

Louisiana Wetlands Land in Nation's Capital

Artists, collaborators and sponsors of *Vanishing Wetlands: Two Views* enjoyed a reception for the traveling exhibit Jan. 24 at its latest stop at the U.S. Botanic Garden in Washington, D.C.

Wildlife photographer CC Lockwood and landscape painter Rhea Gary, both of Baton Rouge, are the stars of the LSU Museum of Art's show, created to draw attention to the importance of Louisiana's degraded coastal zone. *Vanishing Wetlands* evolved from the pair's "Marsh Mission" collaboration, when the artists spent more than a year visually documenting the state's plants, animals and landscapes. Their project received major support from LSU and Shell Oil. The Louisiana Sea Grant College Program and numerous other sponsors also helped make the venture possible.

"In the beginning, our greatest desire was to get this show to D.C., but it was such a far-fetched goal, I'm not sure we believed it could happen," Gary said. "I was thrilled that some of our congressional delegates came to the



Rhea Gary and CC Lockwood attend the opening of their show, *Vanishing Wetlands: Two Views*, at the U.S. Botanic Garden in Washington, D.C.

opening reception. I'm hoping they will use this as a place they can bring other members of Congress to help them better understand what's happening in Louisiana."

While art is the focal point of the show, the exhibition also features informational maps, kiosks and educational videos detailing the functions and values of wetlands. Additionally, Gary and Lockwood serve as ambassadors when the show arrives in a new city, delivering lectures and presentations about the Louisiana they prize.

Sea Grant Helping Mark the Road Home

Patricia Skinner, LSU AgCenter and Louisiana Sea Grant disaster programs coordinator, is working with The Road Home program to help

Louisiana citizens get their hurricane-damaged houses in order by providing online information about home repair and construction.

Whether a resident decides to restore an existing home, tear down and rebuild, or start from scratch on a vacant lot, the new Web site allows homeowners to draw

on expertise compiled from sources like the LSU AgCenter, Louisiana House and LSG Extension Program. Topics include building the ideal home; getting started; culture and

community; laws, licenses and permits; design; construction; and scams, successes and innovations.

The Tulane City Center is also part of the project, coordinating contributions from the state's schools of architecture.

The Road Home program, with AgCenter assistance, is building a professional rebuilding registry – a

Located on the National Mall and populated with natural treasures like orchids and a walk-through jungle, the Botanic Garden is an ideal venue for the *Vanishing Wetlands* message about saving Louisiana's withering coastline and natural beauty.

"It is my hope, with our exhibit prominently displayed a mere stone's throw from the U.S. Capitol, that attention will be brought to the beauty and value of Louisiana's subsiding wetlands, especially to the people that can make a difference on the dollars coming to Louisiana and how they are spent," Lockwood said. "Perhaps our images can persuade them to do the right thing by restoring the wetlands first."

Vanishing Wetlands: Two Views will remain at the U.S. Botanic Garden until May 13 when it travels to Houston. In the fall, the show makes its sixth and final stop at the National Museum of Wildlife Art in Jackson Hole, Wyoming. •



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Strengthening Wetlands while Treating Wastewater

conventional methods. Disinfected wastewater then goes to a detention pond and is gradually dispersed through a network of pipes over the wetland, which naturally removes nitrogen, phosphorus and other contaminants. In turn, wetlands thrive on wastewater nutrients.

Louisiana Sea Grant is one of several partners that have helped fund Day's research and development of overland flow treatment systems during the past 20 years.

Building Land, Now

Subsidence, the sinking of land, and sea level rise are issues facing the state's coastal zone. Day's research shows that wetlands used for wastewater treatment experience accretion. They build land.

Vegetation productivity in wetlands used for overland flow treatment is substantially higher than other wetlands, according to research conducted in Thibodaux, which has employed such a system since 1991. When marsh plants reach the end of their lifecycles, their organic mass is added to the soil as new plants take their place, aiding accretion because of the higher volume of vegetation. Additionally, a healthier wetland with thicker stands of plants slows the water moving across it, causing more suspended solids to settle out, again aiding in accretion.

"The addition of nutrients enhances plant productivity, which causes organic matter

deposition, which helps offset regional subsidence and global sea level rise," Day noted. "The addition of fresh water, even at relatively low quantities, also significantly lowers salinity and helps prevent saltwater intrusion," he added.

The danger of saltwater intrusion can be observed in St. Bernard Parish along the Violet Canal. There, salt

water has killed vast areas of cypress swamp that once served as a barrier to hurricane storm surge.

"There's no question about it, cypress swamps are effective against storm surge," said Hassan Mashriqui, LSU Hurricane Center. "Our research shows it definitely reduces storm surge. Up to 90 percent of wave energy can be reduced by a cypress swamp the width of one football field."

Although salt water killed much of the cypress swamp along the Violet Canal in St. Bernard, a small area of wetland being used for overland wastewater treatment is thriving there. "The fresh water is helping push the salt water out, and the cypress is growing," Day said. "This shows we can regrow cypress groves and better protect the state from hurricane devastation."

Economic Sense

Conventional wastewater treatment is expensive because of the energy required to operate such systems. Wetland assimilation can greatly reduce that cost.

A cost analysis for Breau Bridge, which is using an overland flow system, estimates the community saving \$2.6 million in capital costs alone when compared to using a conventional treatment system. A similar analysis shows a Dulac shrimp processing plant saving \$1.5

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In 1998, Mandeville was issued a permit to discharge disinfected wastewater into the Bayou Chinchuba wetland. The community's treatment process includes three aerated lagoon cells. Photo by Robert Lane.

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Coastal Clues

About two dozen children and their parents learned how to become "beach sleuths" when LSG Education Coordinator Dianne Lindstedt led a workshop for the LSU Museum of Natural Science's monthly "Special Saturday" program Jan. 27. Her multimedia presentation had a lot to offer on the day's topic of "Gulf Coast Sea Life" – everything from a guessing game to touchable beach-combed artifacts like shells, feathers, bottles, barnacles and bones, as well as plenty of photographs and a discussion of messages set adrift in bottles. Lindstedt included information on coastal critters from those as large as a dolphin to those as small as microscopic phytoplankton. Participants also made masks of their favorite aquatic creatures – just in time for Mardi Gras. More information on the LSG Education Program is available at <http://www.lamer.lsu.edu>.



Louisiana Sea Grant Education Coordinator Dianne Lindstedt (center) gives LSU Museum of Natural Science visitors a close-up view of the bony crushing plates from the jaw of a drum that allow the fish to eat oysters and other shellfish.

Communications Internship Expanded to Southern University

Louisiana Sea Grant has extended its communications internship to Southern University. Johnnie Jackson Jr., a native of New Orleans and a senior majoring in mass communications, is the communications office's first intern from SU.

Jackson will graduate in May. He plans to attend law school and open his own practice in New Orleans.

"Outreach is an integral part of the Sea Grant mission, and expanding the internship opportunity to Southern students helps fulfill that part of the charge," said Roy Kron, LSG communications manager. "Johnnie has taken on a couple of substantial communications

projects, and we're looking forward to seeing the end product."

The goal of this internship project is to provide work experience to an upper-level undergraduate or graduate student who is interested in science communications, while allowing her or him to earn three hours of academic credit. The one-semester internship exposes the student to topic research, composition, layout/design and publications.

This project also gives Louisiana Sea Grant an opportunity to establish its identity in other university departments and in the community itself after the intern's graduation, while opening a door for a student

to learn about a little-known employment niche.

The internship was established one year ago at Louisiana State University. Southern University is the nation's largest historically black university system and one of 16 land-grant institutions created by the Second Morrill Act of 1890. Enrollment on its Baton Rouge campus averages 9,000 students. •



Johnnie Jackson, Jr.

Water Treatment . . .

Continued from page one

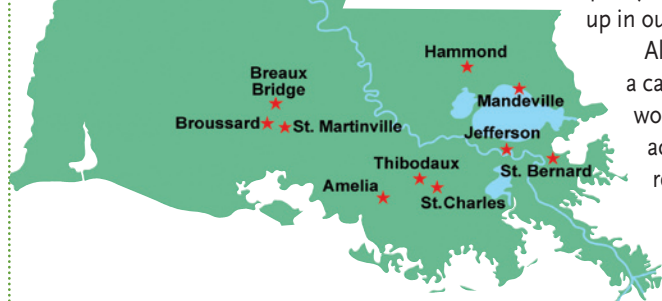
million over 25 years, and Thibodaux could save as much as \$1.3 million in capital costs.

According to the Breaux Bridge study, a conventional sand filtration system will use 7.4 times more energy than the overland flow system. Over 20 years that equates to 11,354 barrels of crude oil. If maintenance and other productivity issues are factored into the



A three-celled rock reed filter is used in Mandeville's wastewater treatment process. Photo by Robert Lane.

Louisiana Communities Using Overland Flow Wastewater Treatment



Restore America's Estuaries

The messages of the Third National Conference on Coastal and Estuarine Restoration hit home in the host city of New Orleans Dec. 9-13, and Louisiana Sea Grant enjoyed a prominent voice among the scientists, agency and industry representatives, community leaders, educators and concerned citizens in attendance.

Established in 1995, Restore America's Estuaries is a nonprofit organization with

equation, the cost-benefit ratio of the wetlands method is about 14 times better than sand filtration.

"What's staggering with conventional treatment systems is that we release two kilograms of carbon into the atmosphere for every kilogram of organic carbon reduction in wastewater," said Day. "It makes better economic and ecological sense to have nature accomplish that at reduced financial and environmental costs."

Another environmental benefit from wetlands assimilation is that water quality is better at the conclusion of the treatment cycle. "Wetland plants act as natural filters. And the slow process of water moving across a wetland allows contaminants to settle out of the wastewater," said Day.

Among those contaminants are trace amounts of drugs that pass through the human body. "Conventional treatment systems process wastewater in about 18 hours, and it's not possible to remove birth control and some other drugs in that time," said Day. "Wetlands take 30 days or more to process wastewater, and those contaminants can be removed in that time. So the result is better end-water quality and pharmaceuticals not ending up in our seafood."

Although wetland assimilation isn't a catch-all solution for Louisiana's woes, it can be an important cog in achieving coastal protection and restoration goals. •

Levee School Planning Begins

More than 50 floodplain management experts, levee district officials, engineers and university researchers from across the state met on LSU's Baton Rouge campus Jan. 23-24 for a Levee School Planning Workshop. The group's task was to develop a curriculum for a floodplain management school to provide levee commissioners, elected officials, the media and general public with a comprehensive understanding of how levees and other flood control management measures work. The curriculum will cover topics from policy and administration to structural and nonstructural flood control methods. A date for the first "levee school" is being determined. The idea surfaced following the 2005 hurricane season when Katrina and Rita devastated the Louisiana coast. Sponsors of the workshop included Louisiana Sea Grant, LSU AgCenter and the LSU Hurricane Center, among others. •



University researchers, levee district officials and flood management experts discuss a curriculum for a floodplain management school.

Drumming Up a Solution for Oyster Growers

People aren't the only creatures who enjoy digging into a succulent Louisiana oyster. It is estimated that with its shell-crushing teeth, one black drum, *Pogonias cromis*, can eat 30 oysters a day. The fish can be responsible for destroying up to 90 percent of an oyster grower's crop if they attack within a few weeks after oyster bedding – when small oysters are transplanted to a reef. As the producer of up to two-thirds of the nation's oysters, the state's oyster fishery employs more than 3,000 people and in 2003 had a commercial value of \$33 million. According to a Louisiana Department of Wildlife and Fisheries survey, black drum predation is one of the top problems faced by oyster growers.

With funding from Sea Grant's Gulf Oyster Initiative, a group of LSU researchers led by Kenneth Brown, professor of biological sciences, is working to understand and reduce the problem presented by this persistent predator. They first tested several deterrents – from sounds to scents



This is one of a series of three buoys that relay information from fish transmitters.



Gary Peterson observes the seeding of an oyster reef.

– to chase black drum from oyster reefs but found these methods to be either ineffective or too expensive to be viable. The scent of dead drum did not keep live drum away, neither did the broadcast of black drum "alarm sounds" or synthesized sounds. Higher amplitude/lower frequency sounds showed promise in keeping the fish at bay, but the equipment that generates these sounds is unreliable, expensive and impractical for field use. In another experiment, an inexpensive solar-powered noise maker seemed to attract black drum rather than repel them.

The team finally discovered that the removal of black drum by fishing, in the fall when reefs are bedded or in

the spring when fish return to reefs after mating, are effective means of increasing oyster survival. They found that gill nets and trotlines protect prized shellfish and that both fishing methods produced a relatively low amount of bycatch. However, there is a gillnet ban in effect in Louisiana, so trotlines may prove to be the best practice, even though they catch fewer drum than nets.

Brown and his team are also working to better understand black drum behavior and habitat use, employing hydroacoustic tags inserted into drum to determine when and where they eat oysters. Their fish tracking studies indicate that most black drum feed at a series of oyster reefs rather than staying in one location. A better understanding of the behavior of the fish can lead to better solutions to the problem of predation, and perhaps halt losses to populations of oysters that have occurred in other areas like Chesapeake Bay. •



Gerald George surgically implants a transmitter into a black drum.

Legal Impediments to Coastal Restoration Identified in Report

State and federal efforts to address Louisiana's coastal land loss have resulted in unanticipated legal issues that have slowed the implementation of restoration and mitigation projects. The Louisiana Sea Grant Legal Program is helping law and policy makers understand potential conflicts with a recently completed report that explores legal impediments to coastal restoration.

"The purpose of the report is to identify significant legal issues before a project is approved and to offer suggestions for addressing these issues," said Jim Wilkins, Louisiana Sea Grant Legal Program director. *Legal Recommendations for Enhanced Coastal Restoration in Louisiana* was prepared by Wilkins; Michael Wascom, LSU School of Energy, Coast

and Environment; and Lisa Schiavinato, legal coordinator for the LSG Legal Program.

"Issues we considered important on the outset for this report have been superseded by others, particularly in the wake of Hurricanes Katrina and Rita. So we decided to examine what we determined are the critical legal concerns and divided them into pre-Katrina/Rita and post-Katrina/Rita topics," added Wilkins.

Those topics include: private reclamation rights; ownership of accreted land resulting from large scale, publicly-funded restoration projects; public access; and damage to private property from coastal restoration, among others. Potential conflicts in all those areas are identified, and recommendations on how to overcome those obstacles proposed.

"Federal, state and local governments must plan together to restore the state's coast. Our goal is to help them consider the legal consequences of the projects they're reviewing," Wilkins said.

Funding the project were the Coastal Restoration Through Science and Technology Program, the Governor's Applied Research for Coastal Restoration Program, and Sea Grant.

Louisiana Sea Grant Legal provides timely, relevant legal information to the diverse users of the state's coastal lands and waters, including state and local governments, coastal businesses, commercial fishers, recreational fishers, non-governmental organizations and the general public. •

Sea Grant Extension Agents Honored for Recovery, Conservation Work

Three Louisiana Sea Grant Extension/LSU AgCenter agents are the recipients of the 2006 Gulf of Mexico and Caribbean Sea Grant Extension Network's Outstanding Group Achievement Award for their response and continuing recovery work following Hurricanes Katrina and Rita. One of the three also is the recipient of the 2006 Conservation

for the Southwest Louisiana Region; and Mark Schexnayder, area fisheries agent and hurricane program coordinator for Southeast Louisiana. Schexnayder also received the Conservation Educator honors.

The 2005 hurricane season brought unprecedented devastation to the U.S. Gulf Coast. Despite all three agents being displaced by either Hurricanes Katrina or Rita, they quickly returned to assist their constituents, most notably fishermen and local governments. "They rapidly became critical points of contact, and their roles in



Louisiana Sea Grant Associate Director Mike Liffmann (second from left) presents awards to Marine Extension Agents Rusty Gaudé (left), Mark Schexnayder and Kevin Savoie commending their service following Hurricanes Katrina and Rita.

Educator of the Year Award in the 43rd Annual Governor's Conservation Achievement Recognition Program, conducted by the Louisiana Wildlife Federation.

The three receiving the Extension Network award are Albert "Rusty" Gaudé, associate area agent for St. Bernard, Plaquemines and Orleans parishes; Kevin Savoie, area agent and fisheries agent

this difficult process are certain to serve as models for other Sea Grant programs confronted with similar circumstances in the future," said Mike Liffmann, LSG associate executive director. "Rusty, Mark and Kevin provided leadership and advisory and technical support to many of the responding agencies and nongovernmental groups involved in the recovery effort. They saw what

Recovery Issues Discussed at Fisheries Summit



Louisiana Sea Grant Executive Director Chuck Wilson welcomes participants to the fisheries summit at LSU's School of Energy, Coast and the Environment.

As part of its ongoing effort to aid fisheries recovery since Hurricanes Katrina and Rita, LSG hosted the Louisiana Fisheries in Transition summit Feb. 27 at the LSU Baton Rouge campus. Participants included members of the Louisiana Department of Wildlife and Fisheries, Louisiana Seafood Promotion and Marketing Board, Louisiana Wildlife Federation, educators and economists.

"Several other states have experienced major fisheries disasters and gone through recovery processes," said Hamady Diop, Louisiana Sea Grant economist. "The goal of the meeting was to learn from those other states' experiences and begin a dialog about possible steps we can take to further Louisiana's recovery both on the short- and long-term horizons."

others didn't see and drove a direct path to what needed to be done."

Among the trio's recovery efforts were: soliciting a Marine Travelift from Valdez, Alaska, to get commercial fishing boats back into the water; aiding operators of critical seafood processing facilities in reopening; acquiring industrial ice machines to serve the needs of fishermen in Cameron, St. Bernard and Plaquemines parishes; aiding in the relocation of a displaced Lake Pontchartrain Commercial Fishermen Association fleet; and storm debris marking and removal on Calcasieu Lake.

Many of their efforts are chronicled in a short documentary titled *Sister Storms: A Louisiana Sea Grant Response*. The film can be viewed www.laseagrants.org/comm/media.htm.

As Outstanding Group Achievement Award recipients, the trio will represent the Gulf region in a national awards competition. The national winners will be announced in the fall.

Schexnayder was honored with the Conservation Educator award for his pre- and post-Katrina work in New Orleans City Park, among other efforts. Prior to the 2005 hurricane season, Schexnayder aided in the rehabilitation of the lagoons in the park and Bayou St. John. Following Hurricane Katrina, he coordinated volunteers helping restore the park to its pre-storm condition through plantings and debris removal. •

Addressing the 40 summit participants were Flaxen Conway of Oregon Sea Grant, who discussed that state's ground fisheries collapse; Michael Jepson with the Gulf and South Atlantic Fisheries Foundation, who talked about the gillnet ban in Florida; and Robin Reichers with the Texas Department of Wildlife and Fisheries, who addressed fisheries privatization in Texas. Former AgCenter Associate Vice Chancellor Ken Roberts also addressed the crowd, calling for management of state fisheries resources according to economic principles.

Louisiana Seafood Promotion and Marketing Board chairman Harlon Pearce told attendees he sees a need to build greater professionalism within the fishing industry, as well as to streamline the regulatory process concerning aquaculture. Randy Lanctot, executive director of the Louisiana Wildlife Federation, reminded the audience that recreational fishermen's needs also should be considered during the recovery process. •