

## Daigle Elected to Sustainable Community Development Group

Melissa Daigle, legal coordinator for the Louisiana Sea Grant Law and Policy Program, was elected the new Gulf of Mexico regional

executive committee consists of six regional representatives: a chair, vice-chair and secretary-treasurer, a liaison from the Sea Grant

Assembly, and a representative from the NSGO.

For two years Daigle will serve as a liaison between the NSGO and communities located across the Gulf region. She explained that the network was designed to act as an information resource for Extension and research professionals. Taking part in quarterly conference calls and attending annual network meetings, Daigle will serve as a link between work conducted by Sea Grant programs stretching from

Texas to Florida and related work done at the national level.



Melissa Daigle

## Delcambre Direct Lands Additional Profits for Shrimpers

A dozen Acadiana fishermen increased their profits last year by participating in a new web-based marketing program – Delcambre Direct Seafood.

Locals say it is the first Gulf of Mexico project of its size pioneered in south central Louisiana. Thomas Hymel, Louisiana Sea Grant and LSU AgCenter marine advisory agent, touts the project as possibly “one of the best new economic projects out there to assist commercial fishermen.”

The Twin Parish Port Commission, LSU AgCenter and Louisiana Sea Grant developed the seafood marketing project in an effort to help revitalize the fishing industry in the Vermilion Bay region. A custom website was created that puts consumers directly in touch with local producers of wild-caught seafood. Commercial fishers are profiled with contact information and photos. Harvesters also are able to post the latest catch messages to the website to attract customers. And weekly seafood newsletters are sent to more than 600 program subscribers to prompt interest and sales.

The project has caught the interest of seafood consumers across the Acadiana region, while also attracting buyers from Baton Rouge, New Orleans, Alexandria and other communities across the state.

Delcambre Direct Seafood was launched in May 2010. Hymel along with an advisory committee from the town designed the program as a means to help revitalize the economy of Delcambre, which has been in decline for the past two decades. Competition from imported seafood and ever-increasing costs of harvesting seafood have forced shrimpers, crabbers and other fishers to leave the industry. Delcambre hopes to recover its status as the shrimp hub of southwest Louisiana through direct marketing opportunities for the local fleet.

Hymel presented details on Delcambre Direct at a recent meeting of the Gulf States Marine Fisheries Commission. The commission was interested in learning more about the program with the possibility of developing similar efforts across the Gulf states.

“This program has been extremely successful, and the commission is interested in having Sea Grant take it Gulf-wide through our Extension network and as part of the larger Market Maker program,” said Chuck Wilson, executive director of the Louisiana Sea Grant College Program. Hymel and LSG and AgCenter resource economist Rex Caffey have developed a plan for a regional training effort.

Delcambre Direct started with excellent participation. More than 20 local shrimpers signed up. About half of those boats left to work as cleanup contractors for BP. The Deepwater Horizon oil spill occurred just prior to the May inshore shrimp season opening. Some harvesting days were missed due to fisheries closures during the month of May, but the fall season allowed for excellent shrimping effort.

“Those dozen or so boats working were catching an average of 5,000 pounds a week. Direct sales to the public resulted in a premium price for the shrimp, more than twice the wholesale price. More than \$6,000 per week extra went directly to the fishermen. A season of good fishing made a big difference to the bottom line for those fishers,” said Hymel. “The fishermen got a better price and the public got top quality shrimp at half the cost as at a supermarket.”

The success of this community-marketing program is due to primarily word of mouth and media coverage, he added. Hymel also indicated that the program can soar with a serious marketing effort. Delcambre Direct will include Facebook and Twitter capabilities to the website later this year.

If that doesn’t work, the LED sign on Highway 14 should do the trick.

“We can advertise to the public immediately after the shrimpers get back to the docks, pulling people in right off the roads,” Hymel said.

“The shrimpers are now pre-selling more than half their orders before they leave the dock. Fishermen have the opportunity to be economically viable again!” he added.

Hymel noted that a new mindset is beginning to develop among fishermen. They are now looking more closely at product quality and mining the opportunity to bring more variety to the market. For instance, high-quality frozen seafood products in custom packaging can be sold during the off-season.

Shrimp season opens in May, and there will be a Delcambre Direct fisher meeting sometime in early March. An annual fee of \$250 allows the shrimper to dock in Delcambre and to be represented on the website. Fishermen with access to ports other than Delcambre can still obtain a listing on the website for a \$100 annual fee. Hymel expects the number of users to double in the upcoming season. The Delcambre Direct Project will also begin appealing to a variety of new markets including crabbers, catfish fishermen and even seafood processors.

For more information, visit [www.portofdelcambre.com](http://www.portofdelcambre.com).



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## COASTAL CLIPS



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## COASTAL CLIPS

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## Invasive Fish Becomes Nutritious Dish for Haitians in Need

Asian carp have gained notoriety for overtaking the Illinois River, which connects the Mississippi River to Lake Michigan. Natural resource managers in the northern United States are working feverishly and at great expense to keep them out of the Great Lakes. Closer to home, the invasive fish have made inroads into the lower Mississippi, Red and Ouachita rivers and the Atchafalaya Basin. These filter feeders are now a common incidental catch in the hoop nets of Louisiana’s commercial freshwater fishermen. Two species – the silver and bighead carp – also happen to be delicious, but there are numerous challenges in establishing a market for their flaky, white flesh.

Asian carp were deliberately introduced to this country in the 1970s to help manage vegetation in aquaculture ponds and wastewater lagoons, but they escaped and quickly established themselves in the wild. Silver carp commonly reach 20 pounds or more; bighead carp often exceed 40 pounds. They grow rapidly and can out-compete native fish for food and habitat. Additionally, silver carp pose a threat to humans when they are disturbed by boat motors and leap from the water. Videos of startled carp flying through the air and striking unwary boaters are popular Internet fodder.

Now, it appears the problem fish have the potential to become a solution for earthquake weary Haitians. In an innovative pilot project, researchers at Louisiana Sea Grant and the LSU AgCenter successfully produced canned Asian



Asian carp being processed for canning.

carp pleasing to the Haitian palate. Ultimately, the product could deliver high-quality protein to people in need, be a boon to fishermen, provide a new opportunity for canneries and reduce the population of an unwanted invasive species.

The project began when Fisheries Specialist Julie Anderson with Louisiana Sea Grant and the LSU AgCenter met Bill Horan, Operation Blessing International’s president and chief operating officer. Operation Blessing is a non-denominational Christian humanitarian organization providing disaster aid in the United States and 23 other countries. It focuses on hunger relief, clean water and medical care. The group did extensive work in Louisiana following Hurricane Katrina, and Horan and Anderson were introduced at an event celebrating Operation Blessings’ efforts to help New Orleans area soft-shell crab producers rebuild their shedding facilities.

“There are so many people in Haiti who are protein starved and would love to have fish,” Horan said. “The favorite fish meal is a canned sardine in tomato sauce. We have a children’s home with 47 disabled orphans. We thought that would be a good place with the kids and the staff to try the carp.”

The fish was a hit, and Operation Blessing would like to move forward by purchasing enough canned carp to fill a 40-foot shipping container. It’s a tall order that Louisiana Sea Grant and the LSU AgCenter are now working to meet.

“It was great to connect with Bill and Operation Blessing. This is an exciting opportunity to use an underutilized and sometimes misunderstood fish to feed people in need,” Anderson said. “We quickly marshaled resources at LSU to create this pilot project. We are now looking for ways to expand production.”

The Highway 1 Fish Market in Simmesport, La., donated about 100 pounds of fish for the initial trial. Anderson contacted her colleague



The canned carp taste test at Operation Blessing's St. Damien Pediatric Hospital in Port-Au-Prince was a success.

Lucina Lampila, an associate professor and seafood specialist with Louisiana Sea Grant and LSU’s Department of Food Science, to coordinate canning. Outgoing Marine Extension Leader Glenn Thomas cleaned the carp, and Lampila engaged fellow professor Paul Wilson in Food Science to employ his food processing facility at LSU. Food Science graduate student Matt Cael devised a tomato sauce recipe to replicate the one used in the Haitian sardine dish.

So, what is it like to crack open a can of carp?

“It smells like a very good quality light-meat tuna,” Lampila said. “It has a distinctive aroma of canned fish and an acceptable texture, flavor and mouth-feel. It’s also shelf-stable, which is important.”

While bighead and silver carp meat is firm, mild and nutritious, the fish have an unusual bone structure that makes filleting difficult and labor-intensive. So, the team processed the fish with the bones in, employing carp canning protocols established by the U.S. Department of Agriculture at the University of Arkansas at Pine Bluff. The fish bones soften and are eaten with the flesh, much like canned salmon consumed in the United States.

The test run produced about 75 cans of fish. Anderson sent bighead and silver carp packed with and without sauce, and Operation Blessing workers delivered them to St. Damien Pediatric Hospital in Port-Au-Prince. The four fish preparations were sampled by about 20 people. David Darg, Operation Blessing’s director of Disaster Relief reported, “We had the cooks from the hospital in on the test, and

Continued on back page

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**Nutritious Canned Fish . . .**  
they were very impressed. The conclusion is that they could serve this to people at breakfast, lunch and dinner with no complaints.”

Taste testers said both species with and without tomato sauce were good, but bighead packed with tomato was their favorite. Researchers are now seeking funding, seafood suppliers capable of providing a large quantity of carp and a commercial cannery that can produce the estimated 42,000 small cans or 5,500 gallon cans required to fill the shipping container.

“At this point, the 40-foot container is our next ‘sample,’” Anderson explained. “Operation Blessing will collect some data for us and themselves about shelf life, how widely it’s received, basic nutrition and ways it’s served. As long as it all goes well, then they will plan

to continue the project into the future and possibly into the domestic food bank area.”

Horan, who is an avid recreational fisherman, is enthusiastic.

“The idea of using this scourge of American waters is wonderful,” he said. “If we could show these fish are good to eat, we could create jobs and feed people. It’s a double-whammy. We want to get behind it, and Operation Blessing is very well positioned to responsibly distribute this product.”

In 2009, Louisiana Sea Grant and the LSU AgCenter produced a how-to video for recreational anglers demonstrating ways to clean and cook bighead and silver carp. It is available online on YouTube.

### On the Web and to Donate:

Haiti Projects by Operation Blessing  
<http://www.ob.org/haitiprojects/index.asp>

## Your Opinion Matters

Louisiana Sea Grant is conducting a Coastal Clips readership survey. Please visit <https://www.surveymonkey.com/s/coastalclips> to complete the questionnaire. Responses

will be used to determine future content of the publication. Your information will not be shared with anyone.



## Sea Grant Oyster Hatchery Reopens on Grand Isle

Third time's the charm, at least that's the hope for Louisiana Sea Grant's oyster hatchery on Grand Isle.

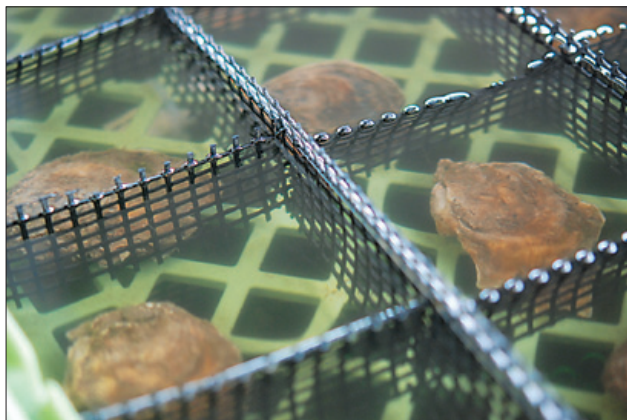
In 2005, the hatchery was destroyed by Hurricane Katrina. It took two years of effort to rebuild and reopen, only to have it destroyed again by Hurricane Gustav in 2008. "The past five years have been quite challenging for many dealing with these storms, and our hatchery operations are no different," said John Supan, Louisiana Sea Grant's molluscan shellfish specialist and hatchery director.

This spring, there will be another ribbon cutting for the hatchery, which is now



Louisiana Sea Grant's molluscan shellfish specialist John Supan stands before the new Louisiana Department of Wildlife and Fisheries Grand Isle Marine Fisheries Laboratory where he conducts his own research.

co-located with the Louisiana Department of Wildlife and Fisheries' Grand Isle Marine Fisheries Laboratory. Although the hatchery is operational again, it still lacks some amenities the previous facilities had – primarily housing for Supan and his graduate students. But plans to build an operations center with residential quarters next to Sea Grant's oyster research and demonstration farm – adjacent to the marine lab – are progressing.



Oysters are separated into grids for testing.

Since 1990, the hatchery has focused on improving Louisiana's oyster production through research and technology transfer. Current efforts are focused on an oyster breeding program for the Gulf of Mexico region.

One outcome of the breeding program is the production of triploid oysters, which have three sets of chromosomes, unlike normal (diploid) oysters, which have two. Triploids also are sexually sterile. So from June through November when diploid oysters are expending energy to spawn, resulting in lower meat yield, triploid oysters remain meaty and are more marketable.

Triploids can be created by manipulating oyster chromosomes. A chemical may be momentarily used to trick the developing fertilized egg to keep a set of chromosomes it would normally eject – resulting in a triploid. But this method, as well as heat shock and pressure methods, doesn't make all the treated oysters triploid.

The chemical manipulation method also can be used to create tetraploid oysters, which have four sets of chromosomes and can sexually reproduce. When bred with diploid oysters, tetraploid oysters produce 100 percent triploid offspring. Supan has collaborated with Stan Allen, a pioneer in polyploid shellfish research and director of the Aquaculture Genetics and Breeding Technology Center, and Gene Bureson, Department of Environmental and Aquatic Animal Health,

both at Virginia Institute of Marine Science, for the first ever production of tetraploid broodstock for the Gulf region.

While Sea Grant's tetraploid broodstock research efforts continue at the hatchery, other research and outreach focused on growing oysters in the water column are taking place. Normally, oysters are grown on the water bottom.

Over the past nine years, Supan has cultivated oysters with an adjustable longline

system created by BST Oyster Inc. of Australia. The system is comprised of components used to suspend oysters in mesh bags that can be raised and lowered in and out of the water with a cable. The system produces better oysters in a more



John Supan tends oysters growing in bags suspended from rope in a longline system. This off-bottom culture system keeps oyster predators at bay and offers many other benefits not seen in traditional reef culture.

efficient and labor reducing way. It also protects the oysters from predators.

"You wouldn't allow your prized cattle to roam out on the interstate highway," said Supan. "It doesn't make too much sense to grow superior oysters on-bottom where predators can destroy most of them. The longline keeps the oysters safe and makes them easier to harvest."

Supan also is researching what he calls "oyster farming zones" for off-bottom culture systems. "These zones will allow oyster production where they normally wouldn't be able to grow, while applying marine spatial planning to reduce user conflicts," stated Supan. "It would be like applying industrial park concepts to the water."

For more information on the oyster hatchery, visit [www.laseagrant.org/adserv/hatchery.htm](http://www.laseagrant.org/adserv/hatchery.htm).



The oyster hatchery lab's new "algae room" will allow researchers to cultivate food for the oysters in their care.

## Research Update

### Changes in Coastal Food Webs and the Deepwater Horizon Oil Spill

More than a third of the nation's oysters come from Louisiana waters. Given that fact, fears regarding the impacts of the crude oil spill caused by the Deepwater Horizon have led to extensive studies on oyster health.

Laurie Anderson, associate professor in LSU's Department of Geology and Geophysics, is studying the geochemistry of mollusk shells in order to track the oil's impact on costal food webs and benthic marine communities. Anderson is working on the project with colleagues at LSU, the LSU AgCenter, the California Academy of Sciences, Union College in New York, Nova Southeastern in Fort Lauderdale, Fla., and Denison University in Granville, Ohio. The project is receiving funding from Louisiana Sea Grant, the National Science Foundation, and LSU Gulf of Mexico Oil Spill Research Program.

The objective is to assess the pathways and rates at which hydrocarbons from the spill are incorporated into the local marine food web. "Hydrocarbon spills have dramatic, visible and immediate direct impacts on coastal systems due to the physical and toxic effects of oil on organisms," said Anderson. "Hydrocarbons also can have indirect effects on other animals farther up the food chain – including humans – as they eat these lower-level animals."

Anderson has collected specimens of three different types of mollusks and water samples from the Grand Isle area as well as coastal marshes from Breton Sound to Terrebonne Bay. She and a team of researchers are employing sclerochronology, a technique analogous to tree-ring analysis but using the shells of mollusks.

Oysters and many other mollusks grow their shells by adding material to the shell's outer edge, a process known as accretionary growth. The carbonate minerals in the shell's growth bands preserve high-resolution environmental and life history records, which can be collected by measuring variation in the physical and chemical properties of the shell as the organism grows. Analysis of oyster shells allows researchers to determine the age of the oyster, past water quality of its habitat, as well as when the oyster actually settled on the sea floor. "We are also looking at museum collections of oyster shells for comparison to modern shells, as the coastal environment has been heavily impacted by human activity in the last century," Anderson added.

Exposure to contaminants like hydrocarbons is being detected with targeted trace element abundances in shell carbonate. Shell growth rates can be calibrated with stable isotopes of carbon and oxygen. By matching up isotopic and trace metal datasets, the timing of any exposure and associated changes in life history can be detected.

Trace elements commonly used to detect hydrocarbon exposure are nickel and vanadium. "We have not found elevated nickel levels but, in many shells, we are seeing one or more increases in vanadium content in the more recently secreted parts of the shell. We have seen peaks in vanadium, whereas the pre-exposure graph shows no evidence," said Anderson.

"Mortality in coastal ecosystems, slower growth and declines in recruitment can be expected," added Anderson.

### Dedicated Dredging Restoration Project

The ecological and economic ramifications associated with wetland loss are well documented. One possible solution is to use sands and soils dredged from canals to fill in degrading marshes, but this requires a careful balance. LSU researchers in the Department of Oceanography and Coastal Sciences are on the forefront of studying how to fortify and restore Louisiana's vanishing marshlands with new hydraulic mini-dredges.

The use of hydraulic dredges has proven to be one of the most effective methods of recovering full use of water areas. The traditional method cost tens of thousands of dollars. The mini-dredge was a concept born of need. It is an innovative way to fit into small waterways, is less expensive and converts the bulky machine into a portable unit.

Building on 20 years of investigation and restoration practices, Irv Mendelssohn, along with doctoral students Sean Graham and John Cross, is studying an approach that would reduce the uncertainties in dredge use. With support from Louisiana Sea Grant, Mendelssohn and his team are documenting the factors that contribute to restoration success at mini-dredge sediment conveyance sites at the Paul J. Rainey Wildlife Sanctuary in Vermilion Parish.

"There are many factors that affect the success of a restoration project," said Mendelssohn. "How quickly the slurry compacts, whether or not vegetation takes root, what other natural functions return and how quickly are among the variables. The health of the restored marsh compared to adjacent, natural marshes also needs to be measured to gauge success."

Hurricanes Rita and Ike destroyed thousands of acres of wetlands in the sanctuary and the surrounding area, leaving behind shallow, open water that is not likely to fill in or re-vegetate. The mini-dredge project at Rainey provides an opportunity to test the equipment and catalogue best practices for its use.

The mini-dredge, valued at \$100,000 and donated by Javeler Construction Co. of New Iberia to the National Audubon Society Louisiana Coastal Initiative, is contained on a barge about 9 feet wide by 24 feet long. A pump mounted on the barge is suspended from a winch on a track that



The mini-dredge will be an aid in marsh rehabilitation.

moves forward and back. The 15-horsepower pump's movement agitates sediment on the water bottom, forcing it into the water column. That loose sediment is then captured, rather than taking it directly off the water bottom.

Theoretically the dredge can pump up to 70 percent solids at a rate of 20 cubic yards per hour through a 4-inch hose. This converts to filling one acre to a 1-foot depth in 75 hours.

"I see tremendous potential of the mini-dredge being used by private landowners and resource agencies for marsh rehabilitation," said Mendelssohn.

## Seafood Expert Returns to Louisiana

Jon Bell has returned to the LSU AgCenter Food Science Department as an Extension professor. Bell has been hired on a three-year Louisiana Department of Wildlife and Fisheries contract to provide coordination, outreach development and implementation for the Louisiana Wild Certified Seafood Program (LWCS). The goal of this voluntary program, within the LDWF, is to aid the seafood industry in improving its viability and economic returns.

Bell served as the seafood technology specialist for Louisiana Sea Grant from 2002-2007 and as an associate professor in the LSU Department of Food Science. He later moved to San Diego, where he worked as the director of quality assurance for Chicken of the Sea International.

The objective of LWCS is to link Louisiana seafood harvesters, processors and buyers through modern traceability technology in order to produce consistently high quality products that can be verified and certified through state agency inspection services. The Louisiana Seafood Promotion & Marketing Board will provide a product logo and trademark for the program. The board also will market the LWCS brand.

"We are looking at building in program components of traceability, product quality, food safety and providing certification of premium-grade



Jon Bell

## New Invasive Species Causing a Roar

There is a new species of fish being spotted across the Gulf of Mexico.

Red lionfish (*Pterois volitans*) is a member of the scorpionfish family (Scorpaenidae) and is native to the Indo-Pacific. The red lionfish is invasive in the Western Atlantic, Caribbean and Gulf of Mexico, representing one of the most rapid marine finfish invasions in history. Primarily inhabiting reefs and found in depths ranging from 3 to 575 feet, they feed on small fish and crustaceans.

A well-camouflaged, nocturnal species, lionfish range from 6-12 inches in length and are covered with venomous spines on their dorsal, ventral and anal fins. Juveniles tend to live in small groups, but adults are solitary creatures. Lionfish were most likely introduced in the Western Atlantic, Caribbean and Gulf of Mexico through the aquarium trade. During Hurricane Andrew in 1992, six fish were known to escape in the storm. The first reported sighting in the Florida Keys was in January 2009, but red lionfish were established in Bermuda by 2004. In September 2010, lionfish were reported near oil rigs off the coast of Louisiana. Cool water was expected to limit their range; however, lionfish have been found in water as cold as 56°F.

seafood to be marketed to high-end chefs and other top markets," said Bell, who is now based in New Orleans. "Our initial efforts are with the Louisiana shrimp industry."

Bell received a Bachelor and Master of Science degree in food science from the University of California at Davis and earned a Ph.D. in food science from North Carolina State University.

## Seafood Safety 101

Louisiana Sea Grant Seafood Specialist Lucina Lampila led a group of LSU and other scientists in developing a frequently asked questions document regarding the Deepwater Horizon oil spill's impacts upon seafood safety. There has been a disconnect concerning the public's perception of seafood safety since the oil spill.

Prior to the spill, the safety of Gulf seafood was assured by processors using Hazard Analysis Critical Control Plan (HACCP) principles to manage potential food safety hazards. Now, the Food and Drug Administration (FDA), National Oceanic and Atmospheric Administration (NOAA) as well as state agencies are testing seafood from Gulf waters to assure that dangerous spill-related chemicals are absent or below levels of concern before opening waters for harvest. Documentation of harvest from waters opened by the FDA is now an added component of seafood processors' HACCP plans – giving added assurance of the safety of the seafood.

For more information about seafood safety in the wake of the Deepwater Horizon oil spill, visit [http://gulfseagrant.tamu.edu/oilspill/faqs\\_seafoodsafety.htm](http://gulfseagrant.tamu.edu/oilspill/faqs_seafoodsafety.htm).

Extreme caution should be used in handling these fish. PVC gloves or gaff are recommended. Additionally, persons encountering lionfish can report their discovery to:

- U.S. Geological Survey at <http://nas.er.usgs.gov/sightingreport.aspx>, or call 1-800-STOP-ANS
- Reef Environmental Education Foundation (REEF) at [www.reef.org/programs/exotic/lionfish](http://www.reef.org/programs/exotic/lionfish)
- National Oceanic and Atmospheric Administration at [reportlionfish@noaa.gov](mailto:reportlionfish@noaa.gov)

People can help reduce the spread of lionfish. Like nutria, Asian carp and other invasive animals, humans can serve as a predator to keep populations under control. On the lionfish, only the spines contain the venomous toxin. If cleaned carefully, the flesh is edible.

For additional information and for updates on lionfish, visit: [www.seagrantfish.lsu.edu/biological/redlionfish.htm](http://www.seagrantfish.lsu.edu/biological/redlionfish.htm).



A red lionfish.