

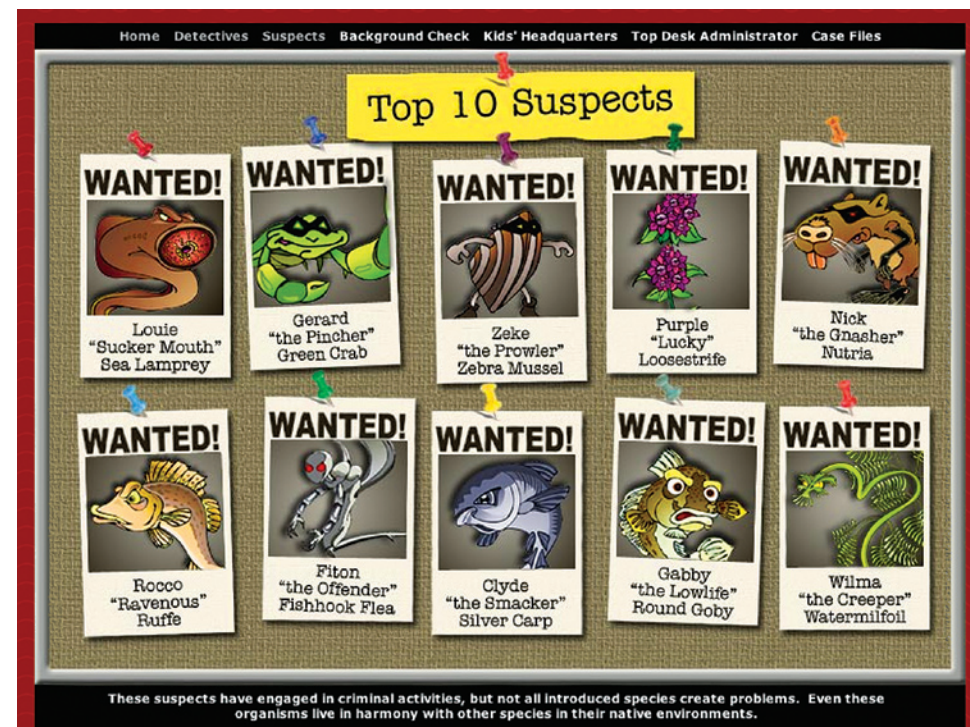
On the Trail of Unwelcome Aquatics

The United States is under a constant, quiet invasion by land, sea and air that costs an estimated \$120 billion in damage, prevention and treatment every year. But this invading army is no nation's military – it is a legion of exotic plants and animals that can wreak havoc on the landscape and out-compete native flora and fauna for food and habitat. Some exact a toll on industrial and recreational property.

While not all exotics are bad – some are even beneficial – invasive species are the outsiders that have been identified as damaging. Some are imported deliberately by the pet, aquarium and nursery industries, while others take advantage of the global economy, hitchhiking in and on vehicles bearing international goods. Water-borne or aquatic invaders are of particular concern in coastal states like Louisiana because of their impact on industry, navigation and fisheries.

Since neither waterbodies nor aquatic invasive species recognize political boundaries, localized efforts to combat them may meet with limited success. Louisiana Sea Grant is collaborating with four other Sea Grant programs to address the problem on a regional and nationwide basis.

"Many invasive species are difficult or nearly impossible to eradicate, so teaching people to prevent their spread is a key to preserving the environment," said Dianne Lindstedt, Louisiana Sea Grant education coordinator. With that goal in mind, Lindstedt is working with the Indiana-Illinois,

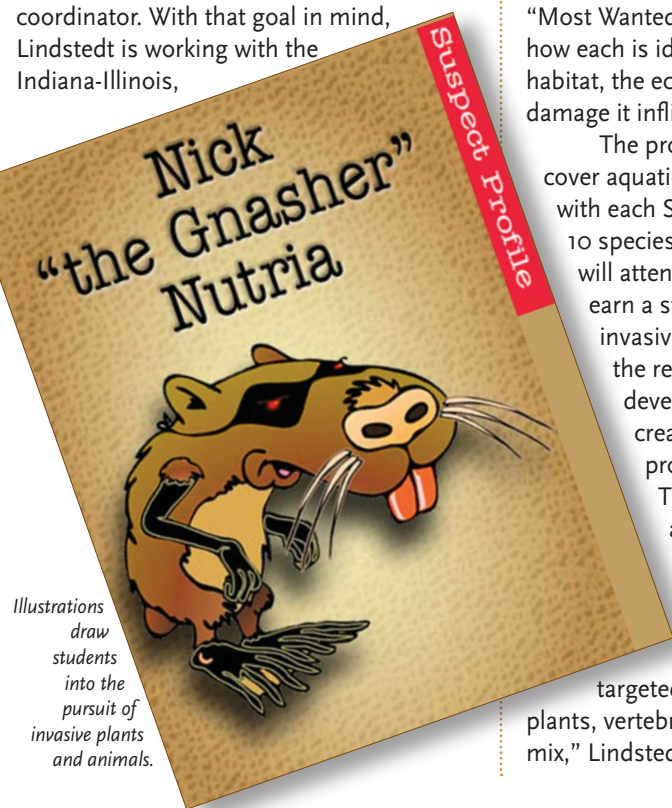


New York, Connecticut and Oregon Sea Grant programs to expand a project created by Indiana-Illinois Sea Grant.

Nab the Aquatic Invader! is an interactive, Web-based, educational activity in which middle school students work like detectives to solve environmental "crimes" perpetrated by aquatic invasive species in the Great Lakes area. At www.sgnis.org/kids, students access the rap sheets, case files and photographs of 10 of that region's "Most Wanted" invaders. Students learn how each is identified, how it reaches new habitat, the economic and environmental damage it inflicts and ways to control it.

The program is being expanded to cover aquatic invaders across the country, with each Sea Grant Program identifying 10 species in its own region. Teachers will attend a full-day workshop and earn a stipend to research a given invasive plant or animal, write text for the region's version of the program, develop Web-based lessons, and create a stewardship/service project with their students.

There will be some overlap among regions, since many invasive species are not confined to one area. "For our region, I wanted a balance of the targeted invaders, so I included plants, vertebrates and invertebrates in the mix," Lindstedt said.



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

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COASTAL CLIPS

No. 3
June
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Coastal Clips is a quarterly publication of the Louisiana Sea Grant College Program.

The Home of Great Advice

Louisiana Sea Grant is now an ally of the Louisiana House Home and Landscape Resource Center (LaHouse), a model home conceived and being built by the Louisiana State University AgCenter at LSU's Baton Rouge campus. Funded entirely by private donations, the project showcases some of the safest, most sustainable building and landscape practices currently available. LaHouse brings to life recommendations made in the guidebook *Building Your Louisiana House: Homeowners' Guide to Shaping the Future for Louisiana Living*. The program's goal is to educate home owners, home buyers and the building industry on ways to create residences that minimize impact on the environment and are less likely to be impacted by the environment.

LSU AgCenter housing specialist Dr. Claudette Reichel oversees LaHouse and has been a driving force behind the project long before its July 2003 groundbreaking.

"This is not a home of the future," Reichel said. "It is a home to save our future. Our message to the public is that we have a choice in the types of housing we create. Our homes can be affordable, comfortable and Earth-friendly. They don't have to contribute a great deal to pollution and environmental depletion."

In addition to a focus on comfort, energy/water efficiency and convenience,



Claudette Reichel stands with LaHouse in this photograph from mid-2005 showing the early phases of construction.

LaHouse is designed to resist the variety of natural assaults posed by our state's sub-tropical climate, including termites, wind, floods, mold and decay. The construction incorporates better building materials and techniques to fit a variety of budgets – from the affordable to top-of-the-line technology.

The 3,000-square-foot building will look and feel like a regular house, but the second story will be home to the LaHouse offices, and the 2,000-square-foot

"garage" has been converted to a classroom to further the model home's educational outreach mission. The exterior of LaHouse was styled to blend with existing campus architecture, and the yard will be landscaped with eco-friendly plants and trees that require less water and fertilizer. The first-story interiors will be finished and furnished like a regular residence, but will feature cut-outs revealing significant construction techniques inside the walls.

(Continued next page)

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Charles A. Wilson,
Executive Director

Editors: Roy Kron, Paula Ouder. Art: Robert Ray
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Presidents' Forum on Meeting Coastal Challenges



The Second Presidents' Forum on Meeting Coastal Challenges: Planning for Safer Growth in Coastal Louisiana drew more than 150 scientists, researchers, state and local policy makers, as well as concerned community leaders. Organized by the Louisiana Sea Grant Legal Program and held March 23 on the LSU campus, Forum presenters from across the nation discussed the redevelopment issues Louisiana faces in the wakes of Hurricanes Katrina and Rita. Pictured, Lake Charles Mayor Randy Roach (left), Lafourche Parish President Charlotte Randolph and LSU AgCenter Vice-Chancellor Paul Coreil address the topic "Where Do We Go From Here?" An additional 70 people participated in the Forum via a live Webcast, which is archived online at <http://www.laseagrant.org/forum/03-23-2006.htm>. •

Disaster Coordinator Joins Sea Grant Staff

Patricia Skinner, disaster programs coordinator for the LSU AgCenter, has joined the Louisiana Sea Grant family.

At Sea Grant, Skinner will continue working as a leader in the Extension Disaster Education Network (EDEN), chairing the Floodproofing and Retrofitting Committee of the Association of



Patricia Skinner

State Floodplain Managers (ASFPM) and helping communities and citizens understand flood damage prevention and the regulatory and insurance aspects of the National Flood Insurance Program. Her educational outreach activities will include promoting the Louisiana House and expanding that program into coastal communities.

"We think that Pat's expertise in helping reduce the vulnerability of the built environment to natural hazards can be invaluable as we prepare for the rebuilding of many of our coastal communities,"

said Mike Liffmann, LSG associate executive director.

Skinner is a member of the Louisiana Floodplain Management Association. She is on the State Hazard Mitigation Planning Team and the state Animal Planning Work Group. In 2004, she was awarded the John R. Sheaffer Award for Excellence in Floodproofing. This award was presented in 1999 to the prestigious "113 Calhoun Street Foundation" for its sustainable living center in South Carolina. •

The Home of Great Advice . . .
Continued from page one

The lessons of LaHouse are not only geared toward new construction. The structure and guidebook also detail how existing homes can be retrofitted to meet the five sustainability goals of being resource-efficient, durable, healthy, convenient and practical.

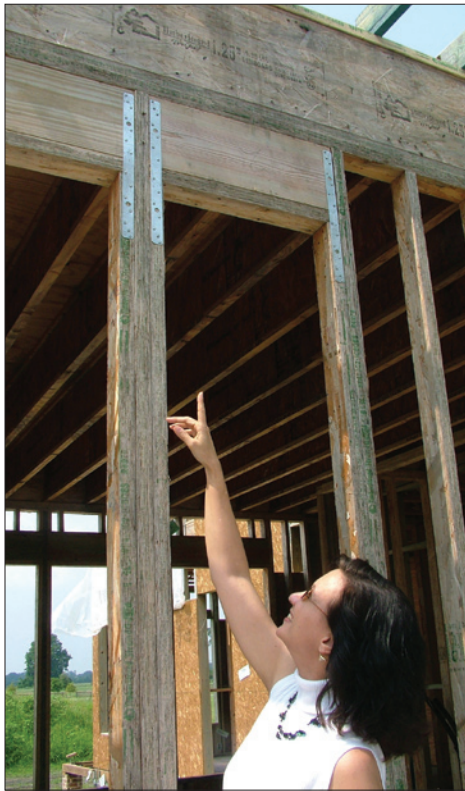
As a project ally, LSG will promote LaHouse, contribute staff time, and integrate the home and guidebook into certain Sea Grant projects and programs. Links to information on Louisiana House, as well as checklists and information on sustainable construction, can be found online at www.LouisianaHouse.org. LaHouse is open to the public, with free tours on Fridays from 9 a.m. until 4 p.m. while the home is under construction.

Rebuilding concerns following Hurricanes Katrina and Rita bring numerous visitors to LaHouse and reinforce the need to inform consumers and builders. As Reichel points out, "Our homes and

our lives don't have to be devastated by hurricanes, floods, termites and just normal moisture and decay issues, or energy cost spikes. They can be built to withstand all of this to avoid the public and personal expense Louisiana residents have experienced. We can reduce the time, the tragedy, the hassle and the lost productivity caused by damaged property." •



The addition of metal braces and brackets at strategic locations on the LaHouse frame gives the structure extra strength to withstand high winds, as Claudette Reichel (right) points out.



Sanitizing Naturally with Ozonated Water

Ozone is often touted as the world's most powerful sanitizer. It's natural and can readily destroy bacteria and viruses. Although several Louisiana seafood processors have attempted to use ozonated water to improve product quality and shelf life, they've met with limited success and have opted to rely on more traditional and reliable chemical sanitizing of processing surfaces.

One of those chemicals, chlorine, is a common cleaning agent in the food processing industry. Amrish Chawla hopes his Louisiana Sea Grant-sponsored research on ozonated water will help change that.

"Ozonated water is an excellent sanitizer, and we've found it can extend the shelf-life of shrimp," said Chawla, a graduate research assistant for Jon Bell, associate professor of seafood technology with Louisiana Sea Grant and the LSU AgCenter. "But many food processors have poor results with it, so they decide not to use it."

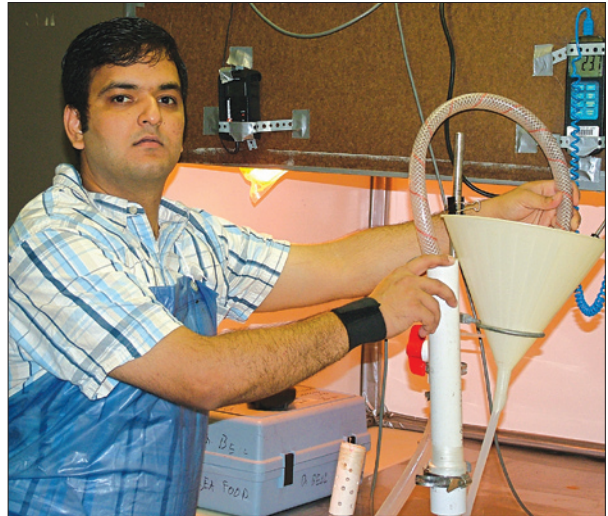
Chawla learned that processors' previous frustrations stemmed from a failure to maintain enough ozone in treatment water. His research revealed a number of water quality variables that affect ozone levels.

Alkalinity, dissolved solids and water temperature all influence whether or not ozone levels in the water remain high enough to effectively sanitize seafood. "Many processors don't know that these are significant issues, and we want to educate them," said Chawla.

"I'm working on three papers as well as presentations about my findings. One paper already has been accepted by *Ozone Science & Technology*."

Chawla, who will complete his master of science degree in food science at LSU in July, also discovered that controlling those variables may require passing water through a water chiller and then an ozone generator several times to maintain ozonation, as well as adjustments to the generator. He also found that soaking shrimp in ozonated water, rather than spraying the seafood, worked better at destroying bacteria.

"Amrish has done outstanding work," said Bell. "He's addressed a number of roadblocks, including some engineering issues, which will be useful to the seafood industry. I'm sorry to see him go before field tests can be conducted." •



Amrish Chawla

Hurricane Katrina damaged two southeastern Louisiana seafood processing firms Chawla and Bell hoped to use for commercial testing of the ozonation process. Neither was operational by the time of Chawla's last semester at LSU.

Chawla earned his bachelor of technology degree in dairy science from Dairy Science College, Ananda, Gujarat, India. His plans are to pursue a doctorate in food science engineering from either Penn State or North Carolina State University and then return to India. •

Menhaden Oil Refinement

A relatively simple process that results in highly refined menhaden oil could mean expanded commercial markets for Louisiana's fish oil processors.

Menhaden, or pogey, oil is used extensively in the feed and cosmetic industries. But potential contamination of the fish oil with dioxins – carcinogenic chemicals – created problems for local processors. Because trace dioxin levels in the oils were higher than allowed in Europe, processors such as Daybrook Fisheries in Empire faced the threat of losing European Union business as well as Japanese customers.

Through a Louisiana Sea Grant-funded project, Dr. Ralph Portier, a professor in the Department of Environmental Studies at Louisiana State University, developed an inexpensive process to "polish" the contaminants out of the oil. Daybrook further honed the process and has employed it in its operations.

"The traditional menhaden processing technique is cooking the fish with steam heat and then pressing them to remove the oil,"



A vial of refined menhaden oil reflects a golden glow.

Portier said. "That process allows for some trace dioxin compounds to transfer to the oil."

Portier's first attempt at removing the dioxins involved filtering the oil through activated carbon. Although there was some success in removing pollutants, increasing the concentration of carbon in the filtering process didn't significantly reduce dioxin levels.

Laboratory tests using ultraviolet irradiation on the oil indicated that method might work. However, a commercial reactor capable of treating a large batch of oil in a single pass would have to be developed, leaving the procedure economically impractical.

The process Portier tested next – high speed centrifugation – proved the most successful. "Our test samples showed a 90 percent reduction in targeted organics," Portier said. "The product was absolutely beautiful and met European standards."

With his findings in-hand and additional funding from Daybrook, Portier was able to develop a proprietary, commercial-grade centrifugation system for the fish processor. "They're more than happy," Portier added. "They're producing a superior product that has a huge demand, and they're removing the dioxins at a fraction of the cost of other purification systems." •

FEMA & Sea Grant Work Together

and pass information on from the fishermen and then bring information from the meetings back to the fishermen."

The couple earned the trust of parish locals and braved long hours, language barriers with the Vietnamese community, and miles of red tape to make a difference and make sense of a bad situation.



FEMA community relations workers Nancy and Wayne Weikel discuss the Plaquemines Parish fishing community with Marine Extension agent Rusty Gaudé at a boatyard in Empire.

The towns of Empire, Buras and Venice in Plaquemines Parish suffered the wholesale destruction of businesses, homes and fishing vessels from Hurricanes Katrina and Rita. While the loss of life fortunately was limited, the loss of lifestyle in this fishing and oil industry-dependent community is nearly immeasurable. Louisiana Sea Grant/LSU AgCenter Extension agent Rusty Gaudé has made the recovery of the fishing industry his top priority. He said he is grateful for the help he received in that task in the form of two special people temporarily stationed in Plaquemines Parish.

Wayne and Nancy Weikel are community relations workers with the Federal Emergency Management Agency. The husband-and-wife team from Idaho worked in Louisiana for eight months doing whatever they could for residents, focusing on commercial fishermen and the docks and icehouses they depend upon.

"Providing information is a big thing we do," said Wayne. "We attend meetings

Internship Project

Louisiana Sea Grant Communications established an internship program at Louisiana State University during the spring 2006 semester, and Amanda Fandal, an undergraduate mass communications major with a minor in wildlife ecology, is the department's first intern.

The goal of this internship project is to provide work experience to an upper-level undergraduate or a graduate school 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 LSG an opportunity to establish its identity in other university departments, and after the intern's graduation, in the community itself, while opening a door for a student to learn about a little-known employment niche. •

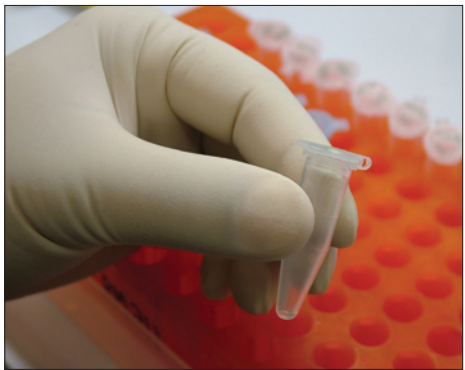


Amanda Fandal

LSG Researcher Honored with JSPS Fellowship

Louisiana Sea Grant researcher Naoki Itoh has received a Japanese Society for Promotion of Science Fellowship (JSPS) to continue his work on oyster immunology.

Itoh, a post-doctoral researcher at Louisiana State University, has been working with long-time LSG scientist and LSU AgCenter assistant professor Jerome LaPeyre on Gulf Oyster Industry Program (GOIP) projects focused on the Eastern Oyster (*Crassostrea virginica*) since



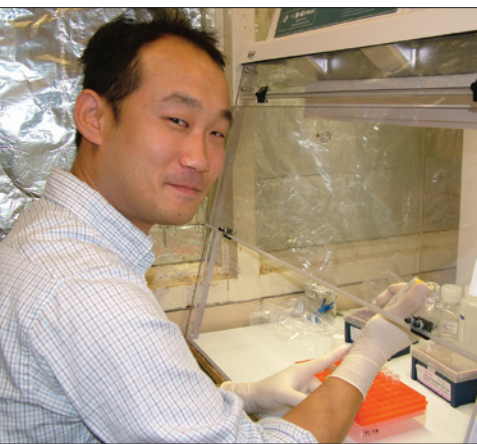
Itoh analyzes samples of oyster DNA.

September 2004. The fellowship will allow him to continue to work with LaPeyre through October.

Itoh is making important contributions to LSU's overall research program in aquatic animal health. He has determined the complete mRNA (Messenger Ribonucleic acid) sequence encoding of several proteins found in Eastern Oysters, which are believed to be critical in the animal's defense against *Perkinsus marinus* (Dermo) and other pathogens. Dermo is a prevalent pathogen causing massive mortality in oyster populations.

"Naoki's contributions are important not just to the LSU program, but to the overall research into aquatic animal health that is of increasing global importance as we rely more on aquaculture," said LaPeyre.

Come this winter, Itoh will return to his native Japan to conduct research on other species of oysters at Tohoku University. •



Naoki Itoh conducts genetic research on oysters in his lab at LSU.

JSPS, founded in 1932 is an independent administrative institution, established by law, for the purpose of contributing to the advancement of natural science, social science and the humanities. The quasi-governmental organization has worked to develop and implement a far-reaching array of domestic and international scientific programs. •

Caffey Recognized for Educational Role, Stewardship

Louisiana Sea Grant and LSU AgCenter wetlands and coastal resources professor and economist Rex Caffey is the recipient of the Louisiana Wildlife Federation 2006 Conservation Educator of the Year Award and has been honored by the Coalition to Restore Coastal Louisiana as a 2006 Outstanding Steward.

Caffey is one of the country's foremost academic experts on the links between wetland habitats, sustainable natural productivity and human needs. He has shared Louisiana's plight with vast audiences by writing numerous articles for scientific journals and the popular press and by coordinating education efforts.

A few of the contributions he made in 2005 toward educating and informing the public and his academic peers about the opportunities and realities of coastal land loss and restoration include the articles *Fisheries Implications of Freshwater Reintroduction*; *Mississippi River Quality: Considerations for Coastal Restoration*; *Closing the Mississippi River Gulf Outlet: Economic and Environmental*

Implications; *Coastal Louisiana and South Florida: A Comparative Wetland Inventory*; and *Stewardship Incentives for Louisiana's Coastal Landowners*. This work was part of the first round of the Interpretive Topics Series funded by the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). Caffey is currently working on a second round of publications to be completed in 2007 to address the economics of coastal restoration and preservation, compensation mechanisms for retreat and relocation, and integrating coastal restoration and hurricane protection.

Caffey was the lead organizer of the 2005 LSU Presidents' Forum on Meeting Coastal Challenges, which was designed to improve and expand partnerships between university scientists and parish government officials, and he assisted in organizing the 2006 Presidents' Forum, which addressed coastal hazards, land use planning and public health and safety. Caffey helped develop LSG's Hurricane Recovery Resources Web site as a tool to provide factual information about wetlands, water quality, fisheries, seafood



Rex Caffey

safety and other subjects to minimize the spread of misinformation during the post-hurricane media frenzy. He was also the lead author of an initial list of recommendations to the Governor's Coastal Advisory Commission for guiding the short-term hurricane recovery process. Caffey serves as director of the Center for Natural Resource Economics and Policy, Department of Agricultural Economics, LSU AgCenter. •