Louisiana Coastal Wetlands Planning, Protection and Restoration News

WATER MARKS

Region Four: The Land and Its People

The Coastal Crisis and Louisiana's Response

A Case Study: Cameron-Creole Watershed Project

Looking to the FUTURE

REGION 4 November 2000 • Number 17

Number One in a Series of Four

WaterMarks

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WaterMarks is published quarterly by the Louisiana Coastal Wetlands Conservation and Restoration Task Force to communicate news and issues of interest related to the Coastal Wetlands Planning, Protection and Restoration Act of 1990. This legislation funds wetlands enhancement projects nationwide, designating approximately $35 million annually for work in Louisiana. The state contributes 15 percent of the cost of project construction.

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About This Issue's Cover . . .
Live oaks on a Southwest Louisiana chenier are silhouetted by the evening sun (Southwest Louisiana Convention & Visitors Bureau Photo).

In This Issue...

Starting with this issue, WaterMarks will begin a four-part series presenting an in-depth look at each of the four regions defined in Coast 2050. Each issue will offer a casebook for a single region providing a historical overview, articles on current and future interests, and a detailed look at a regional project.

Coastal Louisiana hydrologic basin area

Contents

For more information about Louisiana's coastal wetlands and efforts planned and under way to ensure their survival, check out these sites on the World Wide Web:

www.lacoast.gov
www.savelawetlands.org
www.btnep.org
www.crcl.org

Region Four: The Land and Its People

Southwest Louisiana Convention & Visitors Bureau Photo

A vast expanse of wild marsh, waterways and cheniers characterizes much of Region Four. Located within Cameron, Calcasieu and Vermilion parishes and washed on its southern border by the Gulf of Mexico, the region has been a focal point for the blending of ecosystems—a place where alliances are formed between fresh and salt water, land and sea. Fertile with life, the estuaries bordering the gulf offer inland passage to the tidal flows that mix with the freshwater marshes, lakes and rivers that dominate the region.

US Army Corps of Engineers Photo

For thousands of years, the wetlands flourished, unaffected by man's influence. Fresh water flowed from the north, vitalizing the marshes and estuaries, and a complex coastal ecosystem readily adjusted to the onslaught of gulf storms, tidal surges and shifting river channels. A diverse population of plant and animal life prospered, waned, recovered and achieved a fragile balance. Late in the 1700s, however, settlers began to venture into the 2,300-square-mile wilderness. Following the Gulf Coast from the east and west, and the Sabine, Calcasieu, and Mermentau rivers from the north, the new arrivals established homes and farms on the cheniers below the White, Grand, Calcasieu and Sabine lakes. The area's residents harvested the abundant resources of the region in concert with the ebb and flow of the seasons. Spring and summer gave them opportunities for crawfishing, shrimping, crabbing and gathering alligator eggs. During the fall and winter months, they hunted alligators and waterfowl, harvested oysters and ran trap lines for fur bearers.

The land sustained the pioneers, and over time a diverse range of nationalities shaped the ethnic qualities of the region. French, Spanish, Scottish, Irish, German, Italian and African cultures blended together. Among them were the Acadian French whose style in language, food and music would eventually come to

symbolize Louisiana for much of the nation.

It was, however, the 1940s that marked the beginning of the most radical change in the region's history. During that decade, large oil and gas deposits were discovered, and by the 1950s an oil boom had begun that would last for over 30 years.

The discovery brought new jobs, wealth, population growth, and eventually contributed to an ecological crisis in the wetlands. As southwestern Louisiana responded to a new form of commerce, an industrial work force supplanted the traditional economy. Roads were built, 2,000 miles of navigation channels and canals were dredged, and pipelines and oil rigs spread across the region. At the same time, spoil banks began to redirect and interrupt the natural flow of water through the marshes, oil- and gas-pipeline canals allowed the intrusion of salt water, and tidal fluctuations increased. This collision between man and marsh began a deterioration of both habitat and ecosystems that today virtually defines the social, economic and political issues of Region Four.❍

US Army Corps of Engineers Photo

"We can make real headway toward restoring much of what has been lost in Region Four."

David Richard, Executive Vice President, Stream Property Management

Southwest Louisiana Convention & Visitors Bureau Photo

The Coastal Crisis and Louisiana's Response

Southwest Louisiana Convention & Visitors Bureau Photo

"While significant dollars have been committed to Region Four, significant is not enough."

Paul Coreil, Assistant Director, Environmental Affairs at LSU

Even a cursory review of the data shows that Region Four, like all of coastal Louisiana, has suffered severe wetland loss in the last century. From 1932 to 1990, the region lost approximately 25 percent of its wetlands. The causes of this dramatic loss are commonly cited as:

- saltwater intrusion brought about by the construction of major ship channels, oil- and gas-pipeline canals, and the Gulf Intracoastal Waterway
- the construction and operation of locks and gates that cause high water
- shoreline erosion in lakes, bays and the Gulf of Mexico
- regional subsidence of the marshes

US Army Corps of Engineers Photo

Looking into the future, scientists project that the region will lose an additional 13 percent of its wetlands by the year 2050. While this is the lowest loss projection among the four Coast 2050 regions, it represents the disappearance of 100,000 additional acres of marsh.

Although many people living in the Vermilion, Cameron and Calcasieu parishes had been aware of the problem for decades, its full dimension was not quantified until mapping studies were completed in the 1970s. These studies gave citizens and political leaders the scientific data they needed to push through a series of federal initiatives that culminated in the Breaux Act of 1990. Coast 2050, approved in 1998, provided the all-important comprehensive strategic plan that an effective response required.

Coast 2050 identifies three broad habitat objectives for Region Four:

1. maintain most of the habitat in the northeast portion of the region

(Lakes Subbasin) as fresh and intermediate marsh

2. convert the existing saline and brackish marshes in the southeast portion of the region (Chenier Subbasin) to brackish and intermediate marshes
3. create fresher conditions in the Calcasieu-Sabine Basin by converting the central portion to fresh marsh and the remainder to intermediate marsh

The Breaux Act projects listed in the following chart summarize the concrete action that has been taken thus far to preserve and restore the marsh in Region Four.❍

Region Four CWPPRA Projects: Construction Status

Project Name	Description of Project Work	Acres Benefited	Completion Date	Construction Status
Cameron-Creole Plugs	installation of two plugs with small boat bays in the Calcasieu Lake Levee Borrow Canal to prevent saltwater intrusion	865	28-Jan-97	construction complete, monitoring in progress
Sabine National Wildlife Refuge Erosion Protection	construction of a rock dike along Burton Sutton Canal and revetment along Starks Canal, rock armoring of three water control structures and installation of three alligator crossings	5,542	1-Mar-95	construction complete, monitoring in progress
Brown Lake's Hydrologic Restoration	construction of earthen terraces and boundry levee, vegetative plantings, installation of two water control structures and one freshwater introduction structure	282	1-Feb-02	modeling underway
Mud Lake Hydrologic Restoration	boundary levee rehabilitation, 15,000 linear feet of vegetative plantings, installation of 16 water control structures	1,520	15-Jun-96	construction complete, monitoring in progress
Highway 384 Hydrologic Restoration	installation of culverts and channel rip-rapping, construction of shoreline breach plugs, vegetative plantings and maintenance of the perimeter levee	150	7-Jan-00	construction complete,
Clear Marais Shore Protection	construction of six miles of rock-armored breakwater	1,067	3-Mar-97	construction complete, monitoring in progress
Cameron-Creole Maintenance	repair of the Grand Bayou structure, rock placement and ongoing maintenance	2,602	15-Jul-98	first three maintenance contracts complete
Replace Hog Island, West Cove and Headquarters Canal structures	replacement of existing structures to increase discharge potential and management flexibility	953	Spring-01	under construction
Perry Ridge Shoreline Protection	installation of 12,000 linear feet of rock dike to reduce erosion and decrease the potential of saltwater intrusion	1,203	15-Feb-99	construction complete, monitoring in progress
Sweet Lake/Willow Lake Hydrologic Restoration	plantings of California Bulrush, installation of rip-rap rock embanks and construction of terraces	247	1-Mar-00	bank protection complete, plantings and terraces to be built in spring 2001
Black Bayou Hydrologic Restoration	installation of a rock dike, installation of two weirs, replacement of culverts, installation of a ditch plug and a canal plug, installation of rock liner and 133,000 linear feet of vegetative plantings	3,594	1-Jun-02	engineering and design underway
Cameron Prairie National Wildlife Refuge Shoreline Protection	construction of 6,000 linear feet of rock breakwater	247	9-Aug-94	construction complete, monitoring in progress
Freshwater Bayou Wetlands	bank protection and installation of eight variable-crest weirs	1,593	pending	bank protection complete, weirs scheduled in future
Freshwater Bayou Canal Bank Stabilization	construction of 23,350 linear feet of rock dike	511	15-Jun-98	construction complete
Pecan Island Terracing	extensive construction of earthen terraces	442	1-Feb-02	engineering design underway, land rights being negotiated

Southwest Louisiana Convention & Visitors Bureau Photo

A Case Study: Cameron-Creole Watershed Project

Southwest Louisiana Convention & Visitors Bureau Photo

> *"The Cameron-Creole project has dramatically reduced the rate of marsh deterioration."*
>
> Judge Ward Fontenot, District Court Judge, 38th Judicial District

The 113,000-acre Cameron-Creole Project is located in the southeast corner of the 67-square-mile Calcasieu Lake. Surrounded by one million acres of Chenier Plain wetlands, the project's expanses of open water and marsh merge with the small streams and bayous that provide drainage and water exchange.

Prior to the 1950s, marshes in the project area were vigorous and stable. In 1951, the Calcasieu River, which runs through the heart of the project, underwent extensive dredging and deepening to form the Calcasieu Ship Channel. The enlarged channel altered the flow of water to, from and within Cameron-Creole's marshes. Influenced by storms and tidal movement, salt water from the Gulf of Mexico entered the channel at a faster rate and penetrated further north. Simultaneously, the rate at which fresh water was flowing out of the marshes increased. By the mid-1950s, the marshes were rapidly deteriorating. Vegetation, affected by changes in salt concentrations, weakened and died. Exposed to wind, waves and tide, the stressed marshes began to convert to open water and mud flats. Erosion, driven by the same forces, was destroying Calcasieu Lake's shoreline rim, further threatening the marsh environment.

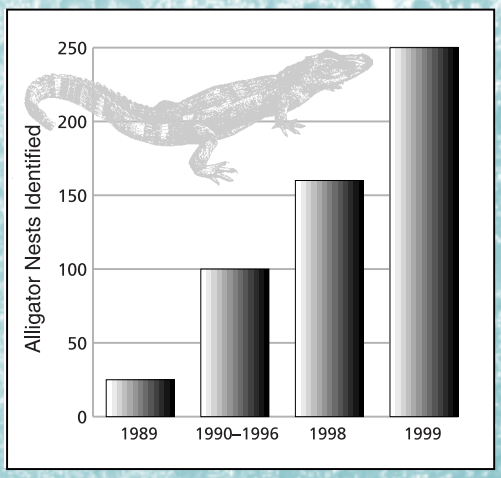
In 1962, a group of concerned Cameron Parish residents met with the USDA Soil Conservation Service (now the Natural Resources Conservation Service) and suggested a plan to save and restore the East Cove Marsh. Subsequently, under the local sponsorship of Cameron Parish Gravity Drainage Districts Three and Four, the parish police jury and the water district, the Natural Resources Conservation Service engineered a work plan designed to combat erosion and restore natural wetland water processes. The plan included extensive modifications that

reduced concerns about the project's impact on estuarine-dependent fish and shellfish.

Initial work on the Cameron-Creole Watershed Project began in the early 1970s. Between then and the project's completion in 1989, a 19-mile-long lakeshore protection levee was constructed, five water control structures were designed and installed, numerous improvements to water flowage were made and a detailed operations plan, which included provisions for fisheries access to the project marshes, was finalized. The water control structures, designed to allow the movement of marine organisms from Calcasieu Lake to the interior marshes, incorporated six-inch-wide vertical openings

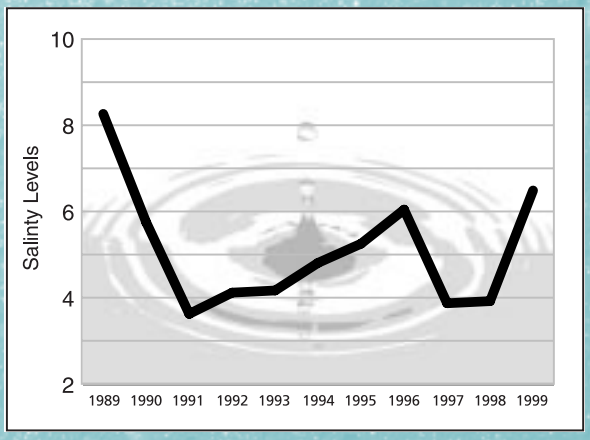
Number of Alligator Nests Up 1,000 Percent

Ted Joanen, a wildlife consultant for landholders within Cameron-Creole, says the statistical data on alligators clearly show that the project has been a success. Annually, Joanen counts alligator nests in the project, and, as the chart at right shows, there has been a remarkable increase in the number of nests produced each season since completion of the project.



Average Salinity Levels Drop by 42 Percent

According to Cameron-Prairie National Wildlife Refuge biologist Glenn Harris, overall salinities have decreased dramatically since 1989. "It's only during periods of drought that they increase to levels detrimental to marsh vegetation—and even then, the recovery period is short," says Harris.



that provide a passageway through the structure. Then, in the 1990s, Breaux Act dollars began to flow into the project in the form of structures within the Calcasieu Lake Levee Borrow Canal and the repair of the Grand Bayou structure.

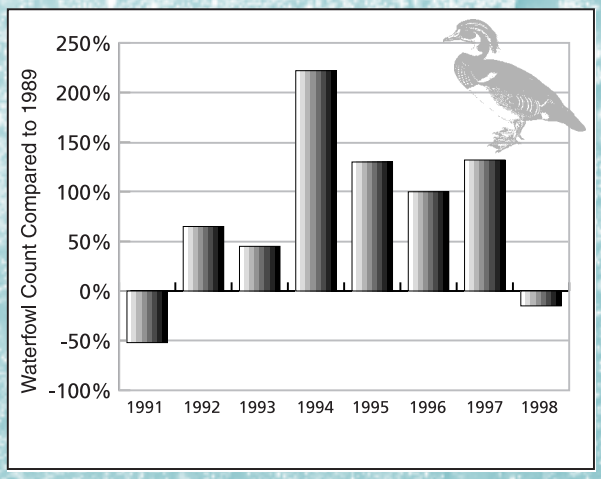
Local residents have been prominent contributors to the success of Cameron-Creole. They initiated the project with the objective of not merely preventing further loss but recovering what was destroyed. Now, after three decades of effort, much of that objective has been achieved, and Cameron-Creole has become a linchpin in Louisiana's argument that recovery of wetlands is a real possibility.❍

Additional Cameron-Creole Project information, utilizing Geographic Information System (GIS) open water/vegetation data will be available by January 2001.

Waterfowl Numbers Up an Average of 77 Percent

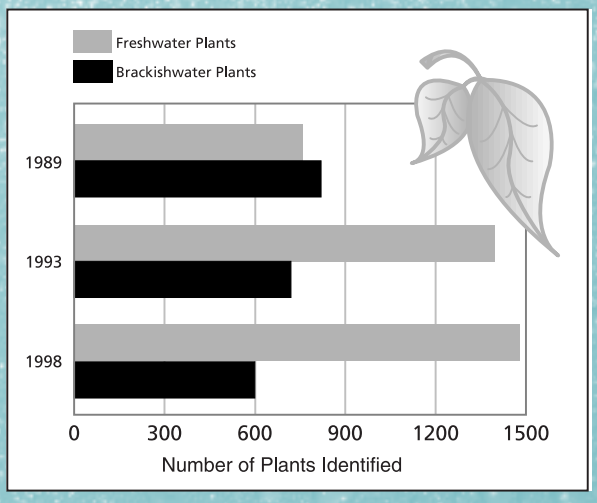
According to Glenn Harris, wildlife biologist for the Cameron-Prairie Wildlife Refuge, submerged vegetation was virtually absent prior to completion of the watershed project.

Harris says that following construction of the project's water control structures, water conditions improved, stimulating a regrowth of submerged vegetation that has attracted an abundance of waterfowl.



Freshwater Plants Increase 107 Percent—Brackish Plants Decline

Marty Floyd, NRCS biologist and project manager for Cameron-Creole, noted that reductions in salinity levels have allowed freshwater plants to flourish. "This is a very positive change," says Floyd, "and the direct result of the improved water quality brought about by the project."



Looking to the FUTURE

Southwest Louisiana Convention & Visitors Bureau Photo

It's widely recognized that man's presence threatens the survival of Region Four's wetlands. Locks, canals, navigational channels, and oil exploration continue to alter hydrology, cause erosion and allow saltwater intrusion. In addition, new concerns, such as a proposal to draw water from the Sabine River (Trans Texas Water Plan), seem to arise with disturbing regularity.

And yet, there is good cause for hope. Breaux Act projects in the region have demonstrated that if dollars are available, not only can wetlands be preserved but in some instances they can also be restored. Additionally, at press time, Congress was considering legislation (Conservation and Reinvestment Act) that would provide Louisiana with a portion of the money it needs to protect its wetlands. But more important is the fact that federal, state and local governments; the scientific community; and ordinary citizens of Louisiana have found common ground. They now stand together in a course of action articulated in a master plan—Coast 2050. This plan is unique in that it represents a consensus on a broad conceptual framework, as well as specific strategies for action. It identifies what must be done in concrete terms, and it does so with a timetable in mind. While there are never any guarantees, Region Four, as well as Louisiana as a whole, has never had a better reason to look to the future with optimism.❍

Quick News

Dying Grass Threatens Marsh

During the past several months, scientists have observed browning of expansive stands of *Spartina alterniflora* in Louisiana's intertidal marshes. Affected areas have been observed along much of Louisiana's coast, but hardest hit are the marshes lying between the Mississippi River and Atchafalaya River, within the Barataria-Terrebonne National Estuary.

Research is underway to determine the cause and severity of the brown marsh phenomenon. Scientists and managers are working together to determine what, if any, remedial actions can be applied. Future issues of WaterMarks will include more information on the brown marsh. For regularly updated and more detailed technical information, visit the www.lacoast.gov Web site; click on "Brown Marsh Update."❍

Breaux Act Reauthorized

U.S. Senator John Breaux's Office has announced that Congress has reauthorized the Breaux Act (CWPPRA) for another nine years. This action provides more than 40 million dollars for Louisiana's coastal wetlands fund and is tied to the Pittman-Robertson Act, which now goes to the president for signature.❍

The WATER MARKS Interview continued from back cover

tropical storms. But there are also man-made causes, such as the creation and widening of navigation channels, efforts to improve drainage in the upper Mermentau Basin and clearing of land for agriculture.

The control structures at Catfish Point on Grand Lake and at Schooner Bayou on White Lake have received some criticism. What purpose do they serve?

These control structures were designed to manage the release of floodwater and reduce tidal inflow. Although the target water level is two feet mean low gulf, the levels are usually higher. Draining this area is difficult because 75 percent of the time water levels outside the subbasin are higher than they are inside. But the structures have had a positive effect on wetlands because they've been a barrier to saltwater intrusion.

"It's a little bit like a bowl of water—the bigger the bowl, the bigger the splash."

Is there a downside?

There is a downside. At times the structures contribute to high water levels because they restrict the passage of floodwater out of the area. These high water levels are detrimental to emergent plants that hold our wetlands together. Once the plants are gone, erosion is sure to follow.

"It's easy to see the problem, a lot more difficult to pick out a single cause."

Tommy Price, president of the Concerned Citizens of the Mermentau River Basin, has been quoted as saying that "the locks serve no real purpose except to ensure freshwater conditions for rice farming." What's your reaction to his statement?

For the most part, I think the locks are a good thing. They serve as an all-important saltwater barrier, and they help control water levels. Cameron Parish serves a wide variety of interests, including farmers, fisherman, cattlemen, trappers and hunters. It's our job to balance the water-use needs of all of these groups. I think the locks are tools that enable us to achieve that balance most of the time.

What do you think needs to be done on Grand and White lakes?

A rock revetment levee needs to be placed on the original southwest shore of Grand and White lakes. It needs to be just high enough to break the waves up as they approach the shoreline. As the waves hit the rock, any sediment going through or over the rock will stay in the eroded area, creating a mud flat. Once the flat is well established, it can be planted. In addition to the levee, I think we need to construct terraces in the land bridge area.

Do you see any obstacles at the local level to getting this done?

Any initiative involves change. But I've found that once you educate the people affected by it and make them part of the change, things tend to work out.❍

The WATER MARKS Interview

Tina Horn

Cameron Parish Administrator

Tina Horn was appointed Parish Administrator for Cameron Parish in January of 1993 and has been instrumental in developing Coastal Zone Management and Federal Emergency Management Agency programs in Cameron Parish.

How serious is the problem of shoreline erosion on Grand and White lakes?

It's serious enough so that everyone is very concerned. We can lose as much as 15 feet of shoreline in a single year on each lake. In those high-loss years, the southeast side of Grand Lake and the southwest side of White Lake are moving together at a rate of roughly 30 feet per year.

So the land bridge between the two lakes is disappearing?

It's disappearing at a rapid rate. And once that land bridge is gone, we'll have one huge lake, which means that shoreline erosion will increase at an even faster rate.

Why would the single large lake erode faster than the two smaller lakes?

If the land bridge separating the lakes disappears, storms and high tides will occur over a far greater stretch of open water. The total volume of water will also be much greater. That means the wave energy will increase significantly and will hit the shoreline with far more force. It's a little bit like a bowl of water—the bigger the bowl, the bigger the splash.

And this puts the wetlands surrounding the lakes in even greater jeopardy.

It certainly does. It puts the marshes and everything they offer into jeopardy, including cattle grazing; estuaries for our fish, crabs and shrimp; and a refuge for waterfowl, mink, otter, raccoon, muskrat, alligator and deer. There's a lot at stake for us.

Is there a single cause for the rapid rate of land loss around White and Grand lakes?

Like most environmental problems, it's easy to see the problem—a lot more difficult to pick out a single cause. We know that much of the loss is a result of natural causes, such as a limited sediment supply, relative sea level rise and the seasonal impacts of cold fronts and

continued on the page 11…

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