

LOUISIANA SEA GRANT

INTRODUCTION

The most important research and outreach challenges that Louisiana Sea Grant (LSG) faces relate to sustainability of communities and ecosystems in the hurricane-prone deltaic coast bordering the northern Gulf of Mexico. The 2005 tropical storm season with Hurricanes Katrina and Rita, and the 2008 storm season with Hurricanes Gustav and Ike, revealed much about the region's increasing hurricane vulnerabilities and associated secondary impacts of disturbance to a degrading delta.

Additional economic and environmental vulnerabilities were exposed during the 2010 Deepwater Horizon oil spill, the 2008 and 2011 Mississippi River floods, and, most recently, Hurricane Isaac. This deltaic coast, with reliance of communities on ecosystem services, will also continue to be confronted with the effects of climate change, sea level rise, and land subsidence on coastal parishes (counties) and their residents.

Administration of this cross-disciplinary, multi-institutional effort is the responsibility of LSG. Although the primary functions of the office are unchanged, the scope and complexity of its activities have expanded tremendously since 1968. LSG actively promotes inter- and intra-university involvement in State, regional, and Federal marine affairs; incubates new institutional capabilities and programs; conducts and coordinates marine informational and advisory services; and provides advisory and referral services for many agencies, businesses, and individuals.

Eighty-five percent of Louisiana's population – LSG's primary constituency – resides in a vulnerable deltaic coast, which is also a major locus of strategically important seafood, oil and gas, maritime, refining, and petrochemical industries of great national significance. The program can provide services most effectively by actively recruiting relevant research projects and by establishing and maintaining an aggressive outreach program that relies on partnerships with State and Federal agencies and private companies to supplement limited resources.



SAFE & SUSTAINABLE SEAFOOD

Louisiana has experienced a decline in many of its major fisheries while seafood consumption nationwide has been simultaneously on the rise. Louisiana Sea Grant (LSG), through its research, Extension, and Education activities, and work with industry partners, has helped to stabilize and improve many sectors of our fisheries industry.

According to the NOAA Aquaculture Program, mariculture (aquaculture of saltwater species) is in its infancy in the U.S., amounting to just over \$1 billion of a \$70 billion worldwide industry. This is especially so in Louisiana. Mariculture creates important new opportunities to meet the increased demand for seafood, but a number of questions need to be addressed for its full potential to be realized.

Seafood safety is a growing concern as international trade increases and fish diseases and contamination of imports loom as larger problems. LSG plays key roles in advancing public understanding of the nature of these problems and opportunities. Through the use of its research, Extension, and Education capacities, LSG supports the kind of informed public and private decision making that leads to a sustainable supply of safe seafood long into the future.

RESEARCH

Seafood Waste Turned into Crab Bait

Julie Anderson, LSG fisheries specialist, is exploring ways to turn seafood byproducts into crab bait that could help blue crab fishermen stave off rising costs associated with having baitfish shipped from the Atlantic Ocean.

The experimental bait starts as a gel made from algae. Anderson then adds different types of seafood byproducts to the gel, testing each one to see which is the most appetizing. The goal is to create bait that is less expensive but maintains the same blue crab catch levels as traditional bait. “It’s like we’re trying different flavors of Jell-O,” she said. Lab results show that shrimp byproducts are the most popular bait flavor. The next step in the research is field-testing the experimental baits over several harvest seasons.

The most popular baitfish for Louisiana crabbers is Atlantic-caught menhaden. But the small fish is valuable for more than just baiting crab traps. It is also harvested as a source of omega-3 fatty acids and for other human uses. The high demand has caused Atlantic states to worry that the population is being overfished.



Alligator Industry Research

In Louisiana, alligator farmers bring in nearly \$47.5 million annually, with roughly \$43.4 million of the value coming from trade in skins.



Finding the most efficient means of raising these animals is the goal of the Alligator Research Facility (ARF). Construction on the \$150,000, approximately 3,600 square-foot, insulated metal building was completed in 2012.

Since alligators are strictly carnivores, a farmer’s biggest expense is feed, according to Mark Shirley, a Marine Extension agent with LSG who helped secure industry funding for the research facility. Shirley, who keeps farmers up-to-date on pertinent issues as LSG’s alligator specialist, said the high-protein, animal-based

commercial pellets can cost as much as \$1,000 per ton – far more than any other livestock feed. One of ARF’s objectives is to determine the most economical feed without sacrificing alligator hide and meat quality.

“The industry needs some practical questions answered,” noted Greg Lutz, LSG aquaculture specialist. Aside from questions about nutrition, ARF will be used to study growth rate, skin quality and survival of farmed alligators. “No one has ever built a facility like this before,” he said. “We are moving cautiously at every step to make sure it works and that it is a realistic environment, like what you would find at a farm. This is the only one in the world for the study of the American alligator.”

Safe Harbor Options Studied

LSG is spearheading a study looking into safe harbor options for commercial fishermen in the Vermilion Bay area. The idea is to identify which points along waterways are passable and which are impassable due to depth, in light of the vessel dimensions of the commercial fishing fleet in the area. Once the information is collected and researchers have an idea of what the water bottoms look like, engineers can create designs and develop size and cost estimates of what the infrastructure for a safe harbor might entail. The project is the result of a \$35,000 FEMA Community Resilience Innovation Challenges grant, sponsored by the Rockefeller Foundation.

By destroying, damaging or pushing boats inshore, Hurricanes Katrina and Rita put as much as 55 percent of the commercial fishing fleet out of commission during the 2006 fishing seasons. Safe harbor options allow commercial harvesters to get back on the water quickly following a storm to meet the local and national demand for seafood.



OUTREACH

Louisiana Direct Seafood

LSG Extension personnel secured a \$549,000 grant from the Gulf States Marine Fisheries Commission for expansion of the Delcambre Direct Seafood Marketing Program, an online direct marketing effort connecting local fishermen to seafood consumers. In the past three years, the program, now called Louisiana Direct, has been expanded to four coastal locations. Louisiana Direct allows fishermen to receive a premium price for their product, often pre-selling much of their catch through their online presence before they reach dock.

In Delcambre, direct sales have solidified at a facility called Bayou Carlin Cove, which has space for multiple fishermen to sell their catch, as well as a 7,500 square-foot pavilion for a seafood and farmers market. LSG worked with local officials in their efforts to acquire a \$3.4 million federal community development grant and \$600,000 from the Twin Parish Port District for Bayou Carlin Cove.



Trade Adjustment Act

LSG Extension agents partnered with the Farm Service Agency to provide the intensive technical training mandated under the Trade Adjustment Act (TAA). Recent trade petitions from the Gulf shrimp sector secured more than \$100 million in TAA funding, but to be eligible for financial payments, shrimpers had to first complete 12 hours of technical assistance training. A total of 2,351 shrimp harvesters in Louisiana qualified. Topics ranging from product quality to business plan development were featured in more than 60 coastal meetings conducted by Marine Extension agents from November 2010 to April 2011.

Commercial Distributorship of Oyster Lab Products

The Louisiana Oyster Dealers and Growers Association (LODGA) and LSG entered into a contractual agreement for the commercial distribution of LSG oyster lab products. Under the contract, LODGA is responsible for the sale of oyster larvae and seed produced at LSG's lab on Grand Isle. The products – bred from broodstock maintained at the lab – include eyed diploid and triploid larvae, and diploid and triploid oyster seed, as well as disease-resistant diploid seed.

Triploid oysters are a new line of oysters that exhibit greater summertime meat yield and growth compared to wild oysters, due to sexual sterility from having three sets of chromosomes. Diploid oysters are found in nature, having two sets of chromosomes.

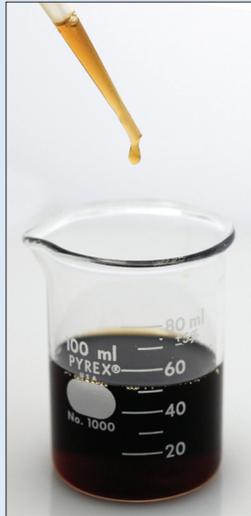
Triploid oysters are a result of crossing a special broodstock of tetraploid oysters, having four sets of chromosomes, with diploid oysters. Triploid oysters and tetraploid oyster broodstock are the result of 20 years of research. LSG also produces wild diploid oyster larvae for the Louisiana Department of Wildlife and Fisheries' public oyster reef restoration program.

The lab's disease-resistant line of oyster seed is the result of nearly a decade of federal- and state-funded research.



Making Urban and Suburban Inroads

Sea to Table events hosted by LSG were conducted in both the Greater New Orleans Area and Baton Rouge. The four events – held at Whole Foods Markets – provided consumers with information on how to purchase quality, fresh seafood, and how to pair seafood with wines, and featured samples of sustainable Gulf seafood. Additional hosts included the Audubon Nature Institute’s GULF program, the LSU AgCenter, and Whole Foods.



GoMRI Oil Spill Research Outreach Program

The four Gulf of Mexico Sea Grant college programs (GoMEXSGP) are funded by the Gulf of Mexico Research Initiative (GoMRI) to implement a two-year oil spill science extension and outreach (EO) program. The purpose of this project is to enhance the overall GoMRI outreach effort in the Gulf of Mexico and beyond by translating findings – including information on the safety of Gulf seafood – from GoMRI research into useable products and information. Ultimately, the program will demonstrate how high-quality science, such as that coming from GoMRI-sponsored work, is critical for a healthy Gulf of Mexico. The GoMRI/Sea Grant outreach program functions regionally and shares results regionally and nationally through the Sea Grant network, and enhances the economic, environmental, and/or societal benefits of GoMRI’s research.

EDUCATION

Louisiana Fisheries Forward

LSG Extension personnel secured a \$1.2 million grant to develop a professionalism-training program for commercial fishermen. The program, Louisiana Fisheries Forward (LFF), is a voluntary curriculum of web-based videos, printed materials and workshops focusing on issues ranging from quality assurance to business planning. In 2014, more than 600 commercial fishermen participated in LFF workshops held at coastal locations throughout the state.

LFF expands on programs, seminars and other annual outreach events hosted by LSG. “New industry realities require that fishermen, dock owners, and processors are equipped to understand business trends and strategies, technologies, and policies in order to survive in an increasingly competitive and more regulated trade,” said Thomas Hymel, LSG Marine Extension agent and LFF director. “Our overall goal is to improve the economic viability and resource stewardship of Louisiana’s commercial fishing industry.”

HACCP Training

Fishermen, aquaculturists, dock owners, seafood processors, and producers of specialty foods from as far away as Alaska attended three-day seafood Hazard Analysis and Critical Control Points (HACCP) trainings hosted by LSG.



HACCP is a means of internal control for safety, consistency, awareness, and correction of process deviation in the food industry. At one LSG-sponsored training, 28 workshop participants came from seven states to study the Food and Drug Administration-recognized curriculum. Implementation of a HACCP plan in seafood processing facilities has been a federal requirement since 1997.

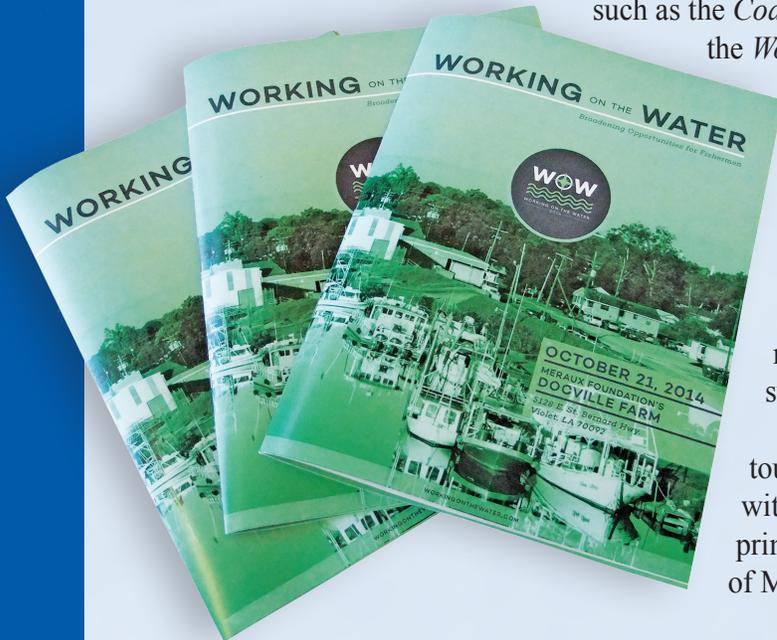
Exploring Eco-Tourism Opportunities

Coastal landowners, farmers, charter fishermen, marina owners, swamp tour operators and others interested in income opportunities from nature-based tourism attended LSG-sponsored seminars, such as the *Coastal Ecotourism Workshop* at Stella Plantation,

the *Working on the Water Summit* in St. Bernard, and the *Lake Charles Eco-Tourism Workshop*.

Topics participants explored included revenue potential from natural resource enterprises, business plan development, and liability and legal considerations. As a result, several nature-based tourism business partnerships have developed, along with the creation of new revenue streams for sole proprietor establishments such as a shrimp harvest tour.

Secondary revenue sources from nature-based tourism can often provide commercial fishermen with the supplemental income needed to keep their primary enterprise afloat – the harvest of wild, Gulf of Mexico seafood.



Aiding Under-served Communities

Fishermen whose first language is Vietnamese comprise up to 40 percent of the commercial fishing fleet, according to the Louisiana Department of Wildlife and Fisheries.

LSG Marine Extension agent Thu Bui works with both Anglo and Asian commercial fishermen, but her fluency in Vietnamese allows Sea Grant to reach a significant and sometimes under-served population. Bui translates critical documents, as well as at seminars, reaching hundreds of Vietnamese fishermen annually.

She has worked to make commercial and recreational fishermen aware when commercial divers are in the water and that boats should keep their distance. The award-winning effort entails bilingual signage at marinas instructing boaters about day and night diving shapes, and workshops educating dive and fishing boats on how to communicate with each other and indicate where divers are submerged.

Bui maintained frequent contact with fishermen regarding closed fishing zones and provided information concerning claims, the Vessel of Opportunity Program, and training meetings during the BP oil spill. She also interpreted technical reports and other information for fishermen and the Vietnamese-speaking public, and orchestrated special outreach for members of the state's Vietnamese fishing community during the spill.



PIER PRP Program Focus Area Report

Louisiana Sea Grant

Safe and Sustainable Seafood Supply

Program Focus Area: SAFE AND SUSTAINABLE SEAFOOD SUPPLY

Program Goals

1. A sustainable supply of safe Louisiana seafood that meets public demand at affordable prices.
2. A healthy Louisiana seafood industry that harvests, produces, processes, and markets seafood responsibly and efficiently
3. Informed consumers who understand the importance of ecosystem health and sustainable harvesting practices to the future of Louisiana's fisheries, who appreciate the health benefits of seafood consumption, and who understand how to evaluate the safety of the seafood products they buy

JUMP TO REPORT SECTION

[Full Text of Impacts](#)

[Program Performance Measures](#)

[Objectives](#)

Impacts and Accomplishments toward Program Goals

1. Program Goal: A sustainable supply of safe Louisiana seafood that meets public demand at affordable prices.

Impact(s)

- o [21614](#) - Gulf Sea Grant programs leverage more than \$10 million in resources to address regional needs, strengthen regional partnerships
- o [21262](#) - Bayou Carlin Cove Project
- o [21248](#) - Louisiana Direct Budget Generator
- o [21241](#) - Crab Industry Workshops
- o [21227](#) - Alligator Research Facility Up and Running
- o [21226](#) - Revitalizing the crawfish Industry in Plaquemines and St Bernard parishes
- o [16777](#) - Louisiana Wild Certified Seafood Program Development
- o [16759](#) - Drafting & Implementation of State Plan on Alternative Oyster Culture
- o [16756](#) - Blue Crab Fishery Certified as Sustainable
- o [6624](#) - Lake Calcasieu Oyster Harvesting

Accomplishment(s)

- o [21249](#) - Impacts of Freshwater Diversion on Louisiana Oysters Projected by a Hydrodynamics, Water Quality and Oyster Population Coupled Model
- o [21246](#) - Sea to Table
- o [21203](#) - Off-bottom suspension can reduce vibrio accumulation in oysters
- o [19356](#) - Alternative Blue crab bait development
- o [16786](#) - Alligator Research Facility Developed
- o [14814](#) - Development of Alternative Oyster Farming Zones in the Northern Gulf of Mexico

2. Program Goal: A healthy Louisiana seafood industry that harvests, produces, processes, and markets seafood responsibly and efficiently

Impact(s)

- o [21614](#) - Gulf Sea Grant programs leverage more than \$10 million in resources to address regional needs, strengthen regional partnerships
- o [21262](#) - Bayou Carlin Cove Project
- o [21248](#) - Louisiana Direct Budget Generator
- o [21241](#) - Crab Industry Workshops
- o [21227](#) - Alligator Research Facility Up and Running
- o [21226](#) - Revitalizing the crawfish Industry in Plaquemines and St Bernard parishes
- o [19448](#) - Louisiana Sea Grant promotes small business development through seafood processing technology transfer
- o [16783](#) - Louisiana Sea Grant Develops Vermilion Bay Sweet Brand
- o [16777](#) - Louisiana Wild Certified Seafood Program Development
- o [16763](#) - \$1.9 Million in Economic Benefit from Increased Crawfish Production Efficiency
- o [16761](#) - Market Umbrella Organization/Crescent City Farmers Market Community Supported Fishery
- o [16756](#) - Blue Crab Fishery Certified as Sustainable
- o [16752](#) - Louisiana Direct Seafood
- o [6624](#) - Lake Calcasieu Oyster Harvesting

Accomplishment(s)

- o [21246](#) - Sea to Table

- o [21237](#) - Voluntary Dockside Turtle Exclusion Device Compliance Demonstration Workshop
- o [21229](#) - Harbor of Refuge for Commercial Fishing Vessels
- o [21203](#) - Off-bottom suspension can reduce vibrio accumulation in oysters
- o [19457](#) - Training Louisiana's Commercial Fishers
- o [19356](#) - Alternative Blue crab bait development
- o [16852](#) - Vermilion Bay Sweet Product Branding
- o [16851](#) - Louisiana Direct Seafood Academy
- o [16813](#) - Health and Safety Trainings for Louisiana Fishermen
- o [16786](#) - Alligator Research Facility Developed
- o [16780](#) - Louisiana Sea Grant Seafood Specialist Teaches HACCP
- o [14814](#) - Development of Alternative Oyster Farming Zones in the Northern Gulf of Mexico
- o [14796](#) - Food Safety at the Processor Level

3. Program Goal: Informed consumers who understand the importance of ecosystem health and sustainable harvesting practices to the future of Louisiana's fisheries, who appreciate the health benefits of seafood consumption, and who understand how to evaluate the safety of the seafood products they buy

Impact(s)

- o [21614](#) - Gulf Sea Grant programs leverage more than \$10 million in resources to address regional needs, strengthen regional partnerships
- o [21262](#) - Bayou Carlin Cove Project
- o [21248](#) - Louisiana Direct Budget Generator
- o [21227](#) - Alligator Research Facility Up and Running
- o [16777](#) - Louisiana Wild Certified Seafood Program Development

Accomplishment(s)

- o [21246](#) - Sea to Table
- o [21245](#) - Novel Regional Oil Spill Science Extension Team Engages with Key Audiences to Develop Robust Program
- o [21237](#) - Voluntary Dockside Turtle Exclusion Device Compliance Demonstration Workshop
- o [19457](#) - Training Louisiana's Commercial Fishers
- o [16852](#) - Vermilion Bay Sweet Product Branding
- o [16851](#) - Louisiana Direct Seafood Academy
- o [16805](#) - LED Electronic Marketing Board
- o [16802](#) - Marketing Outreach
- o [16798](#) - Louisiana Wild Certified Seafood Program
- o [14796](#) - Food Safety at the Processor Level

[Back to Top](#)

Full Text of Impacts and Accomplishments

21614 - Gulf Sea Grant programs leverage more than \$10 million in resources to address regional needs, strengthen regional partnerships

Relevance: The Gulf of Mexico has experienced severely damaging technological (oil spills) and natural (hurricanes) disasters within the last ten years. These stressors have reinforced the importance of collaboration among federal agencies, state agencies, universities, non-government organizations and others to address a wide range of regional concerns facing coastal communities and the environment.

Response: Louisiana Sea Grant (LSG) responded to current and emerging regional needs and developed a unified approach to address these needs. LSG partnered with the three other Gulf Sea Grant programs and multiple National Oceanic and Atmospheric Administration (NOAA) groups, the NOAA Gulf of Mexico Regional Collaboration Team, the Environmental Protection Agency Gulf of Mexico Program and other federal agencies. The Sea Grant programs also served in leadership positions in several regional collaboration efforts, including the Gulf of Mexico Alliance (the coastal regional governance structure), Gulf of Mexico Coastal Ocean Observing System, National Academy of Science Gulf Program and others. The Gulf Sea Grant programs and the NOAA's Coastal Storms Program partnered to improve coastal community resilience, ensure seafood sustainability and improve the health of ecosystems Gulf-wide. In addition, LSG in partnership with the Gulf Sea Grant programs developed the Gulf of Mexico Research Plan (GMRP) and are addressing regional research priorities identified in it. The four Gulf of Mexico Sea Grant programs also implemented a community-based restoration partnership with NOAA.

Results: Between 2007 and 2013, the Gulf of Mexico Sea Grant programs expanded from managing one regional research competition solely funded by the Sea Grant programs to managing multiple regional research, restoration and resilience competitions and managing several regional outreach efforts. The regional activities (and funding levels) that the four Gulf of Mexico Sea Grant programs managed and/or implemented during this time period cover wide range of regionally-relevant topics, such as restoration (\$1.7 million), coastal storms (\$3.4 million), climate and sea-level rise (\$2.1 million), ecosystem service valuation (\$1.7 million), regional research planning activities (\$790,000) and oil spill related and other activities (\$305,000). The programs represent more than \$10 million in research and outreach funds for the region. Because of the success of Sea Grant's regional activities, in

2014 LSG began two new regional activities. This includes participating in an oil spill outreach program with the three Gulf Sea Grant programs and partnering on NOAA's sentinel site program in the Gulf of Mexico. When combined, these efforts total more than \$1.5 million additional funds. Through these regional activities, the network of Gulf of Mexico Sea Grant extension agents has successfully brought regional tools and services, such as the Sea Grant-developed Coastal Community Resilience Index, peer-listening training, and seafood safety and sustainability training to more than 72 communities across the region.

RECAP: The four Gulf of Mexico Sea Grant college programs successfully built a regional research and outreach portfolio totaling more than \$10 million between 2007 and 2013 by building strong coalitions of partners to address regional concerns. Due to this success, new regional activities have begun in 2014. [Back to Goals](#)

21262 - Bayou Carlin Cove Project

Relevance: Many of the seafood harvesters, dealers, and processors in coastal Louisiana were devastated by Hurricanes Katrina and Rita in 2005, and again by Hurricanes Gustav and Ike in 2008. The LSU Center for Natural Resource Economics and Policy estimated that these four storms alone caused nearly \$800 million in infrastructure and revenue losses to the state's commercial and recreational fishing sectors.

Response: Working through the Louisiana Fishing Community Recovery Coalition and the Louisiana Recovery Authority, Louisiana Sea Grant (LSG) provided the economic and technical basis for a \$20 million grant from HUD/CDBG for establishment of the "Back to the Docks" recovery program. The Bayou Carlin Cove Project in Delcambre, LA is one of several coastal fisheries infrastructure projects that were funded by this program. It is also one of three such projects for which Louisiana Sea Grant agents have served for nearly a decade as the central points of contact for project facilitation and implementation (i.e. the two others include the Bucktown Marina Project completed in 2012 and the Cameron Fisheries Project, to be completed in 2015).

Results: On September 7, 2014, the Port of Delcambre celebrated a grand opening of the Bayou Carlin Cove Project. This 14 acre facility includes a 4-lane boat launch, public fishing pier, vessel docking slips, adjacent parking area, and a 7,500 square foot public pavilion. The \$4 million project was successfully administered to the Twin Parish Port Commission with nearly a decade of guidance provided by Louisiana Sea Grant marine extension agent Thomas Hymel. The 2014 dedication ceremony featured more than 4000 attendees and established a new farmer's market that has since evolved into a rapidly growing venue for direct sales of Gulf of Mexico shrimp. In the past year, 55 dozen commercial vessels have joined LSG Louisiana Direct program for seafood marketing - with more than half of them operating out of this new facility in Delcambre, LA.

RECAP: Over a decade of planning and implantation, LSG facilitated the Bayou Carlin Cove Project, a 14 acre, \$4 million fishing infrastructure facility that is helping the Port of Delcambre, LA to improve its physical resilience to natural disasters and its economic resilience through the direct marketing of Gulf seafood. [Back to Goals](#)

21249 - Impacts of Freshwater Diversion on Louisiana Oysters Projected by a Hydrodynamics, Water Quality and Oyster Population Coupled Model

Relevance: Freshwater diversions could affect physical conditions for oyster growth and survival. Global sea level also increase flooding levels and increase estuarine salinity. Therefore, resource managers and oystermen need to know how diversions and sea-level rise (SLR) will change spatial and temporal dynamics of oyster population. The trade-off between land-building and negative impact on oysters from MR diversions needs to be understood by decision-makers of coastal restoration.

Response: Louisiana Sea Grant developed a hydrodynamics, water quality and oyster population coupled model to examine the effects of freshwater diversions and SLR on spatial and temporal dynamics in the growth and production of eastern oyster (*Crassostrea virginica*) in Breton Sound estuary. The model was calibrated and validated using field data provided by various entities including Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana State University (LSU) and U.S. Geological Survey (USGS). The model was used to project physical conditions and oyster dynamics under scenarios of diversions and SLR.

Results: Model results indicated that the optimal oyster growth zones will be affected by both freshwater diversions and SLR. The model results helped LDWF and oystermen to make informed decisions on sustainable oyster production. The model results also supported the Coastal Protection and Restoration Authority (CPRA) for the Coastal Master Plan studies in support of Louisiana's coastal restoration and protection efforts.

RECAP: Louisiana Sea Grant sponsored modeling study enhanced our understanding of the impacts of freshwater diversion and SLR on the spatial and temporal dynamics of Louisiana oyster growth and survival. [Back to Goals](#)

21248 - Louisiana Direct Budget Generator

Relevance: Louisiana Sea Grant's strategic plan calls for development of practices, technologies, and systems designed for enhanced, more efficient operation of seafood culture facilities with minimal

impact on coastal and oceanic environments and habitats, on natural fisheries, and on the people who depend on natural fisheries. In this capacity, our program has invested a substantial investment of time and effort in the establishment of direct marketing channels for locally-source seafood. While the logistics and policy of this "Louisiana Direct" programming effort continue to expand, comparatively little in the way of economic guidance has been made available for potential investors seeking specific costs and returns for this alternative, direct marketing (DM) strategy.

Response: During 2013, more than 250 respondents (shrimp fishermen and shrimp consumers) provided supply- and demand-based surveys for development of a Louisiana Seafood Direct Budget Generator. A partial budget generator was developed in 2013 and refined in 2014. Operational parameters were refined through simulations conducted as part of the MS thesis: Direct Marketing Louisiana Shrimp: A Costs Earning Analysis completed in November 2014.

Results: Results indicate that for Louisiana inshore shrimpers engaging in this practice, average Net Income From Operations with direct marketing (NIFODm) would increase by \$5,213, \$15,156, \$30,548, and \$44,402 for harvesters dedicating an additional 5%, 15%, 30%, and 50%, respectively, of their catch towards DM. These increases are compared to an average base NIFO of - \$220 for the Louisiana inshore shrimp fleet for the year 2013. A conservative extrapolation of this NIFODm estimate can be applied only to those vessels who Louisiana Sea Grant worked with directly through this program. Thus, of the 1773 fresh product license holders, only 243 reported shrimp landings in 2013 to the states trip ticket data base, and of these, only 55 were enrolled in the Louisiana Direct program. Based on this lower bound population (and the average fraction of DM sales to the public determined to be 30% via survey), it is estimated that this practice yielded an additional \$1,680,140 in NIFODm for the 55 operators in this program.

RECAP: Louisiana Sea Grant developed a feasibility template for assessing the costs and returns of direct seafood marketing. Results of this analysis suggest an additional \$1.6 million in net income was derived by 55 harvesters participating in the Louisiana Direct program during 2013. [Back to Goals](#)

21246 - Sea to Table

Relevance: Recent programming and outreach has focused heavily on the producer and processor within the fishing industry. The Sea to Table project was developed to meet the needs of consumer education as a follow-up to programs already in place for industry. This project aims to educate the public on the importance of buying local, sustainably caught seafood and familiarize them with easy cooking methods to allow for seafood to be a daily choice for meals.

Response: Partnering with Whole Foods Market and Audubon G.U.L.F. Institute, Louisiana Sea Grant identified a need for consumer education on sustainable, locally caught seafood in the region. Local chefs prepared a menu based around seafood that is both locally caught and available at Whole Foods Markets in the region. Recipe cards were handed out to participants after the demonstration by local chefs. Participants were able to see the entire process and ask questions during the presentation and cooking demonstration.

Results: Approximately 80 local residents participated in the October 2014 Sea to Table series. Participant feedback indicated interest in future events and an increased knowledge of local, sustainable options for home consumption.

RECAP: Targeting consumers with seafood education and outreach, including cooking techniques and quality selection, can lead to increased markets for fishermen looking to market a higher quality product. Consumer education about the importance of locally caught, sustainable seafood increases the awareness of issues with imported shrimp and strengthens the local industry and economy. [Back to Goals](#)

21245 - Novel Regional Oil Spill Science Extension Team Engages with Key Audiences to Develop Robust Program

RELEVANCE: In 2010 the Deepwater Horizon (DWH) oil spill released approximately 200 million gallons of oil into the Gulf of Mexico, making it the largest oil spill in US history. More than 1.84 million gallons of dispersant were used in response. This was the first time dispersants were used at depth (5000 ft). People whose livelihoods depend on a healthy Gulf of Mexico and the environment were adversely impacted due to both the magnitude of the spill and unknown impacts of oil and dispersant. There are many lingering questions about the impact of the spill on the environment, economy and society.

RESPONSE: The Gulf of Mexico Sea Grant programs partnered with Gulf of Mexico Research Initiative (GoMRI) to develop a novel regional oil spill science extension program. The program began in late 2014 and initiated with a Social Network Analysis to understand how oil spill science information flowed. Once the extension team was assembled, a region-wide strategy was developed to solicit input from target audience members regarding their oil spill science questions and topics of interest. Through early February 2015, 116 small and large group input meetings were held throughout the region with 530 people who were impacted by or concerned about the potential impacts of the DWH oil spill or future spills. The information collected became the foundation for the extension team, which intends to develop and disseminate at least twelve publications and hold twelve topical science seminars to address the most prominent oil spill topics based on identified needs.

RESULTS: The regional oil spill science extension program developed their approach and identified the science topics to address based on target audience input, and this input has also been delivered to the GoMRI Research Board to inform their research prioritization and funding decisions.

RECAP: A new oil spill science extension program has successfully incorporated target audience input into its planning process to ensure that the program will serve its audience the oil spill-related science information they seek. [Back to Goals](#)

21241 - Crab Industry Workshops

Relevance: Over \$51 million in blue crab were landed in Louisiana in 2013. However, the industry is facing many hardships with a decline in population, imported crabmeat, a large increase in trap effort needed to land crab, and increases in fuel, trap, and bait pricing. The state also mandated a training program required for all new fishermen to complete before getting a commercial crab license in the middle of the workshop series, and this program was not well understood by the industry. Fishermen and the industry needed to use best management practices to get the best possible product to market in order to get optimal prices to compete with hardships. They also needed information on the regulation changes to ensure they were in compliance with enforcement.

Response: To help provide necessary information to the crab industry, Louisiana Sea Grant extension organized a four workshop series from fall 2013 to fall 2014 held in St. Tammany and St. Bernard Parishes. Each workshop had a specific focus, including updates within the industry, economics, and crab shedding systems. Industry leaders from the Louisiana Department of Wildlife and Fisheries (LDWF), LSU, and local businesses were brought in to provide the best information available to the industry.

Results: More than 100 crab industry attendees participated in the four workshops. Pre and post tests indicate significant retention of new information with participants increasing their scores from 49% on the pretests to over 90% on the post tests. Several participants reported having a much better understanding of the biology to realize how management protects the population. At least two new shedders have started up businesses after attending the workshops. Several new crab fishermen have started the mandatory training program to get a commercial crab license after learning how the program worked at workshops.

RECAP: Louisiana Sea Grant conducted a four workshop series that reached over 100 crab industry members and provided them the best management practices for sustainable fishing and quality products in the market, as well as helped several new members enter the industry. [Back to Goals](#)

21237 - Voluntary Docksides Turtle Exclusion Device Compliance Demonstration Workshop

Relevance: TEDs Compliance Workshops reduce violations, which helps prevent fishermen from incurring high costs from citations; thus, reducing the number of federal fishing violations.

Response: Since 2011, Louisiana Sea Grant Extension works closely with the National Marine Fisheries Services (NMFS/NOAA) in conducting voluntary Docksides Turtle Exclusion Device (TEDs) Compliance Workshops to provide hands-on training for crewmembers. In 2014, LSG targeted outreach efforts with local Vietnamese leaders in the region to increase participation within the Vietnamese fishing community.

Results: Currently, there are more than 60 fishing vessels and 200 fishermen participating in the TEDs workshop. In Intracoastal City, 50 shrimp boats participated in the compliance workshop in 2014. Ten shrimp boats had minor or major issues with their TEDs. Corrections of issues on the 10 vessels saved vessel owners \$280,000 in potential fines and an average economic loss of \$330,000 through shrimp seizures, for a total value of \$610,000 in fines and shrimp seizure. In addition, fishermen who attended this training received scientific information on how size, dimensions, and knot orientations are important factors to focus on to minimize shrimp loss while following TEDs guidelines.

In cases where nonparticipating shrimpers are issued a noncompliance ticket, LSG helped those individuals understand how to fix their fishing gear to be in compliance and worked with NMFS/NOAA to reduce their fines. As a result, these fishermen often volunteer to assist the field agents at upcoming TEDs Docksides Compliance Workshops.

RECAP: Corrections of noncompliance issues through Turtle Exclusion Device Compliance Demonstration Workshops saved commercial fishing vessel owners money in potential fines and economic loss of shrimp seizure. [Back to Goals](#)

21229 - Harbor of Refuge for Commercial Fishing Vessels

Relevance: Louisiana Sea Grant facilitated efforts of local and state government in identifying new ways to improve fishermen's hurricane preparedness by providing them with the information, skills, and tools on forms of hurricane hazards and recommended hurricane preparedness plans specific to their individual needs and industry.

Response: Twin Parish Port Authority and Louisiana Sea Grant collaborated on the FEMA Community Resilience Innovation Challenge to develop a harbor of refuge master plan for the Vermilion Bay commercial fishing industry by assessing how many vessels need safe harbor spaces, evaluating local

waterway capacity to accommodate vessels in the short term, and producing maps of suggested locations to install moorings and pilings in the long term. Overall, this project contributes to community resiliency by organizing a plan for vessels to moor during a storm, ensuring that those vessels remain and sustain little damage.

Results: LSG, in partnership with the Twin Parish Port District, published a document titled "Seeking Refuge Before the Storm: Needs of Commercial Fishermen." This 18-page document provides a model of engagement for other regions of the state; provides aerial maps and ground-level images of various points along the Vermilion River and Delcambre Canal; and serves as an official document to raise statewide awareness of the problem. Since publication, upper administration of the state's emergency management agency has taken interest in addressing this issue through hazard mitigation. Harbor of Refuge has been included in the hazard mitigation plan updates for Vermilion and Iberia parishes.

RECAP: Louisiana Sea Grant established a process of engagement with local and state stakeholders to quantify the costs and benefits of harbor of refuge for commercial fishing vessels and earn a place for it in parish hazard mitigation plan updates to help increase community resilience after a disaster.

[Back to Goals](#)

21227 - Alligator Research Facility Up and Running

Relevance: Louisiana alligators are a valuable wetland resource generating millions of dollars annually. Louisiana alligator farm production was valued at \$76 million in 2014, while the wild harvest brought in over \$11 million. Money generated from this renewable resource provides jobs in many rural communities throughout the state and also provides the means and the incentive to protect vulnerable wetlands that serve as alligator habitat, especially along the coast.

Response: Louisiana Sea Grant was instrumental in organizing an industry effort to fund the construction of an alligator research facility in 2013 at the LSU Aquaculture Research Station in Baton Rouge. An industry advisory committee identified feed efficiency as a research need. The industry is currently funding this research effort through fees managed by the Louisiana Alligator Advisory Council.

Results: Early research results suggest that some animal-based protein ingredients can be substituted with less expensive plant-based proteins that contain the same amino acids. Feeding trials are continuing at the research facility. The different diets are being evaluated based on growth and the effect on hide quality. Alligator farmers are being engaged and connected to the results of this research through the extension efforts of Louisiana Sea Grant.

RECAP: The Louisiana alligator farming industry in cooperation with LSU has constructed an alligator research facility at the Aquaculture Research Station in Baton Rouge. Nutritional studies are currently underway. Louisiana Sea Grant extension programs are keeping alligator farmers engaged and connected to the results that will ultimately reduce production costs.

[Back to Goals](#)

21226 - Revitalizing the crawfish Industry in Plaquemines and St Bernard parishes

Relevance: Recent storms and disasters devastated the historic crawfish industry in Plaquemines and St Bernard parishes. Post Katrina, landowners became interested in venturing back into aquaculture.

Response: Louisiana Sea Grant provided subject matter expertise and assistance with building and maintenance of crawfish ponds in St Bernard and Plaquemines parish.

Results: Landowners were able to create and expand their production in 2014. Louisiana Sea Grant personnel worked directly with two private pond owners and one commercial owner during the 2014 season. The commercial owner, Stella Plantation, had approximately 100 acres of ponds in crawfish production for 2014, and yielded an average of 75-100 pounds of crawfish per acre in their first year of harvesting. They continue to expand the operation and are anticipating more acreage in crawfish production for 2015. The two private pond owners began producing crawfish for personal consumption. LSG's efforts in aiding the revitalization of crawfish production in these parishes includes partnering with local Natural Resources Conservation Service (NRCS) offices to make wetlands determinations related to permitting for the ponds, and also identify potential participation in grant funded programs for maintaining waterfowl habitat through the development of the ponds.

RECAP: Utilizing assistance provided by Louisiana Sea Grant extension, local communities in two parishes have begun to revitalize pre-Katrina crawfish production in order to re-establish commercial industry and remain on family land and in the area.

[Back to Goals](#)

21203 - Off-bottom suspension can reduce vibrio accumulation in oysters

Relevance: Vibrios are naturally occurring, potentially pathogenic bacteria that can cause gastroenteritis if present in oysters destined for raw consumption. Studies have demonstrated that the sediment supporting oysters on the bottoms of oyster beds contain very high vibrio levels. Internationally, efforts have been made to suspend oysters off-bottom in an attempt to reduce vibrio loads and thus risk of human illness, but little remains understood about the effectiveness of these efforts.

Response: Louisiana Sea Grant established off-bottom suspension cages at the LSG Oyster Research Laboratory in Grand Isle, LA in early 2012, and oysters, water, and sediment samples were collected

monthly. Concentrations of total and potentially pathogenic *Vibrio parahaemolyticus* and of total *Vibrio vulnificus* were enumerated and compared for on-bottom and off-bottom samples. The target audience for this research is oyster harvesters and oyster lease owners with an interest in potentially reducing the vibrio loads in oysters harvested.

Results: *Vibrio parahaemolyticus* containing the tdh gene, which encodes a thermostable direct hemolysin, are strongly correlated to pathogenicity in humans. The concentrations of tlh in bottom water samples were significantly greater than those in off-bottom water samples, but this was not the case in oysters. In the majority of samples, bottom concentrations were higher than off-bottom concentrations of vibrios, indicating that vibrio concentrations could be decreased by suspending oyster cages off-bottom. Research results showed that suspension of oysters off-bottom decreased vibrio concentrations by 13% on average: suspension changed the tlh, vvh, tdh, and trh concentrations in oysters by +48%, -3%, -41%, and -57%, respectively. In addition, water depth was found to be positively correlated to tdh concentrations in bottom oyster samples and with vvh concentrations in off-bottom oyster samples.

RECAP: Louisiana Sea Grant sponsored research results show that suspending oysters off-bottom decreased pathogenic *Vibrio parahaemolyticus* and can potentially reduce human illness long-term.

[Back to Goals](#)

19457 - Training Louisiana's Commercial Fishers

Relevance: Louisiana boasts the largest sustainable seafood industry in the lower 48 states (shrimp, crabs, finfish and oysters). However, domestic fishers, seafood processors and distributors must compete with cheaper foreign commodity seafood imports. Higher consumer interest in locally produced seafood has created an opportunity for the Louisiana seafood industry to capitalize on marketing domestic seafood as superior. However, major hurdles remain to be overcome in bringing the highest quality seafood to market.

Response: Louisiana Sea Grant hosted a series of meetings, workshops and other outreach activities across the coast - addressing a wide variety of topics - in an effort to improve seafood quality and commercial fishing profitability. Additionally, Louisiana Sea Grant continues to develop a strong bilingual outreach program (English/Vietnamese) to meet the needs of all of the state's commercial fishing communities.

Results: More than 1,500 fishermen and other seafood industry personnel attended workshops and other outreach activities in Delcambre, Dulac, Venice, Cameron, and Lacombe. Cell phone mass texting, radio call-in and interview shows, fact sheets, dedicated dockside information boards, as well as real-time marine VHF updates to vessels at sea (Vietnamese/English) provide timely and relevant information on important issues related to resource management, regulatory developments, BMPs and fisheries openings and closures.

RECAP: Louisiana Sea Grant workshops and fisheries outreach efforts allow commercial fishers and others in the seafood business gain a broader understanding of the industry and make changes needed to take advantage of opportunities to ensure economic sustainability and provide top-quality seafood to the market.

[Back to Goals](#)

19448 - Louisiana Sea Grant promotes small business development through seafood processing technology transfer

Relevance: The number of seafood dealers and processors in Louisiana has been in decline over the past few decades as the globalization of fisheries commodity markets has led to downsizing, consolidation and closure of more than half of the firms in this sector. Concurrent with these trends has been a period of increasing regulatory action and the emergence of numerous, necessary policies governing a wide range of commercial practices related to fisheries harvesting and processing. However, new seafood processing technology gives seafood docks and processing businesses the ability to stay competitive and expand their operations.

Response: Louisiana Sea Grant (LSG) provided seafood dock and processing businesses access to subject matter expertise and information related to small business development, labor issues, HACCP training, and new seafood processing technologies. For example, LSG worked with these small business owners to promote the menhaden bait industry in Louisiana by helping the owners to understand seafood processing technology dealing with whole fish brining, and have assisted the owners in implementing new technologies to efficiently produce their processed seafood product while following changes in federal and state regulations pertaining to their industry.

Results: One of these small businesses, Luke's Seafood, is in the process of renovating a building to accommodate new equipment purchases made in 2013 so that they can begin cooking and peeling crabs utilizing the new technology transferred as a result of recommendations made by LSG. Also in 2013, Luke's Seafood Company was also able to obtain proper permits and pass inspections using information the owner received from LSG. Another business, David Chauvin's Seafood Company LLC, purchased a second location from the Bluewater Shrimp Company in 2013 with dockside processing ability. LSG education and outreach materials along with the training the owners have received over the years through LSG technology transfer events helped them build a successful business and prepare for expansion. Two other processing businesses began construction in 2013 as a result of the development of Louisiana's menhaden bait industry that LSG worked to promote.

RECAP: Louisiana Sea Grant education, outreach, and technical transfer activities have helped Louisiana seafood businesses stay competitive and expand despite overall industry decline.

[Back to Goals](#)

19356 - Alternative Blue crab bait development

Relevance: The blue crab (*Callinectes sapidus*) is a commercially, recreationally, and ecologically important species in Louisiana coastal waters. Louisiana landings account for more than 80% of Gulf of Mexico hard crab landings. In 2012, over 24 thousand metric tons of blue crab were landed in Louisiana with an economic value over \$52 million. The blue crab fishery in the northern Gulf of Mexico relies heavily on Atlantic menhaden (*Brevoortia tyrannus*) for bait; a species with stock concerns resulting in approximately a 20% decrease in total allowable catch beginning in 2013. Decreased landings results in increased cost of *B. tyrannus* for industrial and bait uses, demonstrating a need for new cost-effective alternative bait.

Response: Louisiana Sea Grant (LSG) sponsored research to develop a new cost-effective alternative blue crab bait that utilizes large amounts of waste produced from processing over 40 thousand metric tons of penaeid shrimp annually landed in Louisiana. Shrimp carapace accounts for approximately 1/2 to 2/3 of the total biomass and can be used as an attractant in alternative bait.

Results: Laboratory and field results of this research effort have proven successful using a bait formulated with Louisiana shrimp waste. This bait would provide a cost-effective alternative blue crab bait to replace menhaden in the fishery.

RECAP: Louisiana Sea Grant sponsored research results show that a new alternative blue crab bait proved successful in trials which could replace overfished Atlantic menhaden and provide a cost-effective bait for the Louisiana blue crab industry.

[Back to Goals](#)

16852 - Vermilion Bay Sweet Product Branding

Relevance: With the creation of the web based seafood market-to-table initiative called Louisiana Direct Seafood, implemented by Louisiana Sea Grant, the demand for local wild caught Louisiana shrimp on a year round basis expanded to a point where a frozen packaged product was needed.

Results: With local public and private funding, Louisiana Sea Grant agents developed a regional publicly owned product brand called Vermilion Bay Sweet as a pilot project and recruited a local Vietnamese dock to package a premium, hand peeled, deveined, large count, chemical free white shrimp. Results: The initial product offering was during the 2012 Delcambre Shrimp Festival held annually just prior to the opening of the fall white shrimp season. The 1.5lb package of 16/20 shrimp was priced at \$15.00. Consumers drove in from all over the region to purchase the shrimp. Immediately, there was demand from local retailers to add the product to their frozen seafood product offerings. The retail price went to \$18.00 - \$20.00 and the pack is now sold at over 15 specialty retail outlets as a featured product and is being touted by area chefs as a superior product equivalent to fresh caught shrimp. This product is sold by area fishermen who maintain the proper retail licenses as a way to satisfy their customers on a year round basis.

RECAP: Louisiana Sea Grant developed a regional publicly owned product brand (Vermilion Bay Sweet) of premium, chemical-free white shrimp, which is being sold at more than 15 specialty retail outlets as a featured seafood product, earning \$18-20 per 1.5lb package.

[Back to Goals](#)

16851 - Louisiana Direct Seafood Academy

Relevance: With the creation of the Louisiana Direct Seafood Initiative, Louisiana Sea Grant agents quickly realized that simply providing direct marketing opportunities for commercial fishermen was only a portion of the opportunity available to create maximum economic impact for the majority of its participants.

Response: Through various public and private partnerships, funding was acquired to create the Louisiana Direct Seafood Academy. Initially hosted in Delcambre, LA in the first quarter of 2012, the 3 day training program culminated in a "dock day" event.

Results: With over 250 participants in the first year, the program was expanded in 2013 to include training events in all four regional locations with over 800 participants. Training programs included a variety of topics covering business, marketing, product quality handling, fuel efficiency, and boat management BMPs. Trainings were conducted by marine extension agents; local bankers; CPAs; attorneys; insurance agents and other efficiency experts; tourism professionals and others; and the training topics were developed into 20 short videos now housed on the Louisiana Direct Seafood website with more to come. The Louisiana Department of Wildlife and Fisheries has shown interest in partnering with these initiatives to create a full professional commercial fishing training program with Louisiana Sea Grant providing the research, training and outreach and ultimately resulting in requirements for licensing.

RECAP: Louisiana Sea Grant worked with public and private partners to develop the Louisiana Direct Seafood Academy, an educational program designed to professionalize commercial fishing through business training and safety certifications.

[Back to Goals](#)

16813 - Health and Safety Trainings for Louisiana Fishermen

Thu Bui and I arranged a health and safety seminar for Vietnamese shrimpers in conjunction with the

SW AgCenter for Health and Safety (UT Health Science Center) attended by 45 fishermen. I arranged a CPR class for 12 shrimpers to become trained. Thu Bui and I arranged a Safety Drill Instructor course for 26 Viet fishermen to become certified.

[Back to Goals](#)

16805 - LED Electronic Marketing Board

The LED sign has been purchased and is in full operation. It is located on a major highway in the port town of Delcambre. Messages regarding the Delcambre Direct program, seafood availability, and other industry related information are posted regularly. The sign has had a major economic impact in the community through an increase in direct seafood sales. A local direct sales participating business reported a 10% increase in total store sales via a posted message regarding the availability of seafood.

RECAP: Electronic messaging board - located in Delcambre on Hwy 14 has direct economic impact for fishermen and their direct catch as well as for retailers handling Vermilion Bay Sweet product.

Approximate traffic count is 30,000 per day.

[Back to Goals](#)

16802 - Marketing Outreach

Additional leveraged funding via a special BP Grant (\$50,000) has made possible development of social media marketing program for the Louisiana Direct Seafood Program. Website content and Facebook initiatives have greatly expanded the outreach capabilities to seafood consumers. Social media marketing will allow for the individual fishermen participants to create their own identity and establish relationships with a new and expanded customer base seeking fresh local product. This approach creates the maximum market penetration with minimum expense and will continue to be the outreach method for this project. We are also helping the Sea Grant personnel responsible for each area move their individual programs forward with social media and get the word out to the consumers.

[Back to Goals](#)

16798 - Louisiana Wild Certified Seafood Program

The average American eats 16 pounds of seafood a year. Yet, most Americans don't realize that 80 percent of the seafood they consume is imported and that these cheap imports - along with rising fuel and other expense - are hurting Louisiana commercial fishing. Louisiana Sea Grant Communications, along with Extension personnel, produced a 35-minute training video for the Louisiana Wild Certified Seafood Program - a geographic branding initiative spearheaded by the Louisiana Department of Wildlife and Fisheries. The goal of the Louisiana Certified program is to increase consumption of seafood landed by Louisiana licensed commercial fishermen. All Louisiana docks and processors participating in the program must view the video. Participating fishermen, retailers and restaurants are encouraged to complete the training. The video and other materials aid industry participants in maintaining seafood quality and keep their products topnotch so consumers look for the Louisiana Certified label. The program launched in late September 2012. Two processors immediately completed training. Due to policy issues involving LDWF and the Department of Health and Hospitals, the program is moving forward at a slower pace than initially anticipated.

[Back to Goals](#)

16786 - Alligator Research Facility Developed

RELEVANCE: Louisiana alligators are a valuable wetland resource generating 45 to 55 million dollars annually, not only for wild harvesters and farmers but also coastal wetland landowners. Money generated from this renewable resource provides the means and the incentive to protect wetland habitats throughout the state and especially along the coast.

RESPONSE: Over the past several years, the Louisiana alligator farming industry has raised sufficient funds to build an alligator research facility at the LSU Aquaculture Research Station in Baton Rouge. This project was initiated through the efforts of LA Sea Grant Agent Mark Shirley. Serving as the secretary of the farmers association, he encouraged the development of the concept among the farmers and with administrators and researchers at the university.

RESULTS: The facility is scheduled for completion in the Spring of 2013 at a cost of nearly \$200,000. In addition, research funds will be generated from several industry sources to support investigations into nutrition and feed development and other husbandry issues important to the industry. An industry advisory group will determine research priorities.

RECAP: The Louisiana alligator farming industry in cooperation with LSU has funded the construction of an alligator research facility at the Aquaculture Research Station in Baton Rouge. The facility will begin operating in Spring 2013 and focus on production issues that will benefit the industry as well as the overall management of this renewable natural resource.

[Back to Goals](#)

16783 - Louisiana Sea Grant Develops Vermilion Bay Sweet Brand

RELEVANCE: Through Louisiana Sea Grant research, extension and educational resources, Vermilion Bay Sweet, a branded, hand-peeled, vacuum-packed shrimp product was developed and marketed, which followed quality assurance standards and HACCP plan requirements. Vermilion Bay Sweet is a demonstration project which introduced the concept of "boutique" processing of a uniquely local, value added product that maximizes the quality and utilization of Louisiana shrimp from the boat to the processor, retailer, and consumer and served as a model to provide information to other small processing businesses evaluating similar practices who may or may not be in the same commodity.

RESPONSE: Louisiana Sea Grant field agents worked directly with industry partners to identify a point of contact to carry out the pilot program and worked with the participants (commercial fishermen and processor) to navigate through the various obstacles of developing a branded product with high quality standards for a niche market. With inputs from LSG seafood specialist, project participants gained knowledge on how to develop a high quality, value added product.

RESULTS: The results of this project demonstrated how all the production chain in the shrimp industry could participate and profit from the effort, how extension field agents and research specialists work together, and most importantly the project has helped the industry participants increase their knowledge on how to maximize quality when creating a value added product. In addition, with the help of LSG program, processors increased their knowledge on different methods that can help them to reduce production cost and increase labor efficiency and how uses of technological advances, i.e. deveining machines, can be employed with current practices to assist in increasing production level. The result of this project has evoked positive interests in other sectors of the fishing industry to participate in similar pilot projects for their product, i.e. black drum value added project. Economic studies and data compiled from the Vermilion Bay Sweet project can be used to provide information for other businesses interested in similar initiatives.

RECAP: Louisiana Sea Grant field agents and research specialists worked together to develop a pilot program for a value added seafood product which maximizes quality, meets seafood regulation safety standards and increases profits for those utilizing the program. [Back to Goals](#)

16780 - Louisiana Sea Grant Seafood Specialist Teaches HACCP

RELEVANCE: All commercial seafood processors are required to have a Seafood Hazard Analysis and Critical Control Point (HACCP) plan.

RESPONSE: The Sea Grant Seafood Specialist organized Association of Food and Drug Officials (AFDO) certified training courses on the topics of Sanitation Control Protocol (SCP) and Seafood HACCP.

RESULTS: Processors learned about new regulations and safety concerns pertinent for their facilities, especially the FDA Seafood Hazards Guide released in April, 2011. Food safety certification training participants:
HACCP - 54; SCP - 27.

RECAP: Sanitation, a building block for HACCP, and Seafood HACCP courses were taught to both new seafood processors and those desiring a refresher on new guidance to the industry. [Back to Goals](#)

16777 - Louisiana Wild Certified Seafood Program Development

RELEVANCE: The Louisiana legislature designated that a Louisiana Wild Certified Seafood (LWCS) program would be developed and implemented to certify that seafood is harvested, landed and processed in Louisiana and be marketed to differentiate this product. The LDWF contracted LSU AgCenter and Louisiana Sea Grant (LSG) scientists to assist in the development and training for this program, and provide seafood technology expertise.

RESPONSE: LSG seafood technologist coordinated fisheries and seafood science with regulatory personnel from the three state agencies to develop a basic seafood certification program based on existing harvest and processing requirements. LSG seafood scientist and fisheries agent developed training materials to support planned LDWF program outreach and implementation efforts.

RESULTS: The LSG seafood technologist developed the written narrative, test questions and audio narration for the seafood quality, safety and regulatory requirement segment of the training video component required for participation in the LWCS program. A LSG fishery agent developed and provided the written narrative for the program introduction and record keeping segments of the training video. The LSG science writer provided audio narration for all training video segments other than the quality/safety segment. The LSG Communications Director provided photo and video clip visual content and editing for all of the training segments. Completion of the training video is required for Louisiana seafood dealers and processors to participate in the certification program. The video, which includes program and participation details provided by LDWF, is included in the LWCS program registration interactive website. Implementation of the LWCS program was achieved in October 2012 by LDWF. Approved registration of about 20 industry participants was achieved by the end of calendar year 2010. Increased program participation, production of certified seafood products, and program promotion and marketing are expected to occur in calendar 2013.

RECAP: Sea Grant partnerships and technical expertise resulted in the successful development of the Louisiana Wild Certified Seafood Program, administered by the Louisiana Department of Wildlife & Fisheries (LDWF). Louisiana Sea Grant developed training materials for Wild Certified harvester, processor and retailer participation. The geographic branding program's objective is to further support the state's seafood industry by touting quality Louisiana seafood. [Back to Goals](#)

16763 - \$1.9 Million in Economic Benefit from Increased Crawfish Production Efficiency

RELEVANCE: In recent years, Louisiana's crawfish industry typically encompasses roughly 190,000 acres, most of which are in the coastal zone. With typical yields well over 100 million pounds per year, and farm gate values approaching \$200 million, this industry accounts for significant economic activity.

RESPONSE: By formulating and disseminating recommendations to increase production efficiency while reducing costs, and through promoting the use of best environmental practices, Louisiana Sea Grant personnel enhanced both economic viability of the industry and environmental compatibility.

RESULTS: Conservatively estimated economic benefits, based on a projected yield increase of 10percent, on only 10 percent of the total industry acreage, are roughly \$1.9 million for 2012. Additionally, reductions in pumping costs and effluents for this acreage (19,000 acres) were conservatively estimated at \$570,000.

RECAP: Louisiana Sea Grant recommendations resulted in improved yields, competitiveness and environmental compatibility for Louisiana's crawfish industry and surrounding communities.

[Back to Goals](#)

16761 - Market Umbrella Organization/Crescent City Farmers Market Community Supported Fishery

RELEVANCE: Because of the decline in adjusted support prices for Louisiana fishery products, fishing families had suffered a decline in the relative quality of life as enjoyed two decades ago. Of the few issues that are remedial to that situation, the one that is most under the direct control of a harvester is the market-place value for that fishery item. Embedded in the market value is item quality and consumer demand. Being directly confronted with the actual consumer [rather than just a dock sale] is beneficial to the harvesting family as they can better evaluate resistance points of their items. Simultaneously, there is an element of trust and social dignity that develops between the point of harvest and the point of consumption. Alienation of the consumer to alternative dietary items can often be abated by the inclusion, and endorsement, of these items by the harvesting family. This dialogue between consumer and harvester is the backbone of the Market Umbrella Organization, based in New Orleans promoting public markets for public good.

RESPONSE: On the Board of Directors for over a decade, I have now become an officer in the Market Umbrella Organization [MUO]. I have successfully guided the MUO in integrating fishery product vendors into the larger agricultural base for our three market venues. Likewise, the first and presently only Gulf of Mexico community supported fishery has been running for its third season. More recently, an initiative was begun which will begin to market, via the MUO/CSF, alternative fishery products heretofore strictly restricted to the recreational harvester and thus unavailable for commerce.

RESULTS: In the decade of involvement on the Board of Directors, the Louisiana Sea Grant Program has helped elevate the income stream to over \$1 million annually. MUO has been recognized globally as one of the foremost direct marketing organizations due to its unique mission of human dignity through social marketing venues. Our fishers have risen in stature to be featured in national chains [Williams-Sonoma] and publications companies [National Geographic]. As the sole representative of a Gulf CSF, I represented the region at the National CSF Conference held in New Hampshire this last summer. Our approach and outcome for the MUO/CSF was well received as visionary.

RECAP: By continued engagement with the administration and participants of the Market Umbrella Organization, Louisiana Sea Grant has directly initiated programs which give fishing and coastal families access to innovative mechanisms to increase their standard of living through direct marketing of aquatic and terrestrial products.

[Back to Goals](#)

16759 - Drafting & Implementation of State Plan on Alternative Oyster Culture

RELEVANCE: Coastal land loss and sea level rise has greatly impacted oyster public and private oyster reefs and the environmental services they provide. This has resulted in a nearly 80 percent loss of oyster resources in Louisiana over the past 10 years. This has created severe hardship in coastal communities, since oyster production is a critical stimulus to state's coastal economy. There is a need to stabilize oyster production to provide more consistent business opportunity and ecosystem services.

RESPONSE: A plan to implement intensive (off-bottom) oyster culture was drafted during January, 2011, which describes the rationale of supporting hatchery-based oyster production. The plan was reviewed by the LDWF and OCPR. An invited presentation on the plan was given during the April, 2012 meeting of the Governor's Oyster Advisory Committee. Resulting legislation was supported by invited testimony before the House Transportation Committee, in concert with Representative "Truck" Gisclair.

RESULTS: Act 293 authorizes LDWF to permit Alternative Oyster Culture (AOC) with the use of the water column and surface of existing oyster leases, including spatial planning to reduce user conflict. Act 583 authorizes an expansion of the Grand Isle Oyster Farming Zone for seafood production research, under the authority of the Grand Isle Port Commission. These legislative acts serve as an impetus for commercialization of hatchery-based sustainable oyster farming in Louisiana.

RECAP: Leadership was provided by drafting and assisting in the implementation of a state plan to advance hatchery-based commercial oyster production.

[Back to Goals](#)

16756 - Blue Crab Fishery Certified as Sustainable

RELEVANCE: Louisiana blue crab landings have averaged more than 40 million pounds in recent years and comprised nearly 30 percent of total U.S. blue crab landings in 2009. In recent years, sustainability has become increasingly important to major retailers. Additionally important to the Louisiana fishing industry, studies suggest that some retailers may be willing to pay a higher price for

seafood that is labeled eco-friendly or sustainable. Additionally, markets in Europe and the United Kingdom require such certifications. An independent, third-party certification body assessed the Louisiana blue crab fishery against the MSC standard in a rigorous process that was scientifically peer reviewed. During assessment, six improvement actions the fishery must perform during the first five-year certification period were identified that address harvest strategy, acquisition of additional data, by-catch and ecosystem impact.

RESPONSE: During the initial assessment and annual audits, Louisiana Sea Grant researchers provided critical data. For the initial assessment, this included data on alternative baits and preliminary by-catch data. The Derelict Crab Trap Rodeos hosted by Louisiana Sea Grant provide a necessary cleanup of fishing gear required by MSC. Additionally, during the annual audits, updated results with the bait research as well as data from a scientific ghost fishing experiment have met the requirements to keep the industry certified.

RESULTS: Data provided by Louisiana Sea Grant enabled the Louisiana blue crab fishery to be recognized with the Marine Stewardship Council's seal of 'sustainability.'

RECAP: Louisiana Sea Grant researchers and extension personnel provided necessary data compilation and scientific results for the Louisiana blue crab fishery to be recognized with the seal of 'sustainability' by a third-party organization, the Marine Stewardship Council (MSC). [Back to Goals](#)

16752 - Louisiana Direct Seafood

RELEVANCE: With the guidance and assistance of Louisiana Sea Grant, The Twin Parish Port Commission along with various public and private partners, created the Delcambre Direct Seafood Initiative - a web-based market-to-table marketing project to help revitalize the local shrimping community, which had been devastated by area hurricanes and the BP oil spill. The successes of this project led to funding from the Gulf States Marine Fisheries Commission to create Louisiana Direct Seafood.

RESPONSE: Louisiana Sea Grant created four regional websites connecting local fishermen directly to consumers interested in purchasing their fresh catch.

RESULTS: Extension agents (MEP) recruited approximately 50 area fishermen, docks and seafood retailers to create on-line profile pages and interact directly with potential customers via "Fresh Catch" message posts. With approximately 10,000 unique visits per month (and growing), and the use of social media and call-to-action newsletters, the programs run by each region's MEP has achieved significant impact and helped create market demand for local fresh seafood product resulting in up to 100 percent increase in sales price over dock price for large shrimp. The impact on the local economy is significant and has provided a path to move the local catch from the commodities market to the consumer market and created links to bring urban consumers to the waterfront. Relationships are developing and commercial fishermen are taking pride in their chosen profession. Coastal communities are harvesting tourism dollars from these new urban visitors via the creation of Seafood Farmers Markets and other Eco-tourism opportunities.

RECAP: Louisiana Sea Grant helped create the Delcambre Direct Seafood Initiative, which has expanded statewide as Louisiana Direct Seafood and has helped generate market demand for local fresh seafood products, resulting in a 100 percent increase in sales price for large shrimp. [Back to Goals](#)

14814 - Development of Alternative Oyster Farming Zones in the Northern Gulf of Mexico

RELEVANCE- Coastal land loss and sea level rise has greatly impacted public and private oyster reefs and the environmental services they provide. This has resulted in a nearly 80% loss of oyster resources in Louisiana over the past 10 years. This has created severe hardship in coastal communities, since oyster production is a critical stimulus to the state's coastal economy. There is a need to stabilize oyster production to provide more consistent business opportunity and ecosystem services.

RESPONSE- A well-planned and administered marine enterprise zone for oyster farming can circumvent user conflicts, navigation, security, and liability issues that may otherwise hinder the aquacultural use of coastal waters. Marine spatial planning can help identify ideal locations for such zones in cooperation with local and state government.

RESULTS- A Grand Isle Oyster Farming Zone was instituted through legislation to authorize the Grand Isle Port Commission to designate and delineate 25 acres of public waters in Caminada Bay for expressed use of alternative oyster farming techniques, such as floating cage culture. The zone will encourage entrepreneurship, foster new oyster farming businesses, and job creation. Increasing oyster production will improve coastal water quality through natural environmental services that oysters provide. This is part of a regional Sea Grant funded effort with the Auburn University to foster off-bottom oyster farming in the northern Gulf of Mexico.

RECAP: Oyster farming zones are one example of sustainable coastal development that can be environmentally friendly, stimulate business development, and job creation by partnering user groups and agencies towards a common goal. [Back to Goals](#)

14796 - Food Safety at the Processor Level

Relevance: Seafood safety education

Response: Seafood HACCP is a required course for those handling seafood. Forty-seven students were taught Seafood HACCP and 13 took Sanitation Control Principles (SCP). Sections of the Better Process Control School (BPCS) curriculum were taught for 25 students processing low acid canned food; canned food and acidified foods. Seafood Specialist is also Principal Editor of the HACCP Seafood Compendium. As requested, Seafood Specialist evaluated processes and, if necessary, the products involved and offered assistance in determining and resolving seafood safety issues.

Response: Existing seafood handlers and entrepreneurs interested in entering the seafood business often lack sufficient knowledge in food safety and regulatory requirements. Extension educates these individuals and, thus, enhance their knowledge and improve sanitation and processing practices to assure a safe seafood supply.

RECAP: Existing seafood handlers and entrepreneurs interested in entering the seafood business often lack sufficient knowledge in food safety and regulatory requirements. Extension educates these individuals and, thus, enhance their knowledge and improve sanitation and processing practices to assure a safe seafood supply. [Back to Goals](#)

6624 - Lake Calcasieu Oyster Harvesting

Relevance

The Calcasieu Oyster Task Force was formed of local fishermen, buyers and businessmen. Also working with the task force was the Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana Sea Grant, Louisiana Department of Health and Hospitals (LDHH), and Cameron Parish Police Jury. Several changes have come about over the years through the efforts of all parties involved. In December 2005, after extensive sampling by LDHH, additional area was opened on the Lower Calcasieu portion of the harvest area. In 2006, legislation was passed allowing dredging in Calcasieu for the first time in many years. That same year the sack limit increased to 15 per day. The benefit of dredging oyster reefs goes far beyond saving the backs of fishermen. Dredges in Calcasieu are limited to 36 inches wide. These lightweight dredges only remove the top layer of oysters. Dredging breaks up clusters and reduces the amount of hooked mussels which set on oysters and reduce quality and hamper growth. Dredging also increases reef area, by slowly spreading shell and oysters out during the dredging process. This allows more area for spat set during subsequent spawns. Also, when fishermen stop and cull through the undersized oysters (3-inch minimum) and shell, these are returned to the lake to become part of the lake's reef bottom. Dredging oysters also improves quality over time, by reducing hooked mussels. An oyster's natural defense to being rolled around by dredges or rough water is to deepen its shell. This is known in the industry as cupping. Cupped shells produce thick, meaty oysters of high quality.

Response

During the 2008-2009 oyster harvesting season, 63,000 sacks were harvested from the Calcasieu Estuary. This harvest was worth \$1,260,000 at dockside to local fishermen. During the 2009-2010 season fishermen harvested 137,000 sacks worth \$3,425,000 ex-vessel. Some of the increased harvest was due to many people being out of work during the economic downturn. But, some of the increase was due to the high demand for quality oysters which fetched record prices for Calcasieu Lake oysters of up to \$32 per sack. In March, 2011, an additional 11,993 acres were opened to harvest.

Results

Hopefully, with continued monitoring and good management, this resource will continue to grow and support local fishermen and improve the reef areas of Calcasieu Lake, which are also known by recreational fishermen as excellent fishing spots.

RECAP: During the 2008-2009 Oyster Harvesting Season, 63,000 sacks were harvested from the Calcasieu Estuary. This harvest was worth \$1.26 million at dockside to local fishermen. During the 2009-2010 season fishermen harvested 137,000 sacks worth \$3.425 million ex-vessel. Some of the increased harvest was due to many people being out of work during the economic downturn. But, some of the increase was due to the high demand for quality oysters which fetched record prices for Calcasieu Lake oysters of up to \$32 per sack. In March, 2011, an additional 11,993 acres were opened to harvest. [Back to Goals](#)

[Back to Top](#)

Program Performance Measures (2010 - 2013)

Program Performance Measure	Program Plan Target (2010-2013)	Reported	Program Comments
Economic (market and non-market) benefits (\$) derived from the discovery and/or application of new fishery	8,000,000	235,815,300	2010 - Trade Adjustment

production and management models or techniques that lead to increased sustainability and productivity from the fishery.			Act trainees and improvements in shrimp gear technologies.
Number of fishermen, resource managers and seafood businesses (harvesters, aquaculturists, processors and recreational fishermen) who adopt and implement responsible harvesting and processing techniques and practices.	200	8,224	2010 - Trade Adjustment Act trainees
Number of producers, distributors and consumers of seafood in Louisiana that modify their practices using knowledge gained in fishery sustainability, seafood safety and the health benefits of seafood.	200,000	16,940	2010 - Trade Adjustment Act trainees

[Back to Top](#)

Program Objectives (2010 - 2013)

Program Objective	Achieved (yes/no)	Program Comments
Annually in 2009-2013, 15 teachers per year will be trained in water quality, habitat/ecological needs of fish populations and links to ecosystems who will utilize principles with 9,000 total students in stewardship through fisheries stewardship project Native Fish in the Classroom.	Yes	<p>2012 - LSGEd presented at and conducted several workshops for teachers during this period on wetlands, invasive species, wetlands, water quality and testing, Mississippi River processes, marine debris and climate. LSGEd partnered with LUMCON as a teacher mentor on H2O workshops in 2010, 2011, and 2012 that focuses on water quality parameters and student stewardship of watersheds. A total of 60 teachers attended these workshops. LSGEd has presented content for teachers on invasive species and marine debris at these workshops. Each year LSGEd partners with LDWF on WETSHOP, a week-long wetland workshop in the summer for teachers. LSGEd presents instruction and classroom lessons on invasive species, marine debris, floating marshes, wetland games, hurricane activity, Mississippi River flooding and field techniques. During this period 83 teachers and informal educators who teach about 8300 students attended WETSHOP. Using materials they received at WETSHOP, 40 of these teachers developed their own workshops to teach and share with their peers. LSGEd partners with LDWF on Native Fish in the Classroom (NFC), a fisheries stewardship project. For the reporting period, each year LSGEd was involved in NFC workshops for 67 teachers (Yr1-4: 20, 18, 11, 18) who teach approximately 3596 students in this yearlong project. For the last two years LSGEd has partnered with the LSU SOAR program to bring instruction to 240 (y3,4: 96, 144) students and 28 (Yr3,4: 14, 14) teachers who attend the paddlefish spawning event at the Booker Fowler Hatchery. LSGEd provides hands on activities on invasive species, water quality and differences in fish scales using the SOAR. In 2009-2010, LGSEd conducted 8 1-1.5 hr. workshops on aquatic invasive species for 157 teachers who teach over 12,000 students. In 2009-2010, ten teachers across the state completed stewardship projects with 540 students grades 3-12 on invasive species as part of the Nab the Aquatic Invader project. April Stone, 3rd grade teacher at South Street Elementary in Opelousas won LSTA's Elementary Teacher Year Award for her work with her students integrating technology with AIS stewardship projects on invasive species.</p> <p>2013 - In 2013,LSG partnered with Louisiana Wildlife and Fisheries on education projects on wetlands and marine debris. Both workshops had in class instruction time with practice doing student activities and a field component that immersed teachers in the environment with ways they can use the information and techniques with their students. WETSHOP, a week-long field-based workshop engaged 18 3rd-12th grade teachers (1590 students) on a week-long workshop filled with instruction, field experiences and data collection in wetlands and barrier islands. Teachers then teach their peers in a workshop. Pre and posttest resulted in a 36% increase in teacher's knowledge of wetlands. Teachers are energized by the field component Quantifying Debris engaged 16 teachers from Louisiana and surrounding states in a three-day workshop focusing in watersheds and marine debris. Pre- and posttest resulted in a 24.6% increase of teacher knowledge 24.6%Student field trips to collect marine debris data and participate in a beach cleanup on Louisiana's coast has been a new experience for 225 students and 12 chaperones. Many of these students and their chaperones have never been to a beach before! One teacher Sandy Saye, who teaches</p>

		minority students in a central Louisiana parish, immersed her 4th graders into wetlands and marine debris for the entire year. Most of her students had never been to the beach before, the field trip was transformative. Sandy won this year's Louisiana Science Teacher's Essie Beck "Rising Star" Science Education Award for her work with students integrating wetlands and debris into her teaching.
Annually in 2010-2012, LSG will hold 2 three-day HACCP workshops and 1 one-day SCP workshops per year.	Yes	2010 - Dr. Lucina Lampila, our seafood science specialist, is staying on top of this. 2011 - Dr. Lucina Lampila, our seafood science specialist, is staying on top of this. 2012 - Dr. Lucina Lampila, our seafood science specialist, is staying on top of this.
By 2011 LSG activities will produce a "business incubator" at which ideas for new seafood products can be developed and marketed.	Yes	2010 - Edible Enterprises, a commercial kitchen and food business incubator in Norco, LA, run by Goodwill Industries of Southeastern Louisiana, celebrated its second year of operations on 22 June 2011 by opening its kitchen and doling out samples created by its budding entrepreneurs. Sea Grant agent mark Schexnayder was instrumental in getting this facility up to speed. 2011 - Edible Enterprises, a commercial kitchen and food business incubator in Norco, LA, run by Goodwill Industries of Southeastern Louisiana, celebrated its second year of operations on 22 June 2011 by opening its kitchen and doling out samples created by its budding entrepreneurs. Sea Grant agent mark Schexnayder was instrumental in getting this facility up to speed. 2012 - Edible Enterprises, a commercial kitchen and food business incubator in Norco, LA, run by Goodwill Industries of Southeastern Louisiana, celebrated its second year of operations on 22 June 2011 by opening its kitchen and doling out samples created by its budding entrepreneurs. Sea Grant agent mark Schexnayder was instrumental in getting this facility up to speed. 2013 - Edible Enterprises, a commercial kitchen and food business incubator in Norco, LA, run by Goodwill Industries of Southeastern Louisiana, celebrated its second year of operations on 22 June 2011 by opening its kitchen and doling out samples created by its budding entrepreneurs. Sea Grant agent mark Schexnayder was instrumental in getting this facility up to speed.
By 2011 LSG will Collaborate in the production of a regional oil spill Web site.	Yes	2010 - http://gulfseagrant.tamu.edu/oilspill/index.htm 2011 - http://gulfseagrant.tamu.edu/oilspill/index.htm 2012 - http://gulfseagrant.tamu.edu/oilspill/index.htm 2013 - https://gulfseagrant.wordpress.com/gulf-oil-spill/
By 2011 LSG will Conduct two workshops to train 90 persons in a Peer Listening.	Yes	2010 - The two Peer Listening training sessions held at the LSU Burden Conference Center, 28 and 29 July, were highly successful! Over 90 attendees took advantage of the opportunity to either develop or broaden their listening skills. All were encouraged to take their skills back to their communities not only to help their friends and families, but also to train another generation of Peer Listeners. The two links below will take you to 1) an article placed on the LSU home page and 2) a news story from WVLA-TV, Channel 33 in Baton Rouge, from the evening broadcasts of 28 July: 1) 2010 Highlights Workshop Trains Volunteers To Be Peer Listeners For Those Affected By Gulf Oil Spill 2) Volunteers train to become 'peer listeners' for BP spill victims NBC 33 TV - WVLA 2011 - The two Peer Listening training sessions held at the LSU Burden Conference Center, 28 and 29 July, were highly successful! Over 90 attendees took advantage of the opportunity to either develop or broaden their listening skills. All were encouraged to take their skills back to their communities not only to help their friends and families, but also to train another generation of Peer Listeners. The two links below will take you to 1) an article placed on the LSU home page and 2) a news story from WVLA-TV, Channel 33 in Baton Rouge, from the evening broadcasts of 28 July: 1) 2010 Highlights Workshop Trains Volunteers To Be Peer Listeners For Those Affected By Gulf Oil Spill 2) Volunteers train to become 'peer listeners' for BP spill victims NBC 33 TV - WVLA

		<p>2012 - The two Peer Listening training sessions held at the LSU Burden Conference Center, 28 and 29 July, were highly successful! Over 90 attendees took advantage of the opportunity to either develop or broaden their listening skills. All were encouraged to take their skills back to their communities not only to help their friends and families, but also to train another generation of Peer Listeners. The two links below will take you to 1) an article placed on the LSU home page and 2) a news story from WVLA-TV, Channel 33 in Baton Rouge, from the evening broadcasts of 28 July: 1) 2010 Highlights Workshop Trains Volunteers To Be Peer Listeners For Those Affected By Gulf Oil Spill 2) Volunteers train to become 'peer listeners' for BP spill victims NBC 33 TV - WVLA</p> <p>2013 - The two Peer Listening training sessions held at the LSU Burden Conference Center, 28 and 29 July, were highly successful! Over 90 attendees took advantage of the opportunity to either develop or broaden their listening skills. All were encouraged to take their skills back to their communities not only to help their friends and families, but also to train another generation of Peer Listeners. The two links below will take you to 1) an article placed on the LSU home page and 2) a news story from WVLA-TV, Channel 33 in Baton Rouge, from the evening broadcasts of 28 July: 1) 2010 Highlights Workshop Trains Volunteers To Be Peer Listeners For Those Affected By Gulf Oil Spill 2) Volunteers train to become 'peer listeners' for BP spill victims NBC 33 TV - WVLA. The Peer Listening training was recorded using lecture capture equipment and then placed on a dedicated server LSG shared with University Recreation and School of the Coast. That server was decommissioned without Sea Grant's knowledge when University Recreation decided to end its participation in the shared resource arrangement. Consequently, the recordings were lost when the server was decommissioned.</p>
By 2011 LSG will Embed one person in the oil spill Joint Incident Command to serve as liaison between the JIC and the fishing community.	Yes	<p>2010 - Louisiana Sea Grant Extension Assistant Julie Falgout served as fishing community liaison to the Joint Incident Command for the entire duration of the Deepwater Horizon oil spill.</p> <p>2011 - Louisiana Sea Grant Extension Assistant Julie Falgout served as fishing community liaison to the Joint Incident Command for the entire duration of the Deepwater Horizon oil spill.</p> <p>2012 - Louisiana Sea Grant Extension Assistant Julie Falgout served as fishing community liaison to the Joint Incident Command for the entire duration of the Deepwater Horizon oil spill.</p>
By 2011 LSG will Fund 11 oil spill rapid response research projects.	Yes	<p>2010 - See projects R/CF-02-PD, R/OS-02-PD, R/OS-03-PD, R/OS-04-PD, R/OS-05-PD, R/OS-06-PD, R/OS-07-PD, R/OS-08-PD, R/OS-09-PD, R/OS-10-PD, and R/OS-11-PD.</p> <p>2011 - See projects R/CF-02-PD, R/OS-02-PD, R/OS-03-PD, R/OS-04-PD, R/OS-05-PD, R/OS-06-PD, R/OS-07-PD, R/OS-08-PD, R/OS-09-PD, R/OS-10-PD, and R/OS-11-PD.</p> <p>2012 - See projects R/CF-02-PD, R/OS-02-PD, R/OS-03-PD, R/OS-04-PD, R/OS-05-PD, R/OS-06-PD, R/OS-07-PD, R/OS-08-PD, R/OS-09-PD, R/OS-10-PD, and R/OS-11-PD.</p>
By 2011 LSG will Produce and post informational NRDA Web pages.	Yes	<p>2010 - On our website at http://www.laseagrant.org/nrda/index.htm.</p> <p>2011 - On our website at http://www.laseagrant.org/nrda/index.htm.</p> <p>2012 - On our website at http://www.laseagrant.org/nrda/index.htm.</p>
By 2011 LSG will Produce and post oil spill-related economic FAQs on LSG Web site.	Yes	<p>2010 - Economic Impacts to Fisheries and Coastal Habitat - http://gulfseagrant.tamu.edu/oilspill/economic.htm</p> <p>2011 - Economic Impacts to Fisheries and Coastal Habitat - http://gulfseagrant.tamu.edu/oilspill/economic.htm</p> <p>2012 - Economic Impacts to Fisheries and Coastal Habitat - http://gulfseagrant.tamu.edu/oilspill/economic.htm</p> <p>2013 - https://gulfseagrant.wordpress.com/gulf-oil-spill/</p>
By 2011 LSG will Produce six oil spill fact sheets in both English and	Yes	<p>2010 - SBA Disaster Loan Fact Sheet - http://gulfseagrant.tamu.edu/oilspill/pdfs/SBA_DisasterLoan_Vietnamese.pdf</p> <p>What You Should and Should Not Do in Areas Affected by the Oil Spill - http://gulfseagrant.tamu.edu/oilspill/pdfs/OilSpill_Gdnce_PblcVtnmse.pdf (DHH fact sheet)</p> <p>Oil Spill Issues: What to Do and Why - http://gulfseagrant.tamu.edu/oilspill/pdfs/OilSpill_FAQs_PblcVtnmse.pdf</p>

Vietnamese.		(DHH fact sheet) Others produced in cooperation with NOAA External Affairs are available at http://response.restoration.noaa.gov/dwh.php?entry_id=812 2011 - SBA Disaster Loan Fact Sheet - http://gulfseagrant.tamu.edu/oilspill/pdfs/SBA_DisasterLoan_Vietnamese.pdf What You Should and Should Not Do in Areas Affected by the Oil Spill - http://gulfseagrant.tamu.edu/oilspill/pdfs/OilSpill_Gdnce_PblcVtnmse.pdf (DHH fact sheet) Oil Spill Issues: What to Do and Why - http://gulfseagrant.tamu.edu/oilspill/pdfs/OilSpill_FAQs_PblcVtnmse.pdf (DHH fact sheet) Others produced in cooperation with NOAA External Affairs are available at http://response.restoration.noaa.gov/dwh.php?entry_id=812 2012 - SBA Disaster Loan Fact Sheet - http://gulfseagrant.tamu.edu/oilspill/pdfs/SBA_DisasterLoan_Vietnamese.pdf What You Should and Should Not Do in Areas Affected by the Oil Spill - http://gulfseagrant.tamu.edu/oilspill/pdfs/OilSpill_Gdnce_PblcVtnmse.pdf (DHH fact sheet) Oil Spill Issues: What to Do and Why - http://gulfseagrant.tamu.edu/oilspill/pdfs/OilSpill_FAQs_PblcVtnmse.pdf (DHH fact sheet) Others produced in cooperation with NOAA External Affairs are available at http://response.restoration.noaa.gov/dwh.php?entry_id=812 2013 - GOM oil spill resources developed by LSG and other GOM Sea Grant programs can be found at https://gulfseagrant.wordpress.com/gulf-oil-spill/ .
By 2011 LSG will Train three personnel in sensory detection of oil taint in seafood.	Yes	2010 - 1) Dr. Lucina Lampila, Louisiana Sea Grant Seafood Science Specialist 2) Dr. Julie Anderson, Louisiana Sea Grant Fisheries Specialist 3) Ms. Julie Falgout, Louisiana Sea Grant Extension Specialist 2011 - 1) Dr. Lucina Lampila, Louisiana Sea Grant Seafood Science Specialist 2) Dr. Julie Anderson, Louisiana Sea Grant Fisheries Specialist 3) Ms. Julie Falgout, Louisiana Sea Grant Extension Specialist 2012 - 1) Dr. Lucina Lampila, Louisiana Sea Grant Seafood Science Specialist 2) Dr. Julie Anderson, Louisiana Sea Grant Fisheries Specialist 3) Ms. Julie Falgout, Louisiana Sea Grant Extension Specialist
By 2011 LSG will Produce one seafood safety video and post same on LSG Web site.	Yes	2010 - In response to consumer concerns about oil contaminated seafood from the Gulf of Mexico reaching the marketplace, Louisiana Sea Grant has produced a short video outlining the precautions taken to ensure tainted shell and finfish don't end up on the table. Available at: http://www.laseagrant.org/comm/media.htm 2011 - In response to consumer concerns about oil contaminated seafood from the Gulf of Mexico reaching the marketplace, Louisiana Sea Grant has produced a short video outlining the precautions taken to ensure tainted shell and finfish don't end up on the table. Available at: http://www.laseagrant.org/comm/media.htm 2012 - In response to consumer concerns about oil contaminated seafood from the Gulf of Mexico reaching the marketplace, Louisiana Sea Grant has produced a short video outlining the precautions taken to ensure tainted shell and finfish don't end up on the table. Available at: http://www.laseagrant.org/comm/media.htm 2013 - LSG has done two - https://www.youtube.com/watch?v=-LO2zQ-Rg6g and https://www.youtube.com/watch?v=z0U-TwEF2PM
By 2011, a simple molecular assay to detect the presence and abundance of Vibrio in harvested oysters will be applied to 5% of the annual production.	Yes	2010 - Related information can be found at: http://www.laseagrant.org/2014/lff-program-unveiled/ 2011 - Project ends 1/31/2012. 2013 - Related information can be found at: http://www.laseagrant.org/2014/lff-program-unveiled/
By 2011, deploy nine artificial reef areas, each consisting of over 300 sub-reef structures, in	Yes	2010 - Related information can be found at: http://www.laseagrant.org/wp-content/uploads/CC_No14_Summer09.pdf 2011 - Go to http://www.saveourlake.org/fishing.php for more information. Sea Grant area agent mark Schexnayder was deeply involved in this effort. 2012 - Go to http://www.saveourlake.org/fishing.php for more information. Sea Grant area agent Mark Schexnayder was deeply involved in this effort. 2013 - Go to http://www.saveourlake.org/fishing.php for more information. Sea Grant area agent Mark Schexnayder was deeply involved in this effort.

Lake Pontchartrain.		Related information can be found at: http://www.laseagrant.org/wp-content/uploads/CC_No14_Summer09.pdf
By 2013, 5% of Louisiana's offshore shrimp fleet o500 vessels will have converted to high efficiency trawl gear both to increase efficiency of fuel use and to decrease operating costs.	No	<p>2010 - Our partner in this Gear Enhancement project, the LA department of Wildlife and Fisheries, has become disenchanted with the red tape involved in getting new and improved gear to the shrimp fishermen. We have had to scale back to a smaller program in the hope that we can return to the original plan in the future.</p> <p>2011 - Our partner in this Gear Enhancement project, the LA department of Wildlife and Fisheries, has become disenchanted with the red tape involved in getting new and improved gear to the shrimp fishermen. We have had to scale back to a smaller program in the hope that we can return to the original plan in the future.</p> <p>2012 - Our partner in this Gear Enhancement project, the LA department of Wildlife and Fisheries, has become disenchanted with the red tape involved in getting new and improved gear to the shrimp fishermen. We have had to scale back to a smaller program in the hope that we can return to the original plan in the future.</p> <p>2013 - Our partner in this Gear Enhancement project, the LA department of Wildlife and Fisheries, has become disenchanted with the red tape involved in getting new and improved gear to the shrimp fishermen. We have had to scale back to a smaller program in the hope that we can return to the original plan in the future.</p>
By 2013, determine the role and use of protease inhibitors in host defense of oysters against Dermo, a disease that annually causes severe mortality among wild stocks.	Yes	<p>2010 - Project ends 1/31/2012.</p> <p>2011 - Project ends 1/31/2012.</p> <p>2012 - We have published 3 full research articles and 3 abstracts in peer-reviewed journals. La Peyre JF, Xue Q, Itoh N, Li Y, Cooper RK, 2010. Serine protease inhibitor cvSI-1 potential role in the eastern oyster host defense against the protozoan parasite Perkinsus marinus. <i>Dev Comp Immunol</i> 34: 84-92. Itoh N, Xue Q, Schey KL, Li Y, Cooper RK, La Peyre JF, 2011. Characterization of the major plasma protein of the eastern oyster, <i>Crassostrea virginica</i>, and a proposed role in host defense. <i>Comp Biochem Physiol Part B</i> 158: 9-22. Xue Q, Li Y, La Peyre J, 2011. Development of tools to facilitate the proteomic analysis of oyster plasma. <i>J Shellfish Res</i> 30:564 (abstract). Xue Q, Li, L., La Peyre, J., Cooper, R. 2011. Cv-Lysozyme-1 recombinant expression and 13C/15N-labeling for NMR structural determination. <i>J Shellfish Res</i> 30:564-565 (abstract). Xue Q, Gauthier J, Schey K, Li Y, Cooper R, Anderson R, La Peyre J, 2012. Identification of a novel metal binding protein, segon, in plasma of the eastern oyster, <i>Crassostrea virginica</i>. <i>J Shellfish Res</i> 31:361 (abstract). Xue Q, Gauthier J, Schey K, Li Y, Cooper R, Anderson R, La Peyre J, 2012. Identification of a novel metal binding protein, segon, in plasma of the eastern oyster, <i>Crassostrea virginica</i>. <i>Comp Biochem Physiol Part B</i> 163:74-85. LSU.</p> <p>2013 - Related sponsored research has been published 3 full research articles and 3 abstracts in peer-reviewed journals. La Peyre JF, Xue Q, Itoh N, Li Y, Cooper RK, 2010. Serine protease inhibitor cvSI-1 potential role in the eastern oyster host defense against the protozoan parasite Perkinsus marinus. <i>Dev Comp Immunol</i> 34: 84-92. Itoh N, Xue Q, Schey KL, Li Y, Cooper RK, La Peyre JF, 2011. Characterization of the major plasma protein of the eastern oyster, <i>Crassostrea virginica</i>, and a proposed role in host defense. <i>Comp Biochem Physiol Part B</i> 158: 9-22. Xue Q, Li Y, La Peyre J, 2011. Development of tools to facilitate the proteomic analysis of oyster plasma. <i>J Shellfish Res</i> 30:564 (abstract). Xue Q, Li, L., La Peyre, J., Cooper, R. 2011. Cv-Lysozyme-1 recombinant expression and 13C/15N-labeling for NMR structural determination. <i>J Shellfish Res</i> 30:564-565 (abstract). Xue Q, Gauthier J, Schey K, Li Y, Cooper R, Anderson R, La Peyre J, 2012. Identification of a novel metal binding protein, segon, in plasma of the eastern oyster, <i>Crassostrea virginica</i>. <i>J Shellfish Res</i> 31:361 (abstract). Xue Q, Gauthier J, Schey K, Li Y, Cooper R, Anderson R, La Peyre J, 2012. Identification of a novel metal binding protein, segon, in plasma of the eastern oyster, <i>Crassostrea virginica</i>. <i>Comp Biochem Physiol Part B</i> 163:74-85. LSU.</p>
By 2013, develop a rapid enteric virus indicator method that correlates to	No	<p>2010 - Project ends 12/31/2011.</p> <p>2011 - Project ends 12/31/2011.</p> <p>2012 - We have development a way to concentrate viral particles in combination with detection of an enteric viral indicator that correlates to the presence of HAV and NV by using the WATERAC system that utilizes resin beads this will aid in the surveillance of shellfish growing areas by regulatory agencies. The principle of anion exchange lies in the fact that these resins</p>

<p>the presence of Hepatitis A and Norwalk viruses in shellfish growing areas.</p>		<p>are charged with either chloride (Cl-) or hydroxyl (OH-) ions, which are released into water in exchange for less desirable contaminant anions. Anion exchange has traditionally been used in water purification methodologies, as a way to decrease the amount of nitrates, sulfates and other negatively charged ions in water. In this project, we have found that the anion exchange resins are effective at removing negatively charged ions such as enteric viruses. As water passes through the resin, the enteric viruses will be exchanged for, and trade positions with, the loosely held chloride or hydroxyl ions on the resin. This has the effect of concentrating the viruses on the resin beads, which can then be removed and analyzed. During the concentration process, the water (and any viruses enter the vacuum drum, and anionic exchange resin beads are added to the drum. The water is agitated to allow the resin beads to stay in solution, and any viruses are trapped on the surface of the ion exchange resin beads. Following the capture step (which takes approximately 2-4 hours), the water is drained from the bottom of the WATERAC, and the resin beads (with any attached viruses are collected. Publication: R. Jadeja1, M.E. Janes, and J.G. Simonson. 2010. Immunomagnetic Separation of Vibrio vulnificus with Anti-Flagellar Monoclonal Antibody. Journal of Food Protection 73:1288-1293. 2013 - LSG sponsored research for development of a way to concentrate viral particles in combination with detection of an enteric viral indicator that correlates to the presence of HAV and NV by using the WATERAC system that utilizes resin beads this will aid in the surveillance of shellfish growing areas by regulatory agencies. The principle of anion exchange lies in the fact that these resins are charged with either chloride (Cl-) or hydroxyl (OH-) ions, which are released into water in exchange for less desirable contaminant anions. Anion exchange has traditionally been used in water purification methodologies, as a way to decrease the amount of nitrates, sulfates and other negatively charged ions in water. In this project, we have found that the anion exchange resins are effective at removing negatively charged ions such as enteric viruses. As water passes through the resin, the enteric viruses will be exchanged for, and trade positions with, the loosely held chloride or hydroxyl ions on the resin. This has the effect of concentrating the viruses on the resin beads, which can then be removed and analyzed. During the concentration process, the water (and any viruses enter the vacuum drum, and anionic exchange resin beads are added to the drum. The water is agitated to allow the resin beads to stay in solution, and any viruses are trapped on the surface of the ion exchange resin beads. Following the capture step (which takes approximately 2-4 hours), the water is drained from the bottom of the WATERAC, and the resin beads (with any attached viruses are collected. Publication: R. Jadeja1, M.E. Janes, and J.G. Simonson. 2010. Immunomagnetic Separation of Vibrio vulnificus with Anti-Flagellar Monoclonal Antibody. Journal of Food Protection 73:1288-1293. Janes' project - http://appl003.isu.edu/seagrant/collaresh.nsf/DisplayProjectDetail?OpenAgent&R/PMO-23-RB</p>
<p>By 2013, develop and market two safe, convenient, frozen oyster products for the ready-to-eat market.</p>	<p>Yes</p>	<p>2010 - Project ends 1/31/2012. 2011 - Project ends 1/31/2012. 2012 - We successfully completed the research entitled "Development of safe, convenient, and frozen oyster products for the frozen ready-meal market segment" 1). We determined the effectiveness of cryogenic and air blast freezing on reducing pathogenic oyster-associated bacteria and on maintaining the quality of oyster meat. 2). We determined death kinetics of pathogenic oyster-associated bacteria in cryogenically frozen oyster meat using steam venting technology and microwave cooking. 3). We evaluated the steam packaging containing frozen oyster ready meal through representatives of the oyster processing industry. Benefits: The superiority of CF over BF for oyster meat has been demonstrated and quantified. Work on suitable packaging for the product proceeds and has resulted in the identification of steam venting packaging materials for microwaving the frozen oysters. We have successfully microwaved frozen oysters without the intermediate step of thawing. Therefore, the process should have a number of advantages: (1) more convenient than one which has to be thawed before cooking, (2) it also avoids incorrect thawing and possible production of heat tolerant toxins, (3) the products will have less exposure to possible contamination from workers than traditional processing methods, and (4) the combination of microwaves and steam produces a safe product since it</p>

		<p>results in conditions under which lethality of pathogenic organisms is assured. Publications: 1. Espinoza L, Janes M, and S. Sathivel. 2012. Death Kinetics of <i>Vibrio vulnificus</i> and <i>Vibrio parahaemolyticus</i> in cryogenically frozen oyster meat using steam venting technology. Ann. Mtg. of the Institute of Food Technologists, Las Vegas, NV. 2. Espiniza, L., M. Janes, M. Gutierrez, R. Jadeja, D. J. Bankston, and S. Sathivel. 2011. Effect of cryogenic and air blast freezing on pathogenic bacteria load associated with oysters and the quality of oyster meat. Ann. Mtg. of the Institute of Food Technologists, New Orleans, LA. abstract no. 294-02, p248.</p> <p>2013 - LSG sponsored successfully completed research entitled "Development of safe, convenient, and frozen oyster products for the frozen ready-meal market segment" 1). We determined the effectiveness of cryogenic and air blast freezing on reducing pathogenic oyster-associated bacteria and on maintaining the quality of oyster meat. 2). We determined death kinetics of pathogenic oyster-associated bacteria in cryogenically frozen oyster meat using steam venting technology and microwave cooking. 3). We evaluated the steam packaging containing frozen oyster ready meal through representatives of the oyster processing industry. Benefits: The superiority of CF over BF for oyster meat has been demonstrated and quantified. Work on suitable packaging for the product proceeds and has resulted in the identification of steam venting packaging materials for microwaving the frozen oysters. We have successfully microwaved frozen oysters without the intermediate step of thawing. Therefore, the process should have a number of advantages: (1) more convenient than one which has to be thawed before cooking, (2) it also avoids incorrect thawing and possible production of heat tolerant toxins, (3) the products will have less exposure to possible contamination from workers than traditional processing methods, and (4) the combination of microwaves and steam produces a safe product since it results in conditions under which lethality of pathogenic organisms is assured. Publications: 1. Espinoza L, Janes M, and S. Sathivel. 2012. Death Kinetics of <i>Vibrio vulnificus</i> and <i>Vibrio parahaemolyticus</i> in cryogenically frozen oyster meat using steam venting technology. Ann. Mtg. of the Institute of Food Technologists, Las Vegas, NV. 2. Espiniza, L., M. Janes, M. Gutierrez, R. Jadeja, D. J. Bankston, and S. Sathivel. 2011. Effect of cryogenic and air blast freezing on pathogenic bacteria load associat</p>
<p>By 2013, four percent of Louisiana's commercial oyster harvest will consist of triploid hatchery-produced animals from dermo-resistant triploid founder stock.</p>	<p>No</p>	<p>2010 - Two hundred million triploid oyster larvae were recently produced in the LSG Oyster Hatchery. These will be nurtured in the hatchery until they can be moved to off-bottom culture demonstration plots.</p> <p>2011 - Two hundred million triploid oyster larvae were recently produced in the LSG Oyster Hatchery. These will be nurtured in the hatchery until they can be moved to off-bottom culture demonstration plots.</p> <p>2012 - Commercialization will be fostered by Act 203 of the Louisiana Legislature, permitting Alternative Oyster Culture on existing oyster leases.</p> <p>2013 - Two hundred million triploid oyster larvae were recently produced in the LSG Oyster Hatchery. These will be nurtured in the hatchery until they can be moved to off-bottom culture demonstration plots. However, this effort represents < 1% of the total oyster harvest in Louisiana</p>
<p>By 2013, LSG will have funded 4 projects related to the seafood processing sector. Projects will incorporate innovative technologies for harvest, processing, and marketing. Economic</p>	<p>Yes</p>	<p>2010 - We received no such proposals in the last omnibus round. We hope to tackle this objective through Program Development funding opportunities.</p> <p>2011 - We received no such proposals in the last omnibus round. We hope to tackle this objective through Program Development funding opportunities.</p> <p>2012 - We have used our MEP seafood expertise to leverage funds for two new value-added seafood products, Vermillion Bay Sweet and Gumbo Pack. A partial enterprise budget template for the VBS product has been completed and is in refinement.</p> <p>2013 - Louisiana Sea Grant (LSG) provided seafood dock and processing businesses access to subject matter expertise and information related to small business development, labor issues, HACCP training, and new seafood processing technologies. For example, LSG worked with these small business owners to promote the menhaden bait industry in Louisiana by helping the owners to understand seafood processing technology dealing with whole fish brining, and have assisted the owners in implementing new technologies to efficiently produce their processed seafood product while following changes in federal and state regulations pertaining to their industry. One of these</p>

assessments will be conducted in parallel with the development of physical methods.		small businesses, Luke's Seafood, is in the process of renovating a building to accommodate new equipment purchases made in 2013 so that they can begin cooking and peeling crabs utilizing the new technology transferred as a result of recommendations made by LSG. Also in 2013, Luke's Seafood Company was also able to obtain proper permits and pass inspections using information the owner received from LSG. Another business, David Chauvin's Seafood Company LLC, purchased a second location from the Bluewater Shrimp Company in 2013 with dockside processing ability. LSG education and outreach materials along with the training the owners have received over the years through LSG technology transfer events helped them build a successful business and prepare for expansion. Two other processing businesses began construction in 2013 as a result of the development of Louisiana's menhaden bait industry that LSG worked to promote.
By 2013, LSG will have funded the development of a prototype system for the production of coastal bait species for recreational fishing.	Yes	<p>2010 - Dr. Christopher Green and Dr. Julie Anderson continue to make progress toward fulfillment of this objective. Their outreach meetings have been well attended and over 40 individuals and companies have shown interest in culturing their own bait species.</p> <p>2011 - Dr. Christopher Green and Dr. Julie Anderson continue to make progress toward fulfillment of this objective. Their outreach meetings have been well attended and over 40 individuals and companies have shown interest in culturing their own bait species.</p> <p>2012 - Dr. Christopher Green and Dr. Julie Anderson have published the recommended system and methods for producing cocahoe minnows (<i>Fundulus grandis</i>) in Cocahoe Minnow Production (http://www.lsuagcenter.com/NR/rdonlyres/05E2450B-1622-4639-BE42-FF8E3E0B2785/87628/CocahoeProductionBookFinal.pdf) . This publication includes best management practices, production scenarios, and an economic analysis of the various systems. One producer is actively producing cocahoe minnows based on their work while more continue to show interest across Louisiana and the Gulf of Mexico. During the duration of the project Dr. Green has utilized this project to leverage funds for future research in nutritional physiology from Cotton Inc. and the Environmental Protection Agency.</p> <p>2013 - Dr. Christopher Green and Dr. Julie Anderson have published the recommended system and methods for producing cocahoe minnows (<i>Fundulus grandis</i>) in Cocahoe Minnow Production (http://www.lsuagcenter.com/NR/rdonlyres/05E2450B-1622-4639-BE42-FF8E3E0B2785/87628/CocahoeProductionBookFinal.pdf) . This publication includes best management practices, production scenarios, and an economic analysis of the various systems. One producer is actively producing cocahoe minnows based on their work while more continue to show interest across Louisiana and the Gulf of Mexico. During the duration of the project Dr. Green has utilized this project to leverage funds for future research in nutritional physiology from Cotton Inc. and the Environmental Protection Agency.</p>
By 2013, techniques for commercial scale spawning and growout of Florida pompano in recirculating systems will be used by two companies for aquaculture of the species.	No	<p>2010 - Project ends 1/31/2012 unless another hurricane destroys the facilities at LUMCON.</p> <p>2011 - Project ends 1/31/2012 unless another hurricane destroys the facilities at LUMCON.</p> <p>2012 - Although volitional spawning of Florida pompano was not accomplished, we were able to condition and spawn pompano with hormone implants using a variety of conditioning regimes. We learned that pompano partially conditioned outdoors ate more and grew larger than broodstock held only in indoor conditioning systems. Since larger females produce larger spawns this is a significant finding for consideration in the conditioning of marine fishes. We also learned how to manipulate pompano broodstock when spawning with hormone implants to increase fertilization and hatch rates. Research synergies: Our spawning trials with pompano in captivity provided a background for additional research on spawning other fishes and educational opportunities for students. In summer 2012 a summer intern was funded by an NSF REU grant that allowed us to conduct research on cryopreservation of blackfin tuna sperm. Sea Grant funds as well as other NOAA funds directed toward aquaculture were used to support trips to LSU for cryopreservation of tuna sperm as well as offshore trips to collect gonads for determining peak hydration and spawning times of wild blackfin tuna females. We were also able to attempt to spawn blackfin tuna at sea. In July 2012 we successfully spawned a blackfin tuna female at sea by removing and storing blackfin tuna sperm in an extender (1% salt solution) that was stored on ice and held until a hydrated female blackfin tuna was captured. In</p>

		<p>July 2012 at approximately 2:01 am a fully hydrated female blackfin tuna was captured by hook and line and a small subsample of oocytes (~2500) removed and placed in a Pyrexâ„¢ petri dish along with a small volume of fresh sperm. Filtered (53um) surface seawater (~35 psu) collected offshore was used to water harden the fertilized oocytes. Fertilization rate and hatch rates were estimated at 96 and 100% respectively. An oral presentation of this research will be made at the 2013 Aquaculture America meeting in Nashville, TN.</p> <p>2013 - Although volitional spawning of Florida pompano was not accomplished, we were able to condition and spawn pompano with hormone implants using a variety of conditioning regimes. We learned that pompano partially conditioned outdoors ate more and grew larger than broodstock held only in indoor conditioning systems. Since larger females produce larger spawns this is a significant finding for consideration in the conditioning of marine fishes. We also learned how to manipulate pompano broodstock when spawning with hormone implants to increase fertilization and hatch rates. Research synergies: Our spawning trials with pompano in captivity provided a background for additional research on spawning other fishes and educational opportunities for students. In summer 2012 a summer intern was funded by an NSF REU grant that allowed us to conduct research on cryopreservation of blackfin tuna sperm. Sea Grant funds as well as other NOAA funds directed toward aquaculture were used to support trips to LSU for cryopreservation of tuna sperm as well as offshore trips to collect gonads for determining peak hydration and spawning times of wild blackfin tuna females. We were also able to attempt to spawn blackfin tuna at sea. In July 2012 we successfully spawned a blackfin tuna female at sea by removing and storing blackfin tuna sperm in an extender (1% salt solution) that was stored on ice and held until a hydrated female blackfin tuna was captured. In July 2012 at approximately 2:01 am a fully hydrated female blackfin tuna was captured by hook and line and a small subsample of oocytes (~2500) removed and placed in a Pyrexâ„¢ petri dish along with a small volume of fresh sperm. Filtered (53um) surface seawater (~35 psu) collected offshore was used to water harden the fertilized oocytes. Fertilization rate an</p>
<p>By 2013, use long-term datasets and field derived data of oyster growth, mortality, and recruitment to refine a dynamic model both for predicting optimal conditions and for formulating management strategies for sustainable oyster seed production in Breton Sound, LA.</p>	<p>Yes</p>	<p>2010 - Project ends 1/31/2012. 2011 - Project ends 1/31/2012. 2012 - This project developed a shell neutral model to estimate sustainable oyster harvest and manage cultch through shell planting when actual harvest exceeds sustainable harvest in Breton sound, Louisiana's primary oyster seed grounds. Louisiana Department of Wildlife and Fisheries is now funding the application of the model across the state. The project also provided data on the response of oysters to changes in salinity and temperature to refine the model developed, and confirmed anecdotal observations that the interaction of high temperature with low salinity (< 5) provides a lethal combination. A numerical model for the sustainable management of oysters in Louisiana, which emphasizes the primacy of no net shell loss over equilibrium of numbers, was developed. Annual stock assessments of oyster density and size were inputs into the model to retrospectively estimate the number of sacks of seed and market-sized (sack) oysters that were harvestable with no net loss of reef shell. In doing so, sustainable fishing rates and harvest estimates were generated for both seed and sack oysters. Comparisons of actual annual harvest to simulated annual sustainable harvest revealed years which exceed and years which fall below sustainability targets. Field data acquisition occurred in 2010 and 2011. 2013 - This project developed a shell neutral model to estimate sustainable oyster harvest and manage cultch through shell planting when actual harvest exceeds sustainable harvest in Breton sound, Louisiana's primary oyster seed grounds. Louisiana Department of Wildlife and Fisheries is now funding the application of the model across the state. The project also provided data on the response of oysters to changes in salinity and temperature to refine the model developed, and confirmed anecdotal observations that the interaction of high temperature with low salinity (< 5) provides a lethal combination. A numerical model for the sustainable management of oysters in Louisiana, which emphasizes the primacy of no net shell loss over equilibrium of numbers, was developed. Annual stock assessments of oyster density and size were inputs into the model to retrospectively estimate the number of sacks of seed and market-sized (sack) oysters that were harvestable with no net loss of reef shell. In doing so, sustainable fishing rates and harvest estimates were generated for both</p>

		seed and sack oysters. Comparisons of actual annual harvest to simulated annual sustainable harvest revealed years which exceed and years which fall below sustainability targets. Field data acquisition occurred in 2010 and 2011.
By 2014, LSG will develop an off-bottom oyster production array to demonstrate both the function and the profitability of the methodology, and train five oystermen in the use of the technique.	Yes	<p>2010 - Somewhat delayed by the Deepwater Horizon oil spill three oystermen recruited so far. NSGO national strategic initiative project for which the second year of funding may not be made available</p> <p>2011 - Somewhat delayed by the Deepwater Horizon oil spill three oystermen recruited so far. NSGO national strategic initiative project for which the second year of funding may not be made available</p> <p>2012 - The Sea Grant Oyster Research and Demonstration Farm is established.</p> <p>2013 - In 2013, The Louisiana Sea Grant Oyster Hatchery, along with NOAA and La. Board of Regents funding, has developed tetraploid oysters, in concert with 4Cs Breeding Technologies, Inc., for regional utilization to produce triploid oysters to improve summertime meat condition, yield and growth for both single oyster production in new off-bottom culture operations and for spat-on-shell for more traditional extensive culture. This 4Cs/Louisiana Sea Grant partnership will support the Gulf region's hatcheries by providing sperm and ploidy verification to help transfer triploid oyster technology, with VIMS collaboration and FDACS review. This is part of a regional Sea Grant funded effort with the Auburn University to foster off-bottom oyster farming. Oyster nursery outreach efforts/videos include - https://www.youtube.com/watch?v=xUm3KakDk_E and https://www.youtube.com/watch?v=wcd6m6c51Gg - would fit here, as well as his work with Caminada Bay Oyster Co. The videos have been watched more than 600 times, and 2,600 times, respectively. Additionally, we've done a video on Production and Sale of Soft-shell Blue Crabs - https://www.youtube.com/watch?v=0LzFmpEHV6g - that has been viewed more than 230 times. Vacuum Packing Demo video - https://www.youtube.com/watch?v=u9OWKIYzJCc - more than 350 views. I think all of these would fit under this outcome.</p>
By 2014, LSG will recommend those oyster brood stocks (selected or wild) for use in hatchery production of seed oysters, assess their grow-out at low, intermediate, or high salinity sites, and determine which of the three culture systems produces maximum numbers of marketable oysters.	Yes	<p>2010 - NSGO national strategic initiative project - Second year of funding may may be made available.</p> <p>2011 - NSGO national strategic initiative project - Second year of funding may may be made available.</p> <p>2012 - NSGO national strategic initiative project - Second year of funding may be made available.</p> <p>2013 - The Sea Grant Oyster Hatchery program achieved great success with the production of tetraploid oyster broodstock during 2013. Over 1,000 tetraploid oysters are currently deployed in the Oyster Research & Demonstration Farm located in Grand Isle. Male tetraploid oysters will be used to mate with female diploid oysters to produce triploid oysters for industry use, to culture both single oysters in alternative oyster culture (off-bottom) and spat-on-shell for extensive culture (on-bottom) for shucking. Triploid oysters provide higher summertime meat yield than wild diploid oysters due to sexual sterility, allowing retention of winter glycogen stores.</p>
Conduct species specific aquaculture economic assessments, with corresponding outreach elements, for informed	Yes	<p>2010 - This objective was shelved during the Deepwater Horizon event and has yet to come down from the shelf.</p> <p>2011 - This objective was shelved during the Deepwater Horizon event and has yet to come down from the shelf.</p> <p>2012 - We recently completed aquaculture economic assessments for coastal bait, primarily (<i>Fundulus</i> spp.) in various production configurations.</p> <p>2013 - Collaboration with 4C's Breeding Technologies, Inc. continued with program development of providing tetraploid germplasm (sperm) to regional bivalve hatcheries to produce triploid offspring. 4C's shall solicit gulf region hatcheries to place orders for germplasm, notify the Sea Grant Oyster Hatchery of orders, conduct invoicing and receive payments. Sea Grant will</p>

entry into the industry.		ship sperm samples to participating hatcheries, obtain disease certification of shipments, and analyze the ploidy of resulting larval broods. This collaboration provides a regional approach to triploid oyster production and utilization.
Continuing: Promote new technology and alternative methods either to reduce bycatch or to sustainably utilize bycatch	Yes	2010 - No proposals received. 2011 - No proposals received. 2012 - No proposals received. 2013 - In 2013, Louisiana Sea Grant (LSG) sponsored research to develop a new cost-effective alternative blue crab bait that utilizes large amounts of waste produced from processing over 40 thousand metric tons of penaeid shrimp annually landed in Louisiana. Shrimp carapace accounts for approximately 1/2 to ? of the total biomass and can be used as an attractant in alternative bait. Laboratory and field results of this research effort have proven successful using a bait formulated with Louisiana shrimp waste. This bait would provide a cost-effective alternative blue crab bait to replace menhaden in the fishery.
LSG sponsored research will produce viable methods for remotely sensing, recording, and tracing temperatures of seafood products from point of harvest to table by 2012.	Yes	2010 - The PI of a small Program Development project has been less than satisfactorily dedicated in his approach to the problem. However, we have entered a much larger program, Louisiana Seafood Certification, with the Dept. of Wildlife and Fisheries that will address temperature traceability in seafood products. 2011 - The PI of a small Program Development project has been less than satisfactorily dedicated in his approach to the problem. However, we have entered a much larger program, Louisiana Seafood Certification, with the Dept. of Wildlife and Fisheries that will address temperature traceability in seafood products. 2012 - LSG seafood technologist participated on the pilot project steering committee to provide technical and food safety support to the development and validation of a practical oyster traceability program from harvest to processing and through distribution and purchase. The steering committee provided industry expertise and function to the electronic traceability provider. The program developed to an interim stage in calendar 2012, including the selection of industry collaborators, which included harvesters, processors, shippers, distributors and wholesale and retail buyers. An electronic database and structure was adapted to encompass Critical Tracking Events (CTE) applicable to the diverse and complex steps in three different types of oyster industry supply. QR codes were developed for attaching to existing oyster sack tags towards the goal of monitoring and tracking sacks of whole oyster and subsequent containers of processed oysters. Hand-held reader technology and equipment were programmed for testing and utilization at various steps in the oyster industry process in calendar 2013. The LSG seafood technologist assisted the traceability provider to add simple temperature recording devices and technology to the tracing platform and an existing LDWF vessel monitoring system towards combining regulatory temperature compliance data with the traceability technology. Sea Grant partnerships and technical expertise resulted in the continued development of an oyster traceability pilot program by the Gulf States Marine Fisheries Commission, and supported the addition of regulatory compliance data to the development of oyster traceability from harvest to distribution.