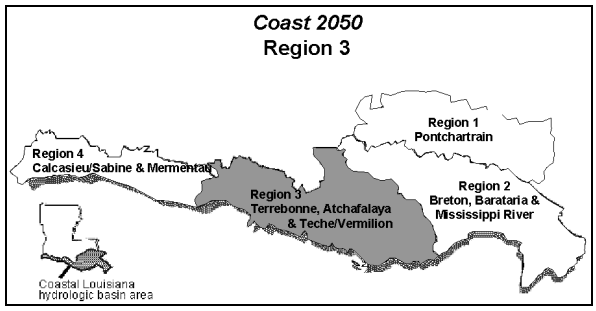
REGION 3

Region 3 encompasses the Terrebonne, Atchafalaya, and the Teche-Vermilion basins. The region extends from Bayou Lafourche on the east, to Freshwater Bayou on the west, and north from the Gulf of Mexico to the boundary of coastal wetlands as defined in the Louisiana Coastal Wetlands Conservation Plan (La. Dept. of Natural Resources 1997). It covers all or part of the following parishes: Lafourche, Terrebonne, Assumption, Iberville, St. Martin, Iberia, St. Mary, Lafayette, and Vermilion.



This region is divided into three basins (Terrebonne, Atchafalaya, and Teche/Vermilion) and contains 1,140,450 acres of vegetated wetlands which are classified as approximately: 368,550 acres of cypress and bottomland forest; 298,300 acres of fresh; 92,700 acres of intermediate; 240,700 acres of brackish; and 140,200 acres of saline marshes.

Terrebonne Basin is very diverse and contains environments ranging from forested wetlands and large lakes, fresh marshes, areas of highly organic fresh floating marshes, brackish marshes, saline marshes to barrier islands. The central and eastern portions of Terrebonne Basin have experienced massive losses of fresh and brackish marsh. An intermediate to high natural subsidence rate and altered hydrology are the likely causes for these losses. These two factors also have lead to excessive flooding in these wetlands. Shoreline erosion has been severe along the fringes of the bays and large lakes. Wetlands in the western portion of Terrebonne Basin have sufferred some losses, although not as severe. Even though these wetlands have a lower loss rate, many of them are stressed by excessive flooding and ponding of water. Shoreline erosion has been severe along the fringes of large lakes and bays throughout Region 3.

The Atchafalaya Basin includes Atchafalaya Bay and associated marshes to the north. The Teche/Vermilion Basin extends from Point Chevreuil to Freshwater Bayou and includes the fresh to brackish East and West Cote Blanche Bays and Vermilion Bay.

Generally, parish governments and the public in Region 3 would like to maintain present habitats in areas above the GIWW and revert back to past habitats in areas below the GIWW.

Specific Coast 2050 ecosystem strategies to attain this include: (1) restoring swamps by improving hydrology and drainage in the Verret subbasin; (2) restoring and sustaining marshes by maximizing the land-building potential of the Atchafalaya River and maximizing the beneficial influence of the Atchafalaya River to neighboring wetlands, and lowering water levels in the upper Penchant marshes; (3) maintaining the integrity of critical areas of the large lakes and bays; (4) restoring and maintaining the Isles Dernieres and Timbalier barrier island chains; (5) maintaining the Vermilion, West Cote Blanche, East Cote Blanche bay complex as brackish while reducing turbidity and sedimentation in these bays; (6) and reestablishing an artificial reef complex in the vicinity of historical reefs. Ecosystem strategies are illustrated in figure 10.

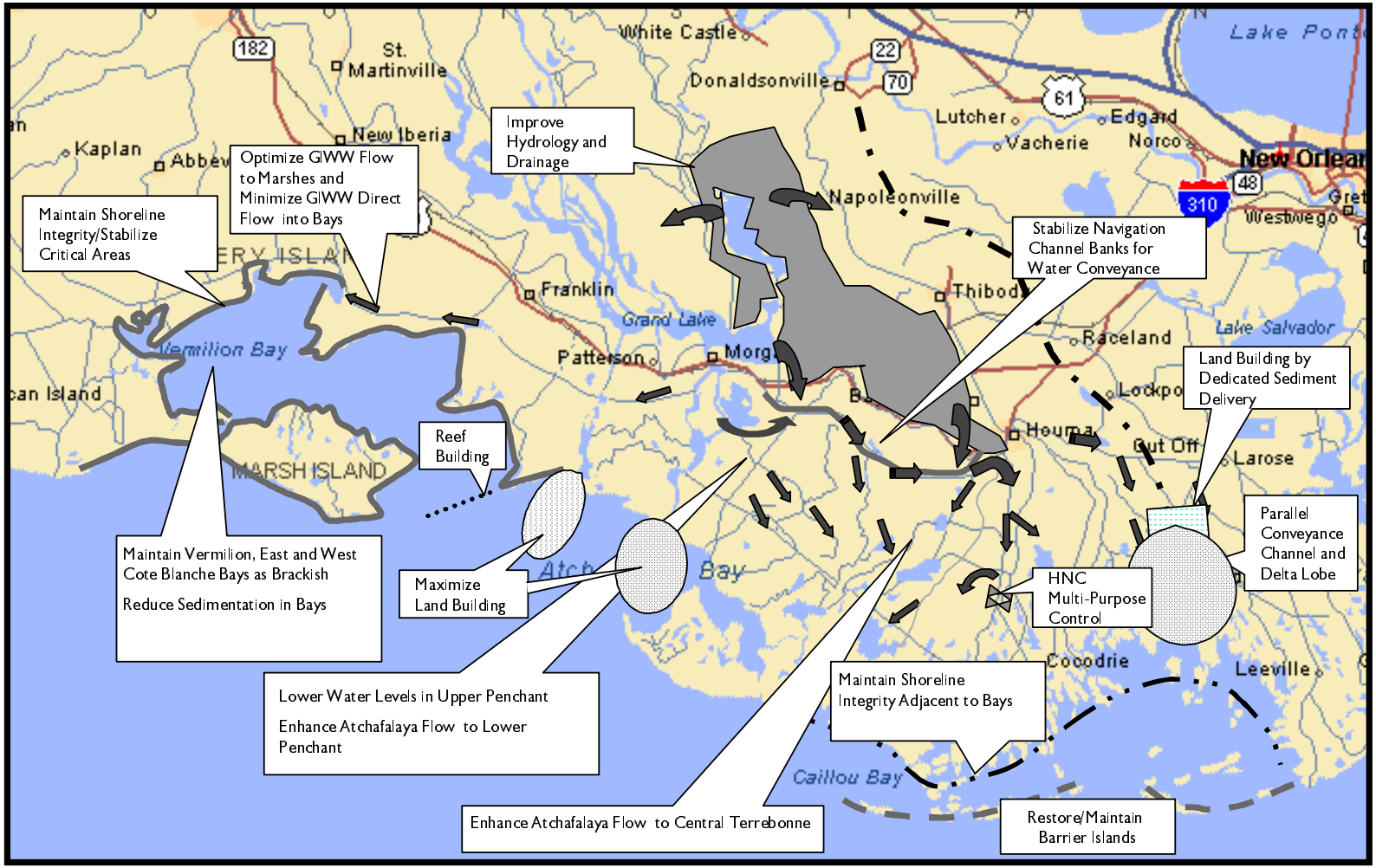


Figure 10. Coast 2050 Region 3 ecosystem strategies (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority, 1998) .

REGION 3 MONITORING RESULTS

Restoration projects implemented or are under construction in Region 3 have contributed to the stability and sustainability of this area. Region 3 lost approximately 82,944 acres of wetlands between 1978 and 1990, an average of 6,912 acres of wetlands per year (Barras et al., 1994). By the end of 1999, projects will have been implemented at 93 locations within Region 3.

BREAUX ACT (CWPPRA)

Twenty-three Breaux Act projects in Region 3 will have been implemented by the end of 1999 (figure 11 and table on pages 28-30).

Five of the projects which will address imminent marsh loss due to changes in natural hydrology include Lake Chapeau (TE-26), Brady Canal (TE-28), Cote Blanche (TV-04), Oaks/Avery Canal (TV-13a), and Marsh Island (TV-14). These projects will improve hydrology and preserve marsh.

Lake Boudreaux Basin (TE-32) is the only freshwater diversion/hydrologic restoration project in Region 3. Freshwater will be introduced into Lake Boudreaux which will promote the growth of freshwater plants. These plants will reduce erosion and promote the deposition of sediment.

The beneficial use of dredged material projects, West Belle Pass (TE-23) and Trinity Island (TE-24), will utilize dredged material to create new wetlands in areas that have deteriorated. The Atchafalaya Sediment Delivery (AT-02) and Big Island Mining (AT-03) projects utilized dredged material to create new wetlands in the Atchafalaya Delta region.

The five barrier island projects include East Island (TE-20), East Timbalier Island (Phase I and II; TE-25 and TE-30), and Whiskey Island (TE-27) involve placing dredge material either on the islands to increase their height or in front of the island to protect the shoreline. Both these measures protect against breaching of the islands which would otherwise increase the rate of erosion. These projects have created 590 acres on the barrier islands.

The Raccoon Island (TE-29) project is a demonstration project which utilizes segmented rock breakwaters on the Gulf of Mexico side of the island to protect the island from wave-induced erosion and to trap water-borne sediments. Beach profile analyses indicate that although shoreline erosion still occurred at a reduced rate between the breakwaters, substantial shoreline progradation occurred behind all but two of the breakwaters during the first year. There was also an average accumulation of 8.5 cubic yards of sediment per linear foot of shoreline during this time period.

Raccoon Island Demonstration project.

The three shoreline protection projects are the Point au Fer Canal Plugs (TE-22), Vermilion River Cutoff (TV-03), and the Boston Canal (TV-09) projects. Shoreline protection projects use either rock breakwaters, vegetation, or both to reduce the wave energy reaching the shoreline in order to reduce shoreline erosion. The rock breakwaters at Boston Canal have not only

Shoreline protection at Point au Fer.

reversed erosion, but have accumulated approximately 4.5 feet of sediment resulting in the reestablishment of vegetated wetlands immediately behind the breakwaters.

The two sediment/nutrient trapping projects include Little Vermilion Bay (TV-12) and "The Jaws" (TV-15) projects. These projects involve barriers which capture and hold sediments and nutrients. These barriers also decrease water velocity which facilitates the deposition of sediment.

The Falgout Canal (TE-17) and Timbalier Plantings (TE-18) projects utilize vegetation, planted along the shoreline, to minimize shoreline erosion. Falgout Canal also utilized wave-damping structures to minimize wave-induced stress on the plants, and the Timbalier Island project utilized sand fencing to trap aeolian sand.

Thin Mat Flotant Marsh (TE-36), is a demonstration project to create flotant marsh utilizing *Panicum* plugs and fertilizers.

NON-BREAUX ACT

State

Projects implemented by the Coastal Restoration Division and funded by the Wetlands Trust Fund include 12 projects in Region 3. Five projects are marsh management projects [Montegut Wetlands (TE-01), Falgout Canal Protection (TE-02), Bayou LaCache (Bush Canal), Bayou LaCache Wetland (TE-03), and Marsh Island Control Structure(TV-06)]. Marsh management is a more active form of restoration that may include a system of weirs to control water level. Water level may be set to stimulate the growth of wetland plants or for wildlife. Four projects are shoreline protection projects [Yellow Bayou (TV-02b), Freshwater Bayou Bank Protection (TV-11), Oaks/Avery Canal (TV-13), and Quintana Canal/Cypremort Point] to reduce shoreline erosion. Lower Petite Caillou is the only state hydrologic restoration project in Region 3.

Wine Island Restoration created a rock dike surrounding the deteriorated Wine Island and utilized dredged material to increase the elevation and subaerial area of the island. This project has created more than 20 acres of wetlands.

Wine Island Restoration project showing rock levee (top left) and dredge material (top right). Vegetation was later planted (bottom).

One Breaux Act vegetation planting project (Spoilbank along GIWW) was implemented. A total of 1,600 trees were planted (800 black willow, *Salix nigra*, and 800 bald cypress, *Taxodium distichum*) as part of a nutria herbivory study.

Christmas tree fence at Weeks Island.

Parish Coastal Wetlands Restoration Program

Christmas tree projects have been constructed at nine locations, including Weeks Island at GIWW, Pelican Point/Shark Island, Atchafalaya River Delta, Hammock Lake, GIWW near Hanson's Canal, Shark Bayou, Vermilion Bay and Rainey Wildlife Refuge, and sites in St. Martin and Vermilion parishes. These projects include approximately 4,710 linear feet of active fences. In the first three years after construction, over 660 cubic yards of sediment accumulated behind the Hammock Lake Christmas tree fences.

DNR/NRCS/SWCC Vegetation Planting Program

A total of 46 projects have been implemented under the Vegetation Planting Program in Region 3. Some sites have been planted in phases covering several project years.

Since 1988, 213,755 plants have been installed. Eighty-four percent of these plant have been smooth cordgrass, *Spartina alterniflora*. Giant cutgrass, *Zizaniopsis miliacea,* composed about seven percent of the plantings. Six percent of the plantings were California bullrush, *Scirpus californicus.* Each of the remaining plant species contributed less than one percent of the plantings. These were beach paspalum, *Paspalum vaginatum,* roseau cane, *Phragmites australis*, and black mangrove, *Avicennia germinans*. These projects cover over 380,000 linear feet of shoreline (over 72 miles!). Within one year the vegetation at the Petite Anse #8 project had laterally spread over five feet and plants appeared strong, healthy, and robust.

Section 204/1135

Two Section 204 project are planned for implementation at this time. Both these projects are along the Houma Navigation Canal. These projects will utilize dredged material from routine maintenance of the Houma Navigation Canal. Acres benefitted have yet to be determined.

Vegetation planting project at Pecan Island in Vermilion Parish.

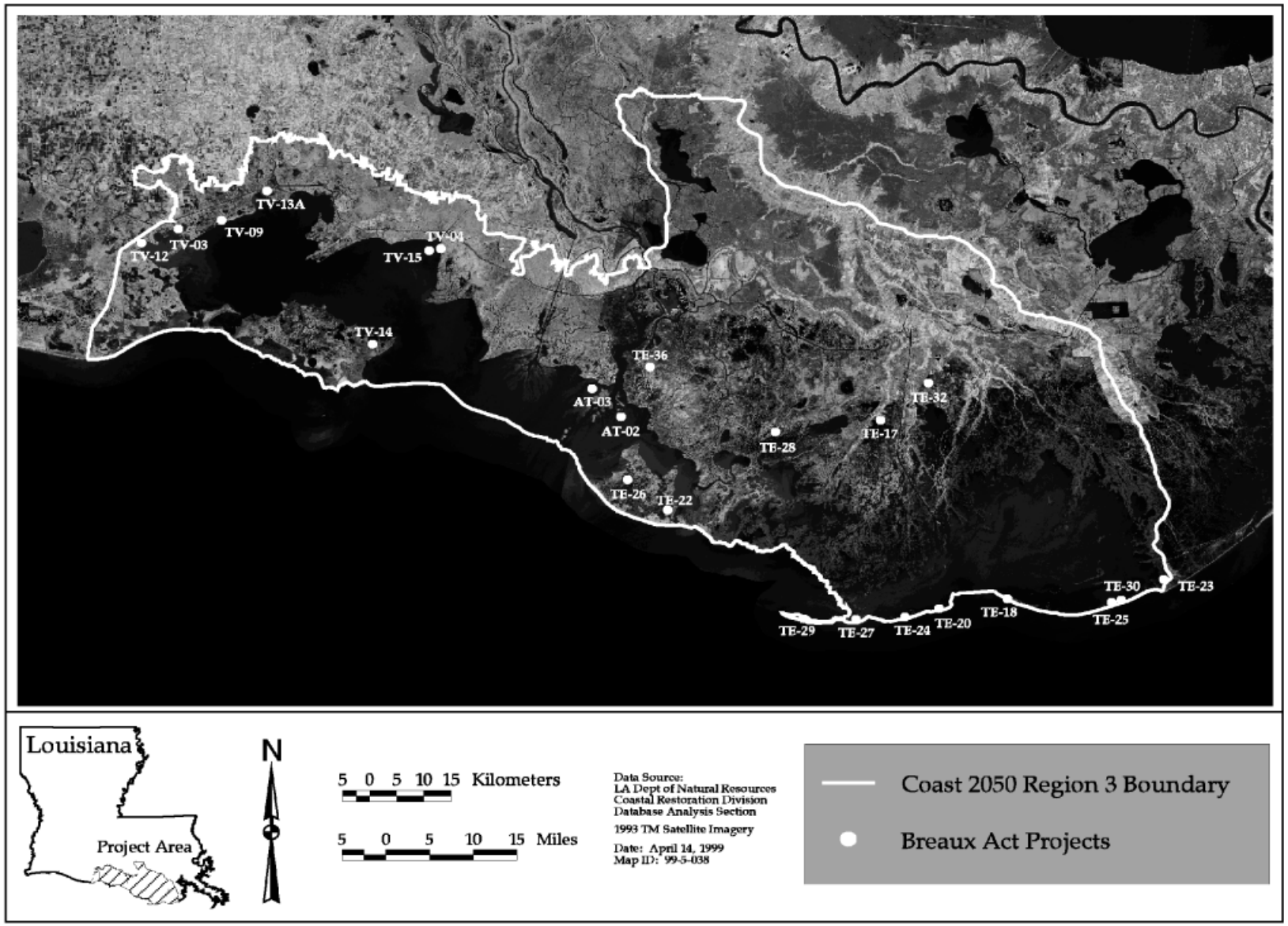


Figure 11. Location of completed or pending Breaux Act projects in Coast 2050 Region 3.

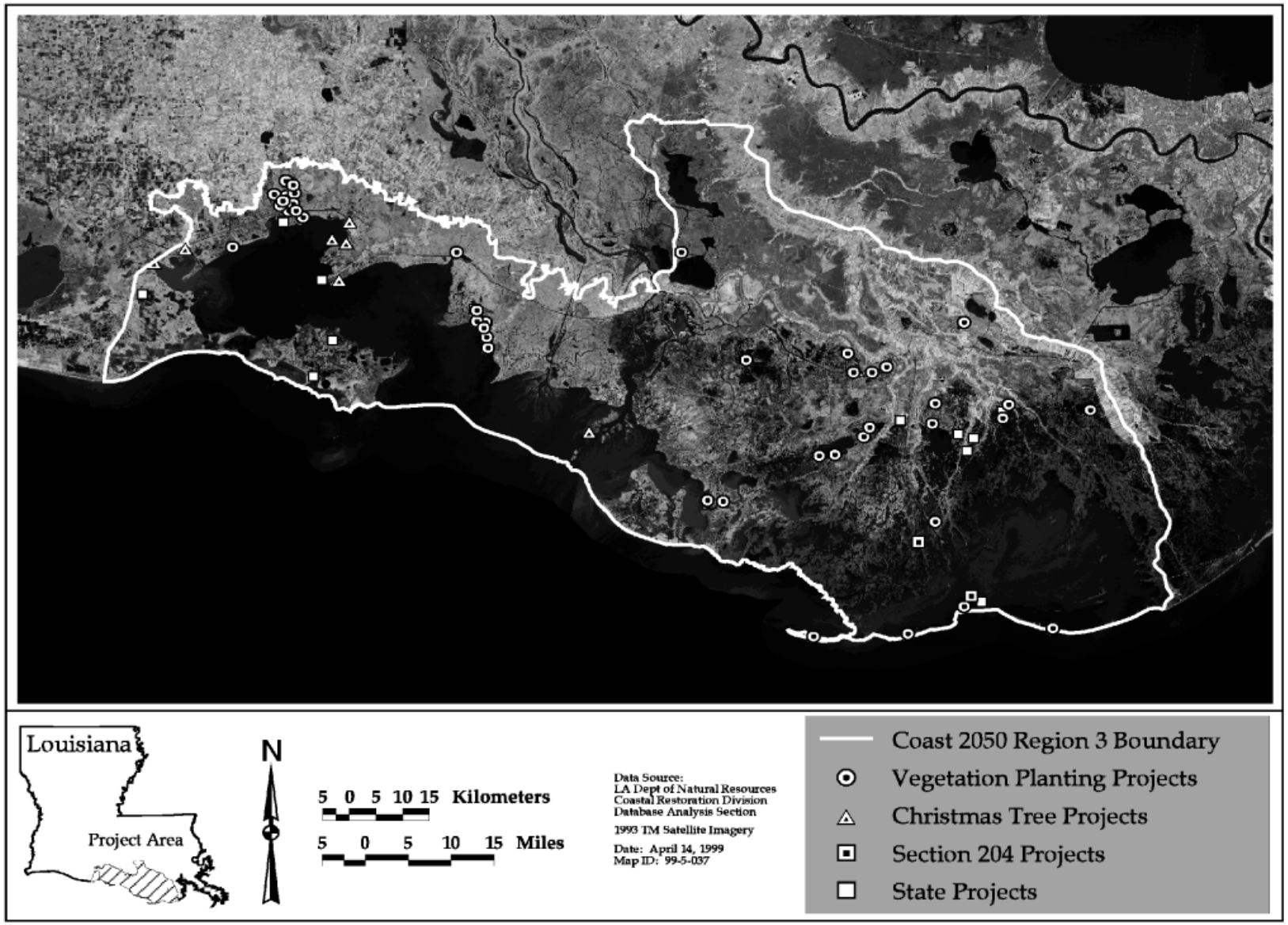


Figure 12. Location of completed or pending non-Breaux Act projects in Coast 2050 Region 3.

REGION 3 COMPLETED OR PENDING RESTORATION PROJECTS

Restoration Program	Project Name	Project Type	Year Completed	Parish
Breaux Act	Lake Chapeau Marsh Creation & Hydrologic Restoration, TE-26	Hydrologic Restoration	1999*	Terrebonne
Breaux Act	Brady Canal Hydrologic Restoration, TE-28	Hydrologic Restoration	1999*	Terrebonne
Breaux Act	Cote Blanche Marsh Management, TV-04	Hydrologic Restoration	1998	St. Mary
Breaux Act	Oaks/Avery Canal Hydrologic Restoration, TV-13a	Hydrologic Restoration	1999*	Iberia, Vermilion
Breaux Act	Marsh Island Hydrologic Restoration, TV-14	Hydrologic Restoration	1999*	Iberia, Vermilion
Breaux Act	Lake Boudreaux Basin Freshwater Introduction, TE-32	Freshwater Diversion/ Hydrologic Restoration	1999*	Terrebonne
Breaux Act	West Belle Pass Headland Restoration, TE-23	Beneficial Use of Dredge Material	1999*	Lafourche
Breaux Act	Isle Dernieres Restoration, Trinity Island (Phase 1), TE-24	Beneficial Use of Dredge Material	1999*	Terrebonne
Breaux Act	Atchafalaya Sediment Delivery, AT-02	Beneficial Use of Dredge Material	1998	St. Mary
Breaux Act	Big Island Mining (Increment 1), AT-03	Beneficial Use of Dredge Material	1998	St. Mary
Breaux Act	Eastern Isle Dernieres, East Island (Phase 0), TE-20	Barrier Island	1999*	Terrebonne
Breaux Act	East Timbalier Island Restoration (Phase 1), TE-25	Barrier Island	1999*	Lafourche
Breaux Act	East Timbalier Sediment Restoration (Phase 2), TE-30	Barrier Island	1999*	Lafourche
Breaux Act	Whiskey Island Restoration, TE-27	Barrier Island	1999*	Terrebonne
Breaux Act	Raccoon Island Demonstration, TE-29	Barrier Island (Demo)	1997	Terrebonne
Breaux Act	Point au Fer Canal Plugs, TE-22	Shoreline Protection	1996, 1997	Terrebonne
Breaux Act	Vermilion River Cutoff Bank Protection, TV-03	Shoreline Protection	1996	Vermilion
Breaux Act	Boston Canal/Vermilion Bay, TV-09	Shoreline Protection	1995	Vermilion
Breaux Act	Little Vermilion Bay Sediment Trapping, TV-12	Sediment/Nutrient Trapping	1999*	Vermilion
Breaux Act	Sediment Trapping at "The Jaws", TV-15	Sediment/Nutrient Trapping	1999*	St. Mary
Breaux Act	Falgout Canal Plantings, TE-17	Vegetation	1996	Terrebonne
Breaux Act	Timbalier Plantings, TE-18	Vegetation	1997	Terrebonne
Breaux Act	Thin Mat Flotant Marsh, TE-36	Marsh Creation (Demo)	1999*	Terrebonne
State	Montegut Wetland, TE-01	Marsh Management	1993	Terrebonne
State	Falgout Canal Protection, TE-02	Marsh Management	1993, 1995	Terrebonne
State	Bayou LaCache (Bush Canal)	Marsh Management	1991	Terrebonne
State	Bayou La Cache Wetland, TE-03	Marsh Management	1996	Terrebonne
State	Marsh Island Control Structure, TV-06	Marsh Management	1993	Iberia
State	Yellow Bayou, TV-02B	Shoreline Protection	1992	St. Mary

REGION 3 COMPLETED OR PENDING RESTORATION PROJECTS

(Cont'd.)

Restoration Program	Project Name	Project Type	Year Completed	Parish
State	Freshwater Bayou Bank Protection, TV-11	Shoreline Protection	1994, 1996	Iberia
State	Oaks/Avery Canal, TV-13	Shoreline Protection	1999*	Vermilion Iberia
State	Quintana Canal/ Cypremort Point	Shoreline Protection	1998	St. Mary
State	Lower Petit Caillou, TE-07B	Hydrologic Restoration	1995	Terrebonne
State	Wine Island Restoration	Beneficial Use of Dredge Material	1992	Terrebonne
State	Spoilbank along the GIWW	Vegetation	1993	Terrebonne
PCWRP	Weeks Island at GIWW	Christmas tree fence	1993,1995, 1996, 1998	Iberia
PCWRP	Pelican Point/Shark Island	Christmas tree fence	1991	Iberia
PCWRP	Atchafalaya River Delta	Christmas tree fence	1991, 1992	St. Mary
PCWRP	Hammock Lake, T/V-02a	Christmas tree fence	1992, 1996, 1998	St. Mary
PCWRP	GIWW near Hanson Canal	Christmas tree fence	1991, 1992, 1993, 1998	Terrebonne
PCWRP	Shark Bayou	Christmas tree fence	1996	Iberia
PCWRP	Vermilion Bay and Rainey Wildl. Preserve	Christmas tree fence/ Vegetation	1995, 1996 (2), 1997, 1999*	Iberia
PCWRP	St. Martin Parish	Christmas tree fence	1997	St. Martin
PCWRP	Vermilion Parish	Christmas tree fence	1998	Vermilion
Vegetation	Lake De Cade	Vegetation	1988, 1991, 1995	Terrebonne
Vegetation	Wine Island	Vegetation	1991, 1994, 1995	Terrebonne
Vegetation	Falgout Canal	Vegetation	1992, 1997, 1998	Terrebonne
Vegetation	GIWW	Vegetation	1992	Terrebonne
Vegetation	Isles Dernieres	Vegetation	1992	Terrebonne
Vegetation	Point Farm Refuge Planting	Vegetation	1993	Terrebonne
Vegetation	Montegut	Vegetation	1993, 1996	Terrebonne
Vegetation	Raccoon Island	Vegetation	1994	Terrebonne
Vegetation	Timbalier Island	Vegetation	1995	Terrebonne
Vegetation	Levee Stabilization	Vegetation	1991	Terrebonne
Vegetation	Lake Boudreaux	Vegetation	1992, 1994	Terrebonne
Vegetation	L. L. & E. TC-T3	Vegetation	1994	Terrebonne
Vegetation	Four League Bay	Vegetation	1995	Terrebonne
Vegetation	Bayou De Cade - Roseau	Vegetation	1995	Terrebonne
Vegetation	Kuntz Sediment Fence	Vegetation	1996	Terrebonne
Vegetation	H-H	Vegetation	1996	Terrebonne

REGION 3 COMPLETED OR PENDING RESTORATION PROJECTS

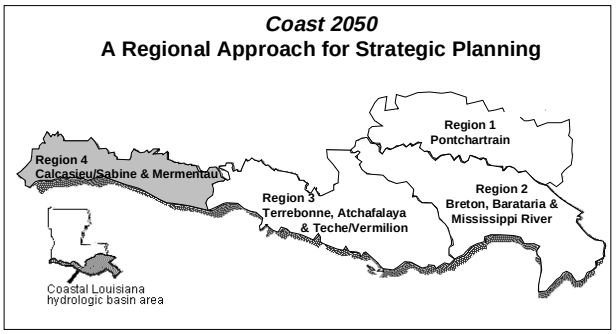
(Cont'd.)

Restoration Program	Project Name	Project Type	Year Completed	Parish
Vegetation	Blue Hammock	Vegetation	1995	Terrebonne
Vegetation	Bayou Piquante	Vegetation	1996	Terrebonne
Vegetation	Lake Hatch GIWW	Vegetation	1997	Terrebonne
Vegetation	Bayou Blue Bullwhip	Vegetation	1998	Terrebonne
Vegetation	Bayou Chauvin Pipe Canal	Vegetation	1998	Terrebonne
Vegetation	Houma Navigation Canal	Vegetation	1999*	Terrebonne
Vegetation	Shell Canal	Vegetation	1999*	Terrebonne
Vegetation	Cocodrie Pump-in	Vegetation	1999*	Terrebonne
Vegetation	Jackson Bayou Wetlands	Vegetation	1991	St. Mary
Vegetation	Bayou Milhomme	Vegetation	1994	St. Martin
Vegetation	Hidalgo	Vegetation	1995	St. Mary
Vegetation	Bayou Sale '96	Vegetation	1996	St. Mary
Vegetation	Jaws	Vegetation	1996, 1999*	St. Mary
Vegetation	St. Mary Land Co. '96	Vegetation	1996	St. Mary
Vegetation	Hidalgo Two	Vegetation	1997, 1999*	St. Mary
Vegetation	Humble Canal	Vegetation	1998	St. Mary
Vegetation	St. Mary/Mud Lake	Vegetation	1999*	St. Mary
Vegetation	Vermilion/Weeks Bay	Vegetation	1991	Iberia
Vegetation	Vermilion Bay North	Vegetation	1991	Vermilion
Vegetation	Bayou Petit Carlin	Vegetation	1992	Iberia
Vegetation	Petite Anse site #5	Vegetation	1994, 1998	Iberia
Vegetation	Thibodaux Oxbow	Vegetation	1994, 1999*	Iberia
Vegetation	Petite Anse site #6	Vegetation	1994	Iberia
Vegetation	Petite Anse site #7	Vegetation	1995	Iberia
Vegetation	Petite Anse site #8	Vegetation	1995	Iberia
Vegetation	Petite Anse #9	Vegetation	1999*	Iberia
Vegetation	Bayou Carlin	Vegetation	1996	Iberia
Vegetation	Tiger Lagoon #1	Vegetation	1997	Iberia
Vegetation	Washout	Vegetation	1997	Iberia
Vegetation	'99 Iberia Maintenance	Vegetation	1999*	Iberia
Section 204	Houma Navigation Canal, Cat Island Pass	Beneficial use of Dredge Material	1999*	Terrebonne
Section 204	Houma Navigation Canal, Mi 12 to 31.4	Beneficial use of Dredge Material	1999*	Terrebonne

Breaux Act = Coastal Wetlands Planning, Protection and Restoration Act, also known as CWPPRA
State = Restoration projects funded entirely by the State of Louisiana through the Coastal Restoration Division
PCWRP = Parish Coastal Wetlands Restoration Program (Christmas Tree Program)
Vegetation = DNR/NRCS/SWCC Vegetation Planting Program
Section 204 = Section 204 beneficial use of dredged material projects
* = anticipated date

REGION 4

Region 4 extends from the western bank of the Freshwater Bayou Canal westward to the Louisiana/Texas border in Sabine Lake, and from the marsh areas just north of the Gulf Intracoastal Waterway south to the Gulf of Mexico. This region covers all or part of Vermilion, Cameron, and Calcasieu parishes.



Region 4 can be divided into two basins (Mermentau and Calcasieu/Sabine) and contains approximately 758,100 acres of coastal wetlands which are classified as approximately 354,600 acres of fresh; 171,700 acres of intermediate; 198,600 acres of brackish; and 33,200 acres of saline marshes.

The Mermentau basin extends from Freshwater Bayou Canal westward to Highway 27 and is divided into two subbasins in the vicinity of the Pecan Island and Grand Chenier ridges. The natural drainage of the Lakes subbasin (to the north) has been interrupted by canals and water control structures. The subbasin contains Grand and White Lakes and functions similar to a large freshwater impoundment. The Mermentau River supplies fresh water to the basin. The Chenier subbasin lies to the south of the Pecan Island and Chenier ridges. Drainage can occur eastward to Freshwater Bayou Canal, southward to the Gulf of Mexico, and westward to the Mermentau River and Ship Channel.

The Calcasieu/Sabine basin is a shallow coastal wetland system with freshwater input at the north end, a north-south circulation pattern through Calcasieu and Sabine Lakes, and some east-west water movement through the Gulf Intracoastal Waterway (GIWW) and interior marsh canals. Both lakes are connected to important shipping corridors and are also used for recreation. As in the Mermentau basin, many wetlands in Region 4 are actively managed, with structures in the Cameron-Creole Watershed, Sabine National Wildlife Refuge, and on private lands.

The major concerns within this region are to reduce salinities of the marsh habitats in the western and southern areas of the region and convert most of the Lakes subbasin to fresh marsh. The objective for the Chenier subbasin is to convert the existing saline and brackish marshes to brackish and intermediate marshes by the year 2050. The objective for the Calcasieu/Sabine basin is to create fresher conditions by the year 2050.

Specific ecosystem strategies include: (1) restoring and maintaining wetlands by modifying operations of existing locks to evacuate excess water, restore the original Mermentau River/Gulf of Mexico connection, create wetlands with dedicated dredge material, and maintain Atchafalaya River flow through the GIWW; (2) controlling salinity in the Calcasieu Ship Channel between the Gulf of Mexico and Calcasieu Lake; (3) controlling salinity in the Sabine basin by maintaining Sabine River flow, and implementing various salinity control measures; and (4) protecting bay and lake shorelines by stabilization, maintaining the Atchafalaya River mudstream, restoring longshore sediment flow across navigation channels, and preventing the coalescence of Grand and White Lakes. These ecosystem strategies are illustrated in figure 13.

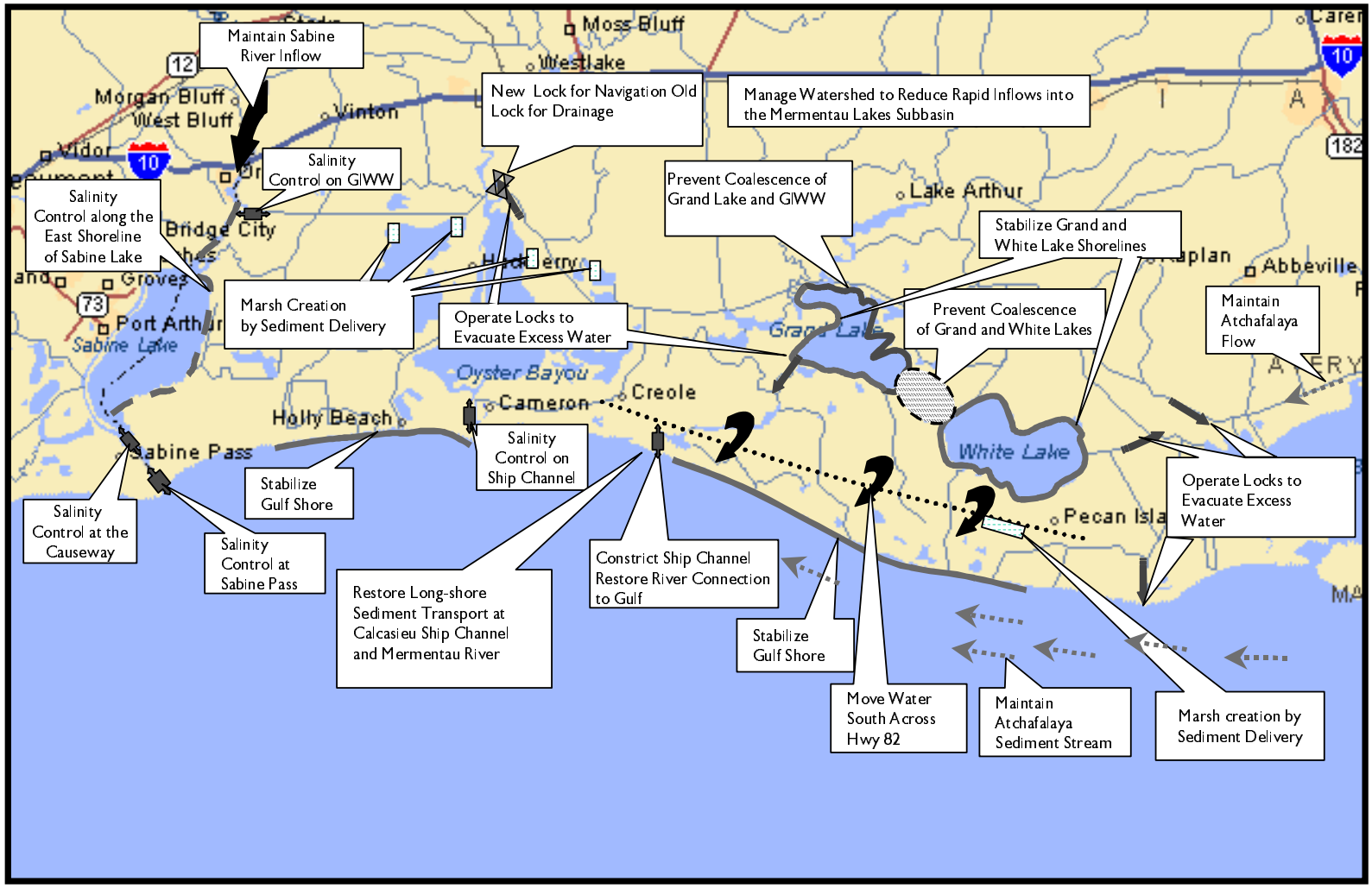


Figure 13. Coast 2050 Region 4 ecosystem strategies (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority, 1998).

REGION 4 MONITORING RESULTS

Restoration projects implemented in Region 4 have contributed to the stability and reclamation of this area. Region 4 lost approximately 51,456 acres of wetlands between 1978 and 1990, an average of 4,288 acres of wetlands per year. The projects discussed below have addressed some significant problems. By the end of 1999, projects will have been implemented at 82 locations since 1988.

BREAUX ACT (CWPPRA)

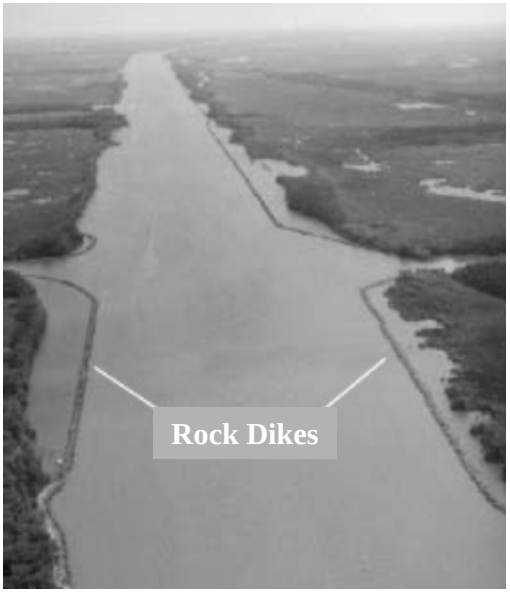
Eighteen projects (figure 14 and table on pages 38-40) authorized by the Breaux Act will be implemented before the end of 1999.

The Breaux Act projects that address marsh loss caused by changes in natural hydrology include Cameron-Creole Maintenance (CS-04a), Cameron Creole (CS-17), Black Bayou (CS-27), and Freshwater Bayou Wetland (ME-04). With structures to control water level, water exchange, and salinity, these projects reduce erosion, improve hydrology, and increase vegetative cover.

The four Breaux Act marsh management projects that address conversion of marsh to open water and changes in marsh vegetation include Brown Lake (CS-09a), Mud Lake (CS-20), Hwy 384 (CS-21), and Replace Hog Island, West Cove, and Headquarter Structures (CS-23). These projects will return marshes to more natural hydrologic conditions through the use of structures that restrict water exchange and control salinities. In addition, non-structural features such as vegetative plantings will reduce erosion and stabilize fragile soils.

The seven Breaux Act shoreline protection projects include Sweet Lake/Willow Lake, Sabine Refuge, Perry Ridge, Clear Marais, Cameron Prairie Refuge, Southwest Shore White Lake Protection Demonstration, and Freshwater Bayou Bank Stabilization. These projects involve various techniques designed to decrease shoreline erosion rates. The rock dikes at Freshwater Bayou have reversed wave-induced shoreline erosion. The reference area eroded at 6.5 feet per year for the first year after construction, whereas the project area shoreline actually prograded at a rate of 2.34 feet per year.

The Breaux Act terracing project, Plowed Terraces Demonstration (CS-25), is designed to demonstrate the cost effectiveness of creating terraces with a plow, rather than with the more traditionally used drag line and bucket dredge. When the terraces are planted with vegetation, the newly created emergent wetlands will trap sediment and reduce wave energy, protecting interior marshes.



Rock dikes at Freshwater Bayou.

The Breaux Act project that involves vegetative plantings is West Hackberry (CS-19). This project increased vegetation cover with vegetative plantings to minimize wave and wind driven erosion.

One pending Breaux Act project, Compost Demonstration (CS-26), is a marsh creation project. This project will create marsh in shallow waters with dredge material, then determine the effects of compost on establishing vegetation in that marsh.

NON-BREAUX ACT

State

There are seven projects in Region 4 that are implemented by the Coastal Restoration Division and funded by the Wetlands Trust Fund. Holly Beach (CS-01) is a shoreline protection project and has addressed the issue of erosion by utilizing segmented rock breakwaters. Monitoring data indicate that 49,284 cubic yards of sediment accumulated behind the breakwaters from 1990 to 1995. The Sabine Shellbank Stabilization is also a shoreline protection project utilizing shell to minimize shoreline erosion.

Brannon Ditch is a vegetation project along the GIWW that utilized vegatation and a protective wooden wave-damping fence to protect the shoreline from continued erosion.

The Sabine Terrace project has helped decrease erosion and promote vegetation growth and sedimentation in the Sabine Wildlife Refuge by constructing 128 earthen terraces in a checkerboard pattern in shallow open water to minimize erosion from wind-induced waves. Field measurements show that a preconstruction annual shoreline retreat rate of -11.6 feet/year has been reversed. Monitoring data from CRD indicate a postconstruction average annual shoreline advance of +21.0 feet/year between 1990 and 1993. Also, wave heights in the area have been reduced significantly, primary production has increased, vegetation coverage has increased, and emergent marsh has been reestablished in the Sabine Terraces.

A marsh management project, Rycade Canal (CS-02) involves hydrologic modifications designed to decrease salinity and improve marsh conditions.

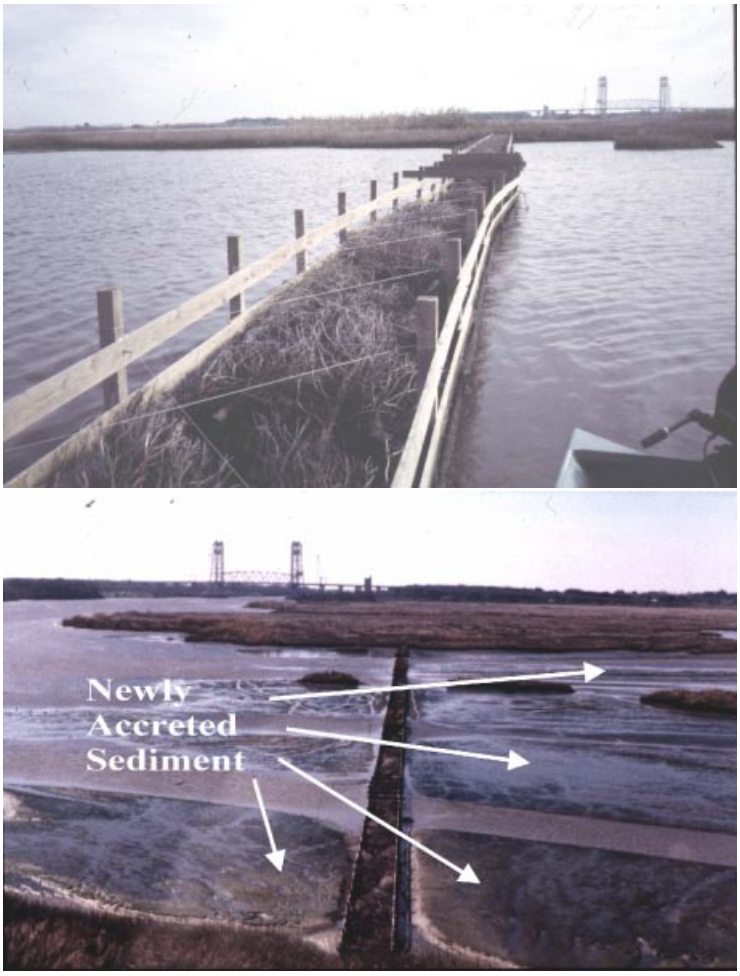
Pecan Island (ME-01), a freshwater diversion project, provides sediment, nutrients, and fresh water from White Lake to surrounding wetlands.

Cameron Creole (CS-04a-1), not yet constructed, is an hydrologic restoration project which will address problems associated with saltwater intrusion and marsh impoundment.

Holly Beach rock breakwaters.

Parish Coastal Wetlands Restoration Program

Nine Christmas tree projects have been implemented including Ellender Bridge, Goose Lake, Turner Bay, Kelso Bayou, Portie Lakes, Cameron Creole, Cameron Creole #2, and Black Lake. Since 1990, approximately 8,723 linear feet of fences have been built in region four. These projects will trap and retain sediment and nutrients, protect shoreline areas from erosion, and promote plant colonization. Christmas tree fences are relatively inexpensive, with an average cost of $50 per foot in region 4.



Christmas tree fence at Ellender Bridge after construction (top) and after several years (bottom). Notice the same bridge in the background.

D N R / N R C S / S W C C Vegetation Planting Program

Vegetation planting projects have been planned or implemented at 46 sites within Region 4.

Since 1987, more than 210,435 plants have been installed (most were California bullrush, *Scirpus californicus,* or smooth cordgrass, *Spartina alterniflora*) protecting over 692,607 linear feet of shoreline. In only four years the plantings at Blind Lake spread into a strip 20 feet wide with excellent plant survival.

Section 204/1135

Two Section 204 projects have been constructed in Region 4. These projects utilize dredged material from routine maintenance of the Calcasieu Lake Ship Channel to benefit areas along the shore of Calcasieu Lake and areas in the Sabine National Wildlife Refuge. A total of 982 acres of new wetlands have been created by these projects.

The Christmas tree program has also funded the first phase of two vegetation projects, Collicon Lake and Turner's Bay. Twelve hundred (1,200) plants totaling 6,000 linear feet were planted in these two sites. Subsequent plantings in these projects were funded by the SNR/NRCS/SWCC Vegetation Planting Program.

Marker stake at vegetation planting project.

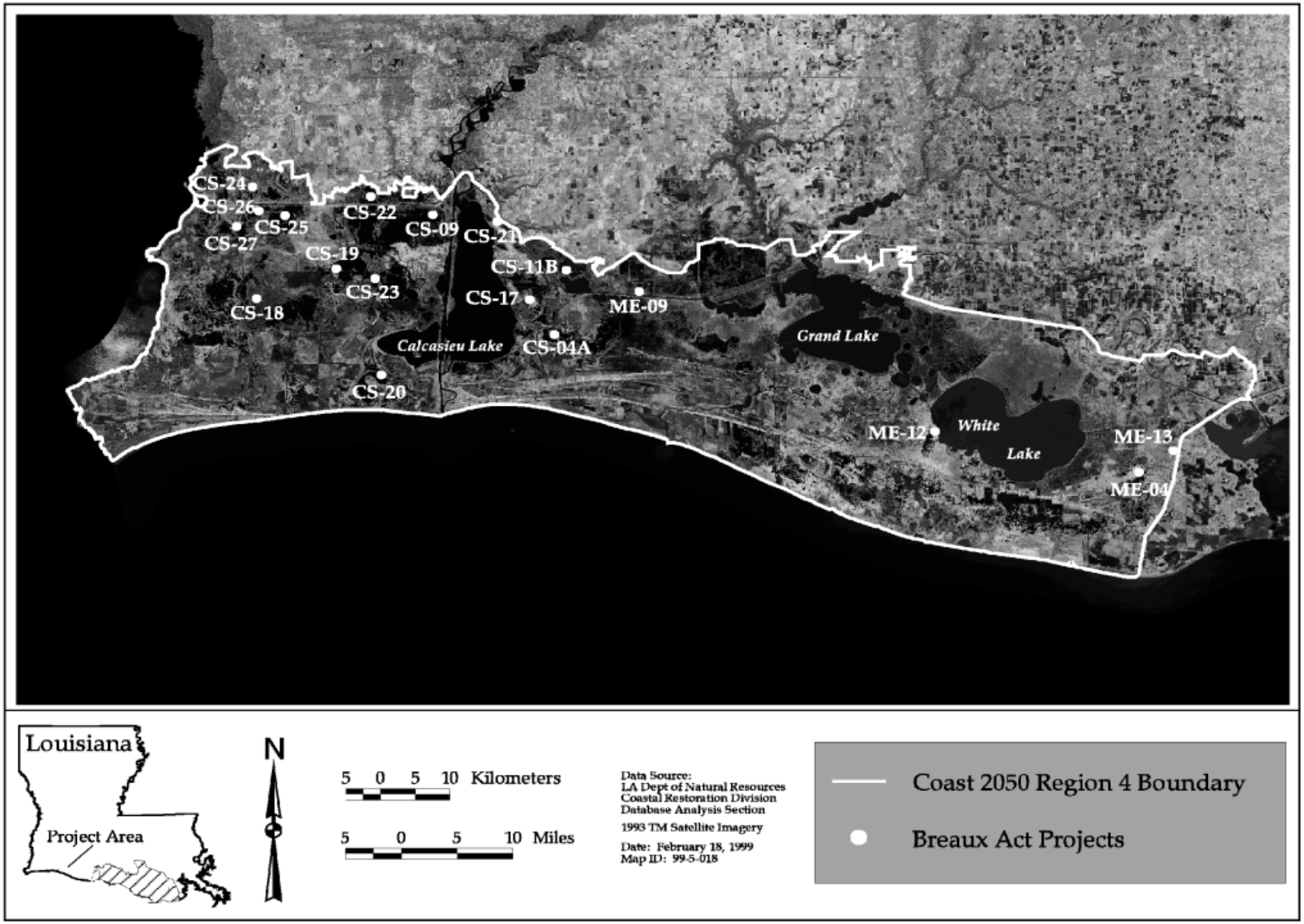


Figure 14. Location of completed or pending Breaux Act projects in Coast 2050 Region 4.

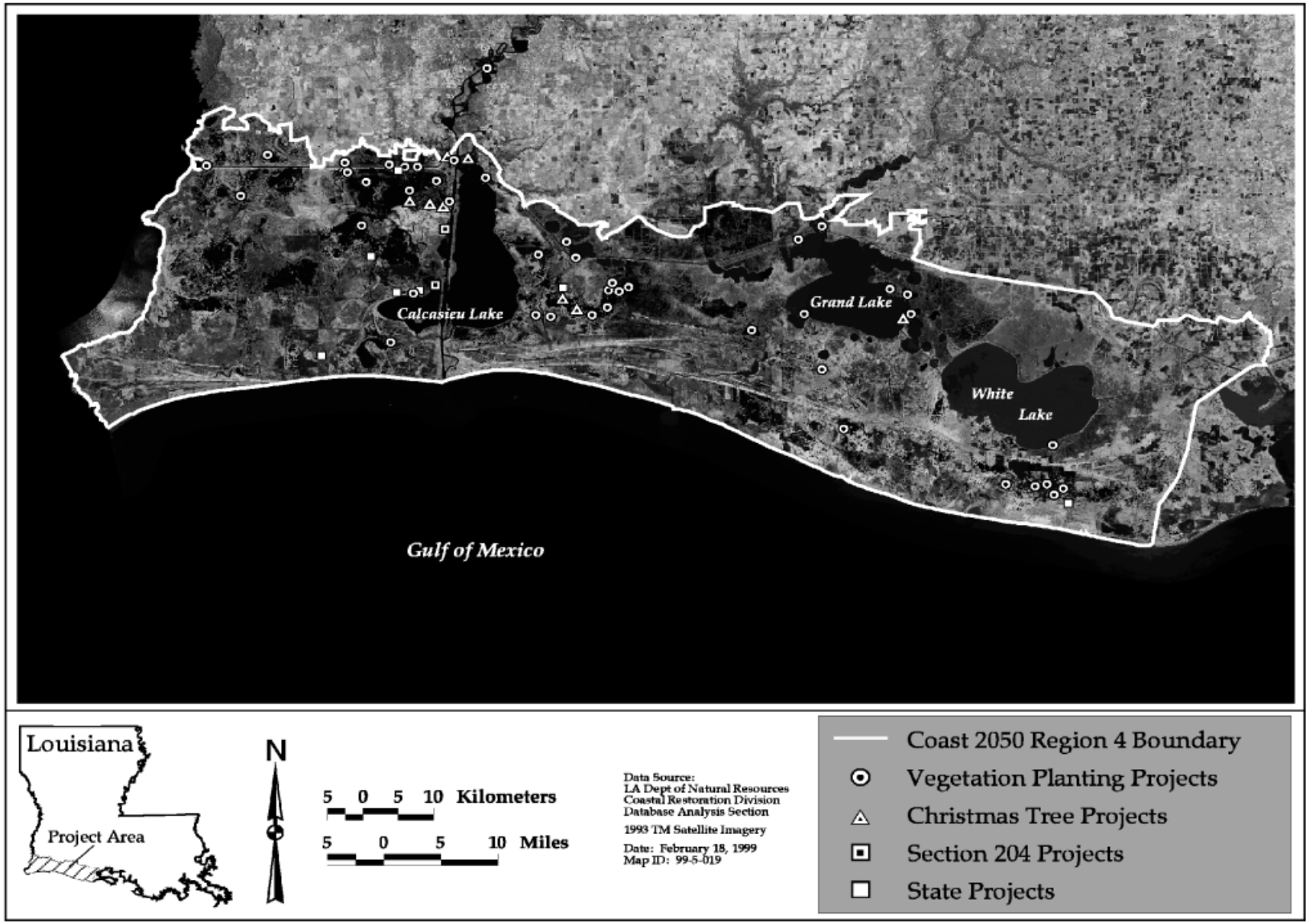


Figure 15. Location of completed or pending non-Breaux Act projects in Coast 2050 Region 4.

REGION 4 COMPLETED OR PENDING RESTORATION PROJECTS

Restoration Program	Project Name	Project Type	Year Completed	Parish
Breaux Act	Cameron-Creole Maintenance, CS-04a	Hydrologic Restoration	1997, 1998	Cameron
Breaux Act	Cameron Creole, CS-17	Hydrologic Restoration	1997	Cameron
Breaux Act	Black Bayou, CS-27	Hydrologic Restoration	1999*	Cameron
Breaux Act	Freshwater Bayou, ME-04	Hydrologic Restoration	1996	Vermilion
Breaux Act	Brown Lake, CS-09a	Marsh Management	1999*	Cameron
Breaux Act	Mud Lake, CS-20	Marsh Management	1996	Cameron
Breaux Act	Highway 384, CS-21	Marsh Management	1999*	Cameron
Breaux Act	Replace Hog Island, West Cove, and Headquarter Structures, CS-23	Marsh Management	1999*	Cameron
Breaux Act	Sweet Lake/Willow Lake, CS-11b	Shoreline Protection	1999*	Cameron
Breaux Act	Sabine Refuge, CS-18	Shoreline Protection	1995	Cameron
Breaux Act	Perry Ridge, CS-24	Shoreline Protection	1999*	Calcasieu
Breaux Act	Clear Marais, CS-22	Shoreline Protection	1997	Calcasieu
Breaux Act	Cameron Prairie Refuge, ME-09	Shoreline Protection	1994	Vermilion
Breaux Act	Southwest Shore White Lake Protection Demonstration, ME-12	Shoreline Protection	1996	Vermilion
Breaux Act	Freshwater Bayou Bank Stabilization, ME-13	Shoreline Protection	1998	Vermilion
Breaux Act	Plowed Terraces Demonstration, CS-25	Terracing	1999*	Cameron
Breaux Act	West Hackberry, CS-19	Vegetation	1994	Cameron
Breaux Act	Compost Demonstration, CS-26	Marsh Creation	1999*	Cameron
State	Holly Beach, CS-01	Shoreline Protection	1994	Cameron
State	Sabine Shellbank Stabilization	Shoreline Protection	1990	Cameron
State	Brannon Ditch	Vegetation	1991	Calcasieu
State	Sabine Terraces	Terracing	1991	Cameron
State	Rycade Canal, CS-02	Marsh Management	1994	Cameron
State	Pecan Island, ME-01	Freshwater Diversion	1992	Vermilion
State	Cameron-Creole Structure Automation, CS-04a-1	Hydrologic Restoration	1999*	Cameron
PCWRP	Ellender Bridge	Christmas tree fence	1992, 1993	Calcasieu
PCWRP	Goose Lake	Christmas tree fence	1994, 1995	Calcasieu
PCWRP	Turner Bay	Christmas tree fence/ Vegetation	1995, 1997, 1998	Calcasieu
PCWRP	Kelso Bayou	Christmas tree fence	1991	Cameron
PCWRP	Portie Lakes	Christmas tree fence	1992, 1998	Cameron
PCWRP	Cameron Creole	Christmas tree fence/ Vegetation	1990, 1992, 1994, 1997	Cameron
PCWRP	Cameron Creole #2	Christmas tree fence/ Vegetation	1998	Cameron

REGION 4 COMPLETED OR PENDING RESTORATION PROJECTS

(Cont'd)

Restoration Program	Project Name	Project Type	Year Completed	Parish
Vegetation	Browns Lake	Vegetation	1987, 1989, 1992, 1995	Cameron
Vegetation	Grand Lake	Vegetation	1987, 1995, 1998	Cameron
Vegetation	Black Lake	Vegetation	1988, 1992	Cameron
Vegetation	Lacassine	Vegetation	1988, 1989	Cameron
Vegetation	Mallard Bay	Vegetation	1988, 1998	Cameron
Vegetation	Rollover Bayou	Vegetation	1988	Vermilion
Vegetation	Sabine NWR	Vegetation	1988	Cameron
Vegetation	Rockefeller WMA	Vegetation	1987	Cameron
Vegetation	Blind Lake	Vegetation	1990	Cameron
Vegetation	Sabine Terraces	Vegetation	1990	Cameron
Vegetation	Mud Lake	Vegetation	1991, 1992, 1994, 1996	Cameron
Vegetation	Sweet Lake	Vegetation	1991, 1995, 1997	Cameron
Vegetation	Doland Lease	Vegetation	1992	Cameron
Vegetation	Cameron Creole	Vegetation	1992	Cameron
Vegetation	Walker GIWW	Vegetation	1992	Calcasieu
Vegetation	White Lake	Vegetation	1991, 1993	Vermilion
Vegetation	Pecan Island	Vegetation	1992, 1996	Vermilion
Vegetation	Little Pecan Bayou	Vegetation	1994	Cameron
Vegetation	Shell Western	Vegetation	1994	Cameron
Vegetation	Boudreaux Lake	Vegetation	1994	Cameron
Vegetation	Tebo Point	Vegetation	1994, 1995, 1997	Cameron
Vegetation	Vermilion Corp #1	Vegetation	1995	Vermilion
Vegetation	Vermilion Corp #2	Vegetation	1995	Vermilion
Vegetation	ARCO Road Marsh	Vegetation	1995	Cameron
Vegetation	Black Bayou Marsh	Vegetation	1995, 1997	Cameron
Vegetation	Grosse Savanne Marsh	Vegetation	1995, 1997, 1998, 1999*	Cameron
Vegetation	Sabine GIWW	Vegetation	1995	Cameron
Vegetation	Savanne Neuvelle Marsh	Vegetation	1995	Cameron
Vegetation	Umbrella Bay	Vegetation	1995, 1998	Cameron
Vegetation	Webb Gully	Vegetation	1995	Calcasieu
Vegetation	Welfare Bridge Marsh	Vegetation	1995	Cameron

REGION 4 COMPLETED OR PENDING RESTORATION PROJECTS

(Cont'd)

Restoration Program	Project Name	Project Type	Year Completed	Parish
Vegetation	Goose Lake	Vegetation	1997	Calcasieu
Vegetation	Collicon Lake	Vegetation	1997, 1999*	Cameron
Vegetation	Platform #1	Vegetation	1997	Vermilion
Vegetation	Black Bayou Cutoff	Vegetation	1997	Calcasieu/ Cameron
Vegetation	West Alkali Ditch	Vegetation	1997, 1999*	Calcasieu
Vegetation	Marseillaise Bayou Marsh	Vegetation	1997, 1998	Cameron
Vegetation	Platform #2	Vegetation	1998	Vermilion
Vegetation	Vermilion Corp #3	Vegetation	1998	Vermilion
Vegetation	Prien Lake Marsh	Vegetation	1998	Calcasieu
Vegetation	Cotton Well Road	Vegetation	1999*	Cameron
Vegetation	Turner's Bay	Vegetation	1999*	Calcasieu
Vegetation	Kelso Bayou	Vegetation	1999*	Cameron
Vegetation	Big Marsh Lake	Vegetation	1999*	Vermilion
Section 204	Browns Lake	Beneficial Use of Dredge Material/ Marsh Creation	1999*	Cameron
Section 204	Sabine National Wildlife Refuge	Beneficial Use of Dredge Material/Marsh Creation	1994, 1997, 1999*	Cameron

Breaux Act = Coastal Wetlands Planning, Protection, and Restoration Act, also known as CWPPRA
State = Restoration projects funded entirely by the State of Louisiana through the Coastal Restoration Division
PCWRP = Parish Coastal Wetlands Restoration Program (Christmas Tree Program)
Vegetation = DNR/NRCS/SWCC Vegetation Planting Program
Section 204 = Section 204 beneficial use of dredged material projects
* = anticipated date

CONCLUSIONS

While coastal land loss remains a significant problem in Louisiana, the combined efforts by the public, and parish, state, and federal agencies has already made a substantial impact.

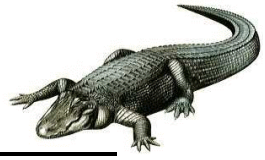
Louisiana has constructed more than 270 coastal restoration projects to offset wetland loss. By December 1999, the CRD and its partners will have implemented 55 Breaux Act projects, 33 state projects, and 12 federal projects, and will have installed over 7 miles of Christmas tree fences and 285 miles of vegetative plantings. Project types range from complex marsh management projects, which require active management of water levels in enclosed areas to restore severely altered habitats, to more simple vegetation projects, which involve planting salt- and flood- tolerant marsh plants to bind sediments together and stabilize soils with their roots.

Each restoration project is constructed to meet specific restoration goals, and monitoring data are crucial in interpreting the results of individual projects. Because project effectiveness must be measured under different environmental conditions (e.g., drought and flood), most projects require years of monitoring to accurately determine project benefits. Monitoring results are used not only to evaluate the effectiveness of coastal restoration projects but also to guide the design and selection of future projects.

Among established projects, there are already several success stories. Dredged material and marsh creation projects, which primarily use sediment material dredged for navigational channel maintenance or for access canals, have created vegetated marsh habitat in areas that previously contained deteriorated wetlands or open water. Sediment diversion projects, which mimic natural deltaic processes, have created new marsh in the form of a crevasse-splays in an areas that were a shallow open water. Monitoring data from the large-scale freshwater diversion project, Caernarvon, indicate that deteriorating wetlands can be revitalized on a large scale. This project created several hundred acres of new wetlands in a subsampled area in just a 3-year period, equating to a 5.9% increase in wetland area. In several instances shoreline erosion has been reversed, resulting in shoreline progradation and the accumulation of sediment behind rock breakwaters. (For more detailed information, progress reports for Breaux Act and State projects are available from DNR.)

Knowledge is a powerful tool in wetland conservation, not only for restoration project managers but also for concerned citizens. By remaining aware and informed of coastal problems and restoration efforts, individuals can help preserve Louisiana's wetlands. You can show your support by promoting wetland restoration efforts, by working with non-governmental coastal organizations, by attending local meetings, and by practicing conservation of wetland resources by following fishing and hunting regulations and not littering. You can participate in organized beach clean-ups, environmental education programs, and in DNR's Christmas tree program, either by donating your tree after the holiday season or by volunteering to help place discarded Christmas trees in brush fences it the marsh. Through concern and participation, citizens can play a role in the success of wetland restoration programs and personally contribute toward the goal of saving a national treasure.

For more information, visit our website at www.saveLAwetlands.org , call us at 1-888-459-6107, or write us at Louisiana Department of Natural Resources, Coastal Restoration Division, PO Box 94396, Baton Rouge, Louisiana 70804-9396.



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