

1996

WATER MARKS

Louisiana Coastal Wetlands Planning, Protection and Restoration News

Funding Shifts to Large-Scale Projects

It's inevitable . . . a natural evolution," says Dave Frugé, field supervisor for the U.S. Fish and Wildlife Service. Inevitability, however, doesn't make the CWPPRA Task Force's shift in emphasis from small- to large-scale restoration projects any less profound.

Until recently, the majority of CWPPRA projects put under construction were designed as defensive measures. They were fast-track projects, designed to put the brakes on wetlands loss. For example:

 The Bayou LaBranche project used a combination of sedimentary, vegetative and structural techniques to create 250 acres

- of new marsh along the southern shore of Lake Pontchartrain in St. Charles Parish.
- The Cameron Prairie National Wildlife Refuge project used rock dike breakwaters to protect 640 acres of freshwater marsh in Cameron Parish from further erosion.
- The Boston Canal-Vermilion
 Bay project used a combination
 of structural and vegetative
 techniques to protect 466 acres
 of wetlands along the northwest
 shore of Vermilion Bay.
- The Freshwater Bayou project used rock breakwaters and water control structures to

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- Examine the status of CWPPRA Projects . . . Pages 6 and 7
- Review the CWPPRA Quick News . . . Page 8
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protect 1,700 acres of marsh in Vermilion Parish.

Each of these projects and others like them are expected to be highly successful. Not only are they meeting their environmental objectives; they

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A view of the Naomi Siphon in Plaquemines Parish. Similar technology and structures will be used in the Myrtle Grove Siphon Project — one of two large-scale, freshwater diversion projects endorsed by the CWPPRA Task Force in February.

WATER MARKS

Louisiana Coastal Wetlands Planning, Protection and Restoration News

Spring 1996



Water Marks is published twice a year 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 another 25 percent toward the costs of project construction.

Task Force member agencies:

Department of the Army
Department of Agriculture
Department of Commerce
Environmental Protection
Agency

Department of the Interior State of Louisiana

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Funding Shifts to Large Scale Projects

have rallied grassroots support and demonstrated the effectiveness of specific engineering techniques in protecting wetlands as well.

Focus on the "Big Picture"

On the other hand, the range of impact of these small projects is limited. Often designed to address localized problems, they can't begin to keep pace with coastal wetlands loss statewide. That, according to the Task Force, requires water-diversion projects extensive enough to affect major portions of Louisiana's coastal basins. Frugé, a Task Force member, describes these kinds of systemic efforts as those "that can benefit areas much larger than the actual project footprint."

The Task Force's shift in emphasis to "big-picture projects" was apparent at its meeting on February 28, 1996. It created two project categories, the first of which will include small-scale projects, defined

generally as those having fully-funded costs of less than \$10 million. The second will contain large-scale projects having "systemic, process-level benefits" and typically having

fully-funded costs greater than \$10 million. The Task Force dedicated no less than 2/3 of the Priority Project List funding for category 2 and the remaining funds for category 1.

Two Large-Scale Water Diversion Projects

Shortly after approving the 2/3 — 1/3 funding strategy, the Task Force

approved plans for phase one of a diversion project near Myrtle Grove, along the west bank of the Mississippi River in Plaquemines Parish. Scheduled to begin in September of this year, the project will use 6- to 8-foot diameter siphons to bring 2,100 cubic feet per second (cfs) from the Mississippi into a 15,000-acre target area. The fully-funded costs are estimated at \$15 million.

The area affected by this project has long suffered from the detrimental effects of the Mississippi River levee and the dredging of oilfield and pipeline canals. As a result of subsidence and saltwater intrusion, the area has lost more than 8,000 acres of marsh and converted from a fresh to a brackish habitat. When the siphon is constructed, the project will protect over 1,000 acres of brackish marsh, enhance approximately 6,200 acres of brackish marsh and 3,950 acres of submerged aquatic vegetation, and

Often designed to address

localized problems, small

projects can't begin to keep

pace with coastal wetlands

loss statewide.

create 150
acres of new
marsh. Reintroduction
of fresh
water is
expected to
improve the
habitat for

fisheries and furbearer, reptile and waterfowl populations. In time, these improvements should enhance opportunities for recreational and commercial fishermen, trappers and sportsmen.

The Task Force also approved the expenditure of \$1 million to do preliminary engineering design to determine the effectiveness of

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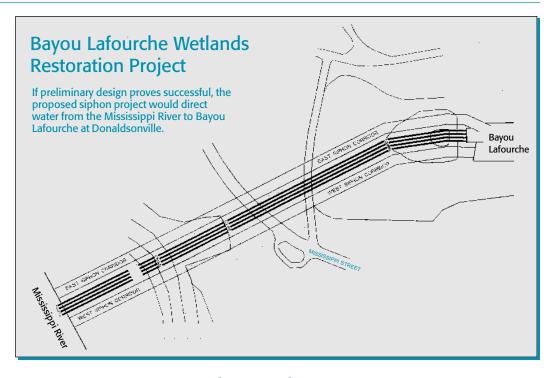
siphoning water from the Mississippi at Donaldsonville and diverting it into Bayou Lafourche. The work will concentrate on possible flooding problems (water levels will be raised about 6 feet in the bayou at Donaldsonville and 2 feet in Thibodeaux), land-rights issues (who owns the batture that will be flooded), and marsh benefits (how the water can best be directed into marshes to reduce loss). With

an anticipated cost of \$24.5 million, Bayou Lafourche represents a clear example of a large-scale project designed to produce big-picture results.

While large projects promise impressive results, they also present a unique set of problems:

- they cost more and therefore often require specific Congressional funding and authorization
- they take longer to plan and construct
- they are more likely to be controversial precisely because their effects are so far-reaching.

Yet these problems pale beside the enormity of the wetlands loss occurring along the coast. In fact, it may be the severity of the crisis itself that smoothes the inevitable transition to large-scale projects and renewed hope for the future of Louisiana's coastal wetlands.



Biotechnology...

The Newest Tool In Coastal Wetland Restoration

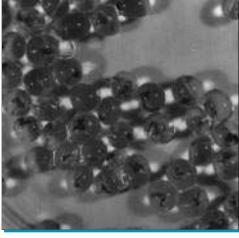
A rtificial seed from a superior coastal wetland plant, produced by cloning large numbers of plants in laboratory dishes, could provide an important boost to CWPPRA's coastal wetland restoration efforts.

Through biotechnology, Dr.
Timothy P. Croughan of the
Louisiana State University
Agricultural Center - Crowley
Rice Research Station, and
Michael D. Materne of the Natural
Resources Conservation Service,
Plant Materials Program, have
produced individual plantlets
encapsulated within a protective
gel to form the equivalent of a
plant-produced seed. These
artificial seeds have the potential
to be used as a substitute when
plants fail to produce seeds

naturally, or when they produce only a small number of fertile seeds.

Croughan and Materne have concentrated their biotechnology efforts primarily on Spartina alterniflora, commonly known as smooth cordgrass or oyster grass.

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Individual plantlets encapsulated in protective gel.

East Mud Lake Set for Phase Two

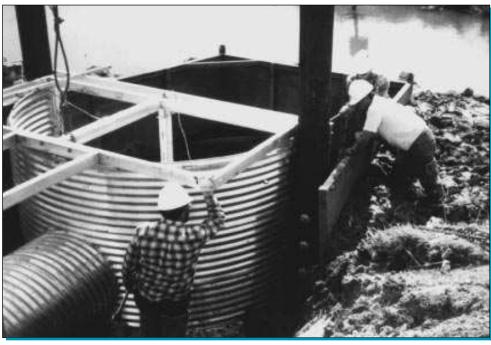




hase one of the East Mud Lake Hydrologic Restoration Project, approved on the second CWPPRA priority project list, is now complete. The project will benefit about 8,000 acres of wetlands in Cameron Parish just north of Holly Beach.

Through the years, the area has experienced excessive water levels and salinity fluctuations because of major changes in hydrology (water flow). The Calcasieu Ship Channel, LA Hwy 27, and West Cove Canal have all contributed to these changes, resulting in the loss of more than 70 acres of emergent wetlands per year for the last several years. The completed project will help reverse those catastrophic effects on the area.

"The completion of phase one of the East Mud Lake Project is a new beginning for the wetlands west of the Calcasieu Ship Channel," explained Don Gohmert, NRCS state



Workers install one of three double-barrel corrugated aluminum pipes at the East Mud Lake Project. Each pipe has a variable crest weir inlet section with a vertical slot.

conservationist. Designed to reduce wetland loss and degradation, the project will protect and enhance approximately 3,200 acres of emergent wetlands, as well as increase the quantity and quality of emergent and submergent vegetation in the area. The project will also enhance the habitat quality of open water in shallow estuaries and stabilize water salinity levels within ranges that are tolerable for brackish vegetation. As a result, the

What's This? → ~~~







See the Icon Legend — Page 6

Good Fences Make Good Dunes





he first phase of the Timbalier Island Stabilization Project (TE-18), installation of approximately 7,400 linear feet of sand fencing, has been completed and is showing positive results, according

to specialists with the Natural Resources Conservation Service.

"TE-18 is designed to reduce the rate of land loss by trapping and stabilizing sand sediment in vegetated dunes," explained Don Gohmert, state conservationist with the USDA Natural Resources

Conservation Service. "Several inches to several feet of sand and sediment have already accreted along the fence in many areas."

A demonstration project approved for inclusion on the CWPPRA first-year priority project list, TE-18 consists of two major components, installed in two phases.

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area should see an increase in recreational opportunities because of improved fish and wildlife habitat.

Phase One — Hydrologic Restoration

Included within phase one construction were:

- Four 36" corrugated aluminum pipes, each having a variable crest weir inlet section and flap gate
- Three double-barrel corrugated aluminum pipes, each pipe having a variable crest weir inlet section with a vertical slot
- One 48" corrugated aluminum pipe with interior screw or sluice gate and exterior flap gate
- Five corrugated aluminum pipes with flap gates
- One weir with two sections that have interior variable crest sections and exterior flap gates
- One weir with a variable crest boat bay
- Three earthen plugs
- Repair of approximately 1,500 linear feet of Mud Lake shoreline
- Rehabilitation of approximately 40,340 linear feet of boundary levee.

Phase Two — Vegetative Techniques

"Phase two of the project is ongoing," said Gohmert. "It includes the planting of over 90,000 feet of shoreline and interior marsh with smooth cordgrass, an exceptionally versatile and aggressive plant that adapts well to changes in the marsh ecosystem. Planting smooth cordgrass will help protect shorelines and interior marsh areas from erosion, as well as provide a valuable seed source to populate other locations in the area."

Good Fences Make...

With the first phase of the project now completed, project managers are ready to implement phase two: transplanting marshhay cordgrass (Spartina patens) and Atlantic panicgrass (Panicum amarum var. amarulum) — a total of 18,900 plants — to stabilize the accreted sand.

Fighting Erosion

The fencing component of phase one is designed to trap wind-blown sand on bare beaches and washover areas. As sand dunes begin to form, the land elevation adjacent to the fencing increases. The vegetative plantings in phase two will anchor these developing dunes while continuing to trap sand particles. Use of the two plant species, marshhay cordgrass and Atlantic panicgrass, will provide the opportunity to compare performance between species.

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Timbalier Island is a remainder of the Lafourche delta landform which was abandoned by the Mississippi River approximately 1,000 years ago when the river switched to its present course. A valuable landform in the Gulf of Mexico, the island offers extra protection to Louisiana's delicate marsh shoreline from storms and hurricanes.

"Establishing and maintaining a healthy, continuous dune complex on Timbalier Island can effectively help protect against breaching of the island and its subsequent accelerated deterioration," explained Gohmert. "This project will help us evaluate the effectiveness of vegetation coupled with sand fencing in sand dune creation."



Don Gohmert (right), state conservationist with the NRCS, explains sand fencing on Timbalier Island to Martin Cancienne (far left), district director for U.S. Representative Billy Tauzin, and Mike Jefferson, staff assistant from the office of U.S. Senator John Breaux.

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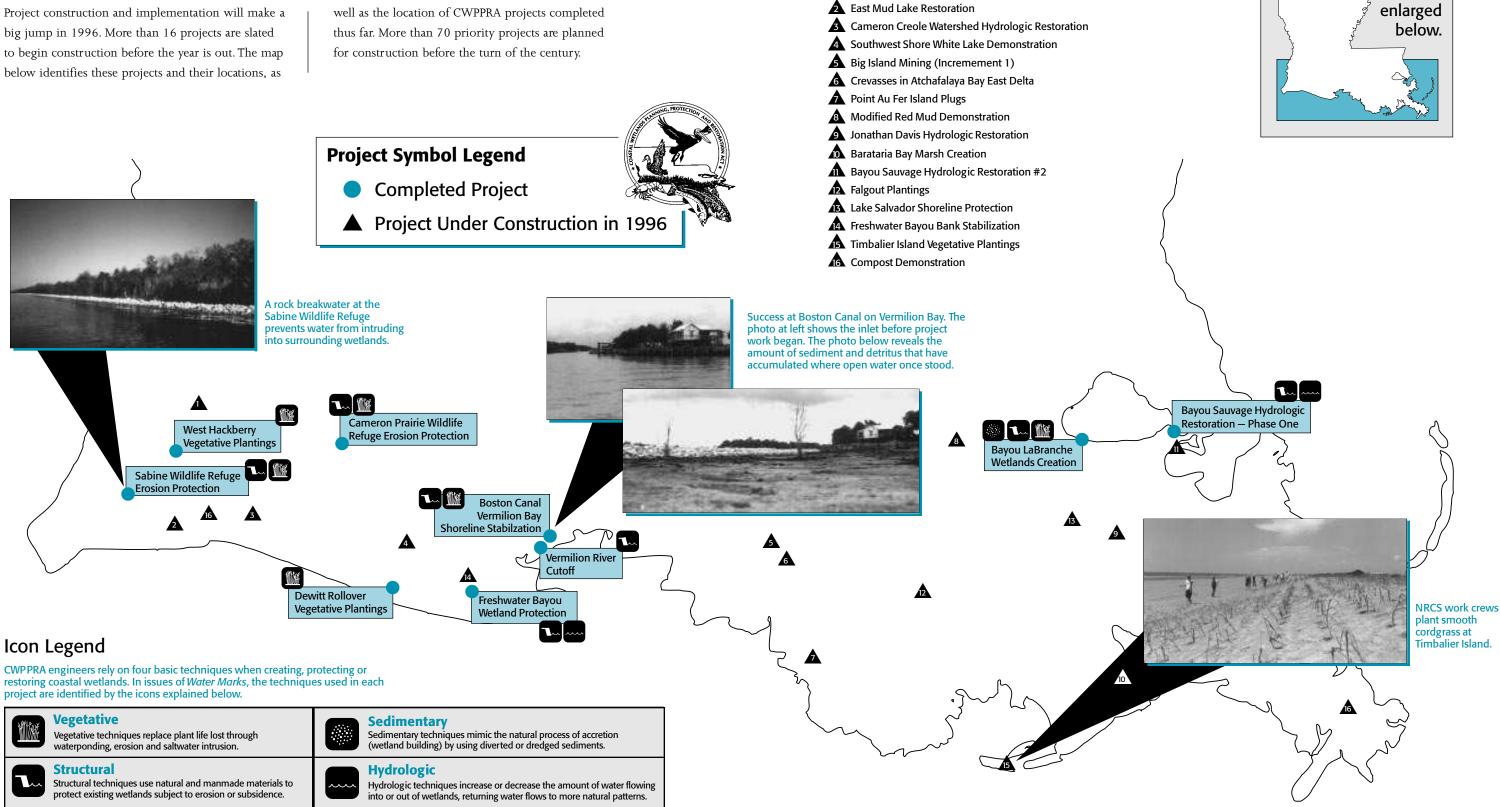
1996 Project Construction List

Clear Marais Bank Protection

Projects, Projects Everywhere!

Project construction and implementation will make a big jump in 1996. More than 16 projects are slated to begin construction before the year is out. The map

well as the location of CWPPRA projects completed





Area

CWPPRA Quick News

Bid Awarded for Cameron- Creole Watershed





Rimrock Enterprises of Justin, Texas, has been awarded the bid to begin construction on the Cameron-Creole Watershed (CCW) Hydrologic

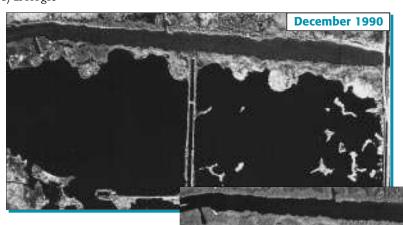
Restoration
Project in
southwestern
Louisiana. Made
up of more than
64,000 acres of
brackish,
freshwater and
saltwater
marshes, the

CCW is a busy wildlife habitat for migratory waterfowl, furbearers, amphibians, reptiles and raptors.

Rimrock Enterprises will construct two sheet metal plugs in a borrow canal that runs along the east side of Calcasieu Lake. The plugs will be set at normal marsh level, allowing water to flow out of the marsh during high water or flood conditions.
Each plug will include a sixto eight-foot boat bay/water control

structure to allow boat access, as well as provide added flexibility in water control through the surrounding marshes. When completed in late 1996, the project will improve both water distribution and salinity levels throughout the entire CCW.

October 1993



These photos reveal the staggering impact that marsh management has had at Cameron-Creole. The view in December of 1990 shows open water throughout the area. At right is the same area nearly three years later. Continued protection and restoration efforts at Cameron-Creole should improve marsh conditions throughout the 64,00-acre watershed.

Bayou LaBranche Will Take Roots







According to the Louisiana Department of Natural Resources, cypress trees and marsh plants will be planted in the Bayou LaBranche Wetland Creation project area by 1999. The project, which created over 250 acres of marsh habitat along the southwestern shore of Lake Pontchartrain, was completed by the Corps of Engineers in the spring of 1994 and seeded with Japanese millet in July 1994.



The LaBranche Wetlands shortly after the sediment transfer phase of construction. Since that time, the area has been seeded with Japanese millet. Further plantings will be completed in the project area by 1999.

Water Marks Helps Winner of Science Fair

Using information he found in the Spring 1995 issue of Water Marks, sixth-grader Chaize Roubique of Port Allen, Louisiana, constructed a prizewinning science fair project that has gained him entry into the regional science fair. Chaize is a student at Holy Family School.

The project shows the four basic techniques used to create, protect and restore Louisiana's coastal wetlands: vegetative, structural, sedimentary and hydrologic. Judges awarded Chaize first prize for his display.

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CWPPRA Goes On-Line

The CWPPRA Public Outreach Committee has contracted with the National Wetlands Research Center to develop both a homepage for the Internet's World Wide Web and a CD-ROM about CWPPRA. The address of the homepage will be provided in the next issue of Water Marks, after the page comes on-line in August. Using any common web browser, net surfers will be able to access state land-loss data, newsletters, a list of frequently asked questions, video clips, aerial and ground photos of projects, satellite imagery and information on various CWPPRA projects.

The CD-ROM project is also still in development, and CDs should be ready for release sometime during the fall. The CD will provide more detailed information, more highly enhanced imagery and longer video clips than the homepage. O

Biotechnology...

Overcoming Poor Seed Production

Smooth cordgrass is a vigorously growing perennial grass that tolerates a wide range of water salinity and fluctuating water depths, making it an ideal species for damping wave energies and trapping suspended sediments in coastal wetlands. However, smooth cordgrass ecotypes found in the upper Gulf of Mexico basin are generally poor seed producers. Consequently, the primary method of establishing smooth

cordgrass is to transplant it by hand — a costly and laborious process.

The
Crowley
Rice
Research
Station and
NRCS are
developing
the artificial
seed to serve
as an

alternative seed source, allowing smooth cordgrass to be seeded instead of transplanted.

To produce artificial seed, small plantlets developed by tissue culturing are coated with a protective gel of varying degrees of hardness to prevent drying. Because smooth cordgrass is usually planted in aquatic or semi-aquatic conditions, its artificial seeds are coated with a relatively soft gel instead of hard encapsulation. The use of gels also provides opportunities

continued from page 3

for incorporating additives such as nutrients, fungicides and predation inhibitors into each seed gel.

Large-Scale Plantings

What does this system for cloning large numbers of smooth cordgrass plants mean to CWPPRA and other coastal wetland restoration and protection efforts? The answer is simple. Over the past few years, smooth cordgrass has clearly shown that it can reduce or control erosion in coastal wetland areas in a variety of



Fully-grown smooth cordgrass (Spartina alterniflora).

circumstances and conditions, used by itself or in conjunction with structural measures. Using biotechnology to produce large numbers of smooth cordgrass plants from cells is a significant step toward large-scale plantings throughout Louisiana's coastal zone. In time, with the increased availability of artificial seed, innovative techniques such as aerial seeding of remote coastal marshes could be employed in the fight against coastal erosion in Louisiana.

Louisiana Searches for CWPPRA Funding

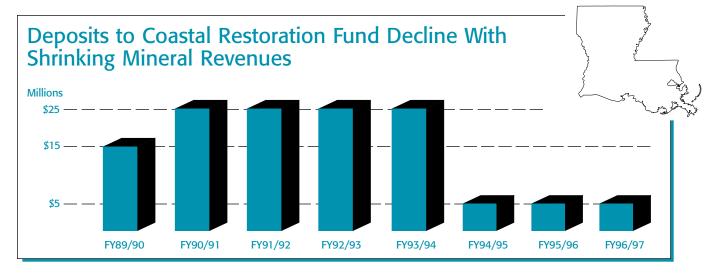
Louisianians are engaged in a war to save their coastal wetlands, but the greatest struggle may not take place along the banks of the Mississippi River or the Gulf of Mexico. This war may come down to a battle of the budget waged along the corridors of the capitol in Baton Rouge.

At issue is Louisiana's inability to come up with state dollars to match the federal money targeted for wetlands restoration. The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) annually contributes \$30 million to the state for construction of projects as varied

the Wetlands Trust Fund had always been adequate to meet the federal requirement. But as the price and the production levels for these natural resources fell, so did the number of dollars coming into the fund. In the last two years, this constitutionally-earmarked source of revenue has failed to generate enough money to completely satisfy the CWPPRA matching requirements. The result: \$25.4 million of desperately needed federal funds has been left idle and possibly may be lost.

In response, the state's Department of Natural Resources (DNR) has been mined by the size of the total revenues from oil and gas taxes. If these revenues exceed \$600 million, the trust fund receives an additional \$10 million; if revenues climb to \$650 million, another \$10 million is shifted to the fund.

To compensate for deflated petroleum prices, DNR has proposed reducing the level of oil and gas revenues required before additional payments are made to the fund. It proposes that the thresholds should be \$300 million and \$350 million rather than \$600 and \$650 million. The result would be revenues of \$20



as wetlands creation, shoreline protection and freshwater diversions. But these dollars come with a condition: for every three CWPPRA dollars spent in the state, Louisiana must come up with one dollar in matching funds. This requirement means an annual outlay by the state of \$10 million to fully match federal funding.

Until recently the state match came readily. Taxes and royalties on Louisiana's vast oil and gas reserves that are automatically funneled into aggressively pursuing alternatives to plug the gap in the matching requirement. As of today, there are two promising possibilities.

The first is to increase the dollars brought into the Wetlands Trust Fund from oil and gas taxes and royalties. This could be done by lowering the thresholds that control the flow of oil and gas tax dollars into the fund. At present, the fund automatically receives \$5 million each year. Additional amounts, however, are deter-

million annually to match federal

This first option would require the Louisiana legislature to propose a constitutional amendment that would then have to be approved by popular vote. DNR submitted a bill to lower the threshold in 1995, but it failed to pass. The earliest a new bill could be considered by the legislature in regular session would be 1997.

The second possibility is to reduce the amount of money the state must

contribute to be eligible for federal dollars. Under CWPPRA's provisions, Louisiana could drop its match from 25 percent to 15 percent by writing and receiving approval for a conservation plan. This plan will have to guarantee that developmental activities within the state will not result in a net loss of coastal wetlands.

According to Dr. Bill Good, administrator of the state's Coastal Restoration Division, the conservation plan now being written will rely heavily on Louisiana's mitigation regulations already in place and will include elements such as incentives to landowners for wetlands preservation, anticipated technological innovations in restoration techniques and an outline of the public outreach and education effort. "We're looking to complete a draft of the plan by December of 1996," says Good. "If we have federal approval by June, we expect to have full implementation by the end of 1997."

Meanwhile, Governor Foster has taken immediate action to bring frozen federal dollars back to Louisiana while these two alternatives work their way through the system. "In his plan for fiscal year 1996-97, he is recommending \$7.8 million in general fund dollars be used as a federal match," says Robert D. Harper, undersecretary for the Department of Natural Resources. "That will recover the \$23.4 million left on the table over the last two years."

But the administration's commitment is far from a guarantee. In spite of all the discussion about saving coastal wetlands, it's an issue with a distant horizon competing against legislative concerns as close to home as highways and hospitals. O

The *Water Marks* Interview: Dave Frugé continued from page 12

difference we're looking for is not necessarily in cost or in physical size — the difference is in impact. Larger projects produce bigger results because they work at the process level. For instance, wetlands are built and nourished through basic hydrologic processes, such as fresh water and sediment flowing in and out of a wetlands area. We want to build larger projects that will restore or make use of those beneficial hydrologic processes to restore or create wetlands, or extend the life of existing wetlands.



So larger doesn't necessarily mean in size or cost of projects?



Not at all. What's large about these projects is that their effects are systemic.

That means that their benefits extend to wetlands far beyond the construction footprint, and that they can affect major portions of coastal basins. Small-scale projects, like most of those we've been implementing for the last few years, have produced some very good results, but their effect is generally more localized. So, the difference between small and large isn't necessarily cost or size, but impact at the process level.



So, smaller projects don't work at a process level?



For the most part, no. Most smaller projects, while they can be very effective and

very necessary, work at the local level. For instance, rock barriers or breakwaters may prevent erosion of wetlands, but their impacts are often limited to the physical project area – right around the barrier or breakwater.

We do believe, though, that groups of smaller projects can be sited, designed and operated in a coordinated way to produce process-level benefits that far exceed what those projects could accomplish individually.

A lot of CWPPRA's public success thus far, however, has been tied to the number of small, local projects spread throughout the coastal zone. Do you think the shift to larger projects could affect the public's perception of success?



Well, there's no doubt that larger projects will affect public opinion. They take

more time to build and often affect more people's lives. For instance, some larger diversion projects might require the relocation of bridges and highways, impact navigation, and substantially shift fishing activities (such as the oyster harvest). But I really think there's a growing understanding on the part of the public that we need to start focusing more on larger projects that will, in the long run, produce longer-lasting and more substantial benefits. I also think they'll accept the fact that it takes longer to build projects that produce those benefits. O



"Placing more emphasis on larger projects is the next logical step in CWPPRA's evolution."

Dave Frugé is field supervisor of the Lafayette Field Office of the U.S. Fish and Wildlife Service and represents the Department of Interior on the CWPPRA Task Force.



The Water Marks Interview: Dave Frugé

Over the last year, the CWPPRA Task Force has reviewed the project selection and implementation process. One outcome of this review has been the Task Force's decision to devote a larger share of CWPPRA's annual funding to larger projects that have farther-reaching effects than many of the smaller, local projects constructed over the last four years. Mr. Frugé comments on the reasoning behind this change and what it means for the future.

Four years of small-scale CWPPRA projects have brought exceptional results in creating and restoring wetlands throughout southern Louisiana. Why the shift to large projects?

Placing more emphasis on larger projects is the next logical step in CWPPRA's evolution. Its original provisions called for us to fast-track projects that could be completed in five years. And we've done that with the smaller projects approved and built over the last few years. We've shown that our protection and restoration techniques can work. We've gained strong public support for the program. We've had the time to produce a

comprehensive restoration plan and begin evaluations of what's possible and what's not from a large-project standpoint. Now it's time to take what we've learned and start applying it to projects that will produce larger effects throughout coastal Louisiana.

But smaller, local projects are still part of the CWPPRA effort?

Absolutely. Under our new funding approach, at least two-thirds of our annual

funding will be dedicated to largerimpact, systemic projects, but the remaining funds will still go to smaller projects with more localized effects.



How did you arrive at this twothirds/one-thirds formula?

Part of the rationale grew out of the state's white paper published in early 1995. It

proposed a CWPPRA funding allocation in thirds — one-third of the annual funding for small projects, one-third for river diversions, and one-third for barrier islands. After discussing this idea, the Task Force decided that rather than dedicate specific amounts to certain

types of projects, we would simply devote two-thirds of our annual appropriation to large-scale efforts. This distribution will get us where we need to be, but still provide us with the flexibility to fund those larger-impact projects that will produce the greatest wetland benefits.

What do you mean by flexibility?

Well, for one year's priority list, for instance, we could decide to dedicate all of the two-thirds to river diversion projects that would reintroduce freshwater and

sediment from the Mississippi into the marshes. For the next year's list, we might devote the two-thirds to a different mix of systemic-impact projects. We can adjust to take advantage of the best project opportunities.



How do you differentiate between a small project and large project?

The Task Force recently defined large projects as generally, but not limited to, those that cost more than \$10 million.

But it's important to remember that the continued on page 11

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