Parish

Prepared by:

Barry Richard, E.I.  
LDNR/CED  
New Orleans Field Office  
CERM, Suit 309  
2045 Lakeshore Dr.  
New Orleans, La 70122

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## **I. Introduction**

The Bayou Sauvage Refuge Restoration Phase II Project (PO-18) is located in eastern Orleans Parish approximately 10 miles northeast of Chalmette, LA (Appendix A). It is bordered by Interstate 10 to the north, U.S. Highway 90 to the south, the Lake Pontchartrain Hurricane Protection Levee to the east, and the Maxent Canal levee to the west. The project area includes approximately 6,900 acres of fresh marsh. The site was inspected on October 25, 2005 by representatives of LDNR and USFWS.

## **II. Project Description and History**

The Bayou Sauvage Refuge Restoration Phase II project has two 33-inch-diameter pumps which were installed at the same location. To ensure that the project-area water levels can be independently managed, a hydrologic connection between the project and the reference area was closed with an adjustable weir.

The project's purpose is to regulate water levels in the marshes of both units throughout the year by pumping excess water from the management areas. Such management during the fall and winter enhances emergent fresh marsh habitats in the project area for wintering waterfowl. Annually, the water level is intended to be controlled to the range of 0.0 feet to - 0.5 feet below marsh elevation during the spring and summer and to within 0.0 feet to + 0.5 feet above marsh elevation during the fall and winter. The water level control schedule is also intended to preserve black willow habitat in order to maintain wading bird rookeries.

## **III. Inspection Purpose and Procedures**

The purpose of the annual inspection of the Bayou Sauvage Refuge Restoration Phase II Project (PO-18) is to evaluate the constructed project features to identify any deficiencies and 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 the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan September 2, 2004). The annual inspection report also contains a summary of maintenance projects 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 completed since completion of the project are outlined in Section II.

An inspection of the Bayou Sauvage Refuge Restoration Phase II Project (PO-18) was held on October 25, 2005 by representatives of LDNR George Boddie, Tom Bernard, Barry Richard, Melissa Kaintz, and Dan Parker and Todd Smith of USFWS. The tidal

gauge at the Bayou Sauvage Refuge boat launch read 0.8 ft-NAVD. Photographs of that inspection are included in Appendix B of this report.

## **IV. Inspection Results**

### **Pump #3**

After Hurricane Katrina this was one of the two pumps that remained operable. It was used to pump the flood waters out of the project area and out into Lake Pontchartrain. Because of this extra load, and extended pump time, the clutch for Pump #3 froze. USFWS has recently replaced the clutch, and the pump is fully operational.

### **Pump #4**

After Hurricane Katrina this was one of the two pumps that remained operable. It was used to pump the flood waters out of the project area and out into Lake Pontchartrain. There were no problems with Pump #4 and it continues to work.

### **Highway 11 Culverts**

While these culverts are not a project feature, they do affect the flow of water into and out of the project area. It has been noted that these culverts have potentially collapsed, limiting the water exchange south of Hwy 11. This is causing the water in the project area to become stagnant instead of flowing out of, or into, the project area. During pumping operations, the culvert restrictions cause the northern unit to draw down much faster than the southern unit. This means that the northern pump must be shut down to allow water levels to stabilize and then resuming pumping operations until desired result is achieved. LaDOTD has been contacted about this problem and has assured LDNR that it will be corrected. LDNR will continue to stay in contact with LaDOTD, and monitor this situation.

## **V. Conclusions**

The structures sustained little damage from Hurricane Katrina. There was some noticeable biofoam coming from the outflow into the Lake (Photo #2). This did not prove to be harmful. The storm surge brought a large amount of high salinity water into the project area. This caused the marsh to become stressed which could slow or even prevent the recovery process. There is no way to flush the project area with fresh water so there is very little that can be done for this except monitor the situation.

## **VI. Recommendations**

There is no need to repair any of the pumps at this time. The marsh situation will continue to be monitored.

### **Immediate Repairs**

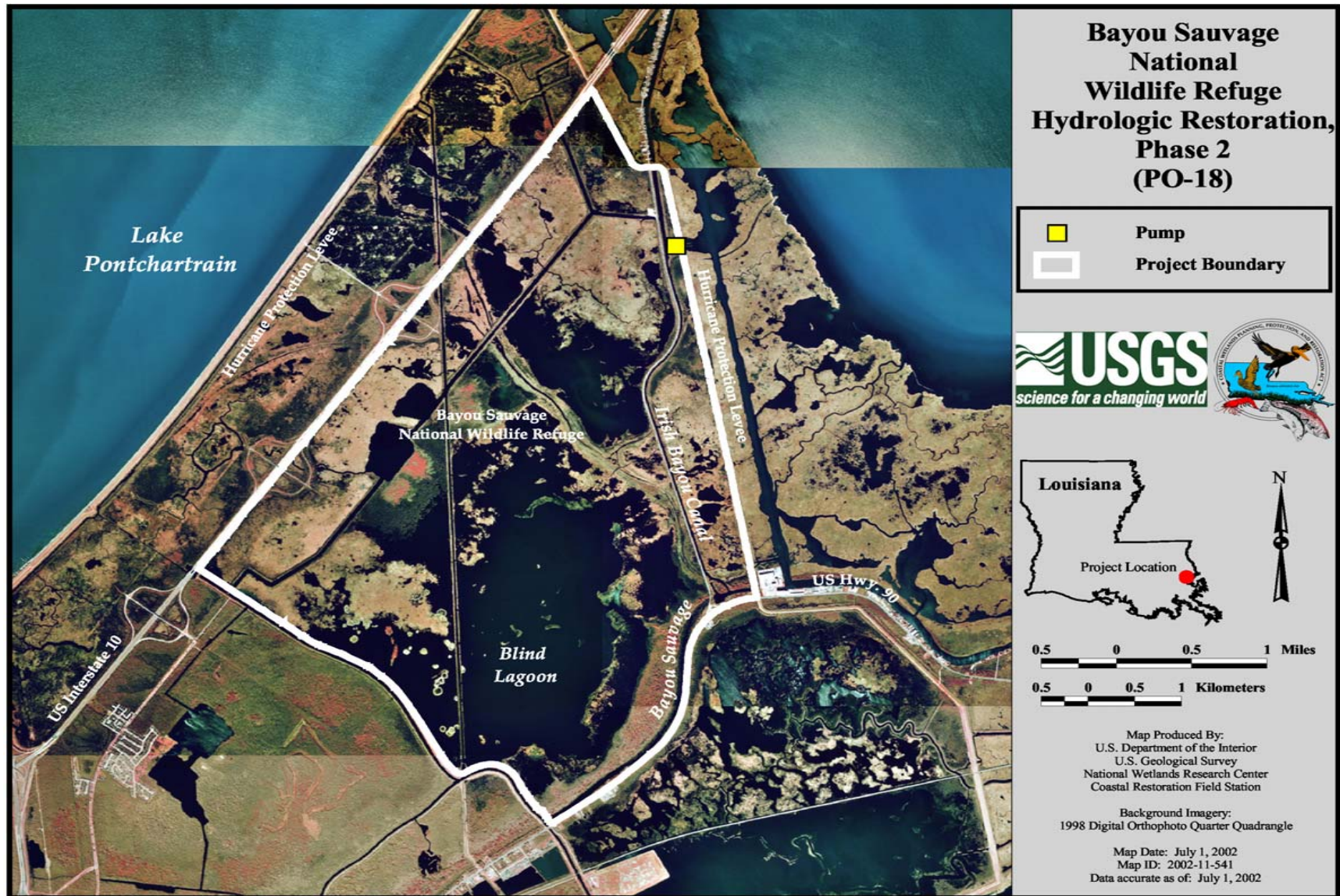
- None at this time.

### **Programmed Maintenance**

- Periodically check pump stations for any maintenance needs.

## **Appendix A**

### **Project Features Map**



## **Appendix B**

### **Photographs**





**Photo #1 – Pump #3.** This pump was working until the clutch froze. Note the leaking fluid.



**Photo #2 – Outflow.** This is where the water empties into Lake Pontchartrain from the pumps. Note the biofoam flowing into the open water.

## **Appendix C**

### **Three Year Budget Projection**

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Three-Year Operations & Maintenance Budgets 07/01/2006 - 06/30/2009				
<u>Project Manager</u>	<u>O &amp; M Manager</u>		<u>Federal Sponsor</u>	<u>Prepared By</u>
Barry Richard	Barry Richard		USFWS	Barry Richard
	<b>2006/2007</b>		<b>2007/2008</b>	<b>2008/2009</b>
<b>Maintenance Inspection</b>	\$3,257.00		\$3,341.00	\$3,428.00
<b>Structure Operation</b>	\$11,397.00		\$11,693.00	\$11,998.00
<b>Administration</b>	\$-		\$-	\$-
<b>Maintenance/Rehabilitation</b>				
06/07 Description:				
E&D	\$-			
Construction	\$-			
Construction Oversight	\$-			
Sub Total - Maint. And Rehab.	\$-			
07/08 Description:				
E&D		\$-		
Construction		\$-		
Construction Oversight		\$-		
	Sub Total - Maint. And Rehab.	\$-		
08/09 Description:				
E&D				\$-
Construction				\$-
Construction Oversight				\$-
		Sub Total - Maint. And Rehab.	\$-	
	<b>2006/2007</b>		<b>2007/2008</b>	<b>2008/2009</b>
<b><u>Annual O&amp;M Budgets</u></b>	<b>\$14,654.00</b>		<b>\$15,034.00</b>	<b>\$15,426.00</b>
<b><u>O &amp; M Budget (3 yr Total)</u></b>				<b>\$45,114.00</b>
<b><u>Existing O &amp; M Budget</u></b>				<b>\$161,598.71</b>
<b><u>Remaining O &amp; M Budget (Projected)</u></b>				<b>\$116,484.71</b>



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**OPERATION AND MAINTENANCE BUDGET WORKSHEET 2006/2007**

Bayou Sauvage Refuge Restoration (Phase II) / PO-18 / PPL 2

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$3,257.00	\$3,257.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	0	\$0.00	\$0.00
Operations Contract	LUMP	1	\$11,397.00	\$11,397.00
Construction Oversight	LUMP	0	\$0.00	\$0.00

**ADMINISTRATION**

LDNR / CRD Admin.	LUMP	0	\$0.00	\$0.00
FEDERAL SPONSER Admin.	LUMP	0	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL ADMINISTRATION COSTS:				\$0.00

**MAINTENANCE / CONSTRUCTION**

**SURVEY**

SURVEY DESCRIPTION:				
Secondary Monument	EACH	0	\$0.00	\$0.00
Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
TBM Installation	EACH	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL SURVEY COSTS:				\$0.00

**GEOTECHNICAL**

GEOTECH DESCRIPTION:				
Borings	EACH	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL GEOTECHNICAL COSTS:				\$0.00

**CONSTRUCTION**

CONSTRUCTION DESCRIPTION:					
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
	0	0.0	0	\$0.00	\$0.00
	0	0.0	0	\$0.00	\$0.00
	0	0.0	0	\$0.00	\$0.00
Filter Cloth / Geogrid Fabric	SQ YD	0		\$0.00	\$0.00
Navigation Aid	EACH	0		\$0.00	\$0.00
Signage	EACH	0		\$0.00	\$0.00
General Excavation / Fill	CU YD	0		\$0.00	\$0.00
Dredging	CU YD	0		\$0.00	\$0.00
Sheet Piles (Lin Ft or Sq Yds)		0		\$0.00	\$0.00
Timber Piles (each or lump sum)		0		\$0.00	\$0.00
Timber Members (each or lump sum)		0		\$0.00	\$0.00
Hardware	LUMP	0		\$0.00	\$0.00
Materials	LUMP	0		\$0.00	\$0.00
Mob / Demob	LUMP	0		\$0.00	\$0.00
Contingency	LUMP	0		\$0.00	\$0.00
General Structure Maintenance	LUMP	0		\$0.00	\$0.00
OTHER				\$0.00	\$0.00
OTHER				\$0.00	\$0.00
OTHER				\$0.00	\$0.00
TOTAL CONSTRUCTION COSTS:					\$0.00

**TOTAL OPERATIONS AND MAINTENANCE BUDGET:** **\$14,654.00**

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**OPERATION AND MAINTENANCE BUDGET WORKSHEET 2007/2008**

Bayou Sauvage Refuge Restoration (Phase II) / PO-18 / PPL 2

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$3,341.00	\$3,341.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	0	\$0.00	\$0.00
Operations Contract	LUMP	1	\$11,693.00	\$11,693.00
Construction Oversight	LUMP	0	\$0.00	\$0.00

**ADMINISTRATION**

LDNR / CRD Admin.	LUMP	0	\$0.00	\$0.00
FEDERAL SPONSER Admin.	LUMP	0	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL ADMINISTRATION COSTS:				\$0.00

**MAINTENANCE / CONSTRUCTION**

**SURVEY**

SURVEY DESCRIPTION:				
Secondary Monument	EACH	0	\$0.00	\$0.00
Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
TBM Installation	EACH	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL SURVEY COSTS:				\$0.00

**GEOTECHNICAL**

GEOTECH DESCRIPTION:				
Borings	EACH	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL GEOTECHNICAL COSTS:				\$0.00

**CONSTRUCTION**

CONSTRUCTION DESCRIPTION:					
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
	0	0.0	0	\$0.00	\$0.00
	0	0.0	0	\$0.00	\$0.00
	0	0.0	0	\$0.00	\$0.00
Filter Cloth / Geogrid Fabric	SQ YD	0		\$0.00	\$0.00
Navigation Aid	EACH	0		\$0.00	\$0.00
Signage	EACH	0		\$0.00	\$0.00
General Excavation / Fill	CU YD	0		\$0.00	\$0.00
Dredging	CU YD	0		\$0.00	\$0.00
Sheet Piles (Lin Ft or Sq Yds)		0		\$0.00	\$0.00
Timber Piles (each or lump sum)		0		\$0.00	\$0.00
Timber Members (each or lump sum)		0		\$0.00	\$0.00
Hardware	LUMP	0		\$0.00	\$0.00
Materials	LUMP	0		\$0.00	\$0.00
Mob / Demob	LUMP	0		\$0.00	\$0.00
Contingency	LUMP	0		\$0.00	\$0.00
General Structure Maintenance	LUMP	0		\$0.00	\$0.00
OTHER				\$0.00	\$0.00
OTHER				\$0.00	\$0.00
OTHER				\$0.00	\$0.00
TOTAL CONSTRUCTION COSTS:					\$0.00

**TOTAL OPERATIONS AND MAINTENANCE BUDGET:** **\$15,034.00**

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**OPERATION AND MAINTENANCE BUDGET WORKSHEET 2008/2009**

Bayou Sauvage Refuge Restoration (Phase II) / PO-18 / PPL 2

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$3,428.00	\$3,428.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	0	\$0.00	\$0.00
Operations Contract	LUMP	1	\$11,998.00	\$11,998.00
Construction Oversight	LUMP	0	\$0.00	\$0.00

**ADMINISTRATION**

LDNR / CRD Admin.	LUMP	0	\$0.00	\$0.00
FEDERAL SPONSER Admin.	LUMP	0	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
TOTAL ADMINISTRATION COSTS:				\$0.00

**MAINTENANCE / CONSTRUCTION**

**SURVEY**

SURVEY DESCRIPTION:					
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
	TOTAL SURVEY COSTS:				\$0.00

**GEOTECHNICAL**

GEOTECH DESCRIPTION:					
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
	TOTAL GEOTECHNICAL COSTS:				\$0.00

**CONSTRUCTION**

CONSTRUCTION DESCRIPTION:						
	Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
		0	0.0	0	\$0.00	\$0.00
		0	0.0	0	\$0.00	\$0.00
		0	0.0	0	\$0.00	\$0.00
	Filter Cloth / Geogrid Fabric		SQ YD	0	\$0.00	\$0.00
	Navigation Aid		EACH	0	\$0.00	\$0.00
	Signage		EACH	0	\$0.00	\$0.00
	General Excavation / Fill		CU YD	0	\$0.00	\$0.00
	Dredging		CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)			0	\$0.00	\$0.00
	Timber Piles (each or lump sum)			0	\$0.00	\$0.00
	Timber Members (each or lump sum)			0	\$0.00	\$0.00
	Hardware		LUMP	0	\$0.00	\$0.00
	Materials		LUMP	0	\$0.00	\$0.00
	Mob / Demob		LUMP	0	\$0.00	\$0.00
	Contingency		LUMP	0	\$0.00	\$0.00
	General Structure Maintenance		LUMP	0	\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	TOTAL CONSTRUCTION COSTS:					\$0.00

**TOTAL OPERATIONS AND MAINTENANCE BUDGET:** **\$15,426.00**

## **Appendix D**

### **Field Inspection Form**



FIELD INSPECTION CHECK SHEET

Project No. / Name:	Bayou Sauvage Refuge (Phase 2) PO-18	Date of Inspection:	25-Oct-05	Time:	9:30 AM
Structure No.		Inspector(s):	LDNR: Richard, Bernard, Boddie, Kaintz		
Structure Description:	Dual-Pump Station Platform	Water Level:	Normal	Outside:	Normal
Type of Inspection:	Post Storm	Weather Conditions:	clear skies		

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Platform	Good	None	Moderate		
Trash Rack	Good	None	Not closely inspected		
Fuel tank	Good	None	Minor		New fencing still too close to drain on tank.
Pump Drive Engines	Satisfactory	None	Moderate	1	Clutch froze in Pump #3
Pump gear boxes	Satisfactory	None	Moderate		
Piping	Good	None	Spot corrosion		Minor spot coating needed
Lake Pontchartrain water inlet system	NA	NA	NA		