



WATER MARKS

Louisiana Coastal Wetlands Planning, Protection and Restoration News

December 2010 Number 43

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CWPPRA at 20

Fighting on the Frontline to Save Louisiana's Coastal Wetlands

Inside: Building More Than Land | The Proof is in the Projects
The Future Relies on Congressional Action

Measurable Success – Immeasurable Value | In Memory of Sue Hawes

December 2010

Number 43

WaterMarks is published two times 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 restoration and enhancement projects nationwide, designating approximately \$60 million annually for work in Louisiana. The state contributes 15 percent of total project costs.

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ABOUT THIS ISSUE'S COVER . . .

With hundreds of acres converted from open water to fresh marsh teeming with life, Bayou Sauvage exemplifies the transformation of a deteriorated wetland into a robust and vibrant ecosystem. The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) celebrates 20 years of projects that counter the decline and disappearance of Louisiana's wetlands while advancing the science and engineering of coastal restoration. Photo: Lane Lefort

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CWPPRA stock photo

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BUILDING MORE THAN LAND

Why CWPPRA Works

Ryan Lambert likes to take visitors into the wetlands where broad expanses of shallow water engulf areas shown as solid land on his GPS. A charter fishing boat captain from Plaquemines Parish, Lambert has watched for decades as huge chunks of Louisiana's coast surrender to erosion, subsidence, sea-level rise, altered hydrology, herbivory — to the host of plagues assaulting the wetlands.

Then Lambert likes to take his visitors to a CWPPRA project area where a healthy, thriving marsh is thick with vegetation and alive with birds and fish. "They see how beautiful and vital the wetlands really are," says Lambert, "and they understand the importance of restoring Louisiana's coast."

For the past 20 years projects conducted under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) have been the primary force repelling threats, both natural and man-made, that imperil Louisiana's coast. "We know CWPPRA is successful," says Britt Paul, assistant state conservationist with the Natural Resources Conservation Service (NRCS), "because we see projects on the ground delivering tangible benefits."

Paul speaks from the perspective of an engineer who has been involved with CWPPRA from its beginning, but many people share his opinion that CWPPRA's organizational structure and operating procedures are the keys to its success.

Working alliances intrinsic to CWPPRA's achievements

CWPPRA comprises five federal agencies that partner with the state of Louisiana to develop and design projects. "Each agency brings a certain expertise to coastal restoration," says Richard Hartman, a biologist with the National Marine Fisheries Service. "For instance, the NRCS is expert in shoreline protection and erosion control, while the U.S. Fish and Wildlife Service knows more about hydrologic restoration, and the U.S. Army Corps of Engineers (USACE) contributes its extensive experience in using dredged sediment to create marsh. The National Oceanic and Atmospheric Administration

has become a leader in barrier island restoration, while the Environmental Protection Agency has a great interest in freshwater diversions. This huge variety of approaches to restoration provides CWPPRA with diverse capabilities and a depth of knowledge, giving it flexibility to adapt to the range of conditions we find on the coast."

On every project the state of Louisiana is both a financial contributor and a partner with the sponsoring federal agency. "The state's versatility in procurement and contracting simplifies constructing projects," says Hartman, "and its contacts with parish governments and private citizens strengthen CWPPRA's ability to respond to local concerns."

Local participation is another essential component of

CWPPRA's success. "The people who live and work in the wetlands best know conditions in the field," says Hartman. "Public involvement in CWPPRA projects builds good relationships, fostering trust that property rights are respected and that the CWPPRA agencies are trying to do the right thing."

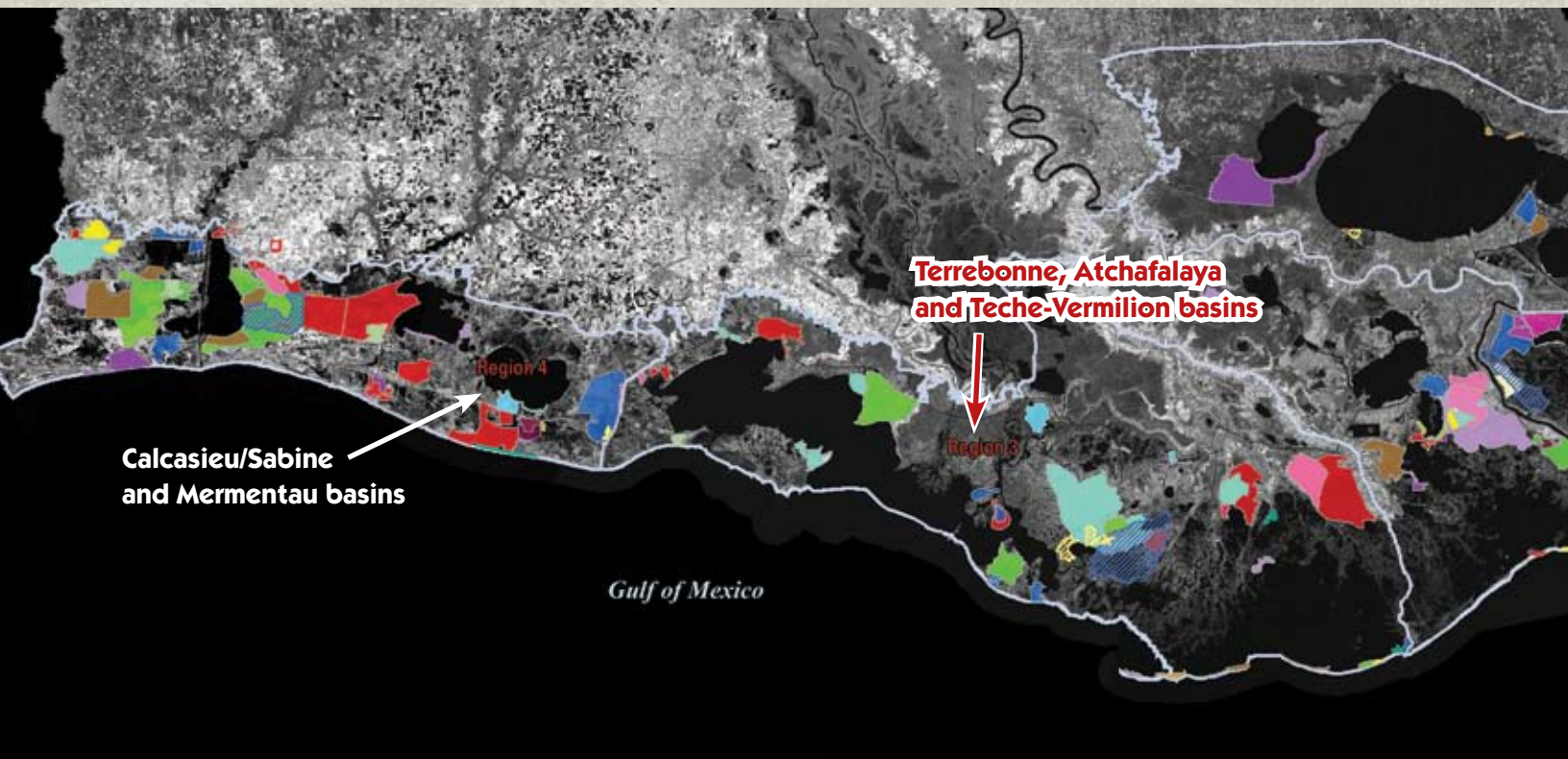
"With the public participating with all governmental partners in project selection, everyone is involved in working out issues from the beginning," Hartman says. "Stakeholders, academic experts and CWPPRA scientists and engineers incorporate a wide variety of expertise as they debate and revise projects in the planning stage. This reduces surprises down the road." For instance, if fish habitat is raised as a concern,

the project can incorporate water control structures in its initial design instead of having to make costly and time-consuming revisions further along in the process.

Consistent, dependable funding enables CWPPRA to plan projects with the confidence that money is available for design, construction, operations, maintenance and monitoring. "Reliable funding increases the efficiency of the program," says Britt Paul. "It has allowed us to set budget priorities and to make a 20-year commitment to projects that require monitoring and maintenance."

Twenty years of contributing to the future

"In a sense, almost all of CWPPRA projects have been cutting-edge," says Hartman.



“Typical restoration projects perform dredging and marsh creation with regularity, but conditions in Louisiana often require a unique approach. CWPPRA has developed different techniques to fit the situation.”

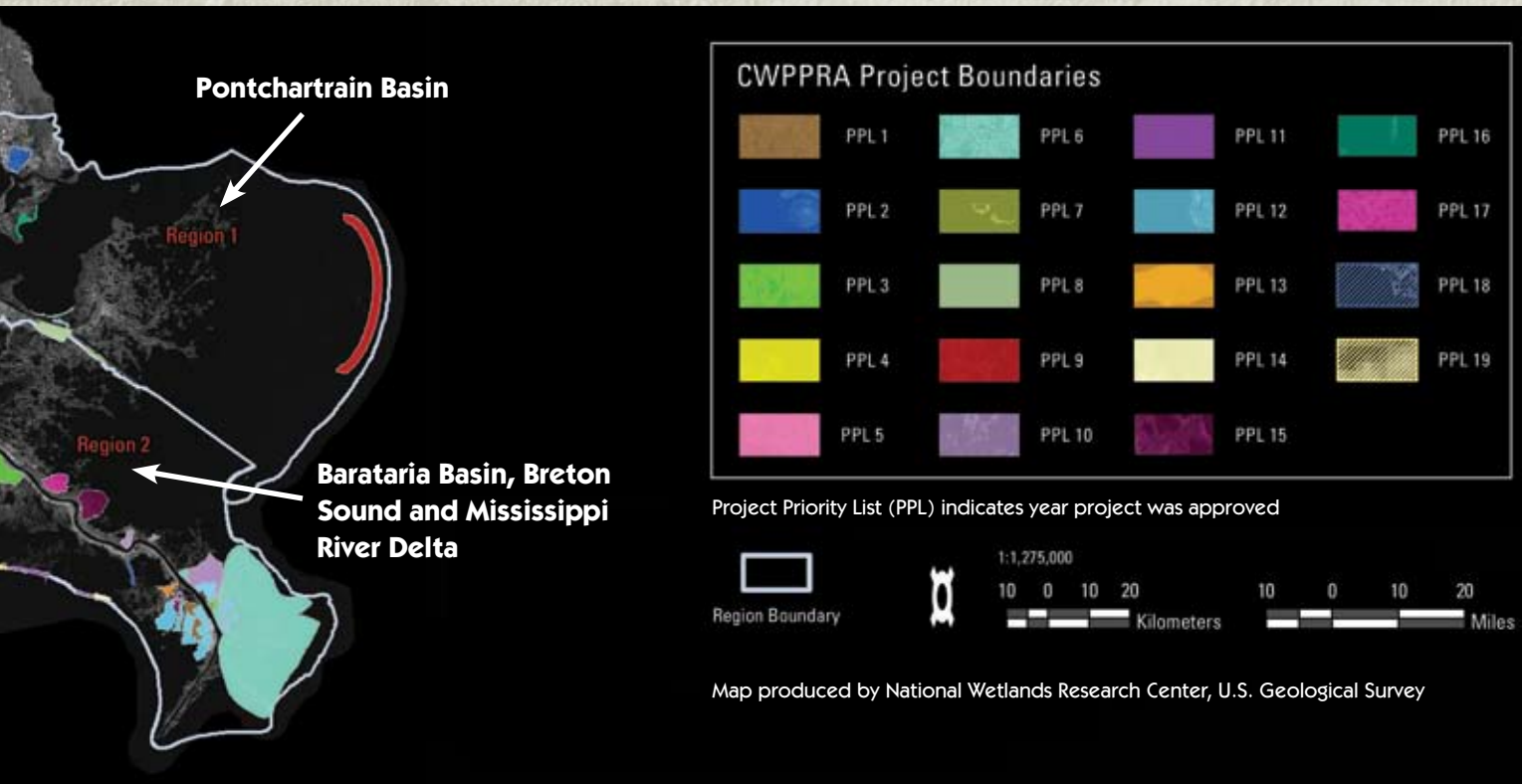
What CWPPRA has learned through its real-world experience provides a valued data base for other restoration programs. “In addition to building land and restoring marsh, CWPPRA has benefited coastal science and engineering by serving as a project breeding ground,” says Hartman. “The Louisiana Coastal Authority (LCA) studies CWPPRA projects to see what works and to determine the most promising approaches to restoration. Some earlier CWPPRA projects are providing the

framework for larger projects currently underway. For example, the freshwater diversion at Myrtle Grove began as a CWPPRA project, but its scale couldn’t deliver the needed ecological benefits. So Myrtle Grove was transferred to the LCA to be funded through Water Resources Development Act and managed by the USACE. Several other LCA projects are also spin-offs of CWPPRA projects.”

However, 20 years of CWPPRA have not been sufficient to secure the future of Louisiana’s coast. Louisiana’s wetlands remain vulnerable to land loss resulting from past practices as well as to ongoing threats from natural and man-made disasters, such as hurricanes and oil spills. But from scientists and en-

gineers to shipyard workers and fishermen, Louisianans recognize that enhancing the health and resiliency of the coastal ecosystem will strengthen natural protection of environmental, economic and social interests.

Ryan Lambert is one man who believes in the wetlands’ chances for survival. “Years of studying the problem are now bearing fruit,” he says. “We’re figuring out ways to overcome the obstacles. CWPPRA’s projects are built right, engineered right. They create thriving, natural ecosystems that astonish visitors who have seen degraded expanses of our wetlands. I know CWPPRA projects have the capacity to turn an area into a paradise overnight.”



The Proof Is in the Projects



Office of Coastal Protection and Restoration

River sediment rebuilds Barataria Basin wetlands

Cut off from the fresh water and sediment of a flooding Mississippi River and cut into ribbons by the dredging of oil and gas pipelines, the marshes of the upper Barataria Basin in the vicinity of Bayou Dupont had largely converted to open water when CWPPRA authorized the Mississippi River Sediment Delivery System – Bayou Dupont project (BA-39). “We knew sediment in the Mississippi River, less than five miles away, was an unused resource,” says Paul Kaspar, project manager and engineer with the Environmental Protection Agency (EPA). “EPA proposed capturing this sediment and using it to rebuild the marshes.”

EPA and the Louisiana Office of Coastal Protection and Restoration (OCPR), which

designed and constructed the project for EPA, knew previous CWPPRA marsh creation projects had dredged sediment from borrow sources in lakes and bays or used material dredged during ship channel maintenance. Lessons from these projects included learning the ratio of cubic feet of material dredged to acres created and the importance of attaining the correct elevation to cultivate appropriate marsh vegetation.

But working with the river was different. “To begin with, there was a special set of logistics involving the navigation industry and permitting from the Corps of Engineers,” says Kaspar. “Then there was the character of the river sediment itself. It’s sandier and lacks the organic composition that other dredged material contains, so we weren’t sure how it would work for

marsh creation. And instead of dewatering fill material pumped into the project area, bulldozers were used to move the sediment around. That required laying down a minimum thickness of material to keep the equipment from sinking into the muck. These factors increased the project’s expense, but applying what we learned will bring down the cost of similar projects in the future.”

Dredging was completed in April 2010 and to maximize the project’s lessons, monitoring is already in place. “One design question was how high to place the fill material,” says Kaspar. “Monitoring will tell us how quickly river sediment compacts and how long it takes the area to reach the target elevation. Another question was whether or not to remove the containment dikes — there were good

arguments on both sides. We decided to leave the dikes up in some places and to gap and degrade them in others. Time will tell what's most effective for this type of project."

Time will also tell if adequate vegetation will colonize naturally. "Right now it looks like plants are taking hold," says Kaspar, "but are they the right kind of plant for the type of marsh we want to create? We don't know yet if we've built an ideal marsh, but the project has shown that using the renewable resource of Mississippi River sediment is a viable way to create a marsh platform."

Partners pitch in

While building the 493 acres designated in the project scope, an opportunity arose to take advantage of the ongoing construction activities and expand the project area. OCPR and the National Oceanic and Atmospheric Admin-

istration (NOAA) helped to design and plan enlarging the footprint by about 87 acres. The expansion was paid for with money from a NOAA economic recovery stimulus grant and the project's available CWPPRA construction contingency fund.

Landbridge partnerships restore the landscape

"The Barataria landbridge was identified as a critical landscape feature in the mid-1990s," recalls Kevin Roy, a biologist with the U.S. Fish and Wildlife Service (FWS), "but restoring the landbridge was too large an endeavor for CWPPRA to tackle all at once. Instead, it's become a multi-year, multi-project, multi-agency effort."

Agencies planning and developing concepts together is part of the CWPPRA process. "We decided to break the landbridge into a number

of small projects," says Roy, "and agreed the most urgent need was to shield critical areas from the prevalent high rate of erosion. With expertise in shoreline protection, the Natural Resources Conservation Service took on that component of the restoration."

The FWS stepped forward to lead the marsh creation project, Dedicated Dredging on the Barataria Basin Landbridge (BA-36). "Constructing the shoreline protection project first limited erosion and tidal exchange and gave restoring interior marshes a better chance at success," says Roy. "Then the dedicated dredging project used sediment from two nearby borrow sites to build and nourish a large expanse of marsh — 1,247 acres."

The project borrowed additional materials in the form of lessons from past experience.

Projects build on lessons learned from past experience — such as how high to pile sediment to create new marsh — while testing answers to other questions — such as the efficacy of leaving earthen containment dikes to erode naturally. And while some stock techniques, like protecting fragile shorelines with rock barriers, have value proven beyond dispute, scientists and engineers are continually examining new ideas and innovative approaches to coastal restoration.





CWPPRA stock photo



Aerophoto

(L) Shoreline protection shields interior marshes from erosion and saltwater intrusion. (R) Shielding deteriorated landward marshes, the thin sliver of headland between Pass Chaland and Grand Bayou Pass provides a critical first line of defense against gulf storms.

“We’re always learning from previous projects,” says Roy. “The knowledge is sometimes communicated through symposia, workshops and reports on completed projects, but more often it’s transmitted by word of mouth, in the field. The CWPPRA structure enhances that kind of sharing. Every agency is involved at every level of project development – it’s restoration by committee from the ground up.”

For this project, the synergy of partnerships extended to funding. Before CWPPRA approved construction dollars, Louisiana’s newly developed Coastal Impact Assistance Program (CIAP) offered to partner with CWPPRA on the project. CIAP funds combined with the state’s contribution to cover 60 percent of the costs.

After the original footprint was built, the partners saw

a chance to add 1,543 acres for a total project area of 2,790 acres. “The cooperation of Jefferson Parish and two major landowners made the expansion possible,” says Roy. “CIAP, the state of Louisiana and CWPPRA all found additional funds to contribute. CWPPRA’s flexibility was key to seizing the opportunity – we didn’t have to go through the entire process of more engineering and design, more funding approvals. The CWPPRA Task Force and Technical Committee were able to make a very quick decision.”

Linked projects shield a fragile coast

“It started with one scientist’s vision,” says Rachel Sweeney, a project manager in the habitat conservation division of NOAA’s National Marine Fisheries Service. “In 1999 the 20- to 30-mile Barataria-Plaquemines shoreline seemed like one

big, long stretch of obstacles – deteriorating beaches, extensive oil and gas pipelines, complicated land rights and numerous oyster leases. There was no way CWPPRA’s resources could address needs of this size.”

But the beauty of the vision was to see a way possible. By addressing the shoreline in two- to three-mile segments, CWPPRA projects could link together like beads on a string, forming a long stretch of restored coastline. “The first project proved that we could resolve the numerous challenges we confronted,” says Sweeney. “Each project builds on previous successes and adds a bead to the string. Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration (BA-35) is the third such bead.”

By widening the Bay Joe Wise barrier shoreline and increasing the back-barrier, emergent marsh area, the



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IVisser, U of LA, Lafayette

(L) Vegetative plantings and sand fencing are simple measures that work with nature to stabilize the landscape. (C) Even simple measures undergo testing and evaluation to determine how to maximize their effectiveness. (R) Ongoing experiments improve planting techniques and develop superior strains of marsh vegetation.

project is intended to prevent gulf waters from breaching the beach rim and inundating inland marshes. As well as adding structural stability to the shoreline, the expanded emergent marsh will increase tidal aquatic habitat.

Partnerships among local citizens and state and federal agencies made the work possible. “Each CWPPRA agency brings a particular focus, according to its Congressional mandate,” says Sweeney. “The state’s engineers help translate our ecological goals into project designs.”

Barry Richard, a construction, operations and maintenance manager for Louisiana’s Office of Coastal Protection and Restoration, says partnering with CWPPRA is essential to realizing the state’s restoration goals. “Our cost-share agreement with CWPPRA makes it possible to undertake projects on a

meaningful scale,” he says. “CWPPRA agencies, familiar with regulatory procedures, speed the permitting process. And CWPPRA’s scientific expertise helps us optimize project locations and develop project features that will withstand time.”

“But the lynchpin of every project is the support of parish governments and local citizens,” says Sweeney. “Plaquemines Parish was very supportive from the beginning, helping to resolve property rights issues and answer concerns of local fishermen.”

Because CWPPRA projects are conceived at the local level and vetted through a long and thorough nomination and funding process, people hear about issues early. Consequently there are fewer problems and delays than when projects operate in a vacuum. For example, project leaders will know that nesting shore-

birds use an area and avoid scheduling construction during breeding season. “Fewer delays translate into cost savings, especially when working on barrier islands, which are vulnerable to quick change,” says Sweeney. “When this project was initiated, there was a narrow but intact shoreline. By the time we were ready to go to construction, four hurricanes – Katrina, Rita, Ike and Gustav – had broken it wide open. We underwent two major redesigns to fit the project to a very different landscape.”

Even though barrier shorelines are dynamic, moving systems that can reshape a project area overnight, past experience proves the importance of restoring them. BA-35 incorporates features that earlier projects proved were valuable, such as sand fencing to build up dune height and a broad back-barrier marsh platform to hold sand pushed onto it during

storms. “Through long-term project monitoring, we’ll learn additional lessons to improve future engineering and design,” says Sweeney. “We are constantly adding to and improving our restoration tool box.”

Plaquemines Parish resident Dominick Scandurro is forthright in expressing his opinion about the project. “CWPPRA has started where you need to start, at the seashore. Barrier protection won’t rebuild interior marshes; for that you need to introduce fresh water and sediment. But what CWPPRA’s done along the coast is terrific — it’s an essential component of restoring the wetlands.”

Modeling lays groundwork for restoring Penchant Basin

Major hydrologic alterations, interior marsh erosion, subsidence, saltwater intrusion, herbivory, hurricane damage — Penchant Basin in Terrebonne Parish suffered

from a full catalog of wetland woes. Complicating a remedy were the area’s size, the variety of its marsh habitats and the complex hydrologic influences of the Atchafalaya River, the Gulf Intracoastal Waterway and manmade canals. CWPPRA’s response to the situation was justly ambitious: to restore or protect 145,000 acres in the 250,000-acre basin.

With the Natural Resources Conservation Service (NRCS) taking the lead, the project Penchant Basin Natural Resources Plan, Increment 1 (TE-34) was authorized in 1997. The project proposed to reconfigure hydrologic patterns and convey fresh river water into interior marshes. Building water control structures, protecting shorelines and creating marsh would encourage emergent wetlands, offset subsidence and saltwater intrusion, eliminate erosion, and minimize tidal action and encroachment of open water.

“To maintain current landscape features, the project

combines several restoration techniques,” says NRCS’ John Jurgensen, who served as co-project manager and planning engineer for TE-34. “Previous shoreline protection projects have demonstrated how hard structures could preserve the geography of an ecosystem, but they don’t address salinity or subsidence. Hydrologic restoration projects have shown that increasing freshwater flow introduces sediment and nutrients, but they cannot maintain the landscape without shoreline protection. We know that areas where multiple factors cause wetland loss require a combination of restoration techniques to offset the damage. Understanding the lessons of each technique reduced our project’s costs and boosted chances for its success and for the long-term sustainability of the area.”

Because of the magnitude of the project and the wide scope of its potential effects, the project team devoted significant time to creating CWPPRA’s most complex hydrological model. Scenarios

Dredging sediment from nearby borrow sites (L) and building water control structures to manage drainage and saltwater ingress (R) are techniques that have been refined through use in numerous CWPPRA projects.



modeled included diverting water from the north project area to enhance southeastern marshes and restricting southwesterly water flows. Modeling incorporated eighteen months of field data along with decades of observations from local stakeholders. “Plans to protect and restore this area were initiated by private landowners in the 1970s,” says Jurgensen. “Their knowledge of the area’s hydrologic history was critical to developing a comprehensive and accurate basin-wide model.”

Once the modeling was complete, all CWPPRA agencies and CWPPRA’s Academic Advisory Group were involved in evaluating the various scenarios. The combination of modeling and the CWPPRA process led to removing diversion features from the project and focusing on freshwater introduction structures and bank restoration at the mouth of Bayou Penchant and the northern shore of Bayou Decade. “Modeling helped us choose

the best design, answer local concerns and identify additional problems that lay outside the project’s scope,” says Jurgensen. “Sharing the modeling with the Louisiana Coastal Area program and with other CWPPRA agencies has inspired other projects in the Terrebonne Basin, extending the benefits of TE-34.”

It is too soon after construction to evaluate the project’s effects on the landscape, but Jurgensen expects that it will contribute to the stability of the area for many years to come. “Securing the landscape framework and constructing barriers to erosion give fragile bayou banks time to recover,” says Jurgensen. “And increasing freshwater circulation not only serves the goals of this project, it will enhance other restoration efforts throughout the basin as well.”

Ship channel sediment becomes a wetland lifeline

Unimpeded by marsh vegetation, wind in southwest Louisiana’s Cameron Parish

pushes salt water through canals and bayous and drives waves into the remaining marsh fringe. Assaulted by salinity and erosion, thousands of acres of wetlands in the Sabine National Wildlife Refuge have declined and converted to open water.

A scant five miles away, the U.S. Army Corps of Engineers (USACE) dredges sediment, the basic ingredient in rebuilding marshes, from the Calcasieu River to keep the shipping channel open for navigation. With so great a need for the sediment so near by, the Sabine Refuge Marsh Creation project (CS-28) proposed to use the material to restore 993 acres of wetlands. Because of the size of the project area and limits to the amount of material the Corps recovers in a single dredging season, the project was broken into five cycles, or phases.

Due to the success of the first cycle and the urgent need for this project, the state of Louisiana elected to cover all costs of building the next phase,

(L) Spraying dredged sediment directly onto broken marsh can deliver nutrients needed for rebuilding. (R) Simple in concept, pipelines carrying sediment to project sites pose engineering challenges: how large its diameter, how wet the slurry, how powerful its pumps, how heavy its weight on fragile marsh soils are but a few of the initial parameters to consider.





A bayou meanders through resilient, unbroken marsh. As well as offering healthy habitat for fish and wildlife, restored wetlands provide the basis for coastal Louisianans' social and economic well-being.

which included a temporary pipeline for sediment delivery. CWPPRA resumed cost-sharing for the third phase of the marsh-building project, completed in 2010.

“We’ve learned how to use dredged sediment to create marsh,” says Melanie Goodman, a project manager with the USACE. “We know how to calculate target elevations and settlement rates and how to maximize the longevity of a restored marsh. What makes this phase of the Sabine project unique is that it constructed the first permanent sediment delivery pipeline for coastal restoration.”

Darryl Clark, CWPPRA coordinator for the U. S. Fish and Wildlife Service (FWS), estimates the pipeline will save \$2 million to \$3 million each time it’s used. “We will have the potential to build thousands of acres at less cost to the taxpayer,” says Clark. “With the cooperation of private landowners, the pipe is buried between the river

and the refuge, surfacing at a point where other pipes can hook up to it for future marsh restoration.”

Each cycle of the project is possible because of cooperation among the CWPPRA program, the USACE, and the FWS – the federal agency that manages the refuge property. “Our partnership with FWS simplified obtaining land rights,” says Goodman, “and their expertise in creating suitable refuge habitat that meets CWPPRA’s standards eased and enhanced the project’s ecological planning.”

“The USACE knows all about dredging,” says Clark. “We benefited from their skill in capturing marsh-building sediment, and they benefited by having a place to dispose of their dredged material.”

Supplying the essential links between the two agencies, CWPPRA provided authority and the state of Louisiana money to transport the dredged sediment from the

river to the refuge. In addition to restoring wetlands, the Sabine Refuge project contributes to other coastal restoration efforts by sharing engineering specifications for a permanent sediment delivery pipeline. “We went through many trials to determine the best design – the optimal size of pipe, the preferable thickness of pipe walls and welds – this is information that can be transferred to any coastal project calling for building a permanent pipeline,” Goodman says.

In demonstrating the value of using sediment dredged from shipping channels to rebuild wetlands, the Sabine Refuge Marsh Creation project contributed to a revision of the federal standard for the Calcasieu River and Pass project through a dredge material management plan. “The permanent pipeline will aid in creating marsh under the new federal standard” says Goodman. **WM**

FUTURE RELIES ON CONGRESSIONAL ACTION

Cooperation and Appropriations Vital to CWPPRA's Success

For decades, people along Louisiana's coast trusted the wetlands' resiliency to recover from damage wrought by both nature and an ever-increasing human presence: gas and oil wells, service canals, land developments and ubiquitous dikes. But by the 1980s observers acknowledged that the sustaining balance of the wetland ecosystem was gone; Louisiana was losing land at a disastrous rate.

Recognizing the necessity of restoring some portion of the lost wetlands and of protecting other acres from future destruction, federal, state and local governments, private

landowners and local citizens joined in a cooperative effort to address the crisis. The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) was created in 1990. It became not only a catalyst for multiple partners to work together but also the largest and most successful coastal restoration program in Louisiana's history. As of spring 2010, CWPPRA had undertaken 147 projects that restored, protected or enhanced 549,000 acres of Louisiana's gulf coast.

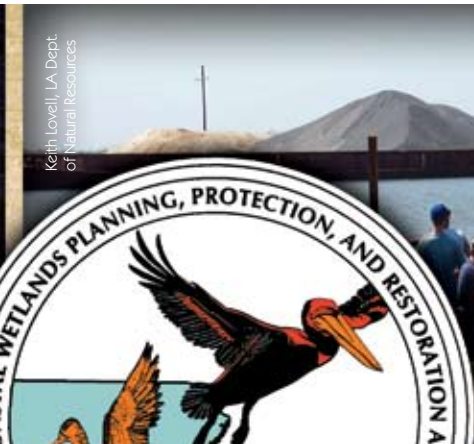
Unlike other programs that may have projects approved without money appropriated for implementation,

CWPPRA has a specified source of federal funding that typically spans a number of years, relieves it of annual budgetary uncertainty and increases efficiency in planning and constructing projects. "Because we know what our annual budget is, we can fund projects in phases," says Darryl Clark, CWPPRA coordinator for the U.S. Fish

CWPPRA projects connect people with diverse interests through a shared concern about wetland restoration — from coastal scientists and engineers to sportsmen and nature enthusiasts, from government employees and office-holders to civic leaders and citizen volunteers, from businessmen and contractors to educators and school children.



Wetland Watchers



Keith Lovell, LA Dept. of Natural Resources



US Army Corps of Engineers



Office of Coastal Protection and Restoration

and Wildlife Service. “We can allocate money for a project’s engineering and design with the confidence that we will have money in the future to pay for its construction.”

That the program is cost-effective has been verified by the White House Office of Management and Budget. That it effectively involves stakeholders is proven by private landowner contributions, such as providing access, constructing project features and even occasionally donating land for projects. That it has the support of coastal Louisianans is confirmed in conversations with the people who live and work there. “We know best what the wetlands need, and CWPPRA solicits our project proposals,” says Sherrill Sagrera, a Vermilion Parish resident whose

connection to the land goes back generations. “There’s a satisfaction in seeing CWPPRA projects succeed in rebuilding and protecting the land and knowing we are counteracting marsh loss and coastal erosion.”

But the satisfaction of seeing CWPPRA projects being constructed in the Louisiana landscape could soon be suspended. Although the act is authorized through 2019, Congress has postponed renewing its funding source, the Sport Fish Restoration and Boating Safety Trust Fund. Most of the money CWPPRA has on hand is already allocated to monitoring and maintaining existing projects; consequently, there is little left to start new construction in the coming years. Without the trust fund’s renewal, the nature of CWPPRA’s future work is in question. **WM**

Funding CWPPRA’s work

CWPPRA receives funding from two sources: the state of Louisiana, which pays 15 percent of project costs, and the federal government, which supplies the remaining 85 percent. The federal share of CWPPRA dollars comes from the Sport Fish and Boating Safety Trust Fund, comprising revenue primarily from taxes on small engine fuel and sport fishing equipment. Usually renewed for five-year periods, the Trust Fund is awaiting legislative action and is currently maintained through a Congressional continuing resolution.

Since hurricanes Katrina and Rita in 2005, Louisiana has received significant funding for hurricane protection. Some additional sources of money coming on line will allocate money for coastal restoration as well as hurricane protection — notably the Louisiana Coastal Area Plan (LCA), funded in the 2007 Water Resources Development Act; the Coastal Impact Assistance Program (CIAP) of the 2005 Energy Act; and the Gulf States OCS Revenue Sharing Act. However, the need for CWPPRA is undiminished. It remains not only the largest restoration program but the most experienced, with a tested structure of inter-agency cooperation and an unmatched record of building successful projects in coastal Louisiana.



The foundation of a healthy economy is a healthy ecosystem. Louisiana shrimpers know their fate — as well as the satisfaction of gourmets throughout the country — depends on marine nurseries thriving in vibrant coastal wetlands.

Measurable Success — Immeasurable Value

Over the past 20 years CWPPRA has protected, restored or enhanced more than half a million acres in coastal Louisiana. But judging the program's value exclusively by the size of the rebuilt area is like judging the value of an individual by the size of his house — there's always much more to the equation. In CWPPRA's case, achievements lie as much in accumulated knowledge as in the wetland acreage protected and restored. For example,

- CWPPRA demonstrated the value of approaching a landscape-scale challenge with multiple restoration techniques — from creating new land to trapping herbivorous nutria, from dredging borrow sites to rerouting water flow.
- Some CWPPRA projects showed how technological innovations reduce investments of time and money: Computer models projecting consequences of various design options improve planning decisions, satellite mapping and remote sensor monitoring increase knowledge of conditions throughout the coast.

- Some of CWPPRA's knowledge resulted from years of scientific observation and experimentation — how to propagate and plant the best strains of marsh grass for vegetating new land, at what speed to convey fresh water from a diversion to maximize sediment delivery.
- Some projects proved the efficacy of simple actions, such as capturing wind-blown particles of sand in a fence to build up seashore dunes.
- CWPPRA tested innovative materials, like erosion barriers that promote oyster colonization, and engineering concepts, like rebuilding a barrier island's back marsh platform to reduce erosion during storms.

And some lessons have nothing to do with water, wind, soil or vegetation.

Steve Mathies, executive director of Louisiana Office of Coastal Protection and Restoration, believes CWPPRA's most important benefit is the forging of broad-based agreements on project selection and implementation. "The state and its federal partners work as a team to receive public input, evaluate each project's technical merits, publicly discuss its pros and cons, select which ones to implement, and collaborate

through project construction and operation," he says. "Agreement on projects is largely driven by input from coastal community stakeholders, which is both helpful and unique."

Mathies points out that CWPPRA's benefits extend beyond Louisiana. "CWPPRA is a program that works," he says. "It can serve as a shining example of how any other large-scale, federal-state partnership could — and should — work, whether or not it is an ecosystem restoration program."

Despite CWPPRA's achievements, grave threats still imperil Louisiana's coast. Though the rate has slowed, land loss continues. Natural disasters — such as hurricanes — and man-made calamities — such as oil spills — threaten the health, vitality and resiliency of the fragile ecosystem. "Constructing more projects more quickly is the only chance we stand to preserve and protect our coast," says Mathies. "At a time when our coastal ecosystem is experiencing total collapse, it makes no sense to de-authorize our most successful program. Instead, we should expand the funding and the purview of CWPPRA to capitalize on its effectiveness. Without CWPPRA's re-authorization, all the benefits of the program will be severely curtailed or lost." **WM**

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Sue Hawes, 1936-2010 biologist with the U.S. Army Corps of Engineers

“E ven on her bad days, Sue could run circles around the best of us,” Melanie Goodman, project manager at the U.S. Army Corps of Engineers, says of her mentor, friend and long-time CWPPRA associate, Sue Hawes. A woman of exceptional intellect, Sue was a highly capable, dedicated and prolific scientist, but her greater contribution to CWPPRA was the influence of her character.

“Quietly brave, Sue brought ethics into the room,” says Mark Davis, past director of the Coalition to Restore Coastal Louisiana. “In many ways, she was the conscience of the Corps as it came to terms with its new mission of coastal conservation and restoration. Sue’s passion was taking care of what nature gives us.”

“In her work for CWPPRA, Sue asked questions and was very thorough. She did her job

— and expected others to do theirs, too,” says Darryl Clark, U.S. Fish and Wildlife Service’s CWPPRA coordinator. “She held people accountable. Her example inspired others — myself included — to do things correctly, attend to details and create thorough documentation, gradually improving the program since 1991.”

Bob Thomas, professor of environmental communication at Loyola University, New Orleans, watched Sue influence numerous public meetings. “She had a capacity to calm chaotic situations,” says Thomas. “Sue was always respectful. She really listened and was willing to incorporate people’s different ideas into her thinking. Seeking out other opinions to factor into potential solutions became a component of the CWPPRA process.”

“With her impartial and open mind, Sue could bring together agencies

that had a history of conflicts,” says Goodman. “She was at once tenacious and kind.”

There is great consistency in friends’ and associates’ description of Sue Hawes, and near universal agreement with Mark Davis’ lament: “I only wish there were a lot more Sue Hawes out there. We can’t make up for one we lost.” **WM**

