COASTAL CLIPS

Coastal Clips is a quarterly publication of the Louisiana Sea Grant College Program.

No. 29 Summer 2013

Natural Hazards Handbook for Homeowners Available

Even with hurricane season here, it's not too late for homeowners to make necessary preparations to protect their homes and loved ones. Through the new *Louisiana Homeowners Handbook to Prepare for Natural Hazards*, residents of Louisiana have a useful resource at their fingertips as they begin readying their families for natural disasters.

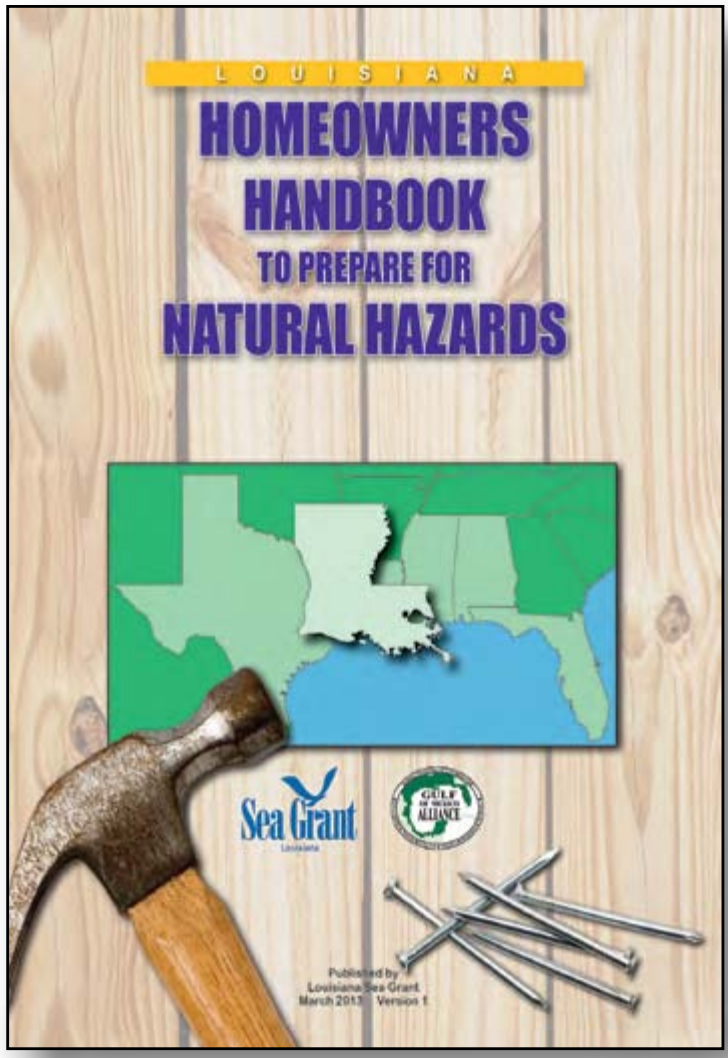
The handbook explains the forces of nature that act on structures during storms, including the dangers associated with high winds, heavy rain and storm surge. It further lays out ways to gird a home against these forces to minimize or negate their effects, as well as information on how to reduce the human toll exacted by dangerous storms.

"There are tips and information specific to Louisiana residents for preparing evacuation plans and kits, construction practices, retrofitting, shutter styles, insurance information and emergency contact numbers. Basically everything a homeowner needs to know in coastal Louisiana to be best prepared for coastal hazards," said Melissa Daigle, resiliency specialist with Louisiana Sea Grant.

The handbook is available in PDF format at *www.lsu.edu/sglegal/pubs/handbook.htm* as a free download. Free hard copies are available at various locations throughout coastal parishes, or the book can be ordered for $5 – to cover postage and handling – by emailing Jessica Schexnayder at *jsche15@lsu.edu*.

Louisiana Sea Grant produced the handbook with the help of other state, regional and national organizations. The handbook was funded through a program of the Gulf of Mexico Alliance (GOMA), which aims to see each Gulf state prepare its own guidelines for coastal residents. With recent storms – including Hurricanes Katrina and Rita in 2005, Hurricane Gustav in 2008, and the Mississippi River flooding in 2011 – being among the worst in memory, preparing beforehand for a natural hazard has become even more important for residents of vulnerable areas.

"Mississippi and Alabama have already completed their books. Louisiana is the third state of the five Gulf coast states to complete a handbook," said Daigle. "The goal of the project is to help build a more resilient coast by getting important information into the hands of homeowners along Louisiana's coast."



CERA Reorganized for 2013 Storm Season

To provide enhanced data to federal, state and local emergency response teams during the 2013 hurricane season, Louisiana Sea Grant (LSG) has reorganized the Coastal Emergency Risks Assessment (CERA) group at Louisiana State University (LSU).

CERA operates a forecasting model known as the Advanced Circulation (ADCIRC) Surge Guidance System (ASGS) that predicts wind, wave and storm surge impacts to Louisiana's coastline during a storm's approach and landfall – based on National Weather Service hurricane track and wind field projections.

"ASGS forecasts are provided to the Governor's Office of Homeland Security and Emergency Preparedness and the National Weather Service offices in Slidell and Lake Charles, and also on request to parish and municipal leaders " said Robert Twilley, LSG executive director and one of the program's principal investigators.

"These forecasts provide emergency responders with information they need about potential hot spots of coastal inundation and where they may need to conduct search and rescue missions. Planners can use it to determine where they need to stage relief operations. It also can be used for damage assessments following the storm," Twilley added.

During Hurricane Isaac last year, ASGS gave emergency responders across the Northern Gulf of Mexico unofficial guidance on which roads were likely to flood and what neighborhoods might be inundated by water. CERA's interactive website (*http://cera.cct.lsu.edu/cgi-cera-ng/cera-ng.cgi*) at LSU shows some of the hindcasts of storm surge forecast maps emergency management officials viewed.

What makes ASGS impressive are speed and detail. When Hurricane Katrina made landfall in 2005, computer models used about 300,000 nodes and took four hours to run a storm surge simulation. During Hurricane Isaac, 1.1 million nodes were used on three different storm tracks, and the simulations were completed in one hour using a suite of high-performance computers.

A node is a unique location on the map where the computer makes physics

(Continued on back cover)

Message from the Executive Director

The 1st of June is a notable date. On that day in 1812, President James Madison asked Congress to declare war on Great Britain. The Battle of Fairfax Court House – the first land battle of the Civil War – took place on that date in 1861. And on June 1, 1939, the U.S. Naval Research Laboratory first proposed using atomic energy to power submarines. The 1st of June also marks a tense time for residents of the Gulf coast – the start of hurricane season.

Since its founding in 1968, Louisiana Sea Grant has been involved in hurricane preparation and recovery. That involvement expanded in 2005 when Hurricane Katrina made landfall and devastated much of our state's eastern coast. A few weeks later, Hurricane Rita hammered our western coast. We relived those scenarios again in 2008 with Hurricanes Gustav and Ike. And Hurricane Issac in 2012 served as a stark reminder of how different storms can be.

Working with private industry, other Sea Grant programs and communities across the country, Louisiana Sea Grant helped get our commercial fishing industry back on its feet following the storms by establishing new ice houses, acquiring new boat lifts and physically removing debris from docks and waterways. In communities that avoided the wrath of the four hurricanes, Sea Grant personnel held workshops that demonstrated what could have happened had storm landfall been a few miles east or west. Those presentations, titled *The Next Storm Surge*, prompted many businesses to keep copies of vital operation records further inland and encouraged residents to better fortify their homes.

Armed with the *Louisiana Coastal Hazards Mitigation Guidebook*, produced by Louisiana Sea Grant in 2008, coastal communities began rethinking how they develop and what actions they can take collectively to lessen the effects of tropical storms. This spring, Louisiana Sea Grant published the *Homeowners Handbook to Prepare for Natural Hazards*. The book provides property owners with the information they need to secure their homes and to protect their lives and the lives of loved ones during hurricanes and flooding.

Sea Grant also is involved in a range of research focused on protecting our coastal communities from hurricanes – from wetland and barrier island restoration to developing better storm surge models.

Our coast is where we work, where we live and where we recreate. Louisiana Sea Grant is committed to a sustainable way of life in this unique place.

Robert Twilley, Ph.D.
Executive Director
Louisiana Sea Grant College Program

Sea Grant
Louisiana

Delcambre Safe Harbor Concepts Studied

Louisiana Sea Grant is the recipient of a $35,000 Federal Emergency Management Agency (FEMA) Community Resilience Innovation Challenge grant to develop a safe harbor master plan for the Port of Delcambre. Thirty grants were awarded nationwide.

"Typically, when there's a hurricane in the forecast, vessel operators in the Vermillion Bay area hurry upstream and tie up to anything that might survive a storm," said Lauren Land, LSG's sustainability coordinator. "They might tie up to trees, buildings, docks, wherever. When the storm comes through, it can turn those boats into water-borne debris and eventually derelict vessels, causing hazardous and costly conditions that affect residents and businesses."

The goal of the project is to work with local partners in the community to develop a master plan for the Port of Delcambre that helps boat captains secure their vessels when a storm is approaching, while also protecting the community. The study is expected to be completed within a year and will include determining the amount of boat traffic at the port, ways of communicating with the vessel operating community, and aerial and ground visualization. Once developed, the plan will offer specific ideas that increase coastal community resilience in the face of major storms.

"We're going to work together with the Twin Parish Port Commission, the Offices of Emergency Preparedness from Iberia, Vermillion and St. Mary parishes, and we hope to get a few more organizations on board. Ultimately, we want to figure out what a safe harbor would look like for Delcambre, whether it would need a marina, pilings lining the waterway or some other option," Land said.

The study will be just the latest Louisiana Sea Grant initiative in Delcambre, with LSG extension agents already participating in Delcambre Direct and the Louisiana Seafood Academy.

"This is just another project that's going to contribute to the successful redevelopment the whole Delcambre waterfront has gone through. We hope this can help boaters be more resilient and recover more quickly after a storm," Land said.

FEMA's Community Resilience Innovation Challenge is made possible by The Rockefeller Foundation and administered through the Los Angeles Emergency Preparedness Foundation. Land and LSG Extension personnel Thomas Hymel and Anne Dugas will serve as co-principal investigators on the project.

First Packaged Louisiana Certified Seafood Product Unveiled

Vermilion Bay Sweet White Shrimp Gumbo Pack – a product spawned from Delcambre Direct Seafood – is the first retail product to carry the "Certified Authentic Louisiana Wild Seafood" seal on the packaging.

"The Port of Delcambre and Delcambre Direct Seafood is meeting an ever-increasing demand for fresh, quality, gumbo-sized shrimp with the Vermilion Bay Sweet Shrimp Gumbo Packs," said Thomas Hymel, project manager of Louisiana Direct Seafood and marine Extension agent for Louisiana Sea Grant and the LSU AgCenter. "This Louisiana Certified Seafood product is chemical-free, sustainable and traceable."

Louisiana Direct Seafood and Delcambre Direct Seafood are online marketing programs spearheaded by Louisiana Sea Grant (LSG). The voluntary Louisiana Seafood Certification Program – administered by the Louisiana Department of Wildlife and Fisheries (LDWF) – guarantees that all seafood bearing the "Certified Authentic Louisiana Wild Seafood" label is caught in the Gulf of Mexico or Gulf Coast state waters by Louisiana licensed fishermen and is landed, processed and packaged in Louisiana. LSG developed the training materials for the certification program.

Vermilion Bay Sweet White Shrimp

"All Louisiana Certified Seafood products are carefully traced from the boat, to the dock, and to the processor," said Randy Pausina, assistant secretary of LDWF. "This makes for the freshest flavor and consistent, quality products."

The Louisiana Seafood Certification Program strives to increase the confidence of consumers, retailers and restaurateurs, allow for the easy recognition of Louisiana seafood in the market, and ensure that Louisiana's seafood industry is able to compete and endure in the constantly changing global marketplace. For more information about the Louisiana Certified Seafood program, how to find a supplier, and how to become a provider, visit *www.Certified.LouisianaSeafood.com*.

Master Naturalists Deepen and Share Knowledge about Louisiana Geology, Flora and Fauna

Zack Lemann, manager of Animal and Visitor Programs for the Audubon Butterfly Garden and Insectarium, educates a Louisiana Master Naturalist class about spiders during a recent nocturnal excursion at Jean Lafitte National Historic Park and Preserve near New Orleans.

African conservationist Baba Dioum famously said, "In the end, we will only conserve what we love. We will only love what we understand. We will only understand what we are taught." It is in that spirit that the Louisiana Master Naturalist Program (LMNP) was founded last year – as a means of educating residents about the state's landscape, plants and animals.

As a recent addition to the other 34 states which have Master Naturalist programs and based largely on Texas' program, the Greater New Orleans chapter graduated its first class of 19 course participants in December 2012. Master Naturalists attend classes and field workshops that help them understand the connections among the state's environment, culture and economy. The program then requires them to volunteer their time and to share what they have learned with others.

It is a service organization with a mission to "advance awareness, understanding and stewardship of the natural environment of the Greater New Orleans area by developing a corps of well-informed citizen volunteers dedicated to conservation education and service within their communities." Five other communities throughout Louisiana have thus far shown interest in forming additional LMNP chapters.

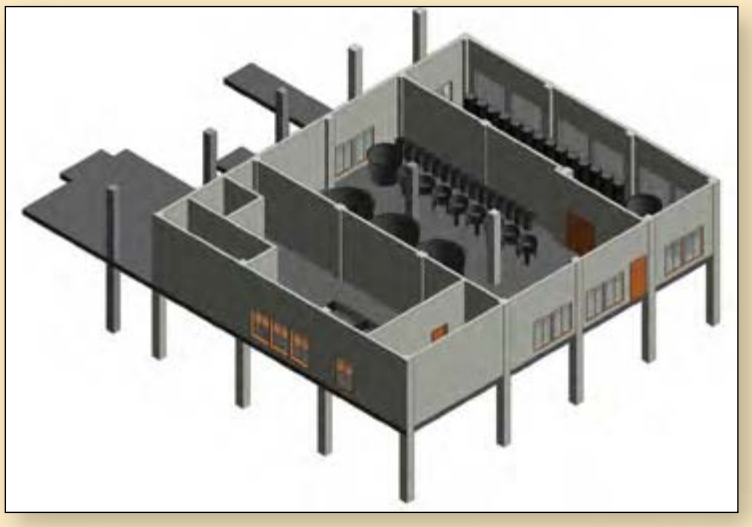
The LSU AgCenter is the sponsoring agency, and the program is guided by a steering committee of 13 members representing a variety of government agencies, universities and nature concerns. Rusty Gaudé, Marine Extension agent with Louisiana Sea Grant and the LSU Ag Center, is the program liaison. He was among the group of 19 who were first certified and now helps facilitate the program.

"Louisiana has a naturally primed citizen base for LMNP," Gaudé said. "Volunteerism is the program's currency. As the basis of many other disciplines, Master Naturalists become personally and collectively competent resource stewards. A commitment to our natural resources can only come through a life of sensitivity and understanding."

Requirements for initial certification include attending at least seven out of nine training workshops, consisting of mostly field work and some classroom training; 20 hours of volunteer service; eight hours of advanced training; and passing an exit exam on coursework. To maintain certification, Master Naturalists are annually required to attend a minimum of eight hours of training, complete volunteer hours and pay $25 in dues.

Gaudé can be reached at *agaude@agcenter.lsu.edu* or (504)736.6519

On the Web:
www.LouisianaMasterNaturalist.org



Overhead view of the hatchery.

Rendering of the hatchery's lab.

Construction Starts on New Oyster Hatchery on Grand Isle

Construction has started on a new 7,000 square-foot oyster hatchery on Grand Isle. Louisiana Sea Grant's oyster hatchery on the island was destroyed in 2005 by Hurricane Katrina. Restored, the hatchery was again destroyed in 2008 by Hurricane Gustav. The new facility – owned by the Louisiana Department of Wildlife and Fisheries (LDWF) and being built adjacent to the department's Grand Isle lab – is designed to better withstand hurricane forces. The new hatchery is scheduled to open in 2014. Virtual views of the facility can be found at *www.flickr.com/photos/88158121@N00/sets/72157633494569229/*. More information about hatchery operations can be found at *www.laseagrant.org/research/hatchery/index.html*.

Images by Sarah Gravois

Research Update

Krystal Cole and Crystal Johnson working in the lab.

Searching for Vibrios in the Water Column

Researchers in the Department of Environmental Sciences at LSU are hoping to find a way to better understand the effects alternative oyster culture may have on the presence of vibrios in the bivalve.

A vibrio is a type of bacterium often found in salt water that can cause health issues – even death – in people with certain preexisting medical conditions who consume undercooked or raw seafood. The study is investigating whether placing oysters in the water column during the oyster life cycle affects the presence of vibrios. Traditionally, oysters reside on the water bottom.

"The general hypothesis of our project is that there is going to be less of a concentration of vibrios found in oysters harvested in suspended cages, as opposed to those that are grown on the sediment," said Krystal Cole, a graduate assistant working on the project. "The U.S. harvests most of its oysters on the sediment, but in Australia and other countries they use an adjustable longline system (ALS) that suspends the cages in the water column."

Louisiana Sea Grant's oyster specialist John Supan began using ALS at the Sea Grant hatchery on Grand Isle several years ago as a way to promote alternative oyster culture in the state. Once a month researchers visit the hatchery to collect samples of oysters, water and sediment to use in their project.

The research hasn't yielded any significant differences in the total number of vibrios found in ALS-grown oysters compared with traditionally grown oysters, but the investigators still have three months of data collection and are hopeful that a new aspect of their research can provide more results.

That new aspect involves delving deeper into the pathogenic subpopulations of vibrios. To do this, Cole and Environmental Sciences Assistant Professor Crystal Johnson use methods to highlight specific genes associated with pathogenicity in *Vibrio parahaemolyticus* and *Vibrio vulnificus*. Once they have amplified the genes they are looking for, they can then assess the presence of potentially harmful vibrios in bottom and surface oysters. "We only recently have been able to look at the pathogenic subpopulations. It's been really hard to target those subpopulations en masse using current methods," Johnson said.

The research could have significant implications for the oyster growing community. "We're doing research that can help Louisiana oystermen, but this has global implications in terms of ensuring the continued safety of Louisiana's seafood. And not just for oysters, but for other filter feeders as well," Johnson said.

Louisiana Sea Grant funded the two-year research project.

Documentary Highlights Wildlife Refuges

The 23-minute documentary *Edens on the Edge* – a Louisiana Sea Grant (LSG) production – chronicles the importance of wildlife refuges located in the state's coastal zone.

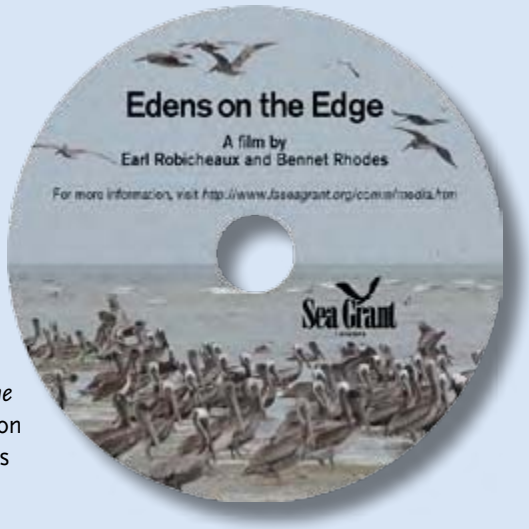
"As the great Russian filmmaker Andrei Tarkowski said – 'The landscape has a soul,'" said Earl Robicheaux, the film's production supervisor and creator of the video's soundscape. "Indeed, in many of his films the camera portrays a certain sadness and struggle, almost as if the landscape were speaking to you with no words and minimal sound. It is a strong testimony to the power of place.

"In that regard, *Edens on the Edge* functions as a true Louisiana conservationist and stewardship effort. It portrays the sheer phenomenal beauty of Louisiana's coastal refuges, wildlife and landscape, while also serving as a reminder that many of these habitats are threatened due to forces such as coastal erosion, land subsidence and sea level rise."

Robicheaux, who has worked with LSG previously on the *Grand Isle Diaries* soundscape – tapped the talents of videographer Bennet Rhodes for *Edens on the Edge*. "The objective was to shoot the sheer abundance of both plant and wildlife in south Louisiana – exposing the viewer to the mostly wetland aspects of these important refuges," said Rhodes. "The result highlights the uniqueness of Louisiana's coast to North America and reinforces the need to preserve our wetlands."

The video is available online for viewing at *www.laseagrant.org/media/Edens-on-the-Edge.avi*. A free copy on DVD can be ordered by contacting LSG publications coordinator Jessica Schexnayder at *jsche15@lsu.edu*. There is a $5 charge to cover postage and handling of the DVD.

"This documentary is intended to serve as an important instructive tool for the general public while also serving as a valuable educational resource for future generations," added Robicheaux.



Lampila Named IFT Fellow

Lucina Lampila

A green fern sits atop a bookshelf in the office of Lucina Lampila, associate professor in Food Science and seafood technology specialist for Louisiana Sea Grant and the LSU AgCenter. It is more than office decoration though. The plant was sent, along with a congratulatory balloon and card, to notify Lampila that she is among the newest class of fellows of the Institute of Food Technologies (IFT).

IFT is an international organization made up primarily of food scientists and technologists. In any given year, only about 0.3 percent of the organization's 20,000 members are eligible for consideration as a fellow. "It's sinking in a little bit more. Being selected makes you feel very special. It's kind of like a lifetime achievement award, so it's kind of exciting," Lampila said.

Lampila earned her bachelor of science degree in dietetics from the State University of New York Oneonta. She began her graduate work at the University of Nebraska where she studied human nutrition, followed by food science with a focus on microbiology, earning both a master's and a Ph.D. She then went on to the University of California at Davis for her postdoctoral work.

After a stint as the lab director at the Virginia Polytechnic Seafood Lab in Hampton, Va., Lampila spent 16 years working in the food industry. Focusing specifically on phosphorous-based ingredients, she was employed by companies from around the world. She came to LSU four and a half years ago. "It was the right mix of extension and research," she said.

Her current research includes investigating new ways to store and process seafood, cooking procedures, determining nutritional information for Asian carp, and evaluating the impact of viruses in oysters. She also works with seafood processors and vendors, helping them comply with state and federal regulations concerning food safety.

CSAP Students for 2013 Named

Four new students pursing master's degrees in the fall will be participating in the Coastal Science Assistantship Program (CSAP), a partnership between the Louisiana Coastal Protection and Restoration Authority (CPRA) and Louisiana Sea Grant that provides graduate students with up to three years' financial support.

CSAP participants receive $25,000 annually while working on applied coastal ecosystem restoration research important to CPRA. The program also creates a pool of researchers and scientists from which CPRA can recruit.

CSAP students for 2013:

Derek Goff will study geophysics in the Department of Geology and Geophysics at Louisiana State University. He will research near-surface seismic tools that allow for inexpensive monitoring of coastal flood protection systems — such as New Orleans levees. Using surface waves and other geotechnical data, he will evaluate the saturation levels and sediment types underneath and along the flanks of the levees. This will allow for the identification of anomalous zones. Goff hopes to pursue a career as an exploration geophysicist upon graduation.

Lindsey Green will study wetland biogeochemistry in the Department of Oceanography and Coastal Sciences at Louisiana State University. She will examine the effects of altering salinity downstream of the Davis Pond river diversion. Her research will help in understanding the impacts of river diversions and saltwater intrusion on regional and global biogeochemical cycles (carbon and nitrogen retention and export/greenhouse gas emissions). After earning her master's degree, she plans to work in coastal restoration and management and also pursue a doctorate degree.

Selina Jahan Sumi is studying hydrology and water resources engineering at the University of Louisiana at Lafayette, Department of Civil Engineering. Her work will help CPRA direct scientific research by answering questions about planning, designing, constructing and evaluating coastal protection and restoration projects. Her research will focus on different types of uncertainties, including comparison and interaction between parametric and exogenous uncertainties, and their effect on predicting restoration project outcomes on the ecosystem. Sumi plans a research-oriented career in hydrology.

The fourth CSAP student had not been announced by press time. For more information on the program and how to apply, visit *www.laseagrant.org/opps/assistantship.htm*.

Bethel Takes on Research Director Duties

Matthew Bethel has been named the new research director for the Louisiana Sea Grant College Program. He begins his duties on June 18.

"I'm excited about Matt joining our team," said Robert Twilley, Louisiana Sea Grant executive director. "He brings a great combination of energy, innovation and experience.

"One of his recent endeavors was successfully incorporating geospatial technology into the Pontchartrain Institute's public outreach and education program," said Twilley. "That type of integration of natural and social sciences with outreach is a key element of Sea Grant. I see Matt helping further develop that component so it becomes a true hallmark of our program."

Bethel earned his doctorate from the University of New Orleans in engineering and applied sciences, with a concentration in environmental sciences. He completed his Master of Science degree in geoscience at Murray State University in Murray, Ken. His Bachelor of Science degree is in geography from the University of Tennessee in Martin.

Bethel comes to Louisiana Sea Grant from the Pontchartrain Institute for Environmental Sciences, UNO, where he worked as a research project manager and postdoctoral scientist since 2006. He also has worked as an image analyst and research project manager at the Institute for Technology Development at the Stennis Space Center in Mississippi.

"I am thrilled about joining the Louisiana Sea Grant team, and am looking forward to working with its staff and stakeholders in contributing to the continued research and outreach success of the organization," said Bethel.

Matthew Bethel

LOUISIANA STATE UNIVERSITY

Louisiana Sea Grant College Program
Sea Grant Building • Baton Rouge, LA 70803-7507

C O A S T A L C L I P S

No. 29 Summer 2013

Sea Grant Louisiana

Louisiana Sea Grant College Program
Louisiana State University
Sea Grant Building
Baton Rouge, LA 70803-7507

Robert Twilley,
Executive Director

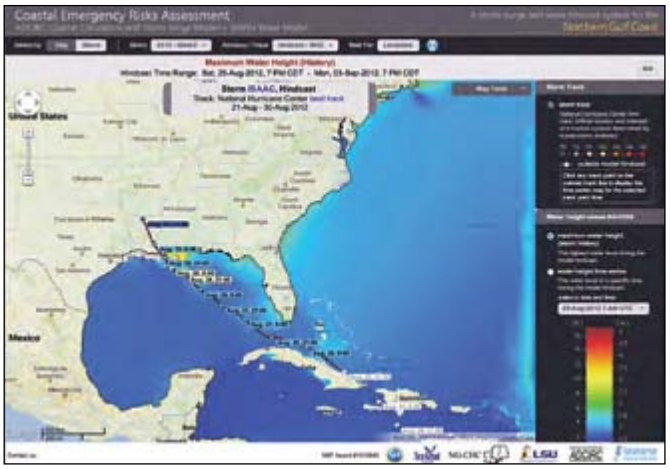
Editors: Roy Kron, Paula Ouder, Drew Walker
Art: Robert Ray Circulation: Jessica Schexnayder

The Louisiana Sea Grant College Program is part of the National Sea Grant College Program maintained by the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce. Sea Grant, a unique partnership with public and private sectors, combining research, education and technology transfer for public service, is the national network of universities meeting changing environmental and economic needs of people in our coastal, ocean and Great Lakes regions.

Please send change of address, subscription requests, and correspondence to *Coastal Clips*, Louisiana Sea Grant Communications Office, Louisiana State University, Baton Rouge, LA 70803. (225) 578-6564. *Coastal Clips* is published four times a year. Subscriptions are free upon request. Visit us online at *www.laseagrant.org*.

CERA . . .

Continued from page one



The CERA website, http://cera.cct.lsu.edu/cgi-cera-ng/cera-ng.cgi

calculations to determine how water levels will change during a storm. The more nodes used means more detail in forecasting water levels across the state's complex coast. Louisiana's deltaic coast includes an extensive levee system, navigation canals, ridges, highways and natural landscapes of wetlands and barrier islands. As such, it is important to utilize the greatest possible number of nodes to capture the intricate nature of how people live in this setting.

ASGS is a multi-university effort. Partners include Louisiana Sea Grant, LSU, the Louisiana Optical Network Initiative (LONI), the UNC Institute of Marine Sciences, the UNC Renaissance Computing Institute, Seahorse Coastal Consulting, and the ADCIRC Coastal Circulation and Storm Surge Model Group. Additionally, significant funding for the project came from National Science Foundation EPSCoR Northern Gulf Coastal Hazards Collaboratory, U.S. Department of Homeland Security Coastal Hazards Center of Excellence and NOAA's Integrated Ocean Observing System (IOOS) program.