WATER MARKS

Louisiana Coastal Wetlands Planning, Protection and Restoration News

March 2010 Number 42

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CWPPRA demonstration projects

Testing Innovative Solutions for Louisiana's Coast

Inside: Demo Projects a Proving Ground for New Ideas

The Measure of Success for Demo Projects | Interview with Jenneke Visser

WaterMarks

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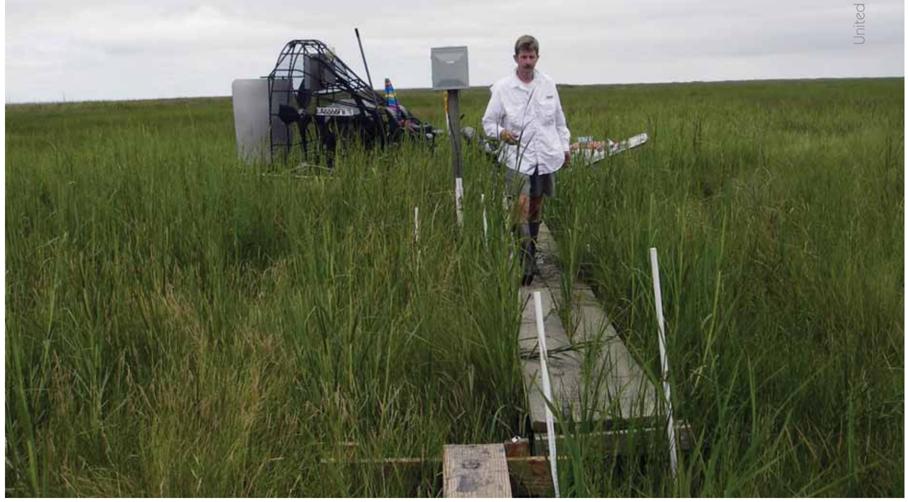

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WaterMarks is published two times a year by the Louisiana Coastal Wetlands Conservation and Restoration Task Force to communicate news and issues of interest related to the Coastal Wetlands Planning, Protection and Restoration Act of 1990. This legislation 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 . . .

Launched across an expanse of open water, a little flotilla of bamboo and poultry wire A-frames keeps young marsh plants buoyant and protected from herbivores until they can grow into a thick mat. The structures are part of a CWPPRA demonstration project testing methods of revegetating marshes to restore coastal wetlands.

Photo: J. Visser, University of Louisiana at Lafayette

At right: Monitoring typically includes observations made during field visits as well as data recorded by instruments. Tracking and evaluating a project's performance is an essential component of CWPPRA's demonstration project program.

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WHAT IF ...

Demonstration Projects Test New Approaches to Coastal Restoration

After decades of building coastal restoration projects in Louisiana's wetlands, what could be left to learn? Kevin Roy laughs at the question. "Not only do we constantly encounter new challenges," Roy says, "but the science and engineering of environmental restoration continually evolve. Demonstration projects conducted under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) give us the chance to test new ideas and investigate new materials on a small scale and at relatively little expense."

Roy has years of experience to support his point of view. A senior field biologist with the U.S. Fish and Wildlife Service, Roy serves as the chairman of CWPPRA's Environmental Work Group, which is charged with evaluating demonstration project proposals. Supporting development of new approaches to coastal restoration has been a feature of the CWPPRA program since the act's passage in 1990.

To illustrate the way a demonstration, or demo, project can test an experimental idea, Roy describes one that proposes to improve retention of dredged sediment within a marsh creation project site. The standard technique is to build earthen dikes out of material found at the site. "But frequently Louisiana's highly organic soils don't stack well and form poor, failure-prone dikes," Roy says. "The demo project will use a kind of fabric curtain weighted at the bottom and strung across open water to form a barrier and keep the dredged material from washing away. We'll be able to tell very quickly how well this idea works in actual field conditions and if it justifies a large-scale investment."

Like regular CWPPRA projects, proposals for demonstration projects can be submitted by anyone. Although they may incorporate new technologies or methodologies, successful proposals address specific environmental problems, such as subsidence, shoreline erosion, marsh loss, barrier island decline or herbivory damage. Proposals are scored in the project selection process on six criteria:

- Innovativeness — Is the technology demonstrated unique and not duplicative in nature to traditional methods or to other previously tested techniques?
- Applicability or transferability — Can the demonstration project's technology be transferred to multiple areas of the coastal zone?
- Potential cost effectiveness — Does the potential cost effectiveness of the demon-

Louisiana Department of Natural Resources

Dikes built from the soft soils of Louisiana are often too unstable to hold sediment within newly created marsh areas. This problem of sediment containment has stimulated development of innovative approaches and experimental materials, some of which have been tested through CWPPRA demonstration projects.

Louisiana Department of Natural Resources

Although effective in protecting shorelines from erosion, rock barriers are heavy and sink in soft wetland soils. Experimental methods of slowing soil compaction beneath the rocks could reduce the frequency of maintenance and improve the cost-effectiveness of this common restoration technique.

stration project's method of achieving project objectives exceed the cost effectiveness of traditional methods?

- Potential environmental benefits — Is the demonstration project's potential to provide environmental benefits less than, equal to, or above and beyond that of traditional methods?
- Need for the information to be acquired — Within the restoration community, is there a recognized need for the information on the technique being investigated?
- Potential for technological advancement — Would the demonstration project replace or significantly advance the traditional technology currently used to achieve project objectives?

Typically, demonstration projects are conducted over three to five years, compared to the 20-year lifetime of a regular CWPPRA project. The measure of success for a demonstration project may also differ; rather than counting habitat units created or acreage preserved, demo projects may more frequently be graded on insights gained or lessons learned. "We're continually searching for more effective ways to restore our wetlands and protect our coast," says Roy. "Even when a demo project doesn't result in a technology that can be applied on a large scale, there's often merit in finding out why."

For more information about CWPPRA's demonstration project program, see Appendix E of CWPPRA Project Standard Operating Procedures Manual (http://lacoast.gov/reports/program/sop.htm). WM

J. Visser, University of Louisiana at Lafayette

Left: Herbivores, notably nutria, contribute significantly to wetland loss. Plants inside protective fencing are flourishing and developing the thick root structure essential to holding fragile marsh soil together, while those outside are nibbled to the ground.

R.A. Howard, Natural Resources Conservation Service

Right: Barrier islands are an essential natural component of storm protection for Louisiana's coastal region, and vegetation is critical to a barrier island's stability. Enhancing plant growth could be one method of increasing islands' endurance and longevity.

FROM WHAT IF … TO WHAT IS

Demo Projects a Proving Ground for New Ideas

U.S. Army Corps of Engineers

Rock forms an effective break against erosive waves in the shallow waters of Louisiana wetlands. Testing innovative methods and materials to retard the rocks' sinking, scientists seek to develop an approach useful in a broad range of soil conditions.

Coastal Louisiana's very existence relies on successfully resolving a number of environmental challenges. The following case studies look at four CWPPRA demonstration projects that test innovative ideas for protecting and restoring Louisiana's coast.

Sand slows rocks' vanishing act

For years coastal restoration projects have built rock dikes to shield fragile shorelines from the wash of waves and currents. But rock, an alien element in the wetlands, disappears in the bottomless marsh mud like a cherry sinking in a chocolate milkshake. Then a new layer of rock, a lift, must be added to maintain the dike's elevation. But what if, coastal engineers wondered, the rock's descent into the mud could be slowed by strengthening the substrate on which it rests?

To test the concept, CWPPRA funded the Shoreline Protection Foundation Improvements Demonstration (LA-06). The project examines two methods of improving the substrate, one that places a layer of sand directly on the marsh floor, the other that dredges material from the floor and replaces it with sand. Instruments imbedded in the dikes built on these altered substrates measure how fast and how deep the rock is settling. "The data will let us compare consolidation and settlement along experimental stretches to control sections of the dike," says Keith O'Cain, an engineer with the U.S. Army Corps of Engineers (USACE). "If a sand base reduces the need for maintenance and slashes by half the number of lifts a dike requires, we might be able to double the amount of shoreline protection we can afford."

The demonstration project, under the federal sponsorship of the USACE, is located at South White Lake in Vermilion Parish. Monitoring is underway and evaluation of the project will be completed by 2012. If the technique proves successful, it could be used to construct rock dikes in areas where substrate limitations presently prohibit shoreline protection.

Shoreline erosion opens career opportunities — for oysters

Rocks sink. Solid walls fracture and break. Concrete matting washes out. It seems that nature itself is set against the success of customary shoreline protection techniques in Louisiana's fragile marshes.

But nature itself may supply not only a solution, but the materials and the construction workers that, with just a little nudge from humans, could build a wave-breaking shield to reduce erosion in coastal wetlands.

The Terrebonne Bay Shore Protection Demonstration project (TE-45) encourages oysters to colonize and build living reefs to protect shorelines. "Traditional methods of shoreline protection employ static, nonliving materials requiring costly maintenance," says Robert Dubois, a field biologist and project manager at the U.S. Fish and Wildlife Service. "A living reef could sustain itself well into the future and thus be more affordable in the long run"

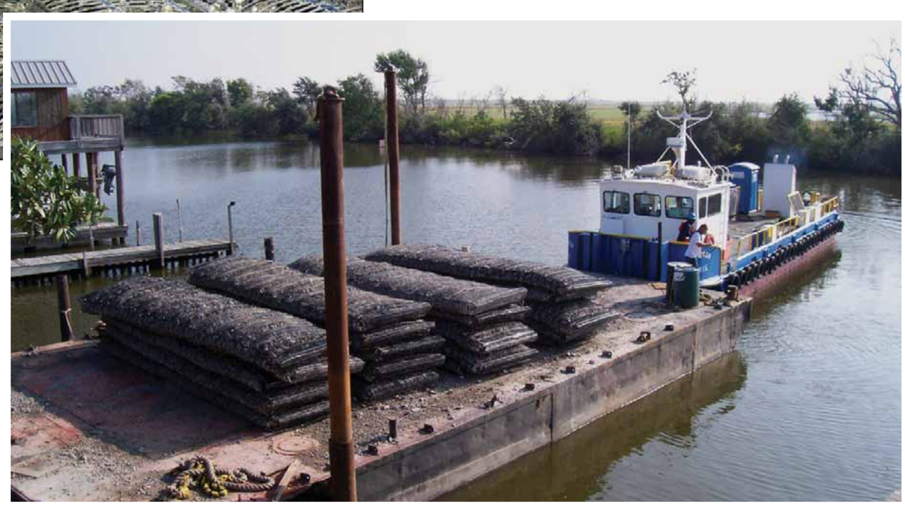
Going to work with cages, bags and toy-shaped structures

The challenge is to establish oyster beds where they would provide this benefit to the environment. To colonize, the mollusks need both a firm substrate and moving water. The project is testing three structures upon which oysters might grow.

One structure is a style of gabion mat, an elongated wire cage similar to a crab trap, filled with small chunks of limestone and partially submerged along the marsh shore. "Without a firm surface such as the mats provide, oysters have a hard time anchoring themselves in our sediment-laden marsh waters," Dubois explains. "We're watching to see if the oysters will take hold and grow on the mats."

A second structure looks like big toy jacks stacked side by side and sunk halfway into the mud. "Although each two-foot-wide jack is made of concrete, its shape reduces its weight and makes it easier to transport. Once on site the pieces slide together, increasing their surface area in the water but leaving their aerial prongs exposed to break waves," says Dubois. "Again, we're waiting to see if oysters will settle and build on them."

E. Melancon, Nicholls State University



E. Melancon, Nicholls State University

Mesh bags filled with limestone, these gabion mats are easy to transport into shallow wetland waters. Placed along a shoreline to provide a substructure on which oysters anchor and colonize, the mats become a living wall quelling wave energy within just a few years.

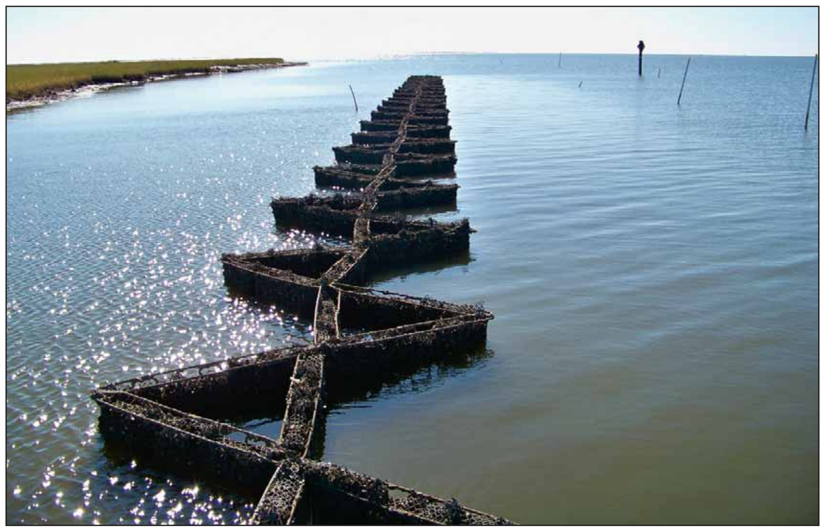
The third construction is a foreshore triangular unit. A bag of mesh or plastic-coated wire is filled with crushed stone or shell and suspended between two steel triangles attached by a metal rod, one triangle resting on the marsh floor and one hovering near the high-tide mark. "The bags allow water movement but keep waves from beating on the shore," says Dubois, "while the structure provides the hard substrate oysters need to establish a reef."

Performance reviews point to opportunities

Although all three structures foster hope of oysters erecting a wall of resistance against shoreline erosion, Dubois says, "We don't yet know what the final outcome of the project will be. Do all the designs work? Which one works best? Will the substrate materials last long enough for the reef to become self-sustaining? Will this idea prove cost-effective on a large scale? Because it is a demo project, TE-45 allows us to explore these questions."

However, the project has already exhibited one indisputable advantage over traditional shoreline protection: Marsh waters are shallow — sometimes no more than half a foot deep, often no more than two. To bring in rock on large barges almost always requires dredging access channels and flotation canals. Because the experimental structures of TE-45 are smaller and lighter than rock, delivery to marsh sites is economically feasible and far less disruptive to the environment.

E. Melancon, Nicholls State University



Along with gabion mats, cement "jacks" and triangular foreshore structures test the efficacy of different designs while providing a base on which oysters can build a living wall. Demonstration projects can allow experimenting with variations of an idea to refine it without investing in a large-scale implementation.

Plants float a solution for marsh loss

They say thick-mat flotant marsh vegetation used to be so strong and dense that you could walk over the water on it, but in the past half-century, the floating mat that historically covered vast swathes of Louisiana's freshwater coastal region has vanished or degraded, resulting in tens of thousands of wetland acres converting to open water.

"A number of factors are thought to have caused the loss of floating marsh," says Cindy Steyer, a coastal vegetative specialist and project manager with the Natural Resources Conservation Service. "They include rising water levels, hydrologic modifications, eutrophication and herbivory damage. Many of the areas affected are unsuitable for traditional methods of marsh restoration, either being too far from an adequate source of dredged material or having soils too fragile to bear the weight of added sediment. So we wanted to leverage nature's capacity to recover open water areas in degraded freshwater marshes by re-establishing thick-mat vegetation."

J.Visser, University of Louisiana at Lafayette

Photographs of the same project site taken three years apart show the dramatic growth of plants deployed in floating structures. Results of this project warrant proposals using this concept to restore deteriorated wetlands elsewhere along Louisiana's coast.

Working with university researchers, the Floating Marsh Creation Demonstration project (LA-05) investigated ways to most efficiently promote the growth of maidencane (*Panicum hemitomon*), the dominant native plant in Louisiana's thick-mat floating marshes. "We needed structures to keep plants buoyant until they developed a self-sustaining community," says Steyer, "so part of the project tested configurations of floating systems built out of different materials, such as pine, cedar, bamboo, PVC and Styrofoam. The researchers compared the growth rates of cuttings, bare-root plants and plants in pots and measured the success of planting rhizomes (horizontal underground stems) and stem pieces against that of deploying plants fully grown. They experimented with substrate and mat materials like burlap, coconut fiber and jute netting to see if any of them improved results over growing plants hydroponically on a poultry wire base. As with every demonstration project, we were looking for methodologies and technologies that we can apply coast-wide."

Although restored flotant marshes are not impervious to customary threats such as storm-related saltwater intrusion and grazing nutria, Steyer is optimistic the demo project will result in practical new approaches to marsh recovery. "Field tests show that the artificial floating islands of maidencane are thriving and can cover a project site within three to five years," says Steyer. "Already we've identified several areas likely to benefit from this restoration technique, and researchers are experimenting with other plant species to apply the method in more highly saline and brackish marshes."

Plant food fosters island health

There are many who believe that the preservation of Louisiana's coast relies on restoring its barrier islands, and that establishing vegetation is essential to successful island restoration. "A newly restored island needs a quick vegetative cover to trap, bind and stabilize its highly mobile sand," says Darin Lee, a scientist with Louisiana's Office of Coastal Restoration and Protection. "But an island rebuilt with sediment dredged from the ocean bottom doesn't provide fertile ground for plants to take root and flourish."

The Enhancement of Barrier Island Vegetation Demonstration project (TE-53) is testing how fertilizing and amending soils could accelerate the growth of plants set out at island restoration project sites. The first phase of the demonstration project, conducted at the University of Louisiana at Lafayette, has shown promising results for applying humic acid to two dune and marsh plant species customarily used for barrier island revegetation. "Humic acid, an organic matter extract, works at the root level to improve a plant's ability to take up and use nutrients in the soil," says Lee. "In the second phase of the project we'll conduct on-site trials, applying the acid when setting out sprigs of sea oats and salt marsh grass on Whiskey Island this spring."


University of Louisiana at Lafayette

Laboratory tests at University of Louisiana at Lafayette determined how plants respond to various amendments and which plants showed the most promise for growing vigorously in the harsh environment of barrier islands. Collaboration between academic researchers and scientists and engineers working in the field speed advances in coastal restoration.

The range of rates and concentrations for applying the amendment while avoiding problems caused by over-fertilization, such as algae blooms and fish kills, was determined from the lab tests.

"Fish and wildlife will benefit from the quick growth of a vegetative cover," says Lee, "but only on-site trials will prove if we can safely speed up the natural process."

Even if the project succeeds in enhancing barrier island vegetation, its widespread implementation faces the challenge of justifying its effort and expense. "Planting a project site with nursery-grown sprigs is costly and time-consuming," says Lee. "If this technique does significantly promote their growth, we'll still have to weigh the results against the time, labor and cost that the process requires." WM

WHEN WHAT IF … TURNS INTO "THAT'S IT!"

From Demonstration to Full-fledged CWPPRA Project

Although the primary intent of demonstration projects is to test innovative ideas, occasionally they show such promise that they quickly evolve into regular, fully funded CWPPRA projects, as illustrated by the following two case studies.

Lagniappe for an island

Experience had proven that a continuous rock barrier could protect a shoreline, but the idea of segmented breakwaters shielding a Louisiana barrier island from erosion … that was an untried design.

So the idea was tested through the CWPPRA project Raccoon Island Breakwaters Demonstration (TE-29). If eight 10-foot high, 300-foot long stretches of rock were adequate to diminish wave action and reduce shoreline loss, the cost would be far less than that of restoring the barrier island via traditional means.

The results were surprising. "Not only was constructing breakwaters cheaper than dredge-and-fill operations, stone is far less vulnerable to storm damage so our investment is lasting considerably longer," says Loland Broussard, a civil engineer with the Natural Resources Conservation Service. "And breakwater construction caused no damage to the island's fragile habitat, something that's almost inevitable if you have large equipment operating in marshes or on the beach. But these were advantages that we expected the project to deliver. That an area of land accreted between the island and the breakwaters was an unexpected bonus — a lagniappe."

Soon after the breakwater segments were installed, aerial

Crescents of sand (a) reach from Raccoon Island toward offshore rock breakwaters. When first built, the breakwaters were intended simply to slow the island's rate of land loss. Quickly, however, sand began to accumulate and reshape the beach. Comparing unprotected shoreline (b) to the shoreline behind the breakwaters shows how, within two years, land accreted dramatically.

Created without the intrusive equipment of land-shaping machinery, the broader beach increases protection of the island and its treasured rookeries, including that of Louisiana's state bird, the brown pelican (*Pelecanus occidentalis*). After becoming locally extinct in the mid-20th century, the pelicans have been successfully reintroduced to the state. The breeding grounds of restored barrier islands are critical to their continued robust recovery.

photographs showed sand bars developing in the 300-foot area between the rocks and the beach. Trapping sediment, the breakwaters were not merely reducing shoreline loss rates, they were reversing shoreline loss. "Typically, a storm washes sediment away from a barrier island," says Broussard. "On Raccoon Island, the rocks precipitate the recovery of material within the system so the island naturally rebuilds itself after the storm — for free!"

Results rest on circumstances of soil

Despite the success of using breakwaters at Raccoon Island, there are several obstacles to widespread use of this technique to restore barrier islands. "Although it's much less costly than a dredge-and-fill approach, breakwaters are still not cheap — there are no cheap methods of restoring barrier islands," says Broussard. "And there is always some concern about hard structures in open water posing threats to navigation. Plus, Raccoon Island may benefit from some rather unusual geological features, including soil foundations capable of holding up under the weight of rock and the presence of an offshore sediment reserve that supplies accreting material. Other islands may not share these advantages."

But for endangered shore birds seeking protected habitat, sportsmen fishing the rich waters along the breakwater rocks and mainland Louisianans relying on a barrier island's shield against gulf storms, the project has proved its worth. Acknowledging the demonstration project's success, CWPPRA has approved funding for four more segmented breakwater projects across Louisiana's coastline. Included among them is the Raccoon Island Shoreline Protection/Marsh Creation project, which built eight additional breakwaters and will construct intertidal wetlands to sustain the island's northern back bay areas.

E. Mouton, Louisiana Department of Wildlife and Fisheries

Cultivated for their pelts, nutria seldom exceed 20 pounds in weight. That they could be a major cause of land loss may seem incredible, but their voracious feeding weakens marsh vegetation and increases wetlands' vulnerability to open water.

Recipes for recovery from herbivory

How did a drop in the price of fur cause land in Louisiana to wash away? How could a dish prepared by a Baton Rouge gourmet help protect the marshes? And why did an idea tested in a CWPPRA demonstration project take only five years to convert into a coast-wide, full-scale project?

These seemingly incongruous phenomena are related through through an invasive, non-native, semi-aquatic, herbivorous rodent, the nutria (*Myocastor coypus*). Brought to fur farms from South America in the 1930s, nutria escaped to the wild and flourished, feeding voraciously on the marsh plants that are essential to the stability of Louisiana's wetlands. Trappers kept nutria numbers — and damage to the marshes — under control until the late 1980s, when the market for pelts collapsed. By the end of the century, coast-wide surveys reported nutria damage to approximately

100,000 acres. Weakened by loss of vegetation, more than a quarter of these marshes were at risk of converting to open water and being lost forever.

In 1997 CWPPRA funded the Nutria Harvest for Wetland Restoration Demonstration project (LA-03a) to investigate various methods of controlling nutria damage. Research and testing determined nutria harvesting was the safest, most effective way to reduce the rodents' consumption of vegetation, so the project explored ways to promote trapping. Attempts to create a market for nutria meat popularized it as a novelty food, but despite recipes from famous Louisiana cooks, the project failed to make nutria a dinner plate staple.

However, the project's incentive component did promote a nutria harvest. Motivated by a payment of $4 per tail, later increased to $5, hunters and trappers reduced the nutria population in such numbers that herbivorous damage in Louisiana's wetlands decreased dramatically. So effective was this aspect of the demonstration project that in 2002 CWPPRA funded its expansion into the full-scale Coastwide Nutria Control Program (LA-03b).

Over the course of eight trapping seasons, this project has reduced the area of yearly, coast-wide nutria damage from approximately 90,000 acres to 20,000 acres, a decrease of 78 percent. Also the severity of the damage has decreased, most of it ranking now as minor and with a good chance for recovery if recent levels of nutria harvests continue.

The project proves that a relatively inexpensive program to promote trapping can effectively control a deadly menace. As wildlife managers observe the rise of similar environmental threats, notably feral swine, CWPPRA's nutria control program could model a cost-efficient response. "We're trying to be pro-active," says Edmond Mouton, program manager with the Louisiana Department of Wildlife and Fisheries, which manages the harvest. "We want to put a program in place before another non-native species poses a severe threat to the health and sustainability of Louisiana's wetlands." WM

Comparing a patch of marsh plants protected from nutria to the stubble left after the herbivores' feeding illustrates the animals' destructive capacity. Without a robust vegetative root system holding the fragile soil together, such damaged areas can convert quickly from marsh to open water.

E. Mouton, Louisiana Department of Wildlife and Fisheries

WHEN WHAT IF … TURNS INTO "THAT'S WHY"

The Measure of Success for Demo Projects

It was a good idea … but it was impossible to see the obstacles to its success until tested in the field.

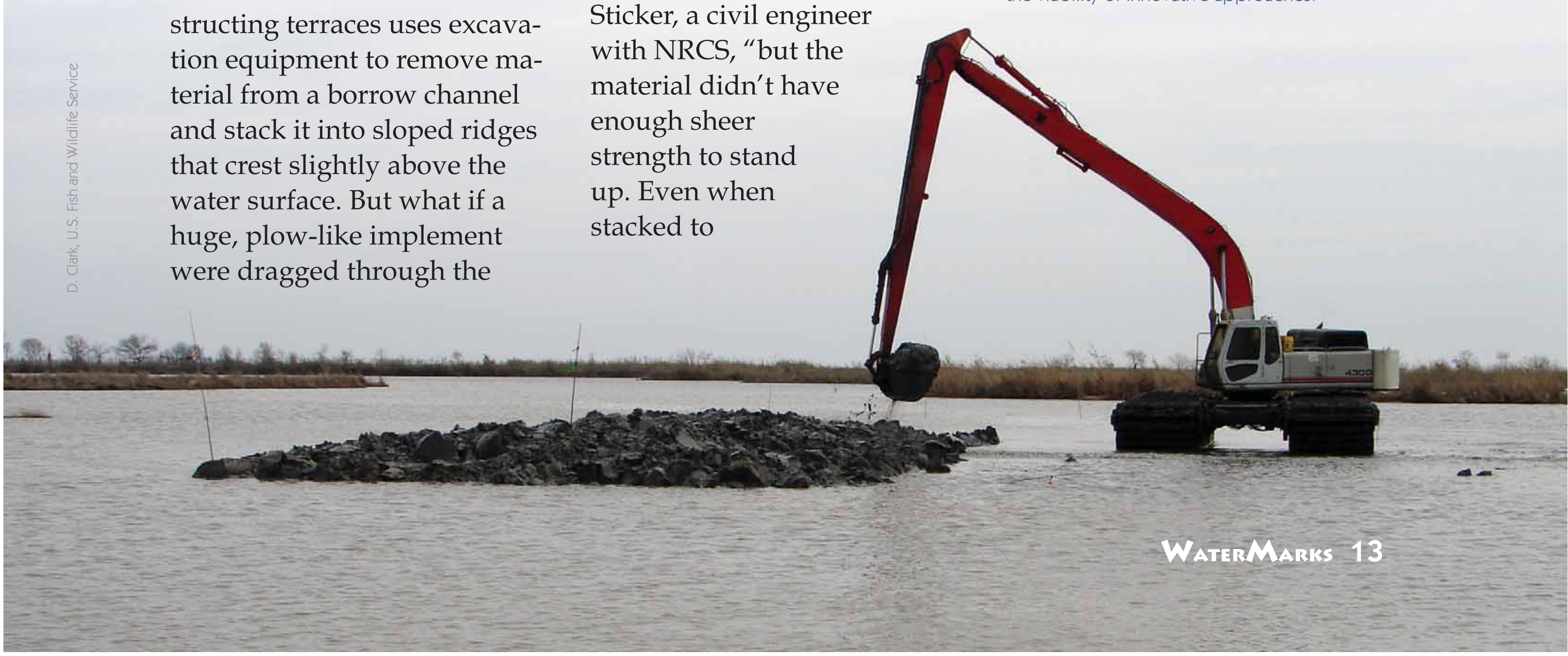
Often the value of a CWPPRA demonstration project lies in exposing the reasons why some good ideas don't work. Because of their small scale and relatively low cost, demos are efficient in evaluating the potential of scientific and technological innovations. To be successful, a demo project does not necessarily have to lead to a larger project.

New idea proves the superiority of an old approach

Constructing earthen terraces in shallow open water to quell wave energy, trap sediment and provide a platform for emergent vegetation is a widely accepted technique for countering marsh loss. The traditional method of constructing terraces uses excavation equipment to remove material from a borrow channel and stack it into sloped ridges that crest slightly above the water surface. But what if a huge, plow-like implement were dragged through the marsh, with terraces forming out of the sediment piling up behind the plow? That might reduce construction time and cost.

Under the federal sponsorship of the Natural Resources Conservation Service (NRCS), CWPPRA Plowed Terraces Demonstration project (CS-25) tested plow-style equipment for re-forming marsh bottom material into terraces. The first attempt used a plow design that did not produce terraces high enough to meet specifications. The second attempt tested another style of plowing implement that did form terraces more quickly and at less cost than the traditional method, but the terraces failed to sustain the specified elevation. "To get enough material to form a terrace, we were creating a borrow area right at the terrace toe," says Brad Sticker, a civil engineer with NRCS, "but the material didn't have enough sheer strength to stand up. Even when stacked to the desired height, the fluid soils would slide into the borrow area and the terraces would shrink."

The project showed that, despite being costly and ecologically disruptive, using customary, bucket-type equipment remains the best method of terrace construction currently available. "The plows didn't produce the results we had hoped for," say Sticker. "Although we gained insights into building terraces in soils with high water content, the greatest value of this demo project was disproving a new technique without the expense of a standard, full-scale project." WM



D. Clark, U.S. Fish and Wildlife Service

For building terraces in shallow wetland waters, conventional bucket-type equipment proved superior to a new design modeled on a plow. Only testing in the field can reveal the problems some ideas for improving coastal restoration will encounter. Often demonstration projects can streamline the process and reduce the cost of determining the viability of innovative approaches.

WaterMarks Interview with Jenneke Visser

The Value of Demonstrations

Jenneke Visser is the co-director for the Institute for Coastal Ecology and Engineering and Associate Professor in Renewable Resources at the University of Louisiana at Lafayette. She has served as the chair of CWPPRA's Academic Advisory Group since 1999. In the following interview Dr. Visser discusses CWPPRA's demonstration project program.

Are CWPPRA's demonstration projects cost-effective? Wouldn't it be better to put that money into techniques we know will work?

Louisiana's coast faces enormous challenges. The natural causes of land loss such as erosion and subsidence are compounded by the consequences of actions such as building levees and cutting navigation channels. So much land has disappeared so rapidly that our first goal is simply to slow the rate of loss.

Undertaking wetland restoration under these circumstances is a relatively new endeavor. We know some things about how the coastal ecosystem works, but we don't know everything. We have learned to mimic some of the processes that historically have sustained the wetlands, but we don't understand them all. We need to expand our tool box with new approaches to restoring the coast.

The purpose of CWPPRA's demonstration program is to foster innovative ways to address Louisiana's land-loss crisis and provide opportunities to test them in the field. The program addresses a true need at relatively little cost. A very small percentage of CWPPRA's funds are used for demo projects.

But if all demonstration projects don't lead to larger projects, what's the value of conducting them?

Some demonstration projects have led to full-scale projects very quickly. An example is the five-year flotant marsh creation project. Even before its conclusion the results were so encouraging that the Natural Resources Conservation Service incorporated its techniques into a larger project it is proposing to CWPPRA. That's an extremely rapid time line — usually it takes much longer to develop a new technique, to take an idea and scale it up to a full-size project. We may see upcoming projects incorporating ideas that were tested years ago.

But a demonstration project doesn't have to become a regular project to be valuable. For example, the thin mat enhancement demo proved that a damaged freshwater marsh can recover. This didn't lead to a large-scale thin-mat restoration project, but its results supported the expansion of the nutria control program.

Even failed projects can teach us useful lessons. Several years ago a demo project was approved to test using red mud, a sediment by-product of extracting alumina from bauxite, as a substrate for creating emergent marsh. Early on, the project ran into unexpected problems, including difficulty in controlling water contaminants and obstacles to installing an impermeable base to guard against soil and groundwater pollution. The project was deauthorized, but its lessons in site construction and properties of materials remain valuable.

Then do you think CWPPRA should expand the demonstration program?

I think we have a good balance between demonstration projects and regular projects. There's always a trade-off between attempting something new and repeating a tried-and-true process, but I think expenditures for the two types of projects allocate taxpayer dollars wisely.

The demonstration program does have limitations. The types of restoration techniques we can test are restricted by the financial ceiling set for demonstrations. Some projects, like uncontrolled diversions, can't be tested on a small scale and some ideas, even on a small scale, are just too expensive to try out.

How could CWPPRA's demonstration program be improved?

The program attracts participation from a wide range of people — academicians, local citizens, and scientists and engineers working in the private sector as well as in CWPPRA agencies. But I think we could do more to stimulate research directed toward restoration and to cultivate partnerships between academicians and restoration practitioners. Partnering with an agency can help researchers focus their thinking and overcome the hurdles of translating ideas into applications.

Coastal Louisiana faces enormous environmental problems. We need new approaches to addressing the threats that are most intractable, such as marsh loss due to subsidence and sea-level rise. We must also continue to test materials and equipment that improve conventional restoration methods. The demonstration program is a mechanism for encouraging just these things. WM

The University of Louisiana at Lafayette conducted research for the CWPPRA Floating Marsh Creation Demonstration project. Dr. Visser (shown here) was closely involved with both field testing and evaluating the project. Such collaboration offers academia the opportunity to apply classroom theory to real-world problems and provides scientists and engineers with research results on which to base in-the-field decisions.


University of Louisiana at Lafayette

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Timeline of a demo project proposal

CWPPRA's Demonstration Project Standard Operating Procedures establish evaluation criteria and procedures for project submissions, approval, implementation and evaluation (see article 1).

Sample schedule for proposal submission through project selection

December

- Public distribution of Priority Project List (PPL) process announcement and schedule

Late January

- Demonstration projects presented for nomination at the four Regional Planning Team (RPT) meetings

Mid-February

- Environmental and Engineering Work Groups screen demonstration projects nominated at the RPT meetings to ensure that each meets the demonstration project qualifications
- Up to six demonstration project nominees selected at a coast-wide RPT meeting
- Each nominee is assigned a CWPPRA federal agency sponsor to guide it through the selection process

Mid-February through mid-March

- Sponsors prepare support information (fact sheets, figures, drawings, etc.) for RPT-nominated projects

Late March

- Engineering and Environmental Work Groups jointly evaluate and compare demonstration project nominees

Mid-April

- Technical Committee selects PPL candidate projects, including up to three demonstration projects

May/June/July

- Engineering and Environmental Work Groups and the Academic Advisory Group review project features and preliminary cost estimates and jointly evaluate each candidate demonstration project, considering factors such as cost-effectiveness, innovativeness, and potential for technological advancement
- Groups review monitoring costs with the Monitoring Work Group chairman
- Groups submit reports to the Planning and Evaluation Subcommittee

August

- Economic Work Group prepares cost estimates for fully funded candidate demonstration projects

Mid-November

- Planning and Evaluation Subcommittee presents demonstration projects at PPL public meetings

Early December

- Technical Committee recommends PPL and selects demonstration projects

Mid-January

- Task Force approves PPL and demonstration projects
- The sponsoring agency partners with the Louisiana Office of Coastal Protection and Restoration, which partners in every CWPPRA project, to oversee design, construction and monitoring