WaterMarks

Fall 1998

Louisiana Coastal Wetlands Planning, Protection and Restoration News

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.

In this Issue...

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:

http://www.lacoast.gov
http://www.savelawetlands.org

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About this Issue's Cover . . .

Both brown and white pelicans are a common sight along Lousiana's coastal beaches. (ACOE photo)

Icon Legend

CWPPRA engineers rely on four basic techniques when creating, protecting or restoring coastal wetlands. In issues of *WaterMarks*, the techniques used in each project are identified by the icons explained below.

Vegetative
Vegetative techniques replace plant life lost through water ponding, erosion and saltwater intrusion.

Structural
Structural techniques use natural and man-made materials to protect existing wetlands subject to erosion or subsidence.

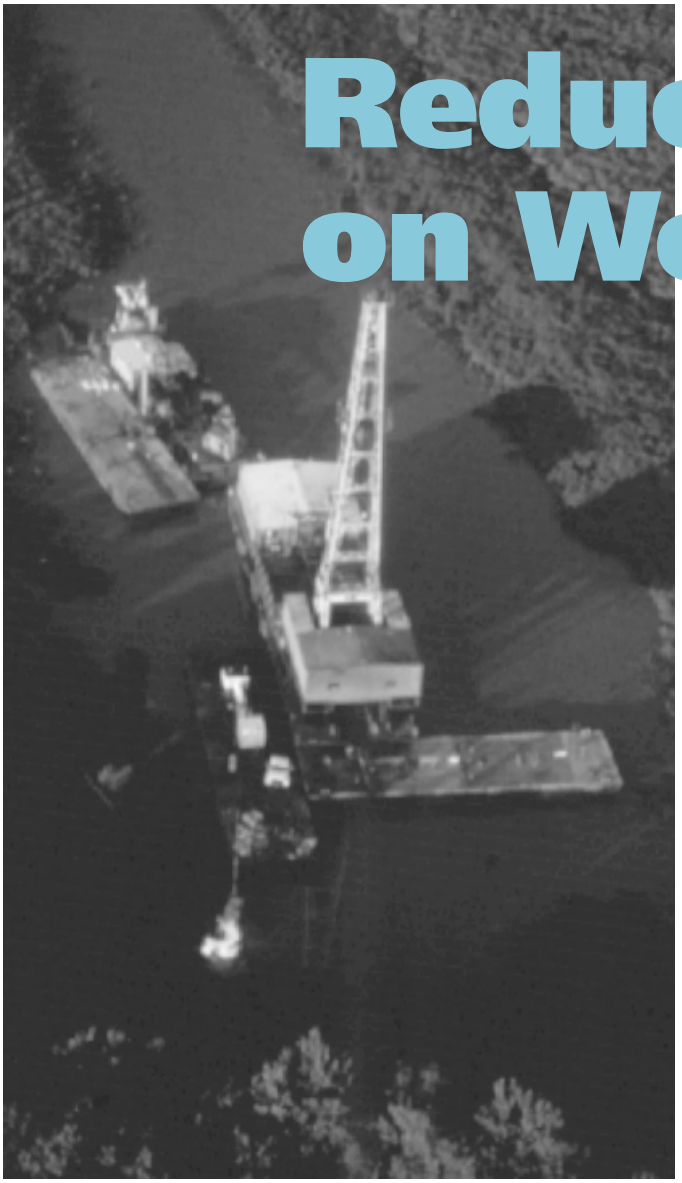
Sedimentary
Sedimentary techniques mimic the natural process of accretion (wetland building) by using diverted or dredged sediments.

Hydrologic
Hydrologic techniques increase or decrease the amount of water flowing into or out of wetlands, returning water flows to more natural patterns.

In response to growing environmental concern and regulatory pressure, the oil and gas industry has rallied in an effort to reduce the damage it causes to Louisiana's wetlands.

The Oil and Gas Industry At Work:

Reducing Impact on Wetlands



Barge-mounted oil derricks – a common sight in Louisiana's wetlands – contribute to the more than $3 billion in federal petroleum taxes collected from the Gulf region annually.

According to John Johnston, Deputy Director of the Louisiana Geological Survey (LGS), preliminary findings by LGS indicate that the size of canals and drilling sites has decreased roughly 30 percent since the 1980s. When asked about the oil industry's impact on coastal wetlands, Johnston said, "Don't believe the hype. They aren't all bad."

People within the oil industry go much further, arguing that they take their environmental commitments seriously, and that their companies are winning awards to prove it. In 1997 Burlington Resources, for example, was the first oil company, as well as the first company from Louisiana, to win the Business Conservation Leadership Award. The company won the award for its continued conservation efforts over the last 40 years, including projects such as:

- local sponsorship of the Brady Canal Hydrologic Restoration Breaux Act Project
- donation of over 1,600 acres of surface land holdings on Isles Dernieres to the state of Louisiana to facilitate three Breaux Act island restoration projects
- a vegetative program to develop plants adapted for erosion control

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Reducing Impact on Wetlands

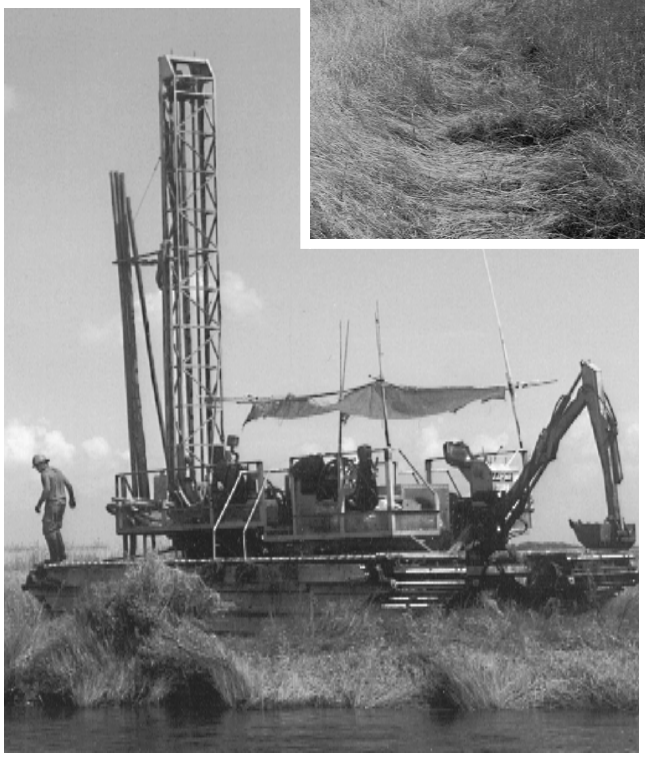
continued from page 3

As Bill Berry, Director of Wetlands Management for Burlington Resources, comments, "We know how important coastal restoration is in Louisiana, and our oil and gas profits help us contribute to the restoration process."

A Checkered Past

Historically, the oil and gas industry hasn't had a reputation for being environmentally friendly. When companies first started drilling in Louisiana during the 1930s, few understood the marsh's high sensitivity to human interference. Consequently, wetlands were freely dredged, drilled and channeled. Dredging for channels was the industry's primary destructive force in the wetlands, allowing salt water into fresh and brackish marshes, drastically changing their salinity levels. The earth dredged from canals was often heaped along the sides in spoil banks, preventing the natural flow of water from distributing nutrients and sediments. The result was the destruction of perhaps hundreds of thousands of acres of natural vegetation in coastal Louisiana.

The photo above shows the aftermath of an aluminum marsh buggy's passing. Rather than crushing the marsh grass completely, the lighter buggy only bends the grass.



Aluminum marsh buggies, like the one shown above, do less damage to marsh areas than their steel predecessors.

Innovations Lead to Less Damage

Dredging still remains a destructive practice in the industry, but designs are in place for vehicles that can operate in minimum water depths. For example, shallow-draft barges have been developed that can operate in less than four feet of water while the typical barge needs eight. Additionally, new aluminum marsh buggies, nearly half the weight of their steel predecessors, can skim the surface of wetlands, bending grasses without destroying them during seismic surveys. While these vehicles represent encouraging trends for the future, they have not as yet changed the standard industry practice of dredging canals to 8-foot depths.

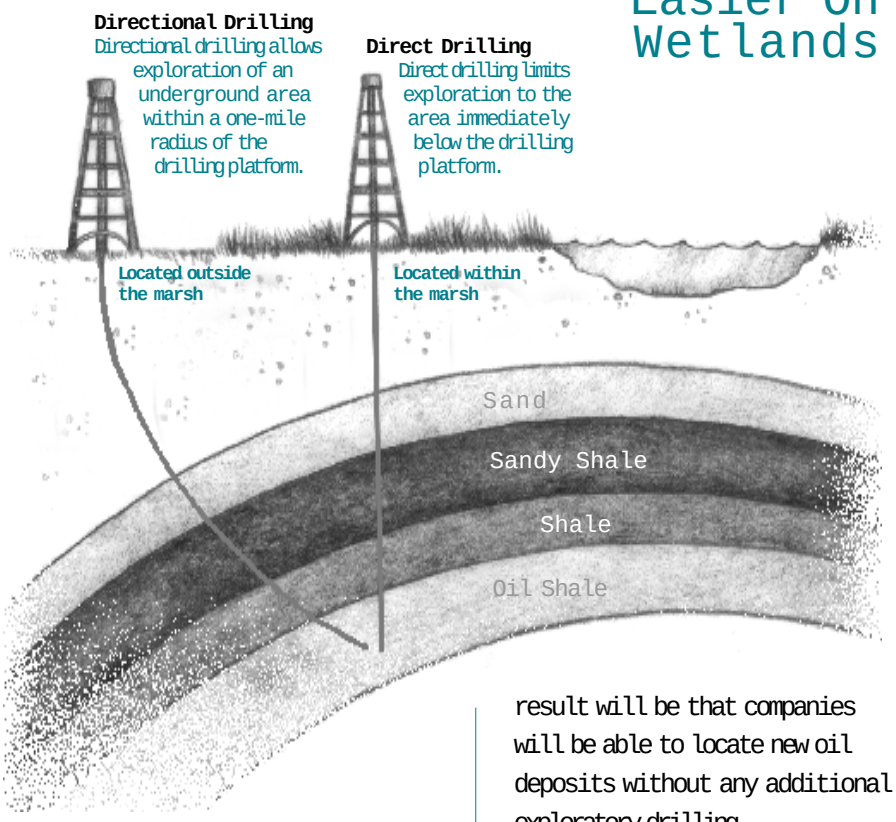
Accompanying these adaptations in vehicle design have been technological advancements in

Directional Drilling Easier On Wetlands

the methods used in locating and extracting oil and gas deposits. Multi-directional drilling techniques allow companies to expand the areas that can be searched from a single site. Instead of being limited to exploring straight down, the new technology can drill at sharp angles. This angular and even horizontal drilling limits the number of locations required to search an area and consequently the amount of dredging done in a marsh.

Additional reductions in drilling have been achieved by the practice of setting off small explosives and monitoring the earth's vibrations. The subsequent three-dimensional seismic readings give technicians the data they need to more accurately predict the presence of oil deposits, eliminating the need for numerous exploratory drillings. Officials at the U.S. Fish and Wildlife Service point out, however, that even the seismic surveys can have a detrimental effect in terms of the wildlife they disturb and the heavy equipment that must be transported into the marsh to accomplish the surveys.

The most promising development lies in the potential to manipulate the data already present in the computer databases to create a kind of geological virtual reality. The result will be that companies will be able to locate new oil deposits without any additional exploratory drilling.



"With the help of regulatory agencies, the industry's impacts on Louisiana wetlands have definitely gone down."

Regulatory Influence

Unquestionably, the efforts of governmental agencies have also had a major influence on the industry's exploration efforts. Before a permit that allows work in wetlands is granted, federal and state agencies such as the Corps of Engineers and the Department of Natural Resources (DNR) carefully analyze environmental impacts and evaluate alternative approaches. For example, to minimize dredging, the agencies may require temporary board roads that

continued on page 9 . . .

Do Bigger Diversions Mean Bigger Results?

Imagine wetlands reappearing by hundreds of acres. Imagine oyster production multiplying by millions of pounds. Imagine one of Louisiana's hottest sport-fishing sites developing in your backyard. Now focus on the Caernarvon Freshwater Diversion Project, where all of this is actually happening.

Due to increased freshwater and sediment flow through the diversion, in Caernarvon's 50-year project-span the diversion will protect more than 16,000 acres of wetlands and more than double oyster production on public grounds.

Achieving substantial results like Caernarvon's depends on a proper mix of nutrients and sediment in the diverted river water. Ailing wetlands need these basic building blocks if they are to recover from saline conditions. The influx of fresh water lowers saline levels and allows the return of saline-intolerant plants, such as bulltongue and wax myrtle. Nutrients feed the plants, which in turn hold the sediment together. Over time, plants and sediment form new land.

This photo of the Caernarvon Freshwater Diversion Structure is an aerial shot looking southeast towards the Big Mar Overflow Area. Fresh water from the Mississippi River enters through the inlet works, is carried under the levee, and is delivered to the overflow area via the outfall channel.

How Does It Work?

Constructed by the Army Corps of Engineers, Caernarvon reintroduces fresh water into the Breton Sound Basin via five 15-square-foot box culverts that are capable of diverting up to 8,000 cubic feet per second (cfs) from the Mississippi. The culverts are regulated by cast iron sluice gates, which usually open to divert water from December through February.

Understandi Diversions: *The Water Colu*

A water column illustrates a top-to-bottom body of water, plus its sediment particles rock core sample for water. In the case of th the body of water perhaps most important t coastal wetlands, a water column contains billions of sediment particles.

Historically, this river changed course pe new land in different locations. Each year, flooding, water levels overtopped the river sediment into the adjacent coastal wetlands course is fixed and levees have replaced the preventing sediment from reaching the wet

As the Caernarvon Freshwater Diversion shown, diverting fresh water before it gets highly productive method of protecting and marsh. But understanding how and why Ca and applying that knowledge to future dive understanding the water column.

Using the Column in Freshwater Diversions

In freshwater diversions, like Caernarvon Structure currently under construction, wat the upper portions of the water column (see right). This approach limits the amount of the diversion outfall area while lowering sa strengthening nearby freshwater marsh and added growth, death and decay of plants d base for new marsh to grow upon.

Using the Column in Sediment Diversions

In a sediment diversion, sediment and wate from lower parts of the water column (see ill A greater amount of sediment enters the ou diverted sediment accumulates (or accretes formed. The accompanying fresh water help intrusion into the new marsh and provides nutrients to the newly formed marsh. Sedim much more expensive process than freshwat

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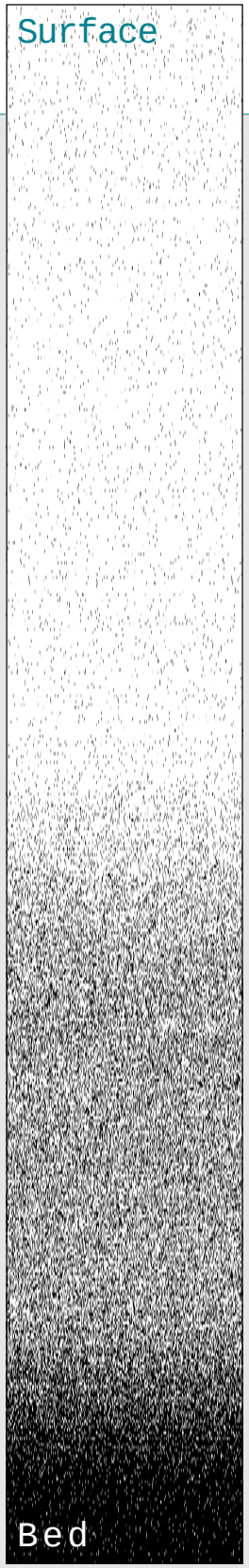


Freshwater Layers

This area of the water column is typically free of larger sediment particles. While sediment exists in the upper parts of the column, it is finer material like silts and clays -- materials with extremely small diameters.

It's important to note that the river's turbulence promotes mixing between the layers. As a result, there is never an even gradation between layers.

Sediment Layers

The larger particles tend to be located in the lower parts of the column and are predominantly sand. The concentration of sand within the column is generally lowest at the top of the column and highest just above the river's bottom (the riverbed).

Riverbed

In the bottom of the river, the "bedload" travels toward the Gulf of Mexico, where most of it is deposited in deep water beyond the continental shelf.

As with any large-scale project in coastal Louisiana, not everyone embraces freshwater diversions. Perhaps the most controversial issue surrounding Caernarvon has been its short-term effects on oyster beds. When Caernarvon initially released fresh water into the surrounding

The photo above shows the Caenarvon structure from a reverse angle with the river and New Orleans far in the background.

wetlands, oyster beds farthest inland suffered from the change in salinity levels. Those beds lost most of their productivity, and many had to be moved farther from the river.

Overall, however, long-term results of this pre-Breaux Act project have been positive. Oyster harvests have rebounded, including an almost 90 percent increase since 1992 in St. Bernard Parish. The wetlands are flourishing and returning to salinity levels normal for inland marshes.

The Future

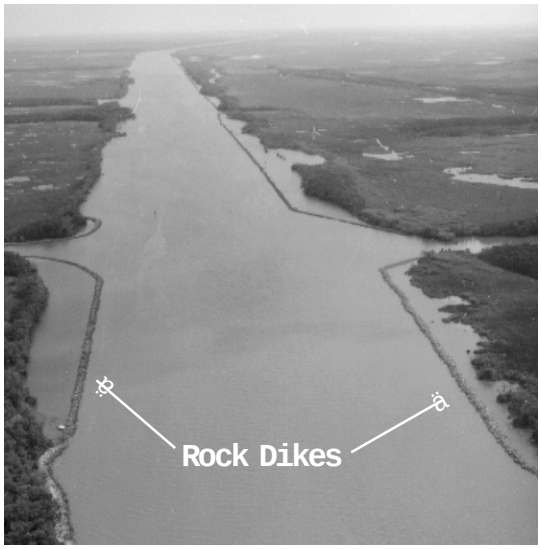
Caernarvon's success offers encouragement to those anticipating more freshwater diversions along the Mississippi. Engineers and scientists are able to study Caernarvon and develop plans to decrease short-term negative results. Caernarvon has also proved that larger projects do produce larger results. Smaller restoration projects have replenished pieces of wetlands all over Louisiana, but none has had the impact of Caernarvon. Because of the possibility for monumental success, diversions may serve to be the backbone of future restoration plans. m

Quick News

Bank Stabilization Project Complete

A rock dike 23,350 feet long is the main feature of the Freshwater Bayou Bank Stabilization Project, completed in May of this year. Erosion along the canal's west bank had exposed fragile organic marsh soils to tidal scour and saltwater intrusion, leading eventually to the conversion of emergent marsh to shallow, open water areas.

Located in Vermilion Parish, the $1.6 million project was jointly sponsored through the Breaux Act by the NRCS and the Louisiana Department of Natural Resources, with the local share of construction costs being paid by Cypress Gas Pipeline Company. m



Rock dikes line the sides of Freshwater Bayou to prevent further erosion. (ACOE photo)

For the latest Breaux Act information, check out the web:

http://www.lacoast.gov

Children Send SOS to President Clinton

Thousands of children asked President Clinton for help with wetland restoration recently through the Save Our Soil campaign. The letter-writing campaign, sponsored by the Houma-Terrebonne Chamber of Commerce, the Barataria-Terrebonne National Estuary Program and area schools, produced nearly 20,000 letters from children.

Sen. John Breaux, a major proponent of wetland restoration in Louisiana, volunteered to personally deliver the letters to President Clinton. Representatives of the SOS campaign presented the letters to Breaux during the CWPPRA dedication ceremony for the Atchafalaya River delta marsh creation program in early July.

Local sponsors hope that federal officials will be moved to action by the childrens' plea. The letters, many written in crayon, remind officials of the $200 million in wetland restoration funding that was lost when the federal budget was cut and ask for the replacement of those funds. m

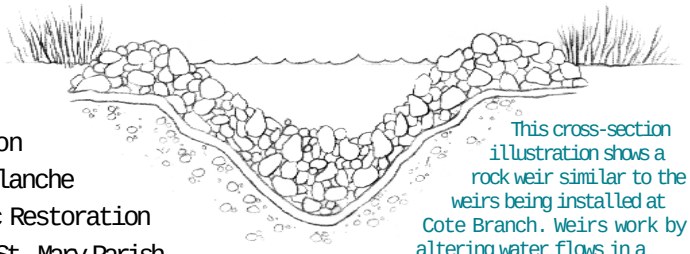
Cameron-Creole Project Phase II Completed

Construction contractors work from barge-mounted cranes to place rock around structures at Cameron-Creole. (ACOE photo)

Providing necessary maintenance to the Cameron-Creole Watershed structure prompted work on the Cameron-Creole O & M Project completed this June. The first phase of the $700,000 project repaired cracks within the Grand Bayou structure. The second phase laid 25 to 100 feet of rock around the structures to prevent scouring. Additional phases will be added if more repairs are needed.

This combined effort of the Natural Resources Conservation Service and the Louisiana Department of Natural Resources is maintaining the integrity of the Cameron-Creole Watershed in Cameron Parish. m

Cote Blanche Project Under Way



This cross-section illustration shows a rock weir similar to the weirs being installed at Cote Branch. Weirs work by altering water flows in a wetlands area.

Work is about one-third complete on the Cote Blanche Hydrologic Restoration Project in St. Mary Parish, south of Franklin. Lead agency on the project is the NRCS. The Cote Branch marsh, identified as 93 percent brackish in 1949, has now become fresh and intermediate marsh.

Seven low-level weirs and approximately 4,670 linear feet of foreshore dike for shoreline protection are included in the project. These measures are intended to reduce water exchange between the marsh and East and West Cote Blanche bays, reduce the rate of shoreline erosion, improve the possibility for sediment and nutrient deposition, and encourage the re-establishment of vegetation in eroded areas. The project will protect nearly 31,637 acres of marsh. m

Reducing Impact on Wetlands

continued from page 5

enable machinery to be driven to project sites. In other instances, they may recommend directional drilling from an existing site as an alternative to a new one. Roger Swindler, a civil engineer for the regulatory branch of the Corps of Engineers, sums up the government's role, stating "With the help of regulatory agencies, the industry's impacts on Louisiana wetlands have definitely gone down."

An examination of the number of permits authorized for the oil and gas industry by the Coastal Management Division of the Louisiana DNR supports Swindler's assessment. The number of these permits has plummeted since 1982 when approximately 1,450 acres of wetlands were disturbed by about 300 projects. By 1992, only 72 projects were given permits for a total of 72 acres. That's a 95 percent decrease in acres disturbed since 1982. Although the number of new projects increased substantially in 1995 and 1996, they fell again in 1997, and the number of acres disturbed by permitted projects remains approximately 65 percent below the 1982 figures. m

The WATER MARKS Interview

Ted Falgout

Director, Port Fourchon

Ports and the marine industry in Louisiana account for more than 28 percent of the state's gross product each year. In this issue's interview, Ted Falgout discusses the threat that wetlands loss poses for ports and the marine industry and what they're trying to do about it.

Q **Ports and the maritime industry in general have been criticized for being indifferent to the fate of Louisiana's coastal wetlands. From your perspective as a port director, is there any validity to this assessment?**

A Anyone in the maritime industry who doesn't recognize that protecting Louisiana's coast is in their own self-interest really hasn't thought the issue through. Port Fourchon, for example, depends entirely on Louisiana's Highway 1 to move every ton of cargo that comes through the port. There are no other options. Highway 1, however, is built on a thin strip of coast that in the past was protected by marsh. Today the marsh is gone – there's nothing left but open water on either side. As a result, the highway is extremely vulnerable, and that makes Port Fourchon vulnerable.

Q **But isn't Port Fourchon a unique situation?**

A Ports are the bridge between water and land. Take away their connection to the land-based roads, rail and support services, make them islands, and they no longer function.

Q **So why the indifference?**

A I really disagree with the characterization. Our industry is far from indifferent. Port Fourchon has been aggressively working to maintain coastal wetlands throughout the entire 20 years I have been the director. We've built offshore breakwaters to protect coastal beaches, restored beaches with dredging spoil, and filled pipeline canals to marsh elevation. We've taken the initiative in putting together state, federal and port dollars to build embankments in an effort to protect Highway 1. We've put thousands of marsh plants into the ground to protect various parts of the coast. In fact, just last week the port awarded a contract of $25,000 for planting giant cutgrass to retard erosion from vessel traffic. We do this because we know we must if we are going to survive.

Q **But what about involvement with projects coming out of the Breaux Act?**

A We have been actively involved with the efforts coming out of the Breaux Act. The West Belle Pass Project is a good example. It had been stalled for two years because of oyster lease issues. We recognized the value of the project, felt we could be of assistance, and within two weeks, at our own cost, we had purchased all the oyster leases. The project was quickly back on track.

"Anyone in the maritime industry who doesn't recognize that protecting Louisiana's coast is in their own self-interest really hasn't thought the issue through."

"The current level of $30 to $50 million a year simply won't cut it. Extraordinary needs demand extraordinary effort."

If you had an opportunity to send a message to federal agencies involved in coastal restoration, what would it be?

If we're going to have any hope of handling the massive problem of coastal wetlands loss, it's going to be because the sometimes adversarial relationships between government and industries like ours have been replaced by partnerships. And that means that everyone has to focus on the big picture, which, I assure you, is lot easier said than done.

Give me an example of focusing on the big picture.

Ports are water-dependent by nature of our business, which causes many of us to operate in environmentally sensitive areas. The cold fact is that we do impact wetlands. But it's equally true that because of an enlightened self-interest, we save many more acres than we ever harm. If regulatory agencies only focus on the negative impacts and don't look at the positive aspects, they're not looking at the big picture. When they impose regulations without properly evaluating the damage those regulations can do to an industry, they're not seeing the big picture. They're not seeing that they could kill the goose that lays the golden egg. A thriving maritime industry is absolutely essential to bringing the kind of dollars into Louisiana that we need to address coastal wetlands loss.

You mean the economic impact of the industry.

Few people recognize that one in eight jobs in Louisiana is related to the maritime industry and that 28 percent of the gross product of the state is generated by ports. But as important as that is, it's not the economic engine I'm talking about.

Today the U.S. Treasury receives over $3 billion a year in revenues from oil and gas located on the outer continental shelf off the Louisiana coast. Those incredible energy reserves are worthless and the revenues would be lost without the ships, ports, pipelines and other coast-based services needed to move them. Because our industry's infrastructure is threatened by coastal land loss in Louisiana, the state can make a powerful case to the federal government that a significant percent of that $3 billion should be targeted to coastal restoration.

And how much is significant?

We're going to need big projects to achieve meaningful results, and big projects mean we need to be spending hundreds of millions of dollars a year. Anything less and we're not being realistic about the magnitude of the problem. The current level of $30 to $50 million a year simply won't cut it. Extraordinary needs demand extraordinary effort, and there are efforts underway that could yield this level of funding. But we haven't yet been able to build the coalition necessary to accomplish this task.

How will you ever convince a congressman from Minnesota that spending those kinds of dollars in Louisiana really makes any sense to his home state?

He'd see how close to home Louisiana really is if a disaster shut down the gulf ports and pipelines for just one week. The result would be an energy crisis that would make the OPEC embargo seem insignificant by comparison. We don't have any choice but to convince that congressman before he's forced to learn the national scope of this crisis firsthand. And if that happens, as they say, it won't be a pretty picture. m