State of Louisiana

Coastal Protection and Restoration Authority of Louisiana

Monitoring Plan

for

South Grand Chenier Marsh Creation Project (ME-20)

State Project Number ME-20
Priority Project List 11

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Cameron Parish

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The project features covered by this plan comprise the South Grand Chenier Marsh Creation Project (ME-20). The intention of the provisions of this plan is to monitor the project using standardized data collection techniques and to analyze that data to determine whether the project is achieving the anticipated benefits. Reports will be generated and recommendations made to adaptively manage the project.

1. PROJECT DESCRIPTION, PURPOSE, GOALS, and FEATURES

Description: The South Grand Chenier Marsh Creation (ME-20) project is located in the Mermentau Basin approximately 6 miles southeast of the town of Grand Chenier between Highway 82 and the Gulf of Mexico (Figure 1). Marshes in this area historically received freshwater via Hog Bayou from the Mermentau River during flooding events (Ensminger and Simon 1993). This inflow decreased after the construction of the Catfish Point Control Structure in 1951 reduced freshwater flow down the lower Mermentau River (Louisiana Coastal Wetlands Conservation and Restoration Task Force 2002). The area's hydrology was altered further by the construction of the Mermentau River to Gulf of Mexico Navigation Channel in 1971, which created a conduit that routed freshwater directly to the Gulf and allowed saltwater intrusion into interior marshes (Ensminger and Simon 1993). As a result of these hydrologic changes and several failed agricultural impoundments, the project and adjacent area has lost a considerable amount of marsh and now comprises 430 acres of open water and 23 acres of predominantly brackish and saline marsh (U.S. Fish and Wildlife Service 2012).

The goal of the ME-20 project is to create 453 acres of marsh by dedicated dredging. The created marsh will be strategically located to impede the movement of high-salinity water coming from Hog Bayou and Beach Prong into the eastern project area (Figure 1). These strategies are consistent with the *Coast 2050* plan, which recommended the dedicated dredging of sediment for wetland creation and the movement of water from north to south across Highway 82 as Region 4 ecosystem strategies to restore and sustain wetlands (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1999). The project is also consistent with Louisiana's Comprehensive Master Plan for a Sustainable Coast (Coastal Protection and Restoration Authority of Louisiana 2012).

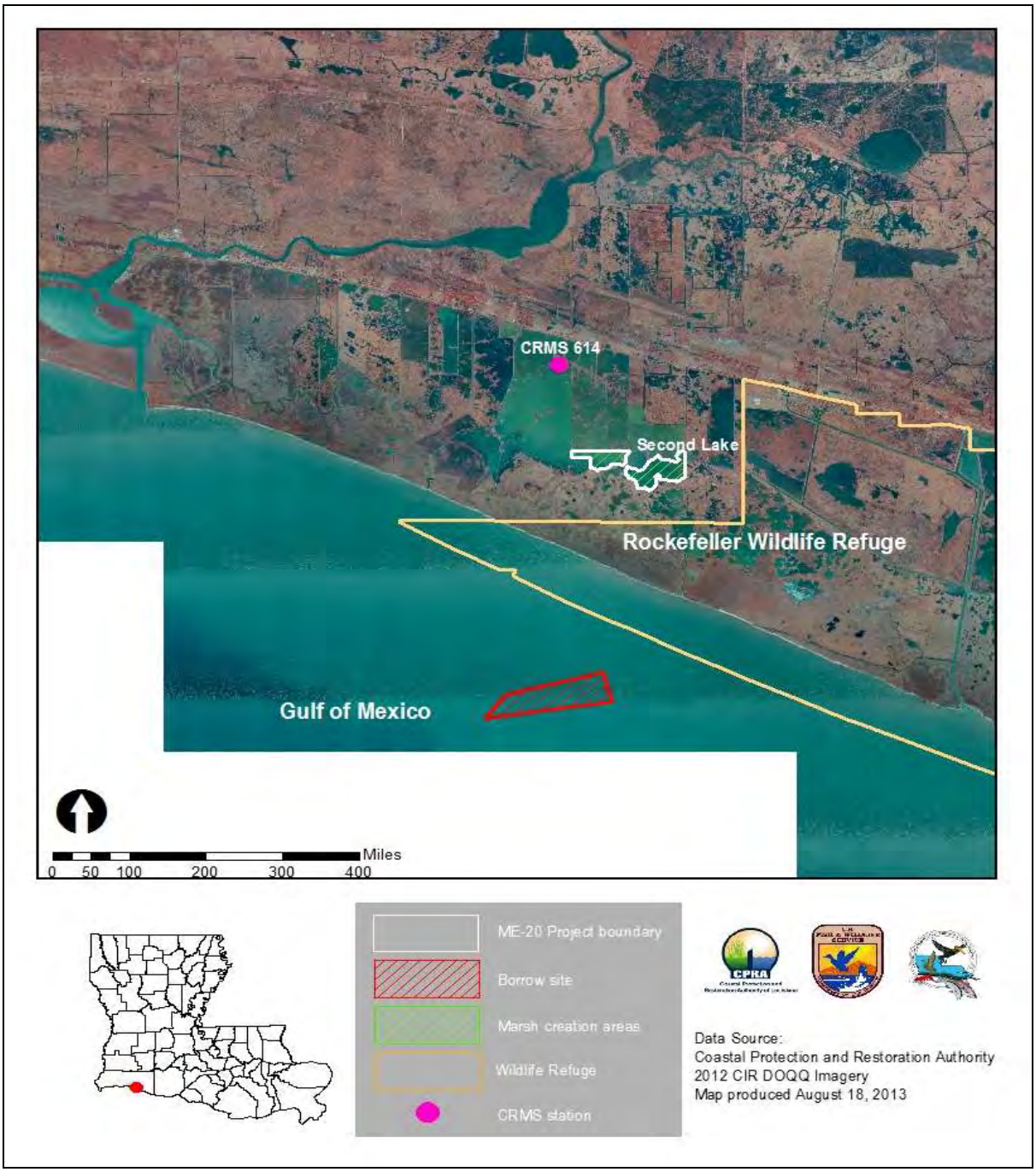

Figure 1. The South Grand Chenier Marsh Creation (ME-20) project area and features.

Purpose:
The project's purpose is to create 400+ acres of new emergent marsh.

Goals:
The specific project goals are:

A. Create approximately 453 acres (~182 ha) of emergent marsh in shallow water and mud flats via dredged materials from the Gulf of Mexico.
B. Reduce the future loss rate of new and existing marsh in the project area.

Features:

Sediment dredged from the Gulf of Mexico will be transported via pipeline to two marsh creation cells located near Second Lake (Figure 1). The western cell will be 176 acres in size and will be pumped to an elevation of +4.3 feet NAVD 88, whereas the eastern cell will be 277 acres and will be pumped to +4.5 feet NAVD 88. The created marshes are projected to reach an elevation of +1.3 feet NAVD 88 three years post-construction. Containment dikes will be degraded one year after construction and trenasses will be constructed to return natural hydrology to the created marshes. The created marshes will be planted with *Spartina alterniflora*.

2. ITEMS REQUIRING MONITORING

Project specific aerial photography and vegetation data will be used in conjunction with CRMS supplemental data to assess this project. CRMS 614 is located about 1 mile north of the western marsh creation area.

A. Land to Water ratios of the project area will be assessed using aerial photography collected by the CRMS program. The project area will be analyzed with photography collected near years 10 and 20.
B. Land to Water ratios of the 1 km^2 surrounding CRMS 614 will be assessed each year CRMS photography is collected (approximately every 3 years) to use the hydrologic data for the eastern marsh creation site.
C. Vegetation will be collected at project specific vegetation stations within the marsh creation areas in years 1, 3, 5, 10 and 15. Vegetation data will be used to quantify changes in vegetative cover within the created marsh and to compare the species assemblage within the created marsh to pre-existing marshes.
D. Elevation surveys of the marsh creation areas will be conducted in years 1, 3, 5 and 10.

E. Salinity data collected hourly at CRMS 614 will be compared to other CRMS sites to determine whether the eastern marsh creation cell effectively impeded the movement of high salinity water from Hog Bayou and Beach Prong.
F. Soil interstitial (porewater) salinity data will be collected monthly at CRMS 614.
G. Elevation change, vertical accretion, and shallow subsidence measured annually at CRMS 614 will be assessed relative to other CRMS sites.
H. Additional CRMS Supplemental data including soil composition and water level will be available and will be used as needed in future reports.

3. MONITORING BUDGET

The $1,081,369 monitoring budget for this project is for the project specific aerial photography, vegetation monitoring, elevation surveys and reporting (Attachment 1). The data collection efforts at CRMS 614 and other sites and the coastwide aerial photography data collection from which the project area will be analyzed for spatial analysis are covered by the CRMS program.

4. MONITORING RESPONSIBILITIES

A: CPRA will:

1. Coordinate and oversee all scientific data collection.

2. Ensure that all data goes through quality control procedures and is entered into the public database.

3. Analyze the data and report on the status of the project every three years. Recommendations will be made to adaptively manage the project based on the data.

4. The representatives appointed above shall meet as necessary to review the reports and discuss the project status.

B. FWS will:

1. Review the reports and provide concurrence on any corrective action or project monitoring changes.

References

Coastal Protection and Restoration Authority of Louisiana. 2012. Integrated Ecosystem Restoration and Hurricane Protection: Louisiana's Comprehensive Master Plan for a Sustainable Coast. Baton Rouge, Louisiana. 117 pp.

Ensminger, A. and C. Simon. 1993. 1993 Vegetation Delineation Report, Hog Bayou Wetland Project ME-2. Louisiana Department of Natural Resources, Coastal Restoration Division, Baton Rouge, Louisiana. 16 pp.

Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1999. Coast 2050: Toward a Sustainable Coastal Louisiana, The Appendices. Appendix F – Region 4 Supplemental Information. Louisiana Department of Natural Resources, Baton Rouge, Louisiana. 228 pp.

Louisiana Coastal Wetlands Conservation and Restoration Task Force. 2002. Hydrologic Investigation of the Louisiana Chenier Plain. Louisiana Department of Natural Resources, Coastal Restoration Division, Baton Rouge, Louisiana. 135 pp. plus appendices.

U.S. Fish and Wildlife Service [USFWS] 2012. Revised Wetland Value Assessment for the South Grand Chenier Marsh Creation (ME-20) project. Lafayette, Louisiana. 23 pp. plus appendices.

Attachment 1

Project Monitoring Budget

Monitoring Items (State costs placed in separate "monitoring" acct)																						
Elevation Surveys	1	$75,000	$75,000		$82,493		$86,835					$98,730										$343,058
Land-Water Analysis	1	$6,716	$6,716									$8,841					$10,051					$25,608
Contractor &/or CPRA Equipment, Travel Sub-Total			**$81,716**	**$0**	**$82,493**	**$0**	**$86,835**	**$0**	**$0**	**$0**	**$0**	**$107,571**	**$0**	**$0**	**$0**	**$0**	**$10,051**	**$0**	**$0**	**$0**	**$0**	**$0**	**$368,666**
CPRA Personnel Costs																						
Task Management: Elevation Survey (60 hrs)	1	$3,652	$3,652		$4,017		$4,228					$4,807										$16,705
Task Management : Land/Water Analysis (20 hrs)	1	$1,217	$1,217									$1,602					$1,821					$4,640
Vegetation (1 day)	1	$4,260	$4,260		$4,686		$4,952					$5,608					$6,376					$25,861
Report (240 hrs)	1	$14,606				$16,483		$17,350					$19,727					$22,428			$24,854	$100,841
Project Administration (40 hrs)	1	$2,434	$2,434	$2,609	$2,677	$2,747	$2,818	$2,891	$2,967	$3,044	$3,123	$3,204	$3,287	$3,373	$3,460	$3,550	$3,643	$3,737	$3,835	$3,934	$4,037	$4,142	$65,512
	Subtotal (5)		*$11,563*	*$2,609*	*$11,380*	*$19,230*	*$11,979*	*$20,242*	*$2,967*	*$3,044*	*$3,123*	*$15,222*	*$23,014*	*$3,373*	*$3,460*	*$3,550*	*$11,840*	*$26,165*	*$3,835*	*$3,934*	*$4,037*	*$28,995*	**$213,562**
	CPRA IDC (FY2A; 233.73%)		*$27,026*	*$6,098*	*$26,598*	*$44,946*	*$27,999*	*$47,312*	*$6,933*	*$7,115*	*$7,299*	*$35,578*	*$53,791*	*$7,884*	*$8,087*	*$8,297*	*$27,674*	*$61,155*	*$8,964*	*$9,195*	*$9,436*	*$67,770*	$499,188
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	TOTAL State Cost (1-5)		$120,305	$8,707	$120,471	$64,176	$126,813	$67,554	$9,902	$10,159	$10,422	$158,371	$76,805	$11,257	$11,547	$11,847	$49,565	$87,320	$12,799	$13,129	$13,473	$96,765	$1,081,386