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Coastal Clips

A quarterly publication of the Louisiana Sea Grant College Program at Louisiana State University, Baton Rouge

# Louisiana Fisheries Forward Summit 2020

Commercial fishermen, dock owners and processors will have the opportunity to learn about issues facing their industry at the Louisiana Fisheries Forward Summit, Wednesday, March 11 at the Pontchartrain Center, 4545 Williams Blvd., Kenner. Admission is free, but advance registration is required for those wanting lunch.

This expo is the state's premier commercial fishing and seafood industry event, attracting hundreds of commercial fishermen, seafood dealers, processors and others. Workshops will run throughout the day along with a trade show that will feature hands-on demonstrations about safety, innovative handling and processing equipment, gear and techniques.

Topics to be discussed include:

- 2019 Freshwater Flooding Fisheries Disaster Declaration Update
- Operational Plans for a Mid-Barataria Diversion Project
- FDA Testing of Imported Seafood
- Black Drum/Sheepshead Fishery Analysis
- Seafood Labeling Requirements
- Extending Crawfish and other Seafood Shelf Life
- Importance of Oyster Hatcheries
- How to Find and Purchase an Offshore Permit

"The world of seafood is rapidly evolving, and it can be overwhelming to stay up to date with changes while you're trying to run a business," said Thomas Hymel, Louisiana Fisheries Forward program director and marine Extension agent with Louisiana Sea Grant and the LSU AgCenter. "The Summit offers fishermen, dealers and processors critical information, the chance to view the latest and greatest tech, as well as networking opportunities.

"If you're in the commercial fishing industry, you need to be here. More than 500 attended the Summit in 2018. Because attendance was so high, we're taking up all the space at the Pontchartrain Center this year for a bigger and better 2020 Summit," added Hymel.

For more information, *visit www.LaFisheriesForward.org/summit*.

Produced by Louisiana Sea Grant, the LSU AgCenter and the Louisiana Department of Wildlife and Fisheries – with other industry partners – the Summit it is part of the Louisiana Fisheries Forward education initiative.

## Another Effort to Making Flying Fish a Great Dish

Asian carp, both bighead and silver carp, have been on the rise in Louisiana since the 1980s. They have moved into the Mississippi River and our bayous disrupting the local aquatic environment. However, Chef Philippe Parola is finding a way for our fishy nemesis to move into our bellies.

Indigenous to Asia, this invasive species was imported into the southern United States in the 1970s to support aquaculture. They eventually escaped their controlled environment and became watery fugitives – not armed, but dangerous. Carp populations have wreaked havoc on aquatic ecosystems by outcompeting native fish populations for plankton, all-the-while reproducing at a phenomenal rate. As herbivores, they can't be caught with a rod or reel. Yet, they can weigh in at 30 pounds or more. And when startled by noise – such as a boat motor – silver carp can jump 10 feet or higher into the air, putting boaters at risk.

Asian carp populations stretch from Texas to Florida. And they've been found in the Illinois River, which connects the Mississippi River to Lake Michigan. The fish can survive both in freshwater and saltwater, as well as withstand near freezing temperatures. Controlling them requires methods like electroshock or pesticides which can have their own negative ecosystem impacts.

So instead of destroying them en masse, Parola pondered why not have them over for dinner? "Spread the word that this fish is good to eat. Treat it like a red fish or speckled trout and you're going to see people jumping on board," Parola said.

The chef is no stranger to making exotic game a choice on the menu. Before Asian carp, Parola found a way to make alligator and even nutria options for dinner. He also founded the "Can't Beat 'Em, Eat 'Em" group that educates the public on carp and other invasive species in the U.S.

But how do you serve Asian carp, a very bony fish?

The world-renowned chef has managed to take the bone-filled carp and turn them into fish cakes. Processing these fish, however, is an expensive and complicated procedure. To lower costs, the fish are shipped to Vietnam for processing and brought back to the U.S. as "ready to cook" fishcakes. Parola's Silverfin Group Inc. sell the cakes which gives consumers a low-cost protein alternative.

"We started off with Chef Parola about 10 years ago trying to find funding for any kind of carp product. We wanted to help find financial support to make any Asian carp product and show what could be done. Unfortunately, we could not find much in that area. However, now that the stepping stones are in place, Louisiana Sea Grant is helping make the public aware of Chef's Asian carp cakes," stated Julie A. Lively, Louisiana Sea Grant (LSG) and LSU AgCenter fisheries specialist. Currently, Parola is serving his cakes in a number of universities, such as Nicholls State and Tulane. He is set to serve in more universities in 2020. Lively, on behalf of LSG, is trying to get the products in LSU dining halls with the help of Michael Johnson, executive chef of LSU Tiger Athletics.

But can saying "let them eat cake" defeat the overwhelming number of Asian carp in U.S. waterways? No one knows. Although Parola has come up with a delicious solution, both government and conservationists alike think it may not put a dent into the ever-growing carp population.

"We do know that these Asian carp cakes are a start to something that can possibly help with the invasive species. It's a creative and cost-efficient way of dealing with them," Lively noted.

For those who want to catch and prepare Asian carp themselves, Louisiana Sea Grant, the LSU AgCenter, Illinois-Indiana Sea Grant, the U.S. Fish and Wildlife Service and U.S. Geological Survey created a video on how to clean and cook Asian carp. The film is available for viewing in three segments online:

• Introduction & Removing Filets
*www.youtube.com/watch?v=T1NVUV8yhmU*

• Making "Flying Carp Wings"
*www.youtube.com/watch?v=CB-fmA07gZ8*

• Deboning Filets
*www.youtube.com/watch?v=RhGkjwxm_0o*

It is also is available on DVD from Louisiana Sea Grant for $6, to cover postage and handling, by emailing *rkron@lsu.edu*. Copies picked up at Sea Grant's offices at LSU are free.

Next year, an animinated video will be released on how to grill Asian carp.

## Louisiana's Seafood Future Releases Findings Report

Louisiana's Seafood Future released a report that summarizes a year of outreach to the Louisiana seafood industry. The report's findings draw on public meetings with and surveys completed by seafood industry members in the last year.

Gov. John Bel Edwards spurred this effort in early 2018, when he asked the Louisiana Coastal Protection and Restoration Authority (CPRA), the Louisiana Department of Wildlife and Fisheries (LDWF) and Louisiana Sea Grant to reach out to Louisiana fishermen and learn how they were dealing with land loss, commodity prices and the effects of coastal protection and restoration projects.

The resulting outreach effort, Louisiana's Seafood Future (LSF), sought to highlight innovative strategies created by seafood industry members as they confront a changing coast. LSF's 2019 report distills ideas from crabbers, shrimpers, fin fishermen, oyster fishermen, dock workers and processors – people at the heart of Louisiana's seafood economy and culture. Overall, people who provided ideas to LSF said they wanted to stay in the seafood industry, even as they worried about future trends and wanted more information about what to expect.

"This is an important document because it reflects innovations developed by the people who have been and will be most affected by the changes – the hardworking people of our seafood industry and the recreational fishers who enjoy our Sportsman's Paradise," said LDWF Secretary Jack Montoucet. "Some of these findings will be useful tools as our seafood industry continues to recover from the devastating flooding earlier this year."

Ideas were gathered at 26 meetings from mid-2018 through May 2019. These meetings included regional meetings open to the public, task force meetings and dock days. Ten thousand detailed surveys were mailed to seafood industry members, and more than 700 hard copy responses were received. Seafood industry members were also invited to take part in an online survey. In a separate effort, approximately 4,800 recreational fishers completed online surveys as well.

"Our seafood industry represents an important part of what makes Louisiana unique," said Chip Kline, CPRA chairman. "This effort provides a valuable opportunity for us to discuss the future of coastal Louisiana while incorporating the unmatched knowledge and experience of those who know the seafood industry best. We look forward to working together as we face the challenge of protecting and sustaining our coastline, and our Louisiana way of life."

"When we began each LSF meeting, we told fishermen we wanted to listen to them," said Robert Twilley, Louisiana Sea Grant executive director. "We hope that when fishermen read this report, they will see their ideas clearly represented."

• For a hard copy of Louisiana's Seafood Future 2019 Findings Report, complete a request form at *www.laseafoodfuture.com/input*.

• Go to *www.laseafoodfuture.com/surveyresults* to see an online version of the report and to view all survey results, including comments from members of Louisiana's seafood industry.

## CSAP Students, Projects Announced

The Louisiana Coastal Protection and Restoration Authority (CPRA) is continuing its commitment to the Coastal Science Assistantship Program (CSAP). This program provides support for master's of science students involved in research relevant to Louisiana coastal protection efforts. This collaboration offers the dual benefit of engaging students in CPRA activities while providing for potential recruitment of qualified personnel for the agency.

The Louisiana Sea Grant College Program (LSG) administers these assistantships, which are available to all Louisiana university faculty, in an effort to recruit outstanding students to coastal restoration-related research. Up to four new students are funded annually, based on review of proposals, with an award of $25,000 each for up to three years. The newest recipients are:

**Adam Gartelman,** Louisiana State University (LSU), College of the Coast and Environment
Major professor: Kehui Xu

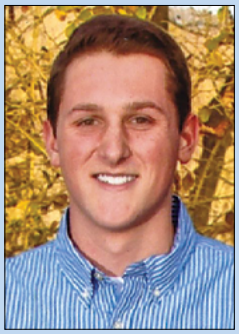
Title: *Quantifying Erosional Process in Sediment Diversion Receiving Basins*

The diversion of sediment-laden river water into adjacent basins is often recommended as a coastal restoration method, but the erosional processes occurring in those basins is not well studied. Current predictions for diversion effectiveness need stratigraphy and erodibility data to be robust and accurate. Gartelmen will work to better understand the super shallow water stratigraphy, the marsh edge erodibility and the marsh edge morphology in middle Barataria Bay and middle Breton Sound, both near and farther from the diversion site. This work will add to a growing volume of valuable data on the erosional processes that must occur before the new lands are built in Barataria Bay.

**Allison Haertling,** The University of New Orleans, College of Liberal Arts
Major professor: Marla Nelson

Title: *Planning for Population Loss in Coastal Louisiana*

In the face of coastal land loss, more advantaged residents tend to relocate leaving behind the increasingly poor and elderly. The community composition will become further altered by subsequent declining tax revenues, reduced economic activities, increased blight, fewer resources and changes to local culture and heritage. Haertling will examine the changing population dynamics of Terrebonne Parish and resulting physical, social and fiscal impacts. This research seeks to identify the current and anticipated impacts of persistent population loss on communities and the planning approaches that can maintain existing infrastructure and services with a decreasing tax base.



**Nick Schuler,** (LSU), Department of Geology and Geophysics
Major professor: Karen Luttrell

Title: *Quantifying Variability in Subsidence Patterns Related to Seasonal Surface Loads across Coastal Louisiana*

Subsidence rates are not uniform across Louisiana. Variations in sedimentation, erosion, compaction, changing hydrologic load and tectonic processes can result in regional and temporal differences in subsidence rates. Schuler will identify and quantify the sources of this geologic patchiness by analyzing variables like uplift, sediment loading and seasonal flooding in an effort to better understand subsidence rates across the state. These results will help reduce uncertainty regarding the geologic components of subsidence, which will result in more effective implementation of Louisiana Coastal Master Plan projects helping current and future efforts to sustain coastal ecosystems, safeguard coastal populations and protect vital economic and cultural resources.

**Omar Shahrear Apu,** Louisiana Tech University, Department of Civil Engineering
Major professor: Jay Wang

Title: *Development of a Standardized (American Society for Testing and Materials, ASTM), Repeatable, and Consistent Geotechnical Laboratory Testing Procedure for the Low Stress Consolidation Test for the Marsh Fill*

Marsh creation projects make up a large part of the 2017 Coastal Master Plan, however, there can be high subsidence of fine-grained soils dredged from the river. To better understand how these sediments will settle and consolidate, Apu will develop a standardized test for the moisture content, grain size distribution and specific gravity of soils. Since regular, soft clay differs from the exceedingly soft dredged fill, different transportation and pumping processing procedures may need to be considered when creating marshes. The purpose of Apu's research is to determine where the conventional procedures must be modified to handle extremely soft dredged fill material.

## Two LSU Students Named Knauss Fellowship Finalists

Two Louisiana State University students have been named 2020 Knauss Fellows. Lauren Bonatakis is a Master of Science student in the School of Renewable Natural Resources who graduates in December 2020. Connor Fagan graduated from the LSU Paul M. Hebert Law Center in May.

"My non-linear path uniquely provided me many opportunities for growth and experience," said Bonatakis, who originally had planned to pursue a career in medical science and had worked as a research assistant at Vanderbilt University Medical Center. The catalyst for her shift to fisheries was an 11-month stint with AmeriCorps.

Lauren Bonatakis

"AmeriCorps was a turning point in my life," she said. "Most of our work was physically taxing. For example, I spent several days cleaning out herring runs in Bourne, Massachusetts. I would trek for a mile or more through narrow streams wearing waders, using loppers to cut down low-lying branches and rakes to scoop out dead organic material clogging the passageway.

"However, learning why the projects were important to the community renewed my spirit," she added. "Though clearing a small waterway seemed monotonous, the greater benefit was to increase access for anadromous fish to complete their life cycle, which aided the larger coastal habitats and food webs, and indirectly, Cape Cod's commercial fisheries."

As a graduate student, Bonatakis collected baseline data on the strengths, weaknesses and opportunities within the state's freshwater commercial fisheries as part of a Louisiana Sea Grant-funded project. She plans on a career in fisheries policy – focused on sustainability of fish stocks while preserving the livelihood of fishermen.

"In 2005, the muddy 17th Street Canal poured into my home," said Fagan. "At that time, the causes of Hurricane Katrina were foreign to me, but the societal costs to the City of New Orleans were clear even then. It was not until five years later that I learned about climate change, sea level rise and warming induced tropical depressions. As a New Orleanian, environmental policy is personal to me."

During his junior year at Rhodes College in Tennessee, Fagan worked for Memphis Area Legal Services where he learned firsthand how


Connor Fagan

federal housing and environmental laws impact communities. While completing his Bachelor of Arts degree at Rhodes, Fagan earned an environmental minor.

"In my final year at Rhodes College, I worked as a teaching intern with the Teton Science Schools in Jackson Hole, Wyoming," he said. "There, I infused environmental science into camping trips in Yellowstone National Park where I led Baltimore high-schoolers, many of whom had never been outside of Baltimore before. After being blown away by the Tetons and their weeks of place-based learning, many students wrote in their journals that they wanted to be scientists.

"My path to applying for the Knauss Fellowship has been filled with these and many other lessons. Through learning from these moments, I have become a multifaceted researcher, policy advocate and teacher in my own right. I aim to continue to do so in Washington," he added.

Last summer, Fagan sat the Colorado Bar Exam, which is accepted in the District of Columbia. He then worked as a law clerk with Van Ness Feldman, an environment/energy firm in Washington, D.C., before he becomes a Knauss Fellow in February 2020.

Sponsored by the National Sea Grant College Program, the John A. Knauss Fellowship matches graduate students with an interest in ocean and coastal resources and national policy affecting those resources with hosts in federal legislative or executive branch offices for one year.

In November, finalists traveled to Washington, D.C., to determine in which offices they will work. Fagan will work at the Marine Mammal Commission. Bonatakis will work in the Office of Science and Technology. Fellowships begin Feb. 1, 2020.

Fellowship applications are submitted through local state Sea Grant programs – such as Louisiana Sea Grant.

## Research Projects for 2020-2022 Omnibus 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 our connection to water – from the Mississippi River to the coastal estuaries. For the 2020-2022 omnibus cycle, LSG will fund three integrated research teams and three core research projects. Below is a synopsis of the projects, along with a list of the investigators and their affiliations.

### Core Research

*Controls of Physical Drivers on Phytoplankton Community Adaptations in a River Diversion Influenced Estuary*

Principal Investigator (PI): Matthew Hiatt, Louisiana State University (LSU), Department of Oceanography and Coastal Sciences
Co-PI: Sibel Bargu, LSU

The Mississippi River set many records this year, necessitating an unprecedented two openings of the Bonnet Carré Spillway. With spillway openings becoming more frequent and diversions planned for the future, there are questions about how things like wind, tides and freshwater pulses will affect the environment. "We want to understand the response of estuaries to these perturbations," said Hiatt. "There's an event of freshwater inflow – it comes and then stops. We want to understand how the system recovers." Hiatt and Bargu are also interested in how these physical environmental changes impact phytoplankton communities — the base of aquatic food webs — in Lake Pontchartrain. Of particular concern is how cyanobacteria respond, as some species can cause Harmful Algal Blooms (HABs). "Louisiana needs to understand the effects of freshwater input on algal bloom dynamics because it's not just going to happen in Lake Pontchartrain. It's going to happen in Breton Sound. It's going to happen in Barataria Bay. We need to know how they're going to change the landscape."

*Innovative Biological Control of* Vibrio *Species in Gulf Oyster Hatcheries*

PI: Aixin Hou, LSU, Department of Environmental Sciences

*Vibrio* has long plagued the seafood industry. These bacteria are a leading cause of food-borne illnesses in the Gulf of Mexico. With the rise in oyster aquaculture, *Vibrio* are infecting new areas – oyster hatcheries. Hou and her lab are trying to find safe, sustainable ways to combat the pathogens using a biological control tool. "We just call them BALOs," said Hou. "They are bacteria that feed on other bacteria, with the added benefit of being good for the environment and human health." In the past, antibiotics were used as treatment, but they are harmful to the environment and gave rise to antibiotic-resistant bacteria. A new approach is required. "One problem with using antibiotics is that you wipe out everything, including beneficial bacteria. BALOs target very specific prey. No potential environmental concerns have been reported." The goal of the project is to find ways to make aquaculture hatchery facilities more productive to further support the state's oyster industry.

*Understanding the Effects of Varying Prey Assemblages on Oyster Feeding in Restoration- and Climate-Impacted Estuaries*

PI: Beth Stauffer, University of Louisiana at Lafayette (ULL), Department of Biology
Co-PI: Jerome LaPeyre, LSU AgCenter

Louisiana's estuaries expected to become hotter and less salty as climate warms and freshwater diversions are implemented. Facing this change is a species of great concern: the oyster. Studies have already looked at how changing salinity and temperature affect oysters, but little research has been done on how those changes affect what they eat. "We're trying to understand how changing estuaries affect the food source for oysters," said Stauffer. "As our estuaries freshen, they might still be salty enough for oysters, but the food web might not be there anymore." Using both lab and field experiments, Stauffer and her team will determine what prey items currently exist, how they respond to environmental changes and how oyster feeding is effected. "We have important investments in shellfish – both for commercial and restoration importance. We also have low salinity estuaries that are going to be changing," said Stauffer. "We need to understand if the temperature and salinity will be hospitable for oyster food webs in these restored and changing estuaries to maximize those investments."

### Integrated Research and Engagement

*Source Area-Based Monitoring, Modeling and Mitigation of Harmful Algal Blooms in Lake Pontchartrain (SAM3HAB)*

PI: Zhiqiang Deng, LSU, Bert S. Turner Department of Civil and Environmental Engineering
Co-PIs: Sibel Bargu (LSU) and Samendra Sherchan (Tulane University)

Excess nutrients cause spikes in phytoplankton populations, and in large quantities certain species of phytoplankton can result in Harmful Algal Blooms (HABs). However, knowing which specific conditions give rise to HABs and predicting them has proven challenging. A new research team hopes to change that. "We are trying to forecast the harmful algal blooms in a way similar to weather forecasting," said Deng. "Based upon this, managers might be able to post information, so that the public is aware of an upcoming algal bloom." HABs can pose health risks to the environment, fisheries and even human health, all of which can have impacts on Louisiana's recreation and tourism in the popular Lake Pontchartrain area. Deng has experience using machine learning to forecast other types of outbreaks and is optimistic that the approach can be applied here as well. And the team hopes to take the research a step further by identifying some of the major sources contributing the nutrients. "The early warning can only partly protect the public, but it doesn't reduce the occurrence. We'll need to eventually address the source issues, but we need to first identify the critical sources."

*Incentives and Barriers to Increased Freeboard to Enhance Flood Resilience: Southeast Louisiana Perspectives*

PI: Carol Friedland, LSU, Bert S. Turner Department of Construction Management
Co-PIs: Monica Farris (University of New Orleans), Robert Rohli (LSU) and Yongcheol Lee (LSU)

Freeboard is the clearance height a home or business has above the base flood elevation. With over 50 percent of Louisiana in the flood plain, this is an important cushion. However, there is no state freeboard requirement, though some parishes are proactively creating their own. Friedland and her team of researchers want to better understand what obstacles are preventing homeowners, homebuilders and parish officials from increasing freeboard and what could be done to incentivize it. "If you elevate at the time you build, you could elevate 20 buildings instead of one." said Friedland. "I believe a resilient home or business is fundamentally a cost saving measure, rather than having repeated floods and losing the things you have worked to build up for you and your family." The research team's work will focus in Jefferson, St. Tammany and Terrebonne parishes. "All three parishes have different levels of freeboard, have shown interest in higher regulatory standards and moving forward with flood plain management. And all three have a high risk of flooding," said Farris about the communities selected. And increasing freeboard doesn't just improve the quality of life of the homeowners, it has the potential to ripple through the community. "The money saved by enhancing mitigation and reducing payouts can be spent in other more productive ways that contribute to a better society and a higher quality of life," said Rohli.

*Recovery of Louisiana's Iconic Shellfish: Diagnosis and Evaluation of White Spot Syndrome Virus Disease in Crawfish*

PI: Christopher Green, LSU AgCenter
Co-PIs: John Hawke (LSU) and Stephen Midway (LSU)

Crawfish are part of Louisiana's cultural identity and increasingly important to the economy. That is why concern has grown regarding a virus that is killing the species. White Spot Syndrome Virus infiltrates crawfish, disrupts their natural body functions and ultimately results in the death of the crawfish (the virus poses no threat to human health). Despite being identified 10 years ago, little research has been done on the virus. Green and his team of researchers will change this by studying both the disease and the conditions that give rise to it. "We're combining laboratory investigations on how this virus works with field-based environmental factors to understand outbreaks better," said Green. This research will involve a strong collaborative effort with crawfish farmers and the Louisiana Crawfish Promotion and Research Board. Grant funds have been allocated to provide free shipping and testing of suspected virus-infected crawfish at the LSU Vet School, with all results remaining confidential. "At the end of the day," said Green, "we want to let farmers know if there are practices or conditions that make outbreaks more likely. The ultimate goal is to provide best management practices for producers so that they could reduce their chances of outbreaks in the future.

The execution of these projects is subject to the availability of National Oceanic and Atmospheric Administration (NOAA) resources and is scheduled to begin Feb. 1, 2020.

## A Coastal View

I want to thank everyone who took part in our Louisiana seafood industry regional meetings, discussions and questionnaires as part of the Louisiana Seafood Future (LSF) project. We appreciate you taking the time to tell us about the challenges facing the seafood businesses.

In rounds of meetings throughout the coast, we asked industry members to share ideas of how they have adapted to our changing fisheries over time, and what to consider when thinking about innovations for the industry in the future. You've helped identify some of the tools required to keep our state's seafood industry going strong – taking into account both long-term and short-term ecosystems, economic and community needs.

Our goal with the LSF outreach effort was to be inclusive. We gave members of Louisiana's commercial fishing industry – crabbers, shrimpers, fin fishers, oyster fishermen, dock workers and processors – multiple ways to tell us what they thought. Surveys were completed at regional meetings, 10,000 hard-copy questionnaires were mailed, and industry members also could take part in an online survey.

In total, we collected more than 1,000 pages of information about what the Louisiana seafood industry is thinking about, worried about and planning for. Highlights of what we learned are available in a summary report recently presented to the governor. Every comment – as well as the report – is available on the LSF website (*www.laseafoodfuture.com*).

Again, I thank everyone who participated in LSF. Your input will help the state as it moves forward in dealing with habitat loss, water quality, coastal protection and restoration issues.

Robert Twilley, Ph.D
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