

WATER MARKS

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Louisiana Coastal Wetlands Planning, Protection and Restoration News

October 2012 **Number 46**



Education, recreation and
volunteer service in restored wetlands

Coastal Louisiana: Classroom and Playground

October 2012

Number 46

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 nearly \$80 million annually for work in Louisiana. The state contributes 15 percent of total project costs.

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ABOUT THIS ISSUE'S COVER . . .

For some environmental enthusiasts, getting their hands dirty just isn't enough! This volunteer was planting cordgrass with a BTNEP team from Rustic Pathways and Bayou Grace Community Services at the North Lake Mechant CWPPRA site when she plunged whole-heartedly into action for coastal restoration.

Photo: Barataria-Terrebonne National Estuary Program (BTNEP)



Dan Purinton

WATERMARKS

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LaBranche Wetland Watchers

For more information about Louisiana's coastal wetlands and the efforts planned and under way to ensure their survival, check out these sites on the World Wide Web:

www.lacoast.gov
www.lacpra.org

www.btnep.org
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COASTAL RESTORATION IS KEY TO THE FUTURE OF HUNTING AND FISHING

Sportsman's Paradise in Critical Condition

“The marsh is simply disappearing right before our eyes,” says Andy Crawford, editor of Louisiana Sportsman magazine. “It’s laughable to compare a map of the coast with what is actually there. Winding bayous have converted to open water. Islands that used to be landmarks are gone.”

The severity of Louisiana’s land-loss crisis came home to Crawford over a decade ago. “Although we were all somewhat aware of coastal deterioration, it was when I was riding with a bass-fishing pro down the coast that it hit me. The most recent map on the GPS showed twisting bayous and land everywhere, but we were surrounded by open water. There wasn’t a speck of visible land anywhere.”

Crawford realizes that it’s difficult for visitors to understand how dramatically the coast is changing. “You fly into New Orleans and see a coast unlike any other in the nation. You see vast expanses of marsh and you think, ‘What’s the big deal? There’s plenty of marsh.’”

“We thought that for years. An island disappeared, we’d go find another one. A fresh-water marsh turned brackish, we’d move upstream. Now, in bayous and waterways we used to know like our own backyards, we have to rely on a GPS to be sure of where we are – it’s changing that much. It’s a dismal picture and sad for those of us who have lived in the coastal region for years. Land loss is cumulative, and eventually all the land could be gone.”

“Louisiana is dissolving into the Gulf”

Crawford frankly admits he’s been pessimistic about the chances to save the coast. “The scary thing is how big the job is,” he says. “Each project does help, each does do some good, but they are mere specks on the map. Creating a thousand acres of marsh or restoring a single barrier island costs millions of dollars. Where will the money come from?”

“If any other state were disappearing, there would be a national outcry. Congress would act. Cost would be no issue. It’s easy to say that it’s Louisiana’s problem, but it’s the country that is losing a national treasure. We are the source of much of the country’s seafood. We transport the bulk of the nation’s oil production through our wetlands. It’s really a national problem.”

A solitary fisherman paddles through morning mist on the Atchafalaya River. Attracting sportsmen world-wide, Louisiana issued 1,832,051 recreational hunting and fishing permits during the 2012 licensing year.

Despite his pessimism, Crawford sees promise in restoration projects conducted under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). “The best thing about CWPPRA is that, as a coalition of federal agencies, it is more than simply Louisiana’s response. The more people outside of Louisiana who understand the problem and why they should be concerned, the more momentum builds to get something done.”

Saving paradise

Sportsmen likely see more than promise in CWPPRA projects. Although on a map restoration efforts may look like mere specks, hunters see projects as flourishing expanses of waterfowl habitat, and fishermen perceive them as stabilized stretches of marsh protecting the bays and bayous that nurture big fish. Having watched decades of change erode and erase their

playground, these outdoorsmen and women recognize that the survival of Louisiana’s sportsman’s paradise depends on successful restoration.

Chris Macaluso pays close attention to how CWPPRA projects influence hunting and fishing opportunities. He knows that, initially, progress may appear ambiguous. The coastal outreach coordinator for the Louisiana Wildlife Federation, Macaluso explains that restoration projects produce complex ecological results. “Often, when habitat improves, it also changes,” says Macaluso. “For example, along the Barataria Land-bridge, freshwater inflows from Davis Pond are reducing the salinity of the marsh. Consequently, vegetation in the area is flourishing. That’s good for duck hunting, but for some people it complicates fishing as speckled trout and other saltwater species migrate south.”

Macaluso cites another project, Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration, that has driven fish out of known washouts and deep cuts. “In the short term, this has frustrated fishermen,” says Macaluso. “But the project has created new beaches, sand bars, flats and back barrier marshes, all essential habitat for fish to feed, seek shelter and reproduce. In the long run, fishing will improve. Our fisheries will remain healthy and sustainable only if we restore habitat by building projects like the one at Pass Chaland.”

Healthy and sustainable habitat for fish and wildlife as well as for human beings will be the result of restoring Louisiana’s wetlands, of curbing land loss, building marsh, restricting saltwater intrusion, reestablishing hydrological patterns, planting vegetation and again nourishing the wetlands with fresh water, sediment and nutrients — all techniques of coastal restoration. The battle to save Louisiana from dissolving into the Gulf is being waged through fights for the nation’s attention, fights for money, and fights against time and the tides that, if unchecked, will simply wash the coast away.



Participation in hunting, fishing and other wildlife-associated recreational activities is on the rise. In 2011, nearly 40 percent of Americans over the age of 16 engaged in such activities, contributing \$145 billion to local economies nationwide, as reported in a U.S. Fish and Wildlife Service survey (<http://www.doi.gov/news/pressreleases/upload/FWS-National-Preliminary-Report-2011.pdf>).



Ducks Unlimited

CWPPRA PROJECTS PRESERVE BIRD HAVENS

Tourism Takes Wing Over the Wetlands

“A healthy environment is the cornerstone of our tourism industry,” says Carrie Stansbury, executive director of the Cajun Coast Visitors and Convention Bureau. “Whether visitors come to our area for wildlife and scenery, for outdoor recreation or to eat our seafood, their experiences are directly connected to productive and thriving wetlands.”

Stansbury cites birdwatching as one of tourism’s fastest-growing niche markets, and

Louisiana’s coastal zone is legendary for the number and variety of its resident, seasonal and migratory birds. The America’s Wetland Birding Trail designates 12 loops that take birders into avian habitats throughout Louisiana’s Gulf Coast region.

In the wetlands, different types of marsh provide habitat for various kinds of birds. Marsh types are distinguished primarily by their degrees of salinity. The diversity of marsh types and their vast expanses account for the great

variety of bird species found in Louisiana.

In addition to building and protecting land, maintaining ecosystem diversity is a CWPPRA objective. Techniques include river diversions to sustain fresh marshes, hydrologic control structures to limit salt water intrusion, shoreline protection to impede the conversion of wetlands to open water, marsh creation to build new wetlands, and barrier island restoration to reduce damage from tides, wind and waves. Stansbury notes that CWPPRA projects have protected or restored critical birding habitat in all four major types of marsh ecosystems.

Freshwater marsh

The most biologically diverse type of wetland, freshwater



While herons (preceding page) frequent all four types of coastal marsh habitat, eagles tend to gather in fresh and intermediate marshes.

marshes have a very low degree of salinity – if any at all. Sandwiched between intermediate marshes and forested swamps across the coastal region, this marsh type is most protected from the sea.

The Vermilion loop of the America's Wetlands Birding Trail leads from Lafayette south through coastal woodlands and prairies into freshwater marshes where numerous bird species breed, including egrets, herons, mottled ducks and moorhens. Waterfowl, wading birds, hawks and cranes are among the marshes' winter residents, while migratory birds such as terns, flycatchers, swallows and wrens use the marshes for stopovers to feed and rest.

In the Mermantau Basin, CWPPRA projects have focused on hydrologic restoration, shoreline protection and sediment and nutrient trapping. Future goals are to maintain the basin's freshwater and intermediate marshes

by reducing ponding and restricting saltwater intrusion.

Freshwater marshes especially benefit from diversions and outfall management projects. For example, the West Pointe a la Hache Outfall Management project distributes water, sediment and nutrients siphoned from the Mississippi River over the nearby marshes. Restored to a fresher state, these marshes support more than 90 species of plants; provide habitat for turtles, alligators, snakes, and muskrats; and attract a variety of birds, including egrets, herons, ducks, moorhens, rails and eagles.

Intermediate marsh

This type of marsh, found in few places other than Louisiana, has relatively low salinity. Freshwater plants like cattail, bulltongue and water lilies thrive alongside more salt-tolerant wiregrass.

The Sabine loop of the birding trail starts near the Texas bor-

der and meanders south into the Sabine National Wildlife Refuge, where thousands of acres of freshwater and intermediate marsh lie contiguous to brackish waters and swamp. Intermediate marshes host water birds (egrets, herons, pelicans and terns), marsh birds (rails, cranes and bitterns), waterfowl (mottled ducks, northern pintails, canvasbacks, redheads and lesser scaup), shorebirds (godwits, dunlins and dowitchers), and raptors (eagles, hawks and owls).

CWPPRA projects in the Calcasieu-Sabine Basin have focused on hydrologic restoration, shoreline protection, and marsh creation and management. Measures such as limiting ingress of salt water through shipping channels, restoring drainage patterns and increasing the inflow of fresh water help to maintain the diversity of marsh types and avian habitat in the basin. Long-term goals are to reduce land loss by reestablishing historic hydrological patterns that deliver fresh water, sediment and nutrients while repelling the advance of salt water.

Saltwater intrusion into fresh and intermediate marshes was among the problems addressed by the East Sabine Lake Hydrologic Restoration project. Weirs and culverts controlled water flow, vegetated terraces calmed wave action and rock breakwaters

reduced erosion along the lakeshore.

Brackish marsh

Brackish marsh is salty and dominated by *Spartina patens* (marshhay cordgrass, or wire grass). It provides critical habitat for waterfowl and larval forms of marine organisms such as shrimp, crabs and menhaden. When coastal erosion increases tidal exchanges and fails to block saltwater infiltration, freshwater marsh can convert to brackish marsh.

The route of the Terrebonne birding trail originates south of Houma and wends its way toward stretches of brackish marsh in the Pointe Aux Chenes Wildlife Management Area. Birdwatchers frequently observe wading birds, such as herons, egrets and roseate spoonbills; wintering wa-

terfowl, such as canvasback ducks and northern pintails; rails, terns, cranes and migratory songbirds.

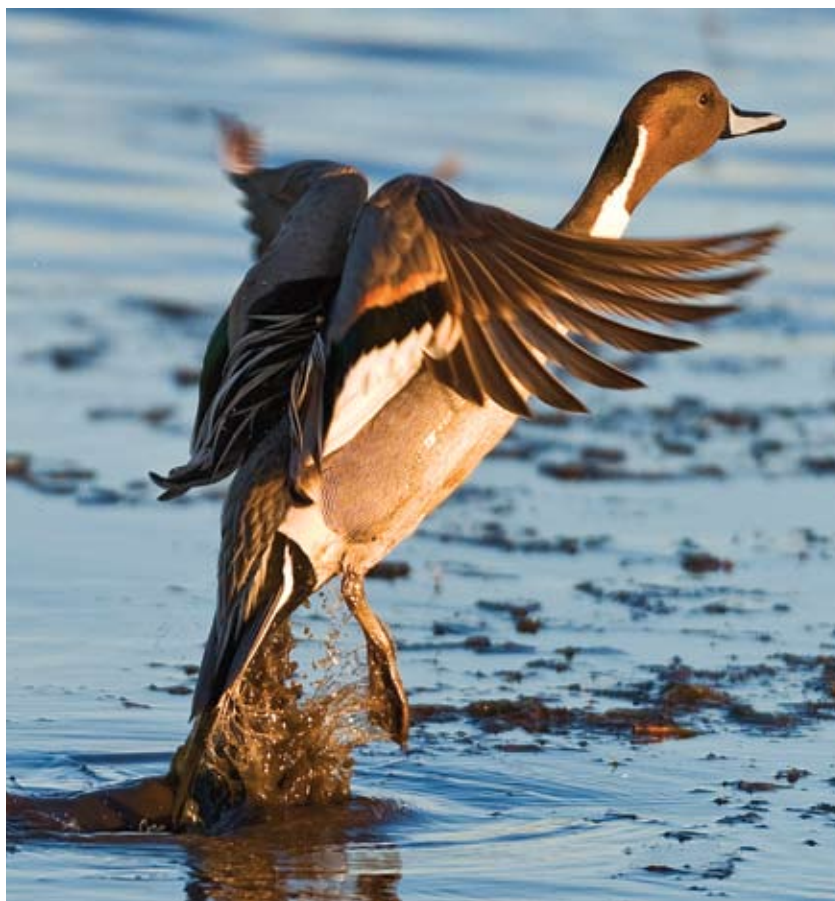
To slow the dire rate of land loss and rising salinity in interior marshes, CWPPRA has built nearly forty projects in the Terrebonne Basin. Barrier island restoration strengthens the landscape's natural defense against storms while hydrologic restoration, shoreline protection and marsh creation enhance and preserve all interior marsh types. Long-term solutions to the basin's critical deterioration and rapid disintegration involve addressing the fundamental problem of subsidence due to sediment starvation and the absence of flood waters. Current projects contributing to the long-term solution, such as the Penchant Basin Natural Resources Plan and the Central Terrebonne

Freshwater Enhancement project, convey fresh water into interior lakes and marshes from the Atchafalaya River, the Houma Canal and the Gulf Intracoastal Waterway while restricting ingress of marine waters from the Gulf of Mexico.

Near-term measures aim to protect wetlands under immediate threat in key locations. The North Lake Mechant Landbridge Restoration project preserves freshwater and brackish marshes by restoring natural barriers to saline lake waters intruding through eroded shorelines and oil-field access canals. Taking dredged material from Lake Mechant, the project created wetland acreage, reinforced the landbridge separating the lake from the marshes, and repaired breaches; reestablished the historic volume of tidal exchange by preserving a winding tidal pass; and planted marsh vegetation.

Saltwater marsh

Washed by daily tides, saltwater marshes adjoin the Gulf of Mexico. This saline ecosystem supports a narrow band of plants and animals: oyster grass, black rush, black mangrove, periwinkles, mussels and crabs. Clapper rails, bitterns and seaside sparrows



Used by kind permission of Tony Pratt, tonyp Pratt.com

The southern terminus of the Mississippi Flyway, Louisiana's coastal marshes provide winter habitat for millions of waterfowl, including numerous species of migrating ducks. Conservation and restoration projects are essential in combating the decline in habitat acreage caused by land loss and land-use conversion.



Used by kind permission of Tony Pratt, tonypratt.com

nest in the grasses of this flat landscape, while egrets, ibis, herons and roseate spoonbills form rookeries perched in the branches of mangrove trees. Pelicans and gulls patrol from the air, swooping down to scoop prey out of the water.

In the Barataria Basin, the Grand Isle loop of the birding trail skirts salt marsh sites on Louisiana's only inhabited barrier island, where seasonal wading birds, seabirds and shorebirds mingle with resident ducks, gulls and terns. Perhaps best known among birders as a migratory stopover, Grand Isle is unique among the state's barrier islands in providing songbirds with wooded habitat, where they rest and feed during their semi-annual flights between their summer breeding grounds in North America and winter grounds in Central and South America.

Deteriorating salt marshes readily convert to open water,

moving the interface of land and sea ever inward. To mitigate the erosive threats of subsidence, wind, waves and storm surge in salt marshes, CWPPRA has restored barrier islands, rebuilt marshes and protected shorelines. Along the salt marshes' inland boundaries, CWPPRA has restored hydrological patterns, trapped sediment and nutrients, created marsh and planted vegetation, preserving these highly saline wetlands and maintaining the fresher habitats lying beyond them.

To the west of Grand Isle, the West Belle Pass Headland Restoration project protected and restored the salt marshes lying north of Timbalier Bay. Enlarged by breaches in West Belle Pass and in bayou banks, the bay threatened to overwhelm the marshes. Borrowing sand and mud from the Gulf of Mexico to rebuild a stable beach and bayside salt-marsh platform, the project preserved the integrity of

Though the size of chickens, clapper rails frequently elude the casual observer by staying hidden within thick marsh grasses. Photographer Tony Pratt observes rails and many other bird species commonly sighted in Louisiana in wetlands throughout the Gulf Coast and Eastern Seaboard. However, the variety and concentration of birds in the Pelican State keep Louisiana a top destination for birdwatchers year-round.

the headland, restricted tidal scour and reduced shoreline erosion.

Whatever the technique, wherever the location, CWPPRA projects help Louisiana and Louisianans survive and thrive, says Stansbury. "We depend on healthy habitat to attract the birds that birdwatchers come to see. By building marsh and improving wetland conditions, coastal restoration protects and promotes our communities and their resource-based economies." **WM**

BUILDING COMMUNITY BEYOND THE MARSH BOUNDARIES

Volunteers Augment Restoration's Success

Why would anyone travel hundreds of miles at their own expense, risk the bites of hordes of mosquitoes and spend days in back-breaking work without pay? “The draw of our first trip was to help clean up after the Deepwater Horizon oil spill,” says Larissa Graham, Long Island Sound outreach coordinator for New York Sea Grant. Working with the president of the New York State Marine Education Association, Graham organized a trip that brought marine educators

from New York to Louisiana for a week of volunteer service. “Once here, we realized that Louisiana faced a threat greater than the oil spill. Habitat loss is the bigger, older environmental story unfolding in Louisiana. Knowing that stronger, healthier ecosystems rebound from disasters more quickly, the focus of our trip rapidly became coastal restoration.”

But why travel to Louisiana if the place you live has threatened wetlands of its own? “Louisiana’s plight is

instructive to people working on wetland issues in New York,” says Graham. “We are experiencing many of the same problems, but not to Louisiana’s extreme. Not only does Louisiana show us the perils of wetland decline and loss, it also is modeling solutions. Our trips have inspired participants to undertake stewardship projects in our own wetlands.”

While Louisiana may be an exotic destination for people from New England or England, from the Pacific Northwest or the Netherlands, for many volunteers it’s their

To fulfill its mission to protect and restore a sustainable coast, the non-profit organization Coalition to Restore Coastal Louisiana (CRCL) conducts volunteer projects in the wetlands year-round. Additionally, the group increases public awareness about coastal issues through conferences and a coastal stewardship awards program.





own backyard. “Locals have watched the wetlands disappear for years,” says Matt Benoit, plant materials coordinator for the Barataria-Terrebonne National Estuary Program (BTNEP). “They understand what’s happening and want to do something about it. Whether they are planting marsh vegetation or protecting bird nesting sites, from an environmental standpoint, their work absolutely makes a difference. We revisit many areas year after year to show volunteers how fish and bird habitats have increased in restored areas. The results of their work are visible.”

Cultivating coastal advocates

“We place a lot of emphasis on making sure volunteers have a high quality experience,” says Hilary Collis, restoration coordinator for the Coalition to Restore Coastal Louisiana (CRCL). Founded in 1988, CRCL uses volunteer activities to educate communities across the coast and throughout the nation about the coastal restoration pro-

cess. “Getting citizens out to see what’s happening in the wetlands is the best way to promote an understanding of the coast’s role in the nation’s environment, economy and culture. We watch people change. New volunteers especially are excited to be engaged and actually doing something to help the coastal ecology.”

“Volunteer projects give people a chance to work in an environment many have never experienced before,” says Benoit. “It’s not easy to see the marsh, so providing access gives us an opportunity to educate visitors about the importance of this fragile ecosystem, how projects are helping to restore it, and how their tax dollars make the projects possible.”

Benoit says volunteering encourages citizen participation and fosters stewardship. “At first people are often tentative to get their shoes dirty, but by the end of the day they are wallowing in the mud and thankful for the experience.

“I think the most fascinating aspect of community outreach is that it becomes a chain of knowledge that can extend in endless directions. Children are wonderful couriers of information. If I am able to pique their interest on a topic, they will probably go home and tell their parents about it, who may then tell their families, coworkers and friends ...”

Jessica Schexnayder, LSU Sea Grant

They go home and tell their friends about what Louisiana is experiencing and why it’s important to save the wetlands. They’ve lived it, done it, helped out – so they become flag-bearers for coastal restoration.”

Partners for CWPPRA project sites

Like CRCL, BTNEP incorporates an educational component into all of their projects. “Volunteers learn why the tasks we undertake – propagating plants, replanting native vegetation, removing invasive species, clearing trails, cleaning up trash – are vital to successful restoration,” says Benoit. “Working on site, they recognize the importance of Louisiana’s coastal environment – how the wetlands provide protection from storms, how fisheries rely on marsh habitat and how native vegetation sustains the wetlands’ ecological health and resiliency.”

Teams often work at CWPPRA sites. For example, at the North Lake Mechant Landbridge Restoration project, BTNEP volunteers planted smooth cordgrass to shield interior marshes from erosion and saltwater intrusion. Plant-

ing cordgrass strengthened shoreline protection measures at the CWPPRA project site in Little Lake, and plantings at West Lake Boudreaux accelerated stabilization of new, emergent marsh. Volunteers have also planted sites where vegetation failed to take root naturally or where restoration funding allocated no money for planting.

After Graham's group of New York marine educators assisted at nurseries harvesting seeds, propagating plants and potting sprouts, BTNEP took them out to project sites to install plants. "It was a great way to see various steps in the restoration process and to experience how different partners work together," Graham says. Her team was most inspired by the dedication, motivation and enthusiasm of the people working in Louisiana. "It takes special people to tackle so big a problem. Often

people ignore environmental issues because they don't know how to deal with big problems, but even little steps make a difference."

New champions for restoring Louisiana's coast

"From a big-picture environmental standpoint, what a volunteer accomplishes is a drop in the bucket," says Diane Huhn, volunteer coordinator for Bayou Grace Community Services. "While it's true that every drop is critical in filling that bucket, our program's greatest value is transforming an academic interest in saving the environment into a personal commitment to save the treasure that is coastal Louisiana."

Based in Terrebonne Parish, Bayou Grace provides education, housing and hospitality and introduces Louisiana's people, food and cultural



Coalition to Restore Coastal Louisiana

A single sapling or plug of cordgrass, a grain of sand, an hour of a volunteer's time – none alone can staunch Louisiana's wetland loss. But multiplied by hundreds and thousands, a stand of cypress takes root, grasses secure acres of wetland soil, sand rises into dunes, and volunteer service brings hope to coastal restoration.

traditions to volunteers coming from across the country and around the world. "Most teams are organized through a school, a church or an environmental club," says Huhn. "Typically staying for about a week, they witness the impact of land loss on the environment, the community and the country. When they realize coastal Louisiana's contribution to the nation – its importance to the oil and gas industry, its fisheries, its amazing culture and heritage – they begin to understand how we're all connected; how, if the nation is going to be healthy, we have to take care of the entire country. People go home as coastal advocates, determined to increase awareness and educate others about Louisiana's problems and their responsibility to ensure the survival of its coast." WM



Barataria-Terrebonne National Estuary Program

In some restored areas, natural colonization provides rapid vegetative protection; other sites need the jump-start of hand-planted seedlings. Volunteers frequently undertake the labor-intensive task of setting out plants in the marsh.

A New Generation Confronts an Old Threat

In the 15 years since eighth-grade teacher Barry Guillot started the service-learning program LaBranche Wetland Watchers, he has taken thousands of students into the marsh for hands-on science lessons and restoration activities. Biology, botany, ecology, math, history and language arts are topics enriched and inspired by studying in nature's classroom.

Wetland Watchers' community service encompasses cleaning waterways of litter, planting trees and creating public nature trails at the 28-acre site designated by St. Charles Parish as Wetland Watchers Park. By making presentations at public events, serving as wetland tour guides and modeling conservation actions, they have encouraged thousands of others to become interested in wetlands. As a spokesman for one of the program's many private-sector partners, Valero

Energy Corporation, said, "... the Wetland Watchers program brings students back to the basics, back to nature and back to what is mankind's fundamental purpose - to be stewards of the earth for future generations."

Everyone connects to the wetlands

Chosen as a model for service learning by two national organizations, Wetland Watchers is renowned for its effectiveness and achievements. However, it is but one of the many programs educating Louisianans about their state's unique coastal environment and the necessity of conserving it. Also geared to school students and building on the strength of the statewide 4-H network, the 4-H Youth Development program is administered by the Louisiana State University AgCenter in partnership with

Louisiana's Coastal Protection and Restoration Authority. The program offers materials and lesson plans to teachers of fourth grade through high school; curricula are designed to increase awareness of Louisiana's wetland loss and to empower participants to take action. "Students learn how everyone is connected to wetlands, whether they live near the coast or not," says Ashley Mullens, 4-H youth wetlands program manager.

Through field trips and service opportunities, students assist in preserving, conserving and restoring Louisiana's wetlands. "Projects include trash sweeps, marsh vegetation plantings, invasive species removal, wood-duck box construction, and trail maintenance," says Mullens. "At the CWPPRA project site on Holly Beach, 4-H kids built sand fences to speed land accretion. Participants learn that everyone can contribute

"My understanding of wetland areas changed as a result of my participation in this project. Somewhere along the way, the wetlands became more than a swamp, it became my home. When I think about Louisiana, I swell with pride knowing that my home is so beautiful!" Katie P., 7th grade, Hurst Middle School



to restoring the ecosystem. We encourage them to spread the word, raise awareness about Louisiana's coastal issues, and inspire others to do the same."

In addition to the school curricula, 4-H sponsors a youth wetlands week highlighting coastal land loss and restoration, and summer camps with wetland components. "Each year we see a growth in awareness of wetland issues," says Mullens. "Many of the kids stay involved with our programs for years. They recognize they have a responsibility to become environmental stewards, which often inspires them to choose careers in coastal sciences and influences their parents to become involved in wetland issues."

Not by science alone

"The best science in the world will not help us restore the wetlands if we don't have the political will to use it," says Jonathan Foret, development director for the South Louisiana Wetlands Discovery Center. So along with offering hands-on lessons in wetland ecology, the center conducts programs that challenge students to confront the political and social complexities of implementing restoration projects.

"Using the CWPPRA model for project selection, we introduced the politics of restoration to students at a Wetlands Youth Summit we conducted in partnership with the EPA," says Foret. "Small teams each evaluated



LaBranche Wetland Watchers

"Students are receiving a hands-on lesson on the environment that cannot be taught through a textbook. We are creating leaders who want to preserve our wetlands for future generations."
Elise Chauvin, External Affairs Representative, Shell Chemical LP

a CWPPRA project proposal and presented its merits to the other participants. Then the entire group voted on which project to fund, based on its effectiveness and efficiency. The students did a great job of looking at the big picture and selecting the project that was best for the environment and the community, whether or not it was 'their' project."

Land-use planning, land ethics, landscape design, history, communications, public speaking – the center sees these topics as essential to developing coastal sustainability as biology, hydrology or engineering. "Changes are coming to the coast," says Foret. "That's inevitable. It's up to us to figure out how to make those changes beneficial and how to adapt to and live with what's coming."

Although the center's mission is to educate the community as well as tourists about the ecology, conservation and preservation of the Gulf Coast, students fuel

Foret's optimism. "We know we are losing land in coastal Louisiana," says Foret. "We recognize that we are facing a huge, overwhelming problem. There's both a deep sorrow that comes with that knowledge and a responsibility. When dealing with so difficult an issue, it's great to see hope in kids. It gives hope to me."

Stewards for the coast's future

To sustain the viability of Louisiana's coast, the state is proposing a 50-year master plan to protect and restore its wetlands. With projected costs reaching \$50 billion, success hinges on citizens' willingness to commit to a comprehensive public conversation, a complex decision-making process, and an ongoing battle for public funding. In this cross-generational effort, the devotion of educators to instill knowledge about the wetlands and cultivate a sense of stewardship in the young may be the coast's best hope for a viable future. **WM**

WATERMARKS INTERVIEW WITH PHOTOGRAPHER CC LOCKWOOD

Acclaimed wildlife photographer CC Lockwood has devoted much of his career to documenting Louisiana's natural environment. Widely published in books and magazines, Lockwood has received numerous honors and awards, including being named Conservation Communicator of the Year by the Louisiana Wildlife Federation and receiving the Sierra Club's Ansel Adams Award for Conservation Photography.



WATERMARKS: Although you are not from Louisiana, you have been photographing the state for nearly four decades. Why did you choose it as the subject of your work?

LOCKWOOD: Early in my career, I canoed down the Atchafalaya River toward the coast. I was fascinated by how the different habitats blended into one another, from hardwood bottomland forests to the coastal marshes. I wanted to capture the beauty and importance of each habitat, to photograph the creatures that lived in them, to show how nature works and

how important human beings are in the natural world.

Art gets people's attention. By photographing Louisiana's unusual landscape, I ask people to stop and think about the wonder and fragility of the natural environment.

WATERMARKS: Has your perception of Louisiana's beauty changed with your awareness of land loss?

LOCKWOOD: For a while I responded to Louisiana's environmental crises – the land loss, the oil spill, the hurricanes – by attempting to show what's

wrong. Wetlands that I photographed decades ago have disappeared. There's only open water where there used to be beautiful marsh. But it's hard to show what's not there.

Now I'm focusing again on beauty, to show what we have and why we should keep it. A positive approach is more effective in persuading people to help preserve what's of value.

WATERMARKS: Do you see any progress in combating wetland loss?

LOCKWOOD: So much has been done to educate people





about the natural environment, and artists have played a role in that. We've made great gains in understanding the problems. Thirty-five years ago politicians weren't convinced that Louisiana was disappearing, although the statistic of 25 square miles of loss per year was quoted even then. Today everyone knows that we're losing land, but we can't agree on what to do about it or how we'll get the money even if we can find a solution.

WATERMARKS: Do coastal restoration projects contribute to Louisiana's natural beauty?

LOCKWOOD: It depends on your perspective. From the air, terraces built in shallow bays look lovely. From land, new projects tend to look bald and ugly. But eventually, restored areas blend in with the rest of the landscape. Each habitat has its own character, its own charm, though to my eye, the meandering, snake-like bayous are the most beautiful.

WATERMARKS: How do you envision the future of coastal Louisiana?

LOCKWOOD: The coast will always be changing. I'm pretty sure there will be fewer alligators but more porpoises as expanses of open water increase. Animals adapt to changing conditions a lot more quickly than humans do.

think that, but now I've come to value the economy and culture of Louisiana that's also at risk – the value of its fisheries and the oil and gas industry; the food, music and traditions of people who have lived off the land. Our lives are much more interesting because of this unique landscape and culture. If we disconnect

From the dramatic sweep of the ocean horizon to the intricate details of wetland wildlife, Lockwood's photographs capture the wonder and beauty of Louisiana's diverse coastal environment. Recognized as outstanding in his ability to capture the essence of Louisiana, Lockwood was honored by the U.S. Postal Service choosing his photo "Flat Lake Sunset" for its stamp commemorating Louisiana's bicentennial.



Photographs used by kind permission of CC Lockwood, www.cclockwood.com

I used to think we should save the environment just for the animals, for the beautiful and diverse habitats that culminate in the coastal wetlands. I still

from that, we become homogenized, and coastal Louisiana becomes just another exit off the interstate. **WM**

WATERMARKS

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Louisiana's classroom and playground – open for enrollment!

Lend a hand to restore the coast

Volunteer! Numerous organizations conduct workdays and field trips in the wetlands. Visit these web sites for calendars of volunteer opportunities, and subscribe to CWPPRA's Newsflash (www.lacoast.gov/newsletter.htm) for notices of upcoming opportunities.

Link to stewardship tips and volunteer opportunities at <http://lacoast.gov/new/GetInvolved/Default.aspx>

Barataria-Terrebonne National Estuary Program (cited in article 2), www.btnep.org

Coalition to Restore Coastal Louisiana (cited in article 2), www.crcl.org

Put on your dancing shoes!

Louisiana likes to party! In just about any season you can find a festival where people are tuning up their fiddles, kicking up their heels and cooking up a big pot filled with the bounty of the wetlands.

Louisiana's Department of Culture, Recreation and Tourism keeps a roster of food festivals, music festivals, historical reenactments and other cultural celebrations (<http://www.louisianatravel.com/>). If you're headed to a specific region of the state, you can locate the local tourists' bureau at <http://www.2chambers.com/tourist15.htm>.

Going to the birds?

Louisiana extends year-round hospitality to avians and humans alike. Birdwatchers are likely to check numerous species off their lifetime list with sightings along any of Louisiana's 29 designated birding trails (<http://www.louisianatravel.com/louisiana-birding-trails> for brochures and maps).

Prefer to focus on a bird of one kind of feather? Choose a festival, such as the February Eagle Expo in Morgan City (<http://www.cajuncoast.com/events/louisiana-eagle-expo>), or the summertime hummingbird festival in Feliciana (<http://www.audubonbirdfest.com/>). The web site Bird Louisiana.com (<http://www.birdlouisiana.com/>) posts a roster of bird festivals throughout the year, throughout the state.

