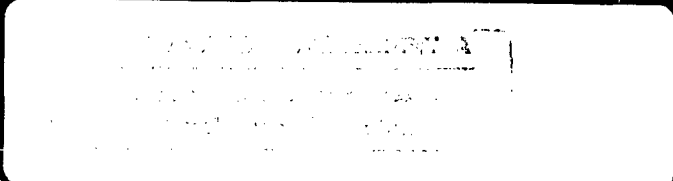


CARING FOR COASTAL WETLANDS



THE COASTAL WETLANDS
PLANNING, PROTECTION
AND RESTORATION ACT

November 1997



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CARING FOR COASTAL WETLANDS

This document is companion to a report submitted to Congress by the Louisiana Coastal Wetlands Conservation and Restoration Task Force, *The 1997 Evaluation Report to the U.S. Congress on the Effectiveness of Louisiana Coastal Wetlands Restoration Projects*. The report to Congress provides many more details about Coastal Wetlands Planning, Protection and Restoration Act accomplishments in Louisiana and will be featured on the Act's web site (www.LAcoast.gov).

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Caring For Coastal Wetlands



Though wetland loss occurs across the country, Louisiana accounts for over 80% of total coastal wetlands lost in the lower 48 states, at a rate of 25-35 square miles per year.

About half the U.S. population lives along the country's coast, and people who do seem to know more than ever before about the processes shaping their neighboring coastal wetlands. With that knowledge has come a sense of responsibility for the care and protection of the fragile systems along the coast on which the country depends for fish and shellfish production, natural protection against storms, recreation, and many other values. The Coastal Wetlands Planning, Protection and Restoration Act of 1990 (Public Law 101-646) is the most significant acknowledgment to date that public awareness of these vital areas and concern for their future have grown.

The value of seafood species that depend on wetlands is \$1 billion per year in Louisiana alone.

Wetland Values. . .

Wetland Loss Public awareness of the importance of coastal wetlands has marked the latter part of the 20th century. We will enter the 21st century with a deep appreciation for the way these areas function and the important values they provide.



©FRANK LAYTON'S MINDEN PICTURES

- **Economic:** Freshwater and saltwater marshes provide habitat for many species that humans use for economic and recreational reasons. Waterfowl, wading birds, alligators, and furbearers all need wetlands for

Once endangered, brown pelicans such as this young one have made an outstanding comeback in Louisiana's wetlands.

some or all of their lives. Shellfish such as shrimp and crabs and many fish species use coastal wetlands as nursery habitat as well as for spawning and feeding grounds.

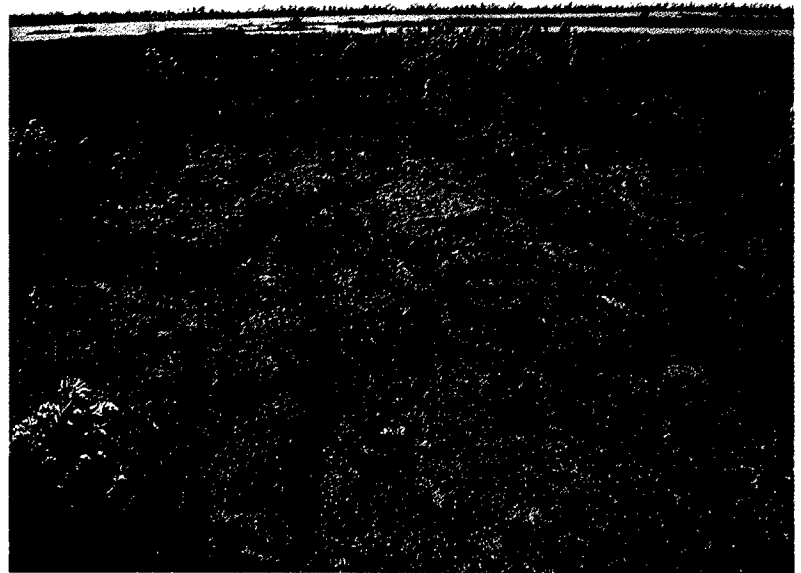
- **Habitat:** Coastal habitats such as swamps and barrier islands also support numerous threatened and endangered species, such as the bald eagle, brown pelican, and piping plover.
- **Storm Protection:** Barrier islands, coastal marshes, and bottomland hardwood forests protect our cities and other inland habitats from the threat of flooding brought by storms such as hurricanes.
- **Recreation:** Coastal wetlands provide unique opportunities for professional and amateur photographers and bird-watchers. Boaters also enjoy wetlands.

With an appreciation of the importance of coastal wetlands has come the realization that these habitats are fragile and that coastal wetland loss in the 20th century has been high. Though wetland loss occurs across the country, Louisiana accounts for over 80% of total coastal wetlands lost in the lower 48 states, at a rate of 25-35 square miles per year. Furthermore, Louisiana's coastal wetlands provide wintering habitat for 20% of the nation's waterfowl and supports the largest fishery in the lower 48 states.

The reasons for the losses vary: storm damage, sea-level rise, subsidence, and floods combine with human alterations such as oil and gas exploration, navigation canals, flood control levees, and urban and agricultural expansion to constantly challenge survival of coastal wetlands. Furthermore, the response of individual wetlands to these events varies greatly both

with their location and when the events occur. This makes understanding the wetland systems even more difficult.

Meeting the Challenge Recognizing the importance of coastal habitats and their vulnerability, legislators and voters began to call for wetland protection in the 1970's with passages of laws such as the



GLENN GUNTENBERG, U.S. GEOLOGICAL SURVEY

Estuary Protection Act in 1970 and the Coastal Zone Management Act in 1972.

In addition, federal and state agencies began projects that led the way to current programs for restoration of wetlands, especially in Louisiana. For instance, the U.S. Army Corps of Engineers began to use dredged material to rebuild marshes. In addition, the State of Louisiana and the Natural Resources Conservation Service began sponsoring planting projects to reduce erosion in local areas. And for some time, the U.S. Fish and Wildlife Service has acquired wetlands for protection of natural resources and routinely manages them to help ensure longevity of coastal habitat.

Hurricane winds can fold coastal marshes like an accordion, but these marshes and other coastal wetlands help reduce the threat of storm surges from hurricanes.

The Breaux Act



The passage of the Coastal Wetlands Planning, Protection and Restoration Act in 1990 has been a powerful statement about the nation's concern for conserving and restoring coastal wetlands. The Act is called the "Breaux Act," referring to its major author, Senator John Breaux of Louisiana. Because Louisiana faces the most alarming wetland loss rates, the Act's primary focus is on restoration and protection of those wetlands.

Cooperative Care of Wetlands

The Act is specific and succinct. Over its 9-year lifespan the Act gives careful guidance for the restoration of the vital coastal wetlands of Louisiana. It also establishes the Coastal Wetlands Conservation Grant

Program to help preserve and restore other coastal wetlands in the United States. Under that program, any coastal state other than Louisiana that "submits a proposal substantial in character and design to carry out a coastal wetlands conservation project" is eligible to receive a matching grant for that project. In addition, it provides funds to further assist states and other wetland conservation programs under the North

American Wetlands Conservation Act, passed in 1989.

The Breaux Act designates that 70% of its authorized funds go to Louisiana restoration projects, 15% to the Coastal Wetlands Conservation Grant Program, and 15% to North American Wetlands Conservation Act projects. But all projects that protect and restore wetlands with Breaux Act funding require non-federal

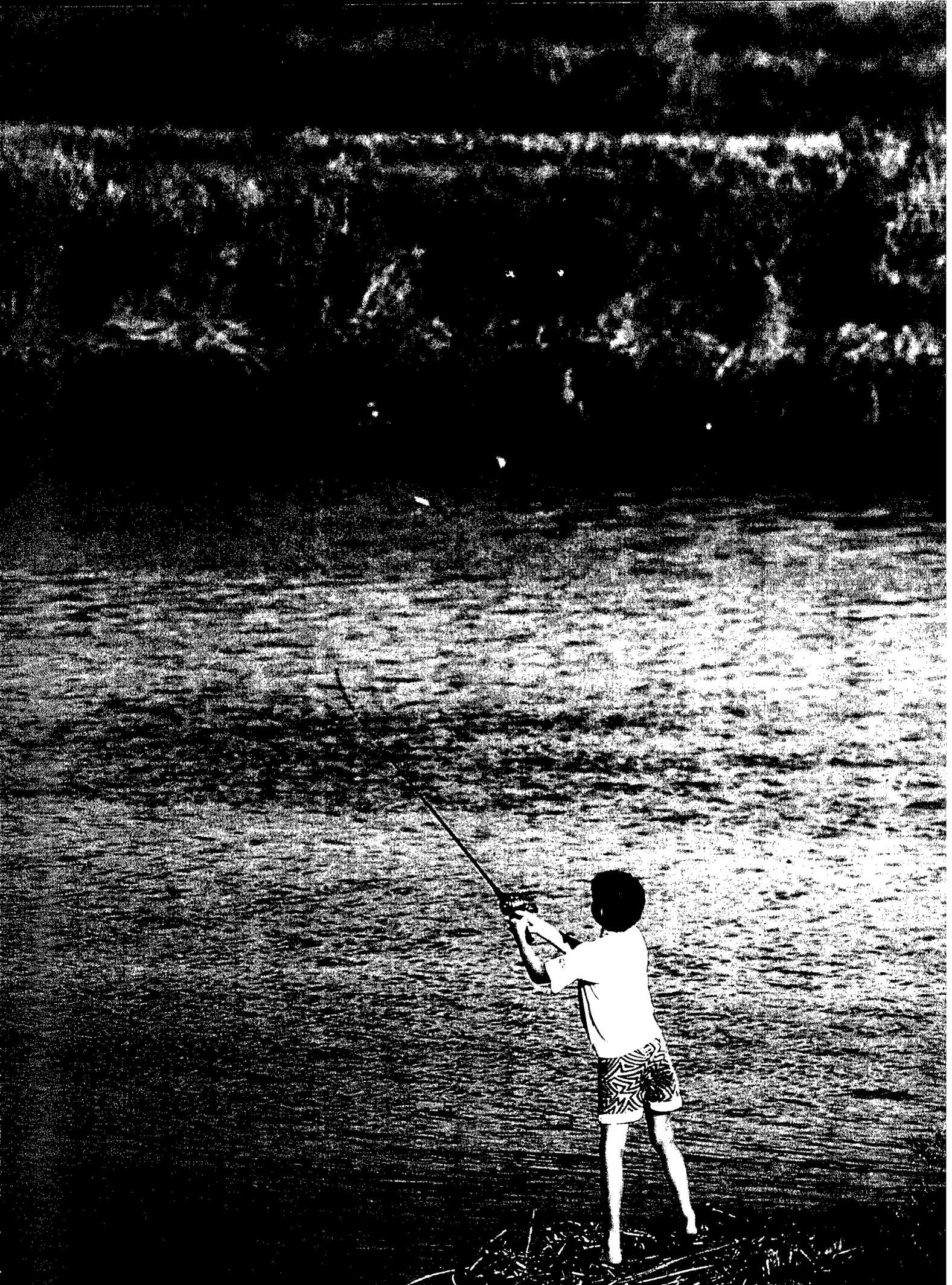
matching contributions, which come from states and private sources, either as cash or in-kind services. By its very nature, the Act encourages partnerships in reducing wetland loss. (See box on page 6 for more information about Breaux Act activities outside of Louisiana.)

The Cost And where is the money coming from? Taxes on fishing equipment, import duties, and small engine and motorboat fuels are put into various accounts maintained by the Treasury Department. About 18% of those tax revenues are set aside to fund Breaux Act activities, with no more than \$100 million each year designated for these activities. Although this amount of money sounds like a lot, one large-scale restoration project alone can cost more than \$200 million.

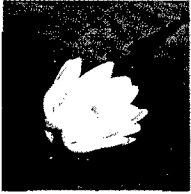
Since 1991, the Breaux Act has provided \$33-44 million per year in federal funding for Louisiana restoration projects. For nationwide projects, the Coastal Wetlands Conservation Grant Program and North American Wetlands Conservation Act each receive about \$7-9 million per year in federal funds from the Breaux Act. In addition to this critically important funding source, more resources are needed if restoration efforts are to match the scale of coastal wetland loss.



Senator John Breaux of Louisiana was the major author of the Coastal Wetlands Planning, Protection and Restoration Act of 1990. Here he helps break ground for a restoration project.



The Breaux Act in Other States



U.S. FISH AND WILDLIFE SERVICE

Although Louisiana's unique wetlands and associated problems are specifically provided for in the Breaux Act, it also recognizes and addresses wetland loss nationwide. The National Coastal Wetlands Conservation Grant Program and the North American Wetlands Conservation Act both receive funds authorized under the Breaux Act, and they too are meeting the challenges of wetland protection and restoration. Coastal wetland projects in all U.S. states and territories can seek assistance from these sources (Louisiana is not eligible for the National Coastal Wetlands Grant Program).

COASTAL WETLANDS CONSERVATION GRANT PROGRAM

Administered by the U.S. Fish and Wildlife Service, 15% of the funds from the Breaux Act can be made available to coastal states and territories through this program for wetland conservation. Up to \$9 million per year has been generated through the existing funding mechanism. Matching funds for projects must be supplied on the state

Habitat restoration in a 75-acre diked wetland in Oregon was possible through the Breaux Act via the Coastal Wetlands Conservation Grant Program. Year-round nesting and foraging areas for bald eagles and other species are available in the wetland, which will also be featured in local wetland education programs.

level from both state and private sources. With this careful pooling of funds, more than 75 projects have been assisted in U.S. states and territories. Through the program, over 51,000 acres of wetlands have been or will be protected through their purchase and by restoring once degraded wetlands. For instance, the Great Lakes have large amounts of interior coastal wetlands that feature large populations of

waterfowl as well as nursery habitat for freshwater fish. Through the Coastal Wetlands Conservation Grant Program, the State of Wisconsin, in partnership with The Nature Conservancy and other private parties, purchased 220 acres of Lake Michigan shoreline, wetlands, and forest.

This purchase is another step in providing a much larger habitat corridor for migratory birds, such as waterfowl, and other animal and plant species. Land managers and wetland researchers have recommended protection of these corridors, which are critical blocks of undeveloped habitat. The larger and more continuous the corridor, the more benefits it can provide to humans, plants, and animals.

Through the grant program, many other proposals have been approved for assistance that address restoring sites that range from former dredge disposal sites to seagrass beds.

NORTH AMERICAN WETLANDS CONSERVATION ACT

The North American Wetlands Conservation Act was passed in 1989 to promote governmental and private partnerships to conserve wetlands, specifically in their support of migratory waterfowl and other fish and wildlife. Projects funded through this act work much the same as the National Coastal Wetlands Conservation Grant Program in that they must also be matched by funds from non-federal sources. Again, the U.S. Fish and Wildlife Service administers the funds. Projects are selected by consensus of two boards: the North American Wetlands Conservation Council, made up of representatives from federal and state government and private conservation organizations, and the Migratory Bird Conservation Commission. As with the National Coastal Wetlands Conservation Grant Program, each year 15% of the federal funds authorized by the Breaux Act go to North

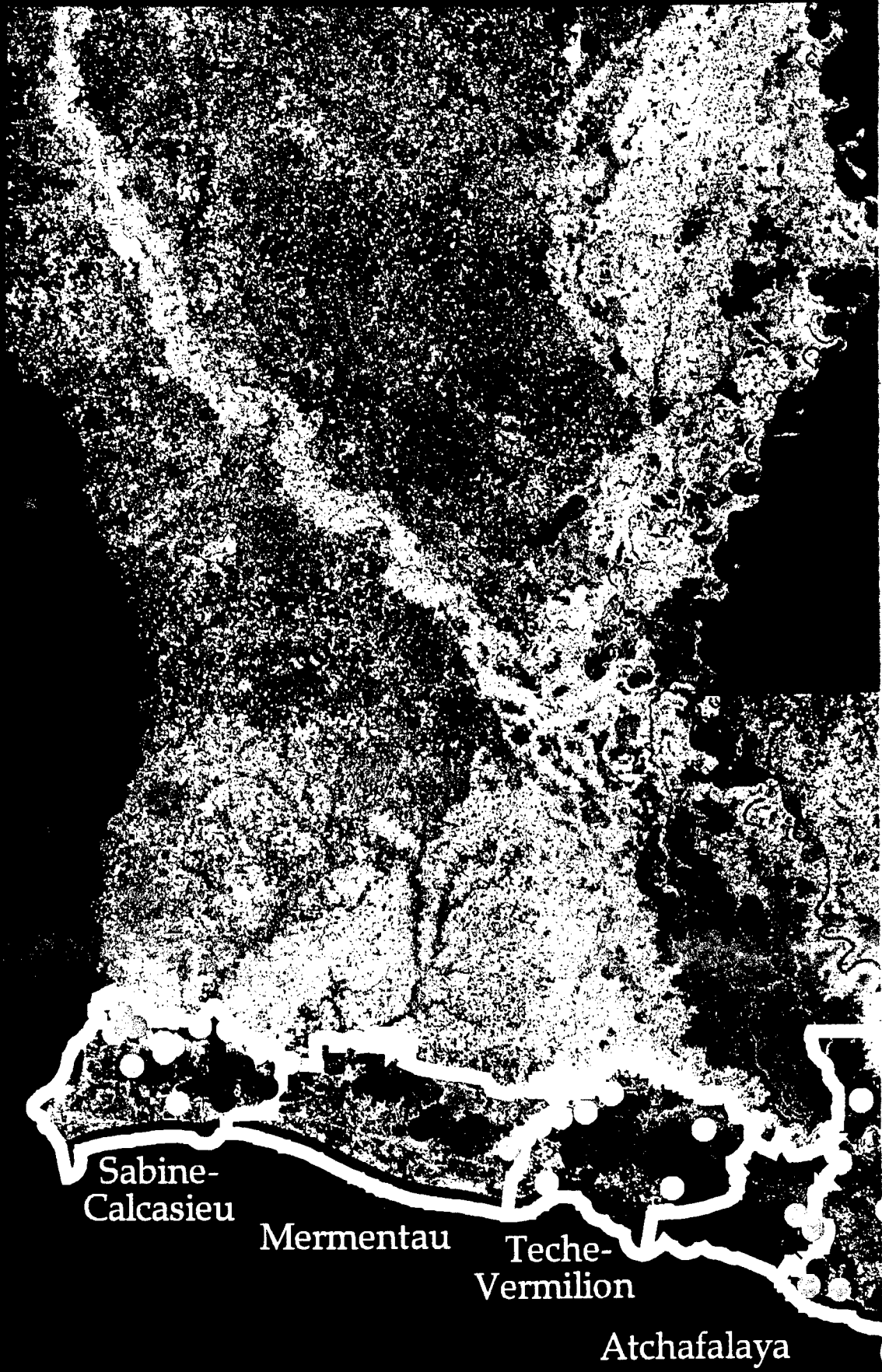
American Wetlands Conservation Act purchase and restoration projects. As of mid 1997, about \$40 million (\$7-9 million a year) in grants have assisted in the conservation of 130,000 acres of coastal wetlands in the United States.

Some of the projects funded through the Breaux Act in conjunction with the North American Wetlands Conservation Act occur in wetlands already identified by the North American Waterfowl Management Plan as being areas of significant importance—"joint venture" areas—for waterfowl. These areas are essential breeding habitat, wintering grounds, or migratory staging or stopover sites for waterfowl and other migratory birds, including Neotropical species like warblers, and for shorebirds. One project made possible through funds from the Breaux Act as well as contributions from the Massachusetts Audubon Society, Dartmouth Natural Resources Trust, and several individual donors was the purchase and protection of wetlands included in a larger protection effort of Allens Pond, a coastal salt pond on Buzzards Bay, Massachusetts. Through this project, six different habitats that support more than 150 bird species are now protected. Whether resting, feeding, or nesting, birds find refuge in Allens Pond's mosaic of brackish tidal marshes, coastal dunes, salt marshes, beaches, coastal oak woodlands, and a red maple-black gum riparian forest.

Allens Pond, Massachusetts, which supports many wildlife species, is now protected by partnerships, including one assisted by the Breaux Act through the North American Wetlands Conservation Act.



MASSACHUSETTS AUDUBON SOCIETY



Sabine-
Calcasieu

Mermentau

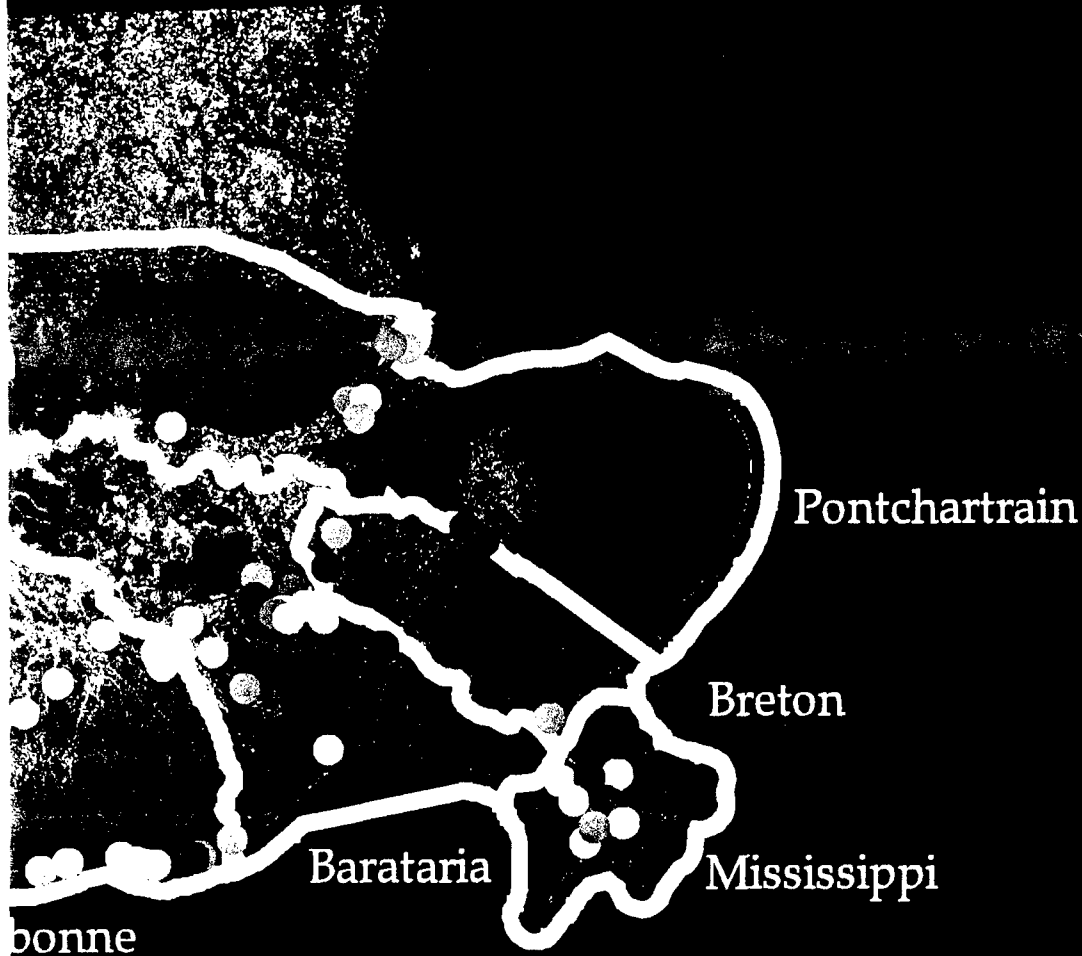
Teche-
Vermilion

Atchafalaya

T

LOUISIANA COASTAL WETLAND RESTORATION PRIORITY PROJECTS

- Project approved 1991
- Project approved 1992
- Project approved 1993
- Project approved 1994
- Project approved 1995
- Project approved 1996
- Hydrologic Unit



The Act in Louisiana



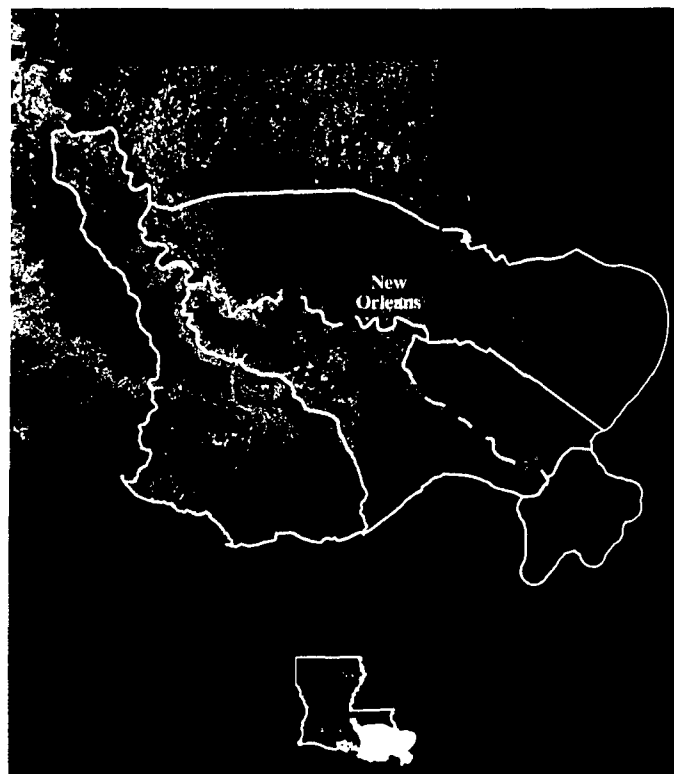
The Louisiana Coastal Wetlands Conservation and Restoration Task Force—made up of representatives from five federal agencies and the Governor of Louisiana—has a comprehensive restoration plan for addressing coastal Louisiana's severe wetland loss problem. Every year, this Task Force approves and reports to Congress priority lists of projects; every 3 years, it reports to Congress on the effectiveness of projects.

The severe loss of coastal wetlands in Louisiana is the primary target of the Breaux Act, both in funding and in careful instruction on how that funding will be used. Those funds marked for Louisiana enable a comprehensive approach to wetland restoration: they fund the actual wetland restoration projects, but just as significantly, they fund the coordinated planning of those efforts as well as monitoring of the projects to measure whether or not they are effective.

Planning The Act calls upon federal and state governments to pull together into an unprecedented task force to ensure that a breadth of wetland issues are addressed. Representatives from the U.S. Departments of the Army, Interior, Commerce, and Agriculture, and the Environmental Protection Agency, along with the Governor of Louisiana, are mandated by the Act to work together.

In 1993, the Task Force prepared the Louisiana Coastal Wetlands Restoration Plan to assist in identifying and selecting the highest priority restoration projects. The partners made extensive efforts to foster involvement in the planning process by university scientists, landowners, local governments, and a wide variety of other interests and the general public through public hearings, briefings, and interactive local meetings.

The Plan identifies basin-level restoration strategies and projects needed



MARTY BEASLEY AND JOHN BARRAS U.S. GEOLOGICAL SURVEY

The tremendous problem of large-scale wetland loss in Louisiana has to be met with large-scale efforts, which are costly. Feasibility studies—such as the Mississippi River Sediment Nutrient, and Freshwater Redistribution Study (MRSNFR shown above) and the Louisiana Barrier Shoreline Feasibility Study—give the Task Force information to weigh long-term projects against proposed benefits. Outlines are boundaries of hydrologic basins within the MRSNFR study area; red dots represent potential diversion sites.

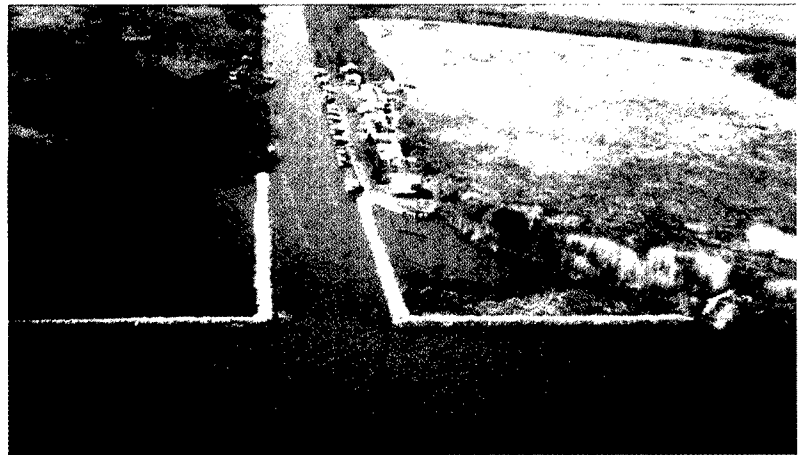
to implement those strategies and outlines objectives for Breaux Act projects.

Drawing largely from potential projects identified in that plan, the Task Force (with the help of its technical personnel) annually evaluates a list of candidate projects based on the following criteria:

- cost effectiveness
- longevity and sustainability
- risk and uncertainty
- supporting partnerships
- public support
- support for the restoration plan.

As of mid 1997, the Task Force approved six annual priority lists, resulting in selection of 80 projects to address wetland loss in nine coastal hydrologic basins along Louisiana's coast. Of those projects, 62 are anticipated to create, restore, and protect over 73,000 acres of wetlands over the next 20 years. Four projects have been deauthorized after initial selection for various reasons such as inability to obtain land rights. Fourteen are small projects intended to demonstrate new techniques for protecting and restoring wetlands. The Task Force will approve two more priority lists during the current funding phase of the Breaux Act.

The Task Force is also looking to the future in an even larger way by funding feasibility studies of longer-term, larger scale projects. One study addresses the most active natural contributor to wetlands in Louisiana: the Mississippi River. Over 3 years, this study will identify the most efficient, effective, and complete plan for achieving wetland restoration while still providing for navigation, flood control, water supply, and other uses of the river. This study will determine if the investment of federal and state funds in such a plan can be justified by the anticipated benefits. The other feasibility study is addressing the potential for restoring barrier shorelines to protect Louisiana's coastal wetlands; results of that study are expected in 1998.



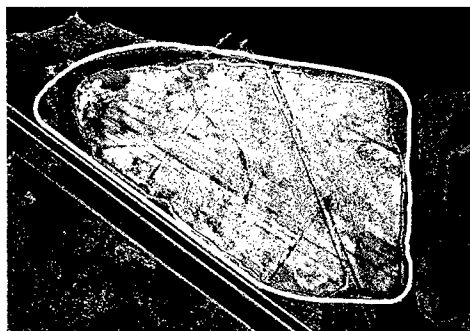
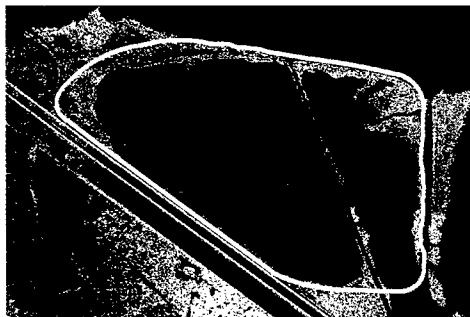
NATURAL RESOURCES CONSERVATION SERVICE

Projects: How, Why, Where

Projects are carried out by the federal agencies represented on the Task Force, in close cooperation with the state. The projects must take less than 5 years to design and construct, while monitoring them over 20 years will tell us how effective they are in protecting, creating, or restoring wetlands.

Scientific assessment of whether or not projects are reaching their desired goals is typically not possible until at least 3 years after completion. Funds for monitoring Breaux Act projects are set aside throughout their duration, which usually

This constructed rock bulkhead, located where Boston Canal meets Vermilion Bay in south Louisiana, is now protecting over 400 acres of marsh along the northern edge of the bay. Plantings of smooth cordgrass along the shoreline are further protecting the coastal wetlands from physical erosion. Six months after the project began, about 5 feet of sediment were deposited landward of the bulkhead and almost 90% of the cordgrass had survived.



BILL JONES AND STEVE HARTLEY, U.S. GEOLOGICAL SURVEY

By using dredged sediment, nearly 350 acres of new vegetated wetlands now exist in Bayou LaBranche, Louisiana; the lighter areas show the wetland gain. As expected, initial plantings of millet (an annual plant) have been replaced by naturally occurring species.



The Breaux Act projects selected as of May 1997 are anticipated to create, restore, or protect over 73,000 acres of coastal wetlands in Louisiana.

is assumed to be 20 years. If a project is officially deauthorized, those funds can be redirected. This setting aside of project funds is yet another action that recognizes the dynamics of wetlands over time and the need for their long-term care.

Breaux Act projects in Louisiana have focused on both creating and restoring coastal wetlands already lost and reducing future wetland losses associated with natural processes and human activities. Restoration projects are generally grouped as

- vegetative, involving planting in vulnerable areas and with appropriate kinds of plants (such as salt-tolerant ones) to help prevent erosion and trap sediment;
- sedimentary, creating or nourishing wetlands by using diverted or dredged sediments;
- structural, using materials such as rock breakwaters to protect existing wetlands that are threatened by erosion;



To date, 80 projects, such as plantings to help prevent erosion, have been approved to reduce wetland loss in Louisiana



Demonstration projects are small scale and are used to showcase restoration methods. At Falgout Canal, near Houma, Louisiana, wave damping devices are now protecting 1,500 feet of shoreline and many acres of newly planted smooth cordgrass in the nearby marsh from erosion.

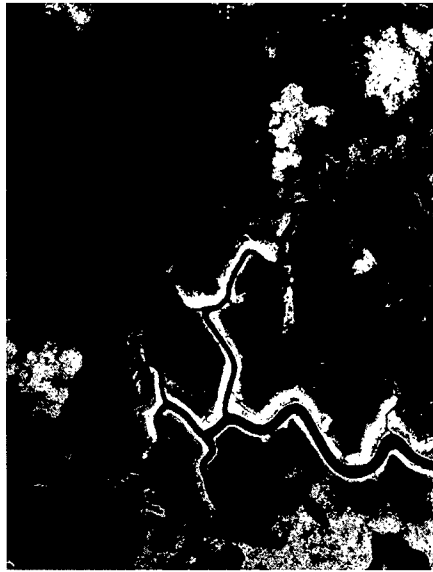
- hydrologic, controlling the amount of water and, when needed, salinity, flowing into or out of wetlands, eventually restoring more natural flows and salinity patterns.

A major accomplishment of the Breaux Act restoration planning process was to delineate the unique landscape features and key processes affecting wetlands in each of the nine hydrologic basins in coastal Louisiana. The various causes of wetland loss, and the specific solutions for offsetting those losses, vary from basin to basin. Some specific problems and how they are being addressed through Breaux Act projects follow:

- The basins with active deltas, those of the Mississippi and Atchafalaya Rivers, have been affected by maintenance of large navigation channels through the deltas. Restoration efforts focus on

improved management of sediment carried by those rivers, to facilitate accretion of new deltaic marsh. Small-scale sediment diversions (artificial crevasses) created in the Mississippi Delta provide clear evidence that large-scale delta-management projects will be successful as well.

- The Pontchartrain, Breton Sound, Barataria, and Terrebonne basins are inactive delta regions where the Mississippi River once provided abundant sediment. Causes of wetland loss in these regions include subsidence, sea-level rise, erosion, excessive ponding, saltwater intrusion, and urban development. Projects reintroduce river water, sediments, and nutrients by a variety of means, such as siphons and large-scale freshwater and sediment diversions; use dredged material to restore wetlands and barrier islands; reduce erosion by wetland plantings; and restore natural hydrology to reduce excessive ponding in marshes and swamps and prevent salt water from moving into previously fresh areas.
- In the chenier plain of southwestern Louisiana—the Teche/Vermilion,



ROBERT GRECO AND ERIC SEEGER, U.S. GEOLOGICAL SURVEY

Mermentau, and Calcasieu/Sabine basins—the greatest threats to wetlands are shoreline erosion, saltwater intrusion, excessive ponding, and reductions of fresh water and nutrients. The loss of the shoreline causes breakup of interior wetlands by allowing salt water to penetrate further into fresh marsh areas. Once plants die, fragile organic marsh soils can be easily eroded. Stabilization projects such as marsh plantings and breakwaters protect banks from further erosion, and water control structures modify salinities and water levels. Dredged material helps replenish what has been lost by creating new marsh.

	Acres	
	1993	1996
Water	241	117
Emergent marsh	52	118
Transitional wetland	40	98
Net increase of marsh habitat	124	

These images (1993, left; 1996, right) and data show results from a Breaux Act project in Bayou Sauvage National Wildlife Refuge, Orleans Parish, LA, where water levels were drawn down to expose mudflats and allow plants to grow (lighter areas on 1996 image).

Monitoring data collected from Breaux Act projects can be far reaching in usefulness. Data can be reviewed and used world wide for similar restoration efforts.

Monitoring Efforts Before project design is even completed, a plan for systematic evaluation of the results is developed. The monitoring plan for a project defines protocols for collecting data and information used to scientifically evaluate the effectiveness of the restoration project. Standardizing how this information is collected is vitally important so that everyone involved can get an overall picture of how well a project is working. Researchers from Louisiana's universities help plan monitoring efforts as



NATURAL RESOURCES CONSERVATION SERVICE

An unexpected benefit of a Breaux Act project. Pelicans are using the project site at Racoon Island for roosting.



well as review results, thus broadening the base of technical expertise involved with restoration.

Cooperative efforts among the federal and state agencies continue well after a project is completed as participants collect data from the field, aerial photographs, and satellite images and provide their findings to the Task Force in a series of regular reports. That information can be used to develop modifications in the operation of those projects or to point out the need for design changes in future projects to better achieve wetland goals. In extreme cases, a project might be deauthorized if it is not achieving its goals.

Education Public awareness of the need to maintain and restore coastal wetlands is crucial to their future survival. One of the earliest achievements in the Breaux Act process was the understanding that the public had to be involved in the identification and prioritization of projects. Public meetings occur throughout coastal Louisiana to assist in identifying wetland restoration issues. The Task Force carefully considered input from previous public meetings during their development of Louisiana's coastal wetland restoration plan. In addition, the Task Force works closely with the Citizen Participation Group, made up of a variety of statewide organizations varying from local landowners to voters groups.

The Breaux Act newsletter, *Watermarks*, is published quarterly. The newsletter features articles about creation and restoration projects and issues as well as pieces focusing on the individuals and



When 75% of a restoration project has been designed, plans begin for monitoring the effectiveness of that project. Monitoring activities have started for about 30 projects.

the federal and state agencies involved with restoring Louisiana's coastal wetlands (call 504 862-2786 or 862-2201 for more information about *Watermarks*).

The Task Force also recognized the need to better inform the public about wetlands, the Act, and its accomplishments, so an outreach committee of representatives from the cooperating agencies was formed in 1995. Interested citizens can now find more information about the Act in slide shows, brochures, and a site on the World Wide Web (www.LAcoast.gov) where information about restoration projects is literally at a user's fingertips.

21st Century Challenges

Project results are starting to show that the Breaux Act has been an innovative catalyst for coastal restoration nationwide. The National Coastal Wetlands Grant Program and the component of the North American Wetlands Conservation Act funded by the Breaux Act ensure a strong foundation for continued wetland conservation and the benefits wetlands provide to fish, wildlife, and the American people. • The Breaux Act in Louisiana has been extremely successful in leading many federal, state, and private efforts to develop an integrated, comprehensive, system-wide approach to wetland restoration. Large-scale feasibility studies will be paramount in setting the future course

of major restoration projects. The unprecedented monitoring program will provide an invaluable record of program effectiveness as well as the feedback needed to fine-tune restoration efforts.

Although projects approved under the eight priority lists will be designed, constructed, and monitored over the next 20 years, authorization of the Breaux Act itself will end September 30, 1999 unless extended by Congress. The anticipated benefits of over 73,000 wetland acres created, protected, or restored over 20 years in Louisiana exceed those of similar efforts

in other coastal areas of the nation, and additional restoration will be achieved with projects authorized via the remaining two priority lists. But if the rate of 25-35 square miles of Louisiana's coastal wetlands lost each year continues, hundreds of thousands of acres could be lost during that same time. Loss of that magnitude indicates that a larger-scale restoration effort is clearly needed to sustain the ecological and economic productivity of the nation's largest coastal wetland complex.

Making that effort is the challenge facing us as we greet the 21st century.

Even though over 73,000 acres of Louisiana's coastal wetlands are expected to be created, protected, or restored over 20 years because of current Breaux Act projects, these projects are only a first step in balancing the anticipated loss of hundreds of thousands of acres in that same time.



PHILIP GOULD

Where to Go for More Information



ON THE COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

- Coastal Wetlands Planning, Protection and Restoration Act. Public Law 101-646, Title III. Breaux Act web site: www.LAcoast.gov
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- Watermarks, the CWPPRA Newsletter. U.S. Army Corps of Engineers Public Affairs Office, PO Box 60267, New Orleans, LA 70160-0267.
- CWPPRA Outreach Coordinator, U.S. Army Corps of Engineers Public Affairs Office, PO Box 60267, New Orleans, LA 70160-0267 (504 862-2786 or 862-2201).

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Contact the associated agency for availability of these publications.

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