

## Extension Program Reaches Milestone

Louisiana Sea Grant's Marine Extension Program (MEP) will hold its 200th advisory meeting in the spring of 2022.

One of only a handful of Sea Grant programs that conduct meetings like this, Louisiana Sea Grant (LSG) has supported Extension efforts since 1968. The MEP is made up of 20 specialists and agents who have expertise in fisheries, aquaculture, water quality, toxicology, ecology, geography, economics and law. Agents are university faculty who live and work in coastal parishes, while the specialists generally work in academic units on the Louisiana State University-Baton Rouge campus.

"We've held a two-day MEP meeting on a quarterly basis for the past 50 years," said Rex Caffey, current Extension director. "When circumstances required – such as oil spills, flood and hurricanes – we've met more frequently to exchange information to help our stakeholders through the crisis.

"Recently, I realized this will be the 200th time we've come together to meet. It's a milestone, given we're probably one of the longest running marine advisory programs in the nation," Caffey added. "These meetings are critical because of the two-way exchange of information that occurs between campus, field offices and coastal communities."

When they first began, the meetings were open only to agents and specialists. Their conversations focused primarily on extension topics related to the commercial harvesting of marine crustacean, mollusk and finfish stocks. Agents would take what they learned to fishers, docks and processors, as well as share industry issues with specialist who would try to find new methods and solutions.

Eventually, the meetings opened to LSG education, law and policy and communications personnel as the Marine Extension Program expanded into limnology, hydrology, aquaculture, disaster assessment, hazard awareness, coastal resilience and disaster recovery. A typical meeting of the program today includes a variety of interests, from researchers sharing their findings, to regulatory updates from resource management agencies to program initiatives from trade associations and environmental organizations.

The backbone of the meetings; however, is a round-the-horn session in which agents and specialists provide a series of rapid-fire updates highlighting the most pressing issues of their regions and focus areas. "It's how we start every meeting," said Caffey. "And it's amazing to see how interest in round-the-horn has grown over the years – especially amongst researchers who increasingly attend as observers to gain insight on the needs of Louisiana's coastal communities."

According to Ken Roberts, who served as Extension director in the '90s, it is important to note the success story of the MEP considering some of the administrative challenges. LSG is housed on the LSU-Baton Rouge main campus. Extension personnel are housed in the LSU AgCenter, which was a separate campus until a few years ago.

A rapport between Sea Grant and AgCenter Extension administrators has always been needed in order for the MEP to thrive, Roberts noted. "It's not credited enough how much the two Extension directors do on these campuses to make the MEP a success," said Roberts.

Most recently, COVID-19 dramatically changed how the MEP interacted, forcing meetings to be held virtually – at least temporarily. There are positives of virtual meetings, such as being able to meet on short notice and reducing costs, but according to Michael Liffmann, who served as Extension director from 1995-2007, "the team-building that results from the one-on-one interactions and socializing and mentoring cannot be done virtually." To the extent practical, in-person MEP meetings should be continued on a regular basis, he said. They are excellent forums for building and strengthening partnerships between Extension, LSG, resource managers, non-governmental organizations and the research community.

## Sea Grant Expands Community Science Efforts with New Hire

The National Sea Grant College Program recently announced six new partnership positions between federal agencies and state programs. These liaisons will integrate Sea Grant Extension expertise in science, products and services from agencies and other publicly supported scientific research programs into local communities. One of these partnerships will be based at Louisiana Sea Grant (LSG).

Louisiana will serve as the base of operations for a federal liaison on the issue of community science. Community science makes the research process more inclusive and accessible to the public. Participants help collect data around a phenomenon of concern – water quality, weather, public health, astronomy, etc. – and through their collective action provide new insights, data sources, discoveries and perspectives. Their findings are often used to enhance research projects and support informed community decisions.

Newly hired **Liz McQuain** joins LSG in the role of liaison to examine opportunities and challenges in community science. Partners from the Environmental Protection Agency, National Ocean and Atmospheric Administration, National Sea Grant College Program and the United States Geological Survey will guide her on this effort. This collaboration aims to better understand barriers to diverse participation and unite water resource community science efforts. Through this partnership, McQuain plans to recommend standardized practices and develop trainings that will increase uniform platforms for sharing and analyzing data for community science efforts, as well as increase diversity of participation to better represent communities.



McQuain received her Bachelor of Science degree in marine biology with a minor in chemistry from the University of North Carolina-Wilmington. She holds a Master of Science in environmental and sustainability studies from the College of Charleston in South Carolina, where her thesis focused on community monitoring of stormwater retention ponds. While working on her master's degree, McQuain also worked with the South Carolina Sea Grant Consortium on several outreach projects.

She can be contacted at [lizmcquain@lsu.edu](mailto:lizmcquain@lsu.edu).

## Cook Takes on Education Coordinator Role

**Jennifer Cook** is the new education coordinator at Louisiana Sea Grant (LSG). She received her Bachelor of Arts degree from Louisiana Tech University in geography and history and her teaching certification from the Louisiana Resource Center for Educators. She also received her English as a Second Language certification from Louisiana State University (LSU), her mentor teacher certification from the Louisiana Association of Educator's Teaching and Learning Center, a Master of Education degree in educational leadership from LSU in Shreveport and is currently pursuing her doctorate in educational administration at the University of Southern Mississippi.



Cook taught science, computer science and math at Central Middle School in the Central Community School System and was a STEM (Science, Technology, Engineering and Math) advisor. Additionally, she taught social studies at Westdale Middle School in Baton Rouge. During her 11 years of teaching, she realized that K-12 teachers do not always have time to plan lessons that allow for hands-on learning. So, through her new position at LSG, she hopes to create lesson plans teachers can easily implement and that also create a passion for science within students.

Cook will work closely with LSG Extension agents and specialists to bring educational opportunities to their coastal regions, while also expanding outreach efforts to new schools, education centers, eco-tourism groups and other organizations, as well as central and northern Louisiana. She hopes to implement activities that demonstrate how weather and climate change have impacted Louisiana's environment and is looking into applying climate literacy into curriculum. Additionally, she is looking into Louisiana's fog data to determine the impact fog has on seafood production so she can apply this research into her educational programs.

## Pasco Joins LSG Team as Better BRD Program Manager

**Tiffany Pasco** has joined the Louisiana Sea Grant (LSG) team as manager of the Better Bycatch Reduction Device Program. She earned her bachelor's degree in marine science from Eckerd College in St. Petersburg, Fla., and her master's degree in oceanography from Louisiana State University (LSU). Before joining LSG, she worked for the Freshwater Ecology Group in the LSU School of Renewable Natural Resources.

Pasco and a group of specialists will identify the best new bycatch-reducing technology to decrease commercial shrimp trawl pressure on finfish populations and develop cost-effective solutions and incentives to encourage shrimpers to use the improved technology. Bycatch is any non-target species caught while shrimping. Bycatch reduction devices (BRD) allow finfish to escape with hopefully few shrimp escaping through the same opening.

The Better Bycatch Reduction Device Program is a partnership with Texas Sea Grant that builds on finfish restoration goals for the Gulf of Mexico. Pasco will work with the shrimp fleet in both states to learn what they currently use for bycatch reduction and see if there are other devices or modifications they use that could be certified by the National Oceanic and Atmospheric Administration (NOAA).



## Gieseler Joins Oyster Hatchery Team

**Sarah Gieseler** has joined the Louisiana Sea Grant team as a research associate at the Voisin Oyster Hatchery on Grand Isle. She earned her bachelor's degree from Louisiana State University in coastal environmental science. Before joining Sea Grant, she worked across the country and abroad as an ocean lifeguard and recreation leader in places like the Bahamas, Florida, Hawaii and a private Caribbean Island.

Gieseler said she's thrilled to have found a career in her home state that combines her love of the Gulf Coast, marine science and Louisiana seafood. Gieseler hopes to take advantage of the knowledge and mentorship available to her and to engage in the region's aquaculture community. She is especially interested in oyster aquaculture, which she believes will play an important role in environmental restoration and the preservation of the Gulf Coast's way of life.



## Three Undergraduate LaSSO Research Projects Funded

The first three undergraduate research projects funded through a Louisiana Sea Grant/Louisiana Space Grant (LSG/LaSPACE) collaboration have been announced. The joint program, called Louisiana Space and Sea Grant Opportunity (LaSSO), is modeled after similar, long-established undergraduate research programs at both LSG and LaSPACE.

### LSG will be funding a project titled:

- *Applying Deep Learning for Prediction of Shoreline Dynamics in Coastal Louisiana* at the University of Louisiana at Lafayette. Dhan Lord B. Fortela, an instructor in the Department of Chemical Engineering, is the principal investigator. Kevin Toups, a chemical engineering major, is the student researcher.

The project involves using Deep Learning (DL) – commonly known as machine learning – techniques to model the dynamics of shoreline changes in coastal Louisiana, while taking into account the effects of key weather variables through time. “This grant will allow me to develop skills that could secure a job involving data analytics and machine learning with NOAA, NASA or other related agencies,” said Toups, who is a sophomore. “The new skills will also broaden my prospect job positions in the chemical engineering industry.”



Kevin Toups

### The projects funded by LaSPACE are:

- *Removal of Per- and Polyfluoroalkyl Substances from Water Sources: Converting Toxic Compounds into Building Blocks for Fuel Conversion* at Northwestern State University in Natchitoches. Yohaselly Santiago-Rodriguez, assistant professor in the School of Biological and Physical Sciences, is the principal investigator. Elisha Scott, a senior physical science major, is the student researcher.
- *Impact of Carbon Dioxide Enrichments in Seawater on Post-Ecdysial Shell Calcification in the Blue Crab, Callinectes sapidus* at Nicholls State University in Thibodaux. Enmin Zou, Theodore Shepard Endowed Professor in the Department of Biological Sciences, is the principal investigator. Yusra Soorya, a senior chemistry major, is the student researcher.

Each nine-month project will receive \$4,000 in funding. LaSSO is directed at science and engineering students who are working on projects in research areas deemed a priority by both the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA). The intent of LaSSO is to supplement and enhance the undergraduate academic curriculum by providing science/engineering students with a hands-on, mentored research experience relevant to space, earth, coastal and/or marine sciences.

“I’m really excited to see this new collaboration between Sea Grant and Space Grant. LaSSO will provide a unique opportunity for students to contribute to NASA (Space Grant) and NOAA (Sea Grant) priorities,” said Julie Lively, LSG executive director.

“If this initial Space and Sea Grant collaboration is successful, LaSSO could be the basis for future collaborative efforts supporting graduate students and, early career faculty, as well as overall diversity, equity and inclusion (DEI) enhancement initiatives,” said Colleen H. Fava, LaSPACE assistant director.

## Seafood Industry Workforce Development is Focus of Grant

The National Oceanic and Atmospheric Administration (NOAA) has awarded the Louisiana, Mississippi-Alabama, Texas and Florida Sea Grant programs \$80,561 for a *Food from the Sea* initiative designed to support seafood industry workforce development.

The Gulf of Mexico (GOM) project will bridge the gaps between various state and other efforts to build a regional collaboration that identifies what is needed – such as training programs, workshops and other services – to attract new fishermen, aquaculturists and seafood sector professionals to careers in the Gulf-wide seafood industry. Julie Lively, Louisiana Sea Grant executive director, is the lead on the project.

“Workforce development is a significant need for all sectors of our seafood industry, especially in the Gulf of Mexico and Louisiana where aging of the fleet is a critical concern,” said Lively. “The average commercial fisherman in Louisiana is in his late 50s, and there aren’t people lining up to fill the jobs those fishermen will vacate over the next decade or two. The applicant pool for aquaculture and other ‘new seafood industry’ jobs is also small. Through this project, we’ll share resources and information to demonstrate there are career opportunities available where individuals can make a living harvesting and supplying seafood from the Gulf coast.”

NOAA’s National Sea Grant College Program and Office of Sustainable Fisheries recently funded 11 *Food from the Sea* grants – totaling \$900,000 – for career development programs. Projects range in size, scope and design and are as diverse as the localized needs they aim to address. A complete list of funded projects can be found on the National Sea Grant website.

These efforts will also allow Sea Grant programs, industries and communities to plan for potential upcoming opportunities associated with the Young Fishermen’s Development Act (YFDA), should any funds be appropriated to support the recently authorized program, and other initiatives that may provide training, education, outreach and technical assistance to the U.S. seafood sector.

## Uncertainties in Reef Fish Catch Limits

Louisiana Sea Grant (LSG) will assist Mississippi State University and Mississippi-Alabama Sea Grant (MSALSG) on a project to help reduce the uncertainties in setting reef fish catch limits. Marcus Drymon with MSALSG is the principal investigator on the \$118,000 National Oceanic and Atmospheric Administration funded project.

“Reef fish are important to Louisiana, both recreationally and commercially,” said Julie Lively, LSG executive director. “This project will allow Louisiana Sea Grant to produce more outreach materials and host education events focused on this resource.”

Stock assessments rely on data from fisheries landings to set sustainable catch limits for reef fish. However, cryptic mortality through depredation – where captured fish are killed and partly consumed by predators before the fish can be retrieved by a fishing vessel – causes fisheries managers to underestimate the actual number of fish harvested, resulting in incorrect catch limits.

The project team plans to determine the extent of the depredation to improve reef fish stock assessments and share their findings with NOAA for better fisheries management. The team will determine temporal and spatial trends in depredation using existing data, survey fishers and hold workshops with stakeholders to share and gather information. Stakeholder input will also be used to identify depredation deterrents.

LSG’s role in the project involves annual workshops through 2025 to share regional and statewide information about reef fish, produce several videos and fact sheets, as well as participate in communication and outreach activities at the Gulf of Mexico regional level.

## Research Projects for 2022-2024 Funding Cycle Announced

Louisiana Sea Grant (LSG) is continuing to fund relevant research projects that address information gaps for coastal Louisiana communities and deal with the state's connection to water — from the Mississippi River to the coastal estuaries. For the 2022-2024 omnibus cycle, LSG will fund three core research projects and three integrated research teams. Below is a synopsis of the projects, along with a list of the investigators and their affiliations.

### Core Research

#### ***Seed to Seagrass: Planting and Seeding Re-Enforce Submerged Aquatic Vegetation Habitat Resiliency in the Pontchartrain Estuary***

Principal Investigator (PI): Eva Hillmann, Southeastern Louisiana University, Department of Biology

Coastal submersed aquatic vegetation (SAV) ecosystems provide significant benefits that support many high-value fish and wildlife species, improve water quality and provide shoreline stabilization, all while efficiently sequestering carbon in soils. However, SAVs are vulnerable to climate change, sea level rise and coastal development. The project's objectives are to: 1) Jumpstart SAV and seagrass restoration and resiliency across the Pontchartrain estuary by demonstrating possible restoration outcomes in three areas across the estuary (Chandeleur Islands, nearshore Lake Pontchartrain and ponds at the Big Branch National Wildlife Refuge); 2) Identify the most efficient SAV and seagrass restoration seeding techniques; 3) Raise awareness of this critical habitat through public signage and professional development opportunities for educators. Hillmann sees promising new SAV and seagrass seeding techniques as a possible catalyst for scaling up SAV restoration across the Pontchartrain estuary.

#### ***Bacterial Predation: A Solution of Vibrio Control for Oyster Hatcheries?***

PI: Aixin Hou, Louisiana State University (LSU), Department of Environmental Sciences

Antibiotics have historically been used to reduce pathogen levels – such as the bacteria *Vibrio* – in oyster hatcheries. This use has likely contributed to the rise of antibiotic-resistant microbial species in coastal estuaries. Additionally, infected oyster larvae usually don't show symptoms until pathogens have colonized inside their bodies, making it often too late to treat the infected larvae. Consequently, ecologically friendly, preventive measures are desired to control pathogenic bacteria in oyster hatcheries. This project will build upon previously funded work that demonstrated that *Bdellovibrio* (BALO) and other similar bacteria occurring naturally in the Gulf of Mexico have the potential to control *Vibrio* spp. Researchers will examine the predatory effect of BALO strains on more *Vibrio* strains, which could lead to the development of commercially available microbial inoculants to control vibriosis in oyster hatcheries.

#### ***Evaluating Ecological Functions of Created Marshes in Louisiana to Inform Decisions about Elevations and Confinement***

PI: Tracy Quirk, LSU, Department of Oceanography and Coastal Studies  
Co-Principal Investigator (Co-PI): John Nyman, LSU AgCenter

Millions of dollars are being spent on marsh creation projects to mitigate some of the state's wetland loss. Most of these marshes are constructed at high elevations within a containment berm designed to restrict the dispersion of dredged material. Quirk and her team are interested in learning if unconfined and/or lower-elevation created marshes are more productive and have a more rapid rate of organic matter and sediment accumulation compared to confined and/or higher-elevation marshes. This project will be conducted on Bayou Bonfouca in the Big Branch National Wildlife Refuge, and its results could provide better insights into which marsh creation approach is more resilient to sea level rise.

### Integrated Research and Engagement

#### ***Documenting Food Practices and Networks in Coastal Louisiana: Understanding the Role of Subsistence Harvesting in Reducing Food Insecurity and Strengthening Community Resilience***

PI: Traci Birch, LSU, Department of Architecture

Co-PI: Carl Motsenbocker, LSU AgCenter

Co-PI: Jonathan Foret, South Louisiana Wetlands Discovery Center

Co-PI: Aimee Moles, LSU, Social Science Research Center

Louisiana experiences some of the highest rates of food insecurity in the country, and the numbers are increasing faster than other locations in the United States. Birch and her team will investigate local food networks in five parishes to better understand the role of subsistence harvesting – fish, wildlife as well as crops harvested for subsistence use – in order to support better local food security and resiliency planning. The researchers hope project results can: 1) Improve access to subsistence foods, prioritize subsistence uses and preserve community knowledge; 2) Provide guidance to policy makers to support local food systems, subsistence practices and community resilience; 3) Engage local high school students as researchers and active participants in the research process.

#### ***Identifying Value-Added Markets for Louisiana's Wild and Farm Alligator Industry***

PI: James Fannin, LSU AgCenter, Department of Agricultural Economics and Agribusiness

Co-PI: Casey Stannard, LSU, Department of Textiles, Apparel Design and Merchandising

Co-PI: Jerrod Penn, LSU AgCenter, Agricultural Economics and Agribusiness

The purchase of wild alligator hunting licenses has decreased in the last decade and prices for wild alligator skins have declined by 50 to 70 percent. There is anecdotal evidence that domestic tanners are not purchasing wild skins from Louisiana due to having excess inventory. A multi-year slump in the alligator skin trade would have long-term ramifications for the industry. This project will evaluate the flourishing craft industry as another potential domestic market for wild alligator skins and develop technology-based strategies – such as digital cutting layouts – to reduce waste, increase value and ultimately sustain jobs in the alligator industry.

#### ***Economic, Social and Policy Pathways to Freeboard Adoption for Existing Homes***

PI: Monica Farris, University of New Orleans (UNO), Center for Hazards Assessment, Response and Technology (CHART)

Co-PI: Pamela Jenkins, UNO, CHART

Co-PI: Carol Friedland, LSU, Bert. S. Turner Department of Construction Management

Co-PI: Yongcheol Lee, LSU, Bert. S. Turner Department of Construction Management

Co-PI: Robert Rohli, LSU, Department of Oceanography and Coastal Sciences

Previous research revealed that freeboard – the number of feet a structure is above a site's base flood elevation – in new home construction results in significant homeowner savings by circumventing losses due to floods and reduced homeowner flood insurance premiums. However, obstacles were discovered that prevented communities from implementing higher freeboard standards, particularly for existing homes. The goal of this project is to evaluate the social, economic and policy pathways toward freeboard implementation in order to reduce flood risk and enhance community resilience for existing homes in the state's 20 coastal parishes.

These projects are scheduled to begin Feb. 1, 2022, subject to the availability of National Oceanic and Atmospheric Administration (NOAA) funding support.

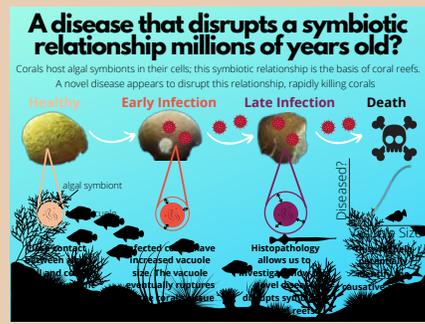
## Coastal Connections Competition at LSU

On Oct. 29, Louisiana Sea Grant hosted an Infographic Challenge Coastal Connections competition at Louisiana State University. The graduate students participating used a mix of imagery and text to communicate their research findings. The competition drew an applicant pool of 16 students representing many different colleges at LSU.

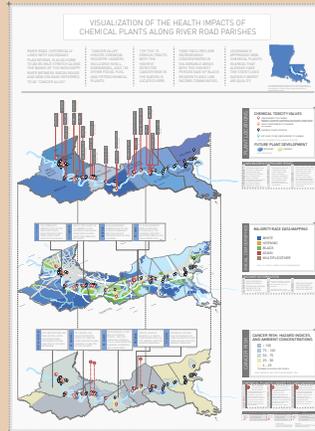
Coastal Connections encourages graduate students to think about their research in a different way. Typically, the results of their work are presented at conferences to audiences of similar disciplines. This competition, however, is geared toward the general public so students have to adapt their discussion, remove jargon and present to a group of non-specialists.

We congratulate the three winners of our competition who will each receive \$500 of research travel award money:

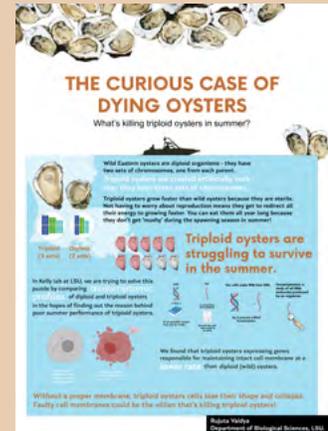
- Ashley Rossin, College of the Coast and Environment, presented *A Disease that Disrupts a Symbiotic Relationship Millions of Years Old*;
- Courtney Klee, College of Art and Design, presented *Visualization of the Health Impacts of Chemical Plants Along River Road Parishes*;
- Rujuta Vaidya, College of Science, presented *The Curious Case of Dying Oysters*.



Ashley Rossin



Courtney Klee



Rujuta Vaidya



Louisiana Sea Grant hosted a Wetlands Day in Port Sulphur on Nov. 5 for nearly 100 third and eighth graders from Boothville. The students learned about geology, comparative anatomy of mammals and water quality, interacted with mystery objects in touchboxes, and took an airboat ride. For the third graders, it was their first-ever school field trip.





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