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Coastal Clips

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HB335 Requires Restaurants to Tell Patrons They're Eating Imported Seafood

A bill adopted by the Louisiana Legislature will require all food service establishments to tell their customers if they are being served crawfish or shrimp imported from a foreign country.

House Bill 335, authored by Jerry "Truck" Gisclair (D-LaRose), was approved by the Legislature on May 31. According to the bill, "the state recognizes that serious risks to public health may be posed by antibiotics, radiation and numerous toxins found in seafood products … that originate outside the United States."

Restaurants will be required to display on their menus the country of origin of imported crawfish and shrimp immediately adjacent to the menu listing. Restaurants not having a menu will be required to have an 18-inch by 18-inch sign posted at their entrances notifying customers.

Research conducted by former Louisiana State University doctoral student Murshida Khan and Louisiana Sea Grant College Program and LSU AgCenter fisheries specialist Julie Lively showed antibiotic and microbial residue on imported shrimp purchased at various markets and grocery stores in Baton Rouge during Winter 2016 and Spring 2017.

For antibiotic residue tests, out of 42 samples, 30 were positive for nitrofurantoin, two for malachite green, three for oxytetracycline and seven for fluoroquinolone. Nitrofurantoin, oxytetracycline and fluoroquinolone are antibiotics. Malachite green is an antimicrobial used in aquaculture.

Khan also discovered sulfite residue on all imported shrimp samples, with the exception of those from Ecuador. Sulfite residue was below U.S. Food and Drug Administration limits, but it was not included on the packages' ingredient lists as required by law.

"While we knew a common reason for import rejection at customs is antibiotic contamination, we never expected to find this many samples readily available for purchase in Baton Rouge to test positive," said Lively. "It was also really concerning for anyone with a sulfite allergy or health trigger that most of the shrimp was exposed to sulfite at some point, but not labeled."

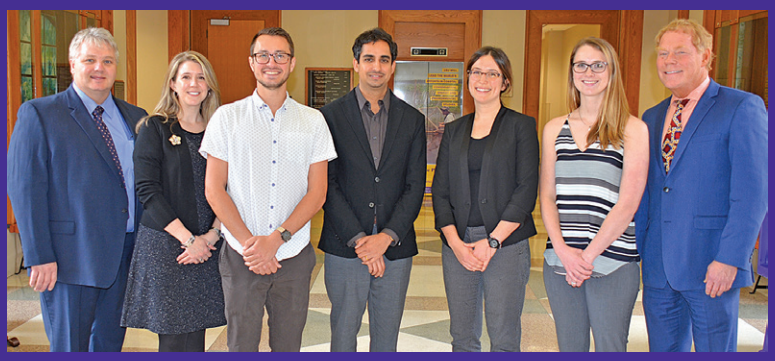
More than 90 percent of the seafood consumed in the United States is imported from other countries. Shrimp is the leading fresh or frozen product imported to the U.S., accounting for about 33 percent of all seafood imports by weight. The average American eats 4.4 pounds of shrimp and a total of 16 pounds of seafood annually.

Khan graduated from LSU in 2018. An abstract of her dissertation can be found at *https://eos.ucs.uri.edu/seagrant_Linked_Documents/lsu/Khan_diss.pdf*.

LSU, ULL Students Win Research Presentation Competition

LSU COASTAL CONNECTIONS

Congratulations to Nick Haddad, Hanna Bauer and Chelsea Hess – winners of the Coastal Connections Competition (3C) held this spring at LSU. Judges were Becky Carmichael, Prosanta Chakrabarty and Jim Engster - and Rex Caffey served as moderator.



Pictured left to right: Caffey, director of Marine Extension at Louisiana Sea Grant; Carmichael, LSU Communication Across the Curriculum science coordinator; Haddad, graduate student in Department of Renewable Natural Resources; Chakrabarty, associate professor, LSU Department of Biological Sciences; Bauer, graduate student in Department of Oceanography and Coastal Studies; Hess, graduate student in Department of Biological Sciences; Engster, award-winning journalist and president of the Louisiana Radio Network.

ULL COASTAL CONNECTIONS

At the Coastal Connections competition held at the University of Louisiana at Lafayette this spring, winners were Andrea Santariello, graduate student in the Department of Biology; Andrea Jaegge, graduate student in the Department of Biology; and Meredith Guidry, graduate student in the School of Architecture and Design (left to right). Judges were Pearson Cross, associate dean of the College of Liberal Arts at ULL; Judith Meriwether, development director of the NRP affiliate KRVS 88.7 Radio Acadie; and John Foret, environmental operations leader for C.H. Fenstermaker & Associates. Robert Twilley, Louisiana Sea Grant executive director, served as moderator.

The competition is modified from the Three Minute Thesis (3MT™) approach to research communication. Coastal Connections develops research communication skills while supporting the development of students' capacities to effectively explain their research's relevance. Graduate students have three minutes to present a compelling oration on their research and its significance.

Sea Grant Participates in Coastal-Hydrologic Consortium

Regional water management has become a critical issue not only in Louisiana, but around the country and world. Repeated high water events on the Mississippi River lead to widespread flooding, rain events that leave resident's homes flooded and streets unpassable, and storm systems that can cause personal and economic hardship are becoming more common.

It's crucial that the science and the transformation of that science into actionable projects and programs be developed and as such, Louisiana State University, the Louisiana Sea Grant College Program (LSG), the University of Iowa and The Water Institute of the Gulf signed a memorandum of understanding to form the Coastal-Hydrologic Consortium.

The MOU outlines that the partners recognize that together they are better able to develop research projects that help advance science and engineering of coastal-hydrologic processes that include the connections between coastal and inland for the purpose of making communities and economies more resilient in the face of disaster.

"Universities produce the research needed to solve problems, while Louisiana Sea Grant and the Water Institute provide the outreach to put that research to work for elected officials, decisions makers and the public," said Robert Twilley, LSG executive director. "This consortium provides the mechanism to create a powerful synergy and increase all of our abilities to problem solve around this important issue."

"Our mission is to find ways to collaborate to not only perform the best science possible, but to find ways to get that information presented in a way that decisions can be made for our communities' future," added Scott Hagen, director of LSU's Center of Coastal Resiliency and LSG Laborde Chair.

Signing the memorandum of understanding are (seated at table, top to bottom) Justin Ehrenwerth, Water Institute of the Gulf president and CEO; Robert Twilley, Louisiana Sea Grant executive director; Larry Weber, Edwin B. Green Chair in Hydraulics at the University of Iowa; Sam Bentley, Louisiana State University vice president of Research and Economic Development; and F. King Alexander, president of LSU.

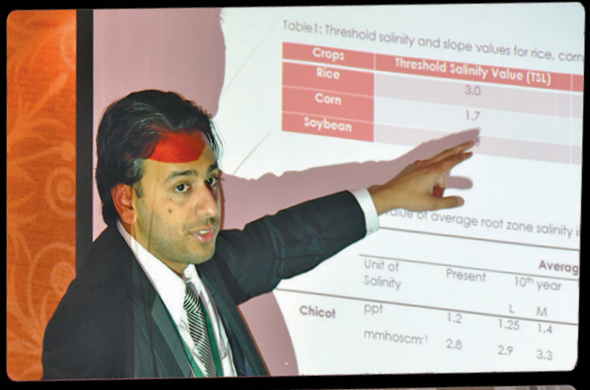
CNREP Focused on Topics of Increased Importance

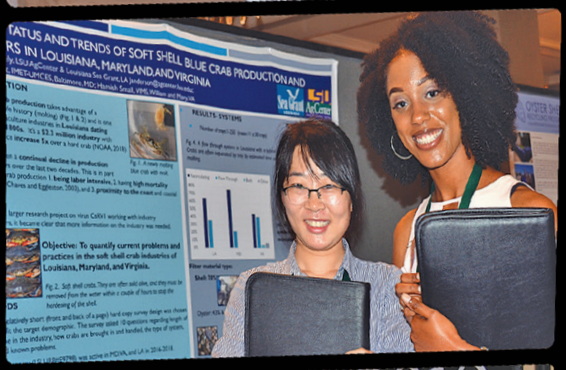
The Center for Natural Resource Economics & Policy (CNREP) held its sixth national conference in New Orleans during late spring. Louisiana Sea Grant (LSG) supported forum has become the primary venue for coastal socioeconomic research in the Gulf of Mexico region, and participation in the forum has tripled since the inaugural meeting in 2004. The 2019 conference featured 162 technical presentations from nearly 200 attendees representing 22 states and five countries.

"A quick search of this year's program depicts topics that have always been a mainstay of our forum," said Rex Caffey, CNREP director and Director of Marine Extension for Louisiana Sea Grant and the LSU AgCenter. "The word *coast* appeared 345 times, followed by other frequent flyers like *water*, 324 times; *economic*, 299 times and *resource*, 172 times.

"A similar search reveals a more recent focus on issues of increasing importance since the 2016 gathering, such as *flood*, 147 times; *risk*, 120 times and *insurance*, 48 times. Moreover, a range of emerging conference topics signaled some of the latest frontiers in coastal socioeconomic research – including words like *access*, *health* and *avulsion*," he added.

CNREP is a network of social scientists engaged in research and extension programs that contribute to the management and sustainability of natural resources. Projects are maintained in a variety of areas related to energy, coastal and inland wetlands, fisheries, forests, wildlife, land and water resources. For more about CNREP, the 2019 conference and conference abstracts, visit *www.cnrep.lsu.edu*.



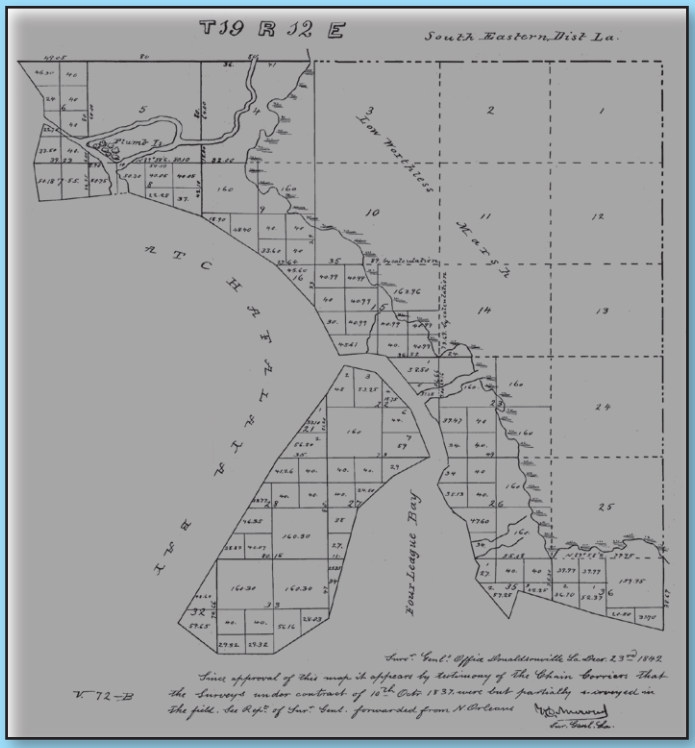


Blue Carbon: A Buried Benefit for the Climate

Some 40 percent of the nation's coastal marshes reside in Louisiana. These wetland habitats are vital to the state's economy, ecology, resilience and, most recently, the climate.

Marshes were not always recognized for their national importance. In 1949, the federal government passed a Swamp Land Act for Louisiana designed to drain more than nine million acres of wetland habitat and convert it to more "productive" uses. These habitats were seen as "worthless".

It wasn't until the 1950s that there was growing recognition of important benefits derived from wetlands. They filter water, provide nursery habitat for fisheries, buffer against storms and so on. A lot of research has demonstrated how marshes benefit the state, but there is growing research on how wetlands benefit the globe through carbon sequestration.



An 1842 surveyor's assessment of Southeastern Louisiana (note the designation of low worthless marsh). Image courtesy of T. Baker Smith, LLC.

For the past few years, Louisiana Sea Grant supported researchers at Louisiana State University have studied the blue carbon capacity of coastal wetlands. Blue carbon is carbon that is being stored long term in marine ecosystems like mangroves, coastal wetlands, tidal marshes, salt marshes and seagrass beds. By being sequestered, this carbon is not currently adding to climate change.

"These blue carbon systems are extremely productive. They are sequestering lots of carbon dioxide from the atmosphere," said LSU researcher Tracy Quirk. "These coastal systems occupy something like two percent of the Earth's surface, but they're per square meter ability to accumulate carbon is quite high."

Quirk's lab has been looking at how and where Louisiana marshes' store their carbon. "A lot of people define blue carbon as the carbon that's accumulating in the soil, but it's also the plant biomass itself." Her close examination of salt marshes has led to some interesting findings.

(Continued on next page)

Pointe-au-Chien Tribe Receives Spirit of Community Award

Members of the Gulf of Mexico Climate and Resilience Community of Practice (CoP) recently selected the Pointe-au-Chien Indian Tribe as the recipient of the 2019 Spirit of Community Award for its exemplary work in the field of climate adaptation planning and environmental resilience. They were nominated for the award by Matt Bethel, Louisiana Sea Grant College Program (LSG) associate director, and Marian Hanisko, NOAA Office of Coastal Management.

The Pointe-au-Chien Indian Tribe consists of 750 members who occupy the southernmost portions of Terrebonne and Lafourche parishes. Historically, the residents of this area made a living as farmers, fishermen, trappers and hunters. Unfortunately, this way of life has been compromised over time by the impacts of sea-level rise and coastal storms, which have led to land loss, saltwater intrusion and lack of freshwater.

Residents have adapted to the changing landscape by migrating north along the Bayou Pointe aux Chenes and elevating their homes. Members of the community do not want to relocate, if they can help it, so they have partnered with CoP members to assess their climate vulnerabilities and enhance their hazard mitigation planning efforts.

The tribe has partnered with LSG to combine their traditional local knowledge (TLK) of the area with scientific and geospatial datasets to identify and map habitat changes over time, while also identifying key cultural sites that are in danger of eroding away.

Efforts to assess vulnerability have enabled them to prioritize areas of cultural significance for adaptation measures, and they have actively sought new partnerships and funding to support adaptation activities. For example, in 2017, the tribe partnered with the Coalition to Restore Coastal Louisiana and Terrebonne and Lafourche parishes to submit a proposal to the Gulf of Mexico Alliance (GOMA) for a community small grant to install an oyster reef to mitigate shoreline erosion and protect cultural resources.

The tribe was also instrumental in supporting CoP initiatives, such as the Coastal Resilience Index. In 2017, the tribe partnered with LSG and GOMA into incorporate local knowledge into the resilience self-assessment. The tribe's willingness to include CoP members in its work has provided a valuable learning opportunity to explore how resilience and adaptation tools work across different cultures.

Members of the Pointe-au-Chien tribe and researchers during a recent network visioning effort.

First, the marshes ability to store carbon is not equal nor uniform. An original hypothesis that marsh age was the primary driver of carbon storage was refuted. As were other factors like elevation, water levels and the amount of minerals in the sediment. Ultimately, they found one marsh feature correlated with greater carbon storage – the density of the vegetation.

"High-density species, like *Spartina patens*, are the ones that are contributing the most to the carbon." This species typically occupies higher elevations where it outcompetes its low-lying counterpart, *Spartina alterniflora*. This conclusion answered one question but raised another: What was keeping the *S. patens* from thriving in the newly created marshes?

"*S. patens* is typically the dominant competitor over *S. alterniflora*. *Alterniflora* can tolerate inundation. If you transplant *S. patens* to the lower elevations it will die, but at higher elevations it is a better competitor. But that dynamic is reversed if you add nutrients. Nutrient fertilization reverses the competitive dominance."

And it turns out that these newly created marshes have lots of nutrients, which *S. alterniflora* was rapidly sucking up. This allows it to thrive to the detriment of *S. patens*. "So, these two stories which we didn't initially think were connected, actually are. When thinking about the conditions necessary to promote high-density species, like *S. patens*, we need relatively low nutrient availability and higher elevations. And in those areas, you'll have more carbon accumulation rates in this system."

This research has obvious implications of Louisiana and its future. With billions of dollars earmarked for marsh creation, it's of vital importance to know how to build sustainable marshes. Additionally, maintaining Louisiana marshes is of global concern for their ability to effectively sequester carbon.

"These systems are vulnerable to degradation," said Quirk. "There's opportunity there for us to use this science of having really high productivity and carbon accumulation rates and justifying some restoration and protection for these systems."

LSU researcher Tracy Quirk in her wetland plant greenhouse. Quirk is an assistant professor in the Department of Oceanography and Coastal Sciences.

While Louisiana Sea Grant Executive Director Robert Twilley is on sabbatical, "A Coastal View" – written by Sea Grant sponsored graduate students – will replace "A Message from the Executive Director."

A Coastal View

Louisiana's freshwater commercial fisheries are an important yet overlooked contributor to the state's economy with over $17 million in annual revenue, however, they are often overshadowed by the more robust marine industry. Regrettably, the fisheries appear to be on the brink of economic collapse as fewer fishermen are entering the field, fish processors close and market prices remain stagnant. Because of this, the industry may lack the resources needed to be sustained for future generations.

In my research, I aim to better understand the freshwater commercial sector by surveying currently practicing fishermen as well as analyzing historic landings data. This helps identify and visualize any trends that can shed light on the success of this industry. Some of the freshwater species targeted by fishermen were wild crawfish (by far the most lucrative), blue catfish, buffalo, channel catfish, gizzard shad and alligator gar.

This project – funded through Louisiana Fisheries Forward, a collaboration between Louisiana Sea Grant and Louisiana Department of Wildlife and Fisheries – aims to improve the economic success of Louisiana's commercial fishing industry. Ultimately, the findings will provide relevant information needed to develop proper education and outreach opportunities for members of the fisheries sector to use in order to increase the marketability of their product.

Gathering this data, took time and travel. I spent months visiting fish houses where freshwater commercial fishermen frequently sell their catch. We gauged their fishing effort and success, as well as their opinions and attitudes regarding ecological, regulatory and anthropogenic factors they believe are impacting their fishing success through in-person surveys.

Engaging with fishermen was an incredibly informative and rewarding experience, as I was able to use their local knowledge and experiences to shed light on the current status of the freshwater fisheries. They are a dedicated group, with many saying if given the opportunity to re-do their careers, they would still want to be fishermen. But they do see the realities of the current status of the fishery; many indicated that they would not encourage their children to join them in the family business.

Little is known about the freshwater fisheries in Louisiana, and these surveys started discussions and these discussions became invaluable data. My research has taught me the importance of engaging with local stakeholders. As men and women who make Louisiana's freshwater lakes and rivers their workplace, the inherent knowledge fishermen possess is incomparable to anything a scientist can collect from traditional sampling. It is my hope that my research can help increase the relevance of the freshwater commercial fisheries in Louisiana.

Lauren Bonatakis
LSU Department of Renewable Natural Resources

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Louisiana Sea Grant Seeks Public Comment for Program Review

The Louisiana Sea Grant College Program (LSG) will have its scheduled four-year site review on Sept. 10 -12, 2019 at the Estuary at the Water Campus, 1110 South River Road, Baton Rouge, LA 70802. A federal Site Review Team convened by the National Sea Grant College Program will consider all aspects of LSG's management and organization, performance, stakeholder engagement and collaborative activities, including those with various offices of the National Oceanic and Atmospheric Administration (NOAA).

People who would like to offer comments to the review team on these aspects of the program are invited to submit written statements no later than Tuesday, Sept. 3, 2019. Comments should be e-mailed to the National Sea Grant College Program at *oar.sg-feedback@noaa.gov*. Please put "Louisiana Sea Grant Site Review" in the subject line.

Thank you for assisting us by letting the review team hear from you.