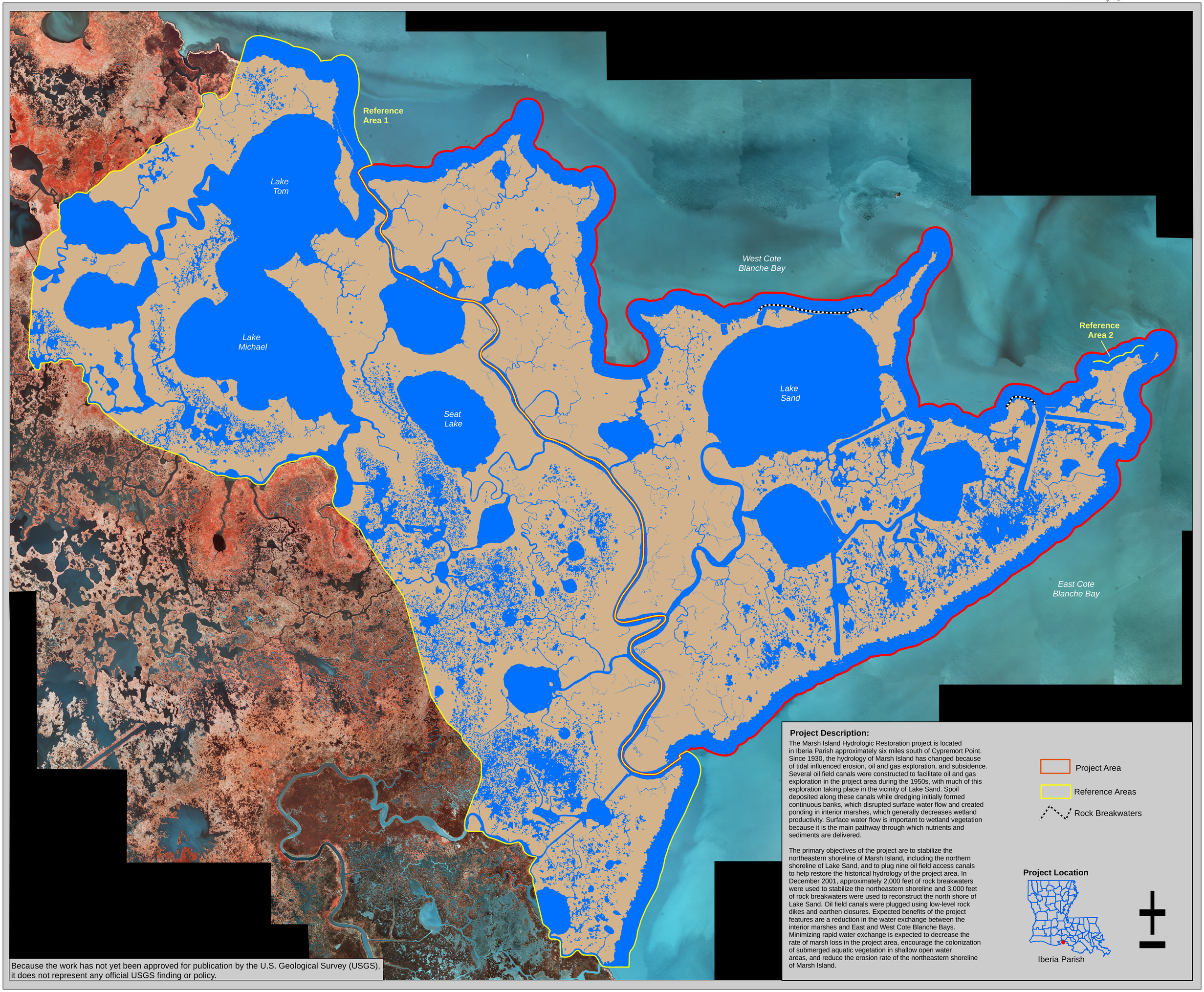
Marsh Island Hydrologic Restoration (TV-14)

Coastal Wetlands Planning, Protection and Restoration Act

2009 Land-Water Classification

USGS science for a changing world

CPRA Coastal Protection and Restoration Authority of Louisiana



Because the work has not yet been approved for publication by the U.S. Geological Survey (USGS), it does not represent any official USGS finding or policy.

Project Description:

The Marsh Island Hydrologic Restoration project is located in Iberia Parish approximately six miles south of Cypremort Point. Since 1930, the hydrology of Marsh Island has changed because of tidal influenced erosion, oil and gas exploration, and subsidence. Several oil field canals were constructed to facilitate oil and gas exploration in the project area during the 1950s, with much of this exploration taking place in the vicinity of Lake Sand. Spoil deposited along these canals while dredging initially formed continuous banks, which disrupted surface water flow and created ponding in interior marshes, which generally decreases wetland productivity. Surface water flow is important to wetland vegetation because it is the main pathway through which nutrients and sediments are delivered.

The primary objectives of the project are to stabilize the northeastern shoreline of Marsh Island, including the northern shoreline of Lake Sand, and to plug nine oil field access canals to help restore the historical hydrology of the project area. In December 2001, approximately 2,000 feet of rock breakwaters were used to stabilize the northeastern shoreline and 3,000 feet of rock breakwaters were used to reconstruct the north shore of Lake Sand. Oil field canals were plugged using low-level rock dikes and earthen closures. Expected benefits of the project features are a reduction in the water exchange between the interior marshes and East and West Cote Blanche Bays. Minimizing rapid water exchange is expected to decrease the rate of marsh loss in the project area, encourage the colonization of submerged aquatic vegetation in shallow open water areas, and reduce the erosion rate of the northeastern shoreline of Marsh Island.

Project Area

Reference Areas

Rock Breakwaters

Project Location

Iberia Parish

Prepared by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Lafayette, Louisiana
and
Coastal Protection and Restoration Authority of Louisiana
Lafayette Field Office

2009 Land-Water Acreages

Class	Project Area	Reference Area 1	Reference Area 2*
Land	4,116	4,597	0
Water	3,194	3,577	0
Total	**7,310**	**8,174**	**0**

* Reference Area 2 was created for comparison of shoreline positions only. It contains an insignificant amount of area and is, therefore, not included in the land-water classification.

Scale 1:14,000

0.5 0 0.5 1 1.5 Miles

0.5 0 0.5 1 1.5 2 Kilometers

Data Information:
The land-water data were derived from 1:12,000 scale color infrared aerial photography acquired December 20, 2009. All areas characterized by emergent vegetation, wetland forest, upland, or scrub-shrub were classified as land, while open water, aquatic beds, and mudflats were classified as water. The Reference Area represents a control as an effective means for evaluating a project's success.

Federal Sponsor:
U.S. Army Corps of Engineers

US Army Corps of Engineers

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