

## Sea Grant Researcher Makes Interstate 'Stud Runs' to Improve Oyster Breeding

John Supan, a research professor, oyster specialist and the director of the Sea Grant Oyster Research Lab for Louisiana Sea Grant and the LSU AgCenter, has been on a decades-long quest to build a better oyster on Grand Isle. Most animals are diploids, meaning they have two sets of chromosomes – one from each parent. Supan has worked to produce triploid oysters, which have three sets of chromosomes. These animals are sexually sterile, produce greater meat yields – especially in the summer months when diploid oysters expend their energy on spawning – and require less time to grow to a marketable size. These qualities translate into economic benefits for oyster growers.

Now, Supan is engaging in technology transfer to help other bivalve hatcheries and farms and to expand available broodstock for triploid production across the Gulf of Mexico. One method for producing triploids is to create tetraploid males, which have four sets of chromosomes, and to breed them with diploid females to produce the desired triploid offspring. Supan said it took 10 years to make his first tetraploid oyster and the process can be arduous. Today, he is enabling the use of tetraploids by making what he calls “stud runs” to deliver male oysters to facilities in Alabama and Florida so they can produce triploids.

Supan began his work with triploid oysters in a collaboration with Stan Allen at Rutgers University in 1993. Allen, along with Ximing Guo, developed tetraploids and patented their process in 1994. Allen now directs oyster breeding at the Virginia Institute of Marine Sciences. Allen and Guo’s method uses sperm from tetraploid oysters to fertilize eggs from non-altered diploid females. The offspring of the process are referred to as natural triploids. 4Cs Breeding Technologies, Inc., in Strathmere, N.J., manages the licensed technology. Supan has been working with Tom Rossi from 4Cs to distribute tetraploids in the Gulf of Mexico through agreements with LSU.

“At Sea Grant, we are the leading polyploidy breeding program in the Gulf region,” he said. “Now, we are fostering commercial development with this technology transfer. We have given the Auburn University Shellfish Lab’s hatchery on Dauphin Island its own tetraploids to manage so they can have their own ripe males when they choose to make triploid oysters for Alabama’s burgeoning oyster culture industry. We have also given tetraploids to Leslie Sturmer at the Florida Sea Grant Aquaculture Extension Office to assist Southern Cross Sea Farms’ hatchery in Cedar Key (Florida). This was all done in agreement with 4Cs.” Southern Cross previously focused on commercial clam production but has diversified its operation to include oysters, a transition that Supan said is working well.

Supan noted the importance of having a diverse broodstock. “We continue improving our tetraploid line through our breeding research. We want to avoid a genetic bottleneck, since starting out with only 10 tetraploids. You have to always be mindful that you started with a small group of animals and work to fold in new genes. We have a lot of research to do to improve the tetraploid gene pool.” This will increase triploid genetic diversity during commercial development.

In Louisiana, triploid oyster larvae and seed are available through the Louisiana Oyster Dealers and Growers Association, which is under contract with LSU to commercially distribute its hatchery products.

### On the web:

4Cs Breeding Technologies,

<http://www.4cshellfish.com/>

Louisiana Oyster Dealers and Growers Association,

<http://www.louisianaoystersdealersandgrowersassn.org/>



## Daigle Recognized for Leadership in Climate Outreach

The Gulf of Mexico Climate Outreach Community of Practice selected Melissa Daigle of the Louisiana Sea Grant Law and Policy Program to receive the 2016 Spirit of Community Award in the individual category. Additionally, the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw Indians in Terrebonne Parish was named as the recipient of the 2016 Spirit of Community Award in the community category.

Each year, the group selects Spirit of Community Award winners in two categories: individual and community. The awards recognize outstanding leadership in climate adaptation planning and education.

Daigle is a resilience specialist and research counsel with Louisiana Sea Grant. “She has a natural ability to connect with people in her outreach efforts, which makes her particularly effective,” the nomination said. “Melissa works closely with communities, as a trusted source of information, providing

research and outreach that responds to community needs.”

Matt Bethel, Louisiana Sea Grant assistant executive director of research, nominated the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw Indians for the community award. According to his nomination,

the tribe has worked for 30 years to achieve resettlement of their home. The Terrebonne Parish community, located about 70 miles southwest of New Orleans, has lost nearly all of its land to erosion from canal dredging for oil and gas pipelines, hurricanes, subsidence and sea level rise.

The Climate Outreach Community of Practice is made up of more than 300 education, outreach and extension professionals, as well as community leaders and planners, whose work includes contributing to the resilience of coastal communities. Group members learn from each other about how coastal communities are adapting to sea level rise, precipitation changes and other climate-related issues.



Melissa Daigle (left), with the Louisiana Sea Grant Law and Policy Program at Louisiana State University, accepts the Gulf of Mexico Climate Outreach Community of Practice's 2016 Spirit of Community Award in the individual category from Stephen Deal of the Mississippi-Alabama Sea Grant Consortium and Tracie Sempier of the Mississippi-Alabama Sea Grant Consortium and the Gulf of Mexico Alliance. The Spirit of Community Award is an elevation marker engraved with the recipient's name, award name and year.

## Marine Extension Agent Remembered

The LSU community mourned the loss of Marine Extension Agent Alan John Matherne, 58, who died April 11 at his home in Larose. Surrounded by his family, he passed away after a brave, year-long struggle with amyotrophic lateral sclerosis (ALS). He leaves behind two daughters, Janaé Marie Matherne and Jani Marie Matherne of Larose; granddaughter Adalyn Claire Langford; sister Aischa Simon Prudhomme of River Ridge; brother Barry Matherne of Miami; and his mother, Enola Comardelle Simon of Bayou Gauche. Alan was preceded in death by his son, Joshua “Josh” Paul LeBlanc, and his father, Leo Matherne.

Born and raised in the community of Bayou Gauche, Alan was an avid outdoorsman who loved communing with nature. His love of the natural world led him to earn a bachelor's degree in marine biology in 1981 from Nicholls State University. His dedication to teaching would later lead to a master's degree in vocational education in 1992 from LSU.

Matherne was employed as a Marine Extension agent with the Louisiana Sea Grant College Program and the LSU Agricultural



Alan Matherne

Center and from 1981 to 1997, where he served the coastal residents of St. Bernard, St. Tammany and Lafourche parishes. Matherne founded Mathco Computer in 1997 and worked in the private sector for more than a

decade before returning to LSU in 2010, where he continued his Marine Extension work in Lafourche and Terrebonne until his passing.

Throughout his career, Alan was the epitome of a dedicated public servant. Always willing to help, he worked tirelessly to provide science-based programming to meet the informational needs of coastal fishermen, landowners, businesses, local governments and students. He was an avid reader, fisherman, diver, hunter, naturalist, teacher and communicator. Alan lived by the golden rule, and believed in the power of positive thinking and the importance of making a difference in people's lives through education. He will be sorely missed by both family and friends.

“Alan embodied all of the strengths that have made Sea Grant Marine Extension such an effective model nationwide. He had a true passion for the communities he served. He was born, raised, educated and worked in the Louisiana coastal zone,” said LSG Director of Marine Extension Rex Caffey. “Without a doubt, Alan was an effective, engaged and trusted source of information.”

## Blanchard Receives National Wetlands Award

Pam Blanchard, co-founder of the Coastal Roots Seedling Nursery Program and associate professor in the LSU School of Education, received the 2016 National Wetlands Award from the Environmental Law Institute (ELI). The award is presented for demonstrating extraordinary



Pam Blanchard

commitment to the nation's wetlands and wetland conservation.

The Coastal Roots Program began in 2000 as an education outreach project for Louisiana Sea Grant. In 2006, Coastal Roots was transitioned into the LSU Department of Educational Theory, Policy & Practice in partnership with the LSU School for Plant, Environmental and Soil Sciences, and the LSU AgCenter. The program's objective is to educate students and teachers on coastal issues and sustainability, and to engage students in environmental stewardship.

Each year, students learn to manage a plant nursery installed at their school, grow native plants, and participate in restoration trips to a coastal forest or beach. Students oversee the entire growth cycle, from seed germination to the planting. Today, 48 schools in 18 parishes participate in Coastal Roots – as well as four schools in Chile. Since its founding, nearly 18,000 students have participated in the program, planting more than 142,000 native plants during 347 restoration trips.

The National Wetlands Awards program is administered by ELI and supported by the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, U.S. Forest Service, NOAA Fisheries, and the Federal Highway Administration. ELI coordinates the awards program, while the federal agency partners provide financial support, serve on the selection committee or participate in the ceremony.



The Coastal Roots Program educates students as they plant seeds from native plants. The seedlings are used in coastal restoration.

## Ecosystem Services Discussed at CNREP 2016

Exploring ways to combat climate change and detailing the formation of coastal Louisiana were main topics discussed by keynote speakers at the Center for Natural Resource Economics & Policy (CNREP) 2016 forum held in late March in New Orleans. Also a major focus of the meeting is the role that ecosystem services will play in federal policy, and the latest advancements in natural resource valuation.

“In the Gulf South region, a number of meetings look at coastal land loss, ecology hydrology and engineering,” said Louisiana

Sea Grant and LSU AgCenter economist and conference chairman Rex Caffey. “We started this conference in 2004 to fill a gap; a response to the lack of socioeconomic information needed to understand how people will be affected for both economic and political reasons,” Caffey said.

“What we’re seeing is fisheries economics, wetland valuation and more recently, we’re seeing more on climate change,” he said. “Depending on what policies are enacted, there could be some significant impacts in how we live

our lives with climate change and the policies to deal with climate change.”

The forum had more than 225 attendees, including 160 presenters and panelists representing 63 public and private institutions located in 29 U.S. states and five countries. Bringing social scientists together to tackle the issues of socioeconomic challenges of coastal resource management and policy is the goal of the CNREP triennial meeting.

For more information, visit <http://www.cnrep.lsu.edu>.



Sarah Ryker with the U.S. Department of the Interior delivers a plenary address at the 2016 CNREP conference in New Orleans.



CNREP offered those attending opportunities to network with other economists, researchers and lawyers.

## Delcambre Direct by the Numbers (2015)

Delcambre Direct Seafood is a direct-to-consumer seafood marketing program established with the help of Louisiana Sea Grant.



**30**  
commercial  
shrimping  
vessels  
participating

Sales tax collections for  
Delcambre and Erath  
**up 6%**

**12,000**  
individual sales,  
averaging  
30 pounds each

**360,000**  
pounds of white  
shrimp sold to  
consumers at  
Delcambre

Total sales exceeded  
**\$1,000,000**

**182**  
shrimping trips made

For information, visit <http://delcambredirectseafood.com>

### Magical Experience

Louisiana Sea Grant participated for the first time in AgMagic, hosted by the LSU AgCenter. Over the course of five days, Sea Grant staffers taught nearly 5,000 school children about marine mammals and comparative anatomy. AgMagic is an interactive, visually stimulating, educational journey through Louisiana agriculture. Visitors explore and learn about agriculture and the environment, as well as the important role each plays in our daily lives.



## 'America's Third Coast' Book Series Broadens the Audience for Coastal Research

Louisiana Sea Grant (LSG) Scholars Carl Brasseaux and Don Davis seek to fulfill an unmet need with their upcoming America's Third Coast Series. They are pushing research outside the realm of peer-reviewed academic journals and into a book-length format designed to be more accessible to policy makers, coastal residents and the general public. The duo is preparing to publish up to three titles a year that focus on the Gulf Coast – addressing the region's history, life, industry and culture. Brasseaux and Davis are editing the series and co-authored one volume.

"Traditionally, one can find numerous books dealing with coastal issues on the Atlantic and the Pacific, but in some ways the northern Gulf of Mexico, considered the Third Coast, has been ignored," Davis said when describing the origins of the project title. "This series is designed to try to encourage all scientists, but with some interest toward the social sciences, to consider book-length manuscripts directed at a new audience that is broader than academia. We are getting outside our comfort zone a tad."

Brasseaux and Davis lead off the series with their work *Ain't There No More: Louisiana's Disappearing Coastal Plain*, tracing the economically driven environmental changes that reshaped the state's coastal parishes from the beginnings of colonization to the region's post-embargo oil boom. Their account of coastal erosion, long-term neglect and manmade disasters features nearly 300 illustrations, many of which are rare and previously unpublished. Their volume is expected to be followed by Shane Bernard's book on nutria, LSG retiree Jessica Schexnayder's project documenting endangered coastal cemeteries, and LSG Assistant Director of Research Matt Bethel's work on traditional ecological knowledge.

Costly hurricanes over the last decade and the 2010 Deepwater Horizon oil spill have raised international awareness of the challenges Louisiana faces, but Brasseaux and Davis hope to move the Gulf of Mexico region into the forefront of the nation's consciousness and to lead readers into a discussion on restoring and rehabilitating the coast in cooperation with the coastal population.

"Where does the Gulf Coast factor into the American narrative?" Brasseaux asked. "When someone makes reference to the East Coast and West Coast, the words 'Gulf Coast' never seem to follow. Few would include the southern coast's modern metropolis, Houston – now the fourth largest city in the United States – in the same breath as New York, Los Angeles and Chicago. Only when disaster strikes do Americans turn their attention to the Gulf South."

"You have the landscape and the peopescap," Davis added. "The landscape only has meaning with the peopescap. This series will highlight the economic activities and environmental stewardship of the inhabitants of this diverse region."

America's Third Coast Series will be published by the University Press of Mississippi with support from the Louisiana Sea Grant College Program and the Louisiana Sea Grant Foundation.

### **On the web:**

University Press of Mississippi,  
<http://www.upress.state.ms.us/>



## Message from the Executive Director

Challenges create an opportunity for change.

Over the course of the past 48 years, Louisiana Sea Grant has demonstrated that it is prepared to help coastal communities meet immediate and future challenges. Unlike coastal communities in other states that are undergoing significant change associated with growth in population, Louisiana's coastal communities are experiencing accelerated environmental changes driven by some of the highest rates in relative sea level rise, causing unique social and economic conditions compared to any other coast of the United States (with the exception of Alaska). The issues of coastal community resiliency and sustainability, along with the preservation of distinctive coastal cultures, are critical to our working coast.

Guiding Louisiana Sea Grant's efforts to support coastal communities is our four-year strategic plan. It provides the framework for our program's merit-reviewed research, communications, education, extension and legal projects – all designed to address the specific needs and priorities of Louisiana's coastal stakeholders and communities.

I mention this because the process of developing our next strategic plan has begun. We've started by talking with community leaders and collaborators to get their opinions as to what issues we should address in our 2018-2021 plan. Over the course of the next few months, there will be more meetings with diverse individuals and groups to hear their thoughts on what our focus should be through the beginning of the next decade – a decade of serious considerations of our adaptation strategies for a changing coast.

All ideas are welcome. All viewpoints are valuable in establishing our priorities and ensuring they reflect the needs of a future coastal Louisiana.

Sea Grant  
50  
YEARS



**Robert Twilley, Ph.D.**

*Executive Director  
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# Coastal Clips

## Our Coasts, Our Future, Our Choice

8<sup>th</sup> National Summit on Coastal and Estuarine Restoration  
and 28<sup>th</sup> Biennial Meeting of The Coastal Society

Dec. 10-15 at the Hilton New Orleans Riverside

Registration \$450 through Oct. 31  
For information, visit [www.estuaries.org/Summit](http://www.estuaries.org/Summit)



RESTORE  
AMERICA'S  
ESTUARIES



THE  
COASTAL  
SOCIETY