Building the Resilience of Small Coastal Businesses

2017 DEVELOPED BY THE LOWLANDER CENTER

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Photo From: *Louisiana Sea Grant*

Table of Contents

I. Executive Summary 4

II. Project Overview 5

- A. Research Process 5
- B. Revisiting Building a Resilient Energy Gulf Coast 7
- C. Review of Subsequent Reports 9
- D. Coastal Resilience and Adaptation for Small Businesses Facing Natural Hazards 5

III. Findings and Recommendations 21

- A. Findings from the Engagement Strategies by Community 21
- B. Summary of Key Findings 32
- C. Proposed Recommendations 36
- D. Concluding Remarks 37

Appendix A: Community Profiles 38

Appendix B: Case Study of Small Business Resilience 56

Appendix C: Overview of Actions to Support Small Business Resilience 57

Appendix D: Resources for Small Business Owners 60

Appendix E: Newspaper Report of Lowlander Workshop 61

References 63

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I. Executive Summary


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This project revisits Entergy's *Building a Resilient Energy Gulf Coast* report, as well as the background information from meetings hosted in partnership with America's Wetland Foundation, in order to determine the impacts of previous efforts and remaining opportunities for Entergy to promote resilience.

As part of this project, the team reviewed recent reports on adaptation and economic impacts, as well as data on businesses in coastal communities. After completing these steps, the team reviewed academic literature on impacts to businesses from disasters and focused on disasters that have severely affected coastal Louisiana communities.

The comprehensive review of previous work and the accomplishments of Entergy and America's Wetland Foundation led to the conclusion that small/medium-sized businesses have been underrepresented in the analyses and engagement to date. These businesses form a critical component of communities and are heavily impacted by extreme weather events; however, there has not been adequate attention paid to what is needed to reduce small/medium-sized businesses' risk in the future.

Retention of existing businesses is critical given the social and economic fragility of coastal Louisiana communities and the contribution that small/medium businesses make within their communities, including as support services to the larger petrochemical companies with facilities on the coast, offshore oil/gas production, and the commercial and recreational seafood industry.

More targeted risk reduction is needed given that a significant percentage of small/medium-sized businesses do not return after a disaster and at-risk coastal communities cannot afford to lose the critical contribution of these businesses. A challenge when engaging in risk reduction for the commercial sector is that many owners are focused on day-to-day operations and economic survival of their businesses, leaving them little time to focus on concerns such as natural hazards and other climate-related risks. While this is understandable, a more balanced approach by small businesses to addressing such risks facing them will ultimately contribute to their survival.

Retention of existing businesses is critical given the social and economic fragility of coastal Louisiana communities.

The project team tested five approaches to engagement across eight (8) coastal communities in order to understand each business community's approach to risk reduction and identify appropriate support mechanisms.

As a result of this project, the team is offering recommendations for small/medium businesses improving their resilience, as well as recommended actions that Entergy may consider, including updating the previous report and working directly with small/medium-sized businesses and communities to support risk-reducing goals.

A Research Process

The research process began with an in-depth review of the Resilient Energy Gulf Coast Report (2011) and six other key reports on adaptation and economic impacts that have been published in subsequent years. In addition to the review of technical reports and studies, the team also looked to the academic literature on coastal resilience and, as research progressed, became more focused on small/medium-sized businesses within the relevant literature on business resilience.

The project team identified a group of eight (8) coastal Louisiana communities, ranging in size and demographics, but with shared risk factors along the coast, including (from West to East): Delcambre, Morgan City, Houma, Golden Meadow/Leeville, Jean Lafitte, Gretna, Lower Plaquemines and Chalmette. While the challenges differed in each community, the range also provided lessons on common problems faced by small/medium businesses along the coast. The project team also gathered demographic and business data on the focus communities.[1]

The project team interacted with these communities using a series of different approaches to understand the business community's orientation to risk reduction and how it might be enhanced. Each approach was applied to at least one community and varied along a continuum of degree of engagement. The models of engagement ranged from a more limited engagement, consisting solely of interviews with a small subset of stakeholders (Houma), to more in-depth engagement, consisting of coordination with parish government, business consultation visits, and incentives for business participation in a workshop (Lower Plaquemines).


Photo From: *Louisiana Sea Grant*

In all communities examined, an effort was made to identify key stakeholders, including local business leaders, chambers of commerce, and other organizations engaged in business advocacy and risk reduction efforts. These community representatives were interviewed individually, and in some cases were brought together for informal focus group discussions. This component of engagement concentrated more on fact-finding to determine what businesses were already doing, followed by engagement to support the businesses in committing to a more comprehensive effort to develop resilience from powerful storms.

The goal of this project was simply to understand: How can small/medium-sized businesses gain more control over their storm-risk? And, how can public utilities play a role in supporting resilience for a major class of its customers who have limited resources?

[1] *Summary profiles for these communities, which provide important information on the complex circumstances facing each community, can be found in Appendix A.*

A Research Process

The levels of engagement for the focus communities are described below:

1. Informal interviews with leaders in local government and other local institutions regarding the challenges and adaptation efforts of small businesses, but no interactions with business owners themselves. This approach was utilized in the following communities: Golden Meadow/ Leeville in Lafourche Parish, the City of Houma in Terrebonne Parish, and the City of Gretna in Jefferson Parish.

2. Informal interviews with key stakeholders in local government and other local institutions regarding the challenges and adaptation efforts of small businesses, as well as attendance at local workshops already underway and designed for certain types of business owners. Under this model, engagement with the community and with those entities working with the community was a bit more robust than under the first model, and some limited interactions with business owners did take place. This approach was used with the Town of Delcambre in Iberia and Vermillion Parishes.

3. Informal interviews with small businesses, as well as with business support organizations and local government officials, followed by targeted workshops aimed at the business community. Local government officials and business support organizations assisted with the marketing and promotion of the workshops. This approach was used with Chalmette in St. Bernard Parish and Jean Lafitte in Jefferson Parish.

4. Sustained and comprehensive engagement with a network of business leaders, the Chamber of Commerce, elected officials (mayor and parish president, port manager, deputy manager), and others. Under this approach, the research team engaged with the community over the course of several months and participated in several gatherings around different focus issues. Research team members assisted the community in pulling in outside resources and expertise from state agencies and others. This approach was used with Morgan City in St. Mary Parish.

5. Expanded engagement with small/medium business owners, including individual consultation regarding potential flood mitigation measures for business structures. Under this approach, the research team received significant support from local government officials, including promotion on the parish government website, and hosted a targeted workshop with a national expert on flood proofing and insurance. Additional engagement with the business community, through repeated visits, led to sharing of information and increased attendance at the workshop. In this model of engagement, small/medium sized business owners received a $50 stipend for their attendance at the workshop, as compensation for their time, and were encouraged to put the funds towards implementing mitigation actions at their businesses. This approach was used in Lower Plaquemines Parish below Myrtle Grove.

II. Project Overview

B Revisiting *Building a Resilient Energy Gulf Coast*

The Building a *Resilient Energy Gulf Coast (2011)* and associated *Effectively Addressing Climate Risk Through Adaptation for the Energy Gulf Coast (2014)* reports describe an effort to quantify climate risk along the entire Gulf Coast using a catastrophe modeling approach. The methodology included looking at the magnitude of the hazard, the value of the assets, and the vulnerability of those assets. The analysis predicts that economic losses will increase by 50-65% by 2030, with cumulative economic damages of $350B over the next 20 years.

The analysis defined the potential impacts of climate change to the magnitude of the following hazards: hurricanes (wind increase per degree of temperature increased), subsidence, and sea level. As with many similar modeling efforts, this analysis considered a range of three climate change scenarios: a low, average, and high climate change scenario. This type of modeling is not unique to this report; it is an accepted standard.

The economic value assessment for assets was based upon the replacement value of physical assets and the economic value of business interruption. However, this assessment did not factor in the value of human lives or ecosystems, both of which would greatly impact the total loss figures. Additionally, the business interruption calculation was based on impacts to industry and utilities, not small businesses, also resulting in a possible under counting of future losses.

RECOMMENDATION:

One key area in which this analysis could be revisited is through the addition of further modeling of economic impacts related to the services that small/medium-sized businesses provide, both to industry and the community.

The most unique element of this effort was the discussion of "no regrets" adaptation options: those options that require a low investment and provide high returns. These options are viable regardless of the extent of actual climate change, and can be pursued despite the uncertainties. Another key finding that supports the promotion of these no regrets options is the fact that **losses increase from $14B/year today to $18B/year by 2030, even without factoring in climate change. Half of this projected increase is driven by economic growth in at-risk areas, through new development, and by subsidence.**

Photo From: *Louisiana Sea Grant*

The adaptation measures assessed in the report that provided the highest cost benefit ratio were: **retrofits, home elevation, roof shape, and beach nourishment**. Another measure that was considered beneficial and carried relatively little cost was **new building codes**. The report suggested nine broad efforts to reduce risks across all sectors, with a **cost of around $44B of public funding and $76B of private funding**. The adoption of these measures would still leave some residual risk, around $14B in annual expected losses, which the report recommended by handled by risk transfer actions: **increasing penetration of existing insurance**, decreasing prevalence of underinsurance, encouraging additional self insurance, and transferring top layer risk through re-insurance.

The estimates for risk reduction for residential and commercial structures were based on a series of potential measures that included: **elevations, roof shape, sandbags, local floodwalls, protection of openings, roof retrofits, strengthening connections, and water resistance**. However, many of these measures were only considered for single-family residential construction. Given the prevalence of small commercial enterprises located in converted residential buildings, small metal buildings, and even mobile homes – **many of these measures are applicable to the building stock that is utilized by small businesses**.

RECOMMENDATION:

Another key way to revisit this analysis is to expand consideration of the impacts of the adaptation measures for single-family residential construction to include commercial structures.

B Revisiting *Building a Resilient Energy Gulf Coast*

The reports served as the baseline data for a series of community forums that were hosted by America's Wetland Foundation and summarized in a report: *Beyond Unintended Consequences: Adaptation for Gulf Coast Resiliency and Sustainability (2014)*. These forums began in early 2011 and took place over a 14-month period, with five different forums located in Louisiana. The forums brought together a range of community stakeholders including policymakers, agency officials, business leaders, concerned citizens, professionals, and others. A series of key recommendations emerged from the forums, many of which have been echoed in other reports and some of which are directly relevant to the needs of the eight target communities in this report. Those particular recommendations are listed below:

- Alternative approaches such as pooled mitigation funds for priority systemic projects
- Modify USACE policies and practices to utilize dredge material
- Encourage local entrepreneurship and economic diversification
- Coordinate marketing efforts across small businesses

RECOMMENDATION:

Expand consideration of alternative approaches, such as federal agencies pooling mitigation funds for priority systemic projects, to include potential application of pooled funds at the community level.

Photo From: *Lowlander Center*

II. Project Overview

C Review of Subsequent Reports

There have been several reports produced in the years following the 2010 publication of the *Building a Resilient Energy Gulf Coast* report and the subsequent community workshops hosted by America's Wetland Foundation as described in the *Beyond Unintended Consequences: Adaptation for Gulf Coast Resiliency and Sustainability* report. All of these reports focus in some way on the risk to assets along the Gulf Coast with some reports focusing more on policy recommendations and others based more on quantitative analyses.

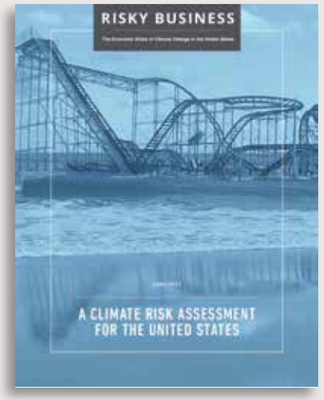
Although a few of the reports did consider the impacts of coastal land loss on the economy of the region, little specific attention has been paid to small/medium-sized businesses. Some of the analyses did consider larger industrial impacts, but the majority focused on residential. Below are brief summaries of the reports that were reviewed for the purposes of this project. These summaries do not comprehensively include details of the contents and approach of the various reports, but instead focus on the components of greatest relevance to this particular research.

Risky Business: The Economic Risks of Climate Change in the United States (June 2014)

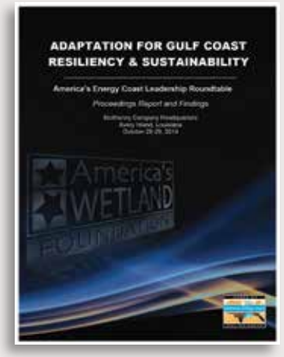
The Risky Business Report focused on United States coastlines as a whole, and on the costs of inaction in the face of climate change.

The authors recommended that businesses (large industry in particular) change everyday practices to become more resilient, and that investors incorporate risk assessment calculations into capital expenditures and balance sheets.

The report predicted an increase in the average cost of coastal storms over the next fifteen years and an increase in hurricane activity, both driving up losses to as much as $35 billion per year. The report makes several recommendations with an overall goal of promoting adaptation in the business and investment community.



Adaptation for Gulf Coast Resiliency & Sustainability: America's Energy Coast Leadership Roundtable, Proceedings Report and Findings (October 2014)



The *Adaptation for Gulf Coast Resiliency & Sustainability* report describes the proceedings of a convening hosted by America's Energy Coast. This convening brought together industry, government agencies, universities, and banking interests in order to explore innovative funding mechanisms that could support adaptation.

According to the proceedings, the focus of the convening was on market-driven approaches such as applying the costs of environmental impacts to private company balance sheets, scaling up mitigation banking, and considering the "unfunded resilience gap" in benefit cost modeling. This report calls for the private sector to play a larger role in coastal restoration and adaptation, including bearing some of the financial burdens.

C Review of Subsequent Reports

Louisiana Coastal Adaptation Toolkit (March 2015)

The *Coastal Adaptation Toolkit*, published by The Water Institute of the Gulf, provides an overview of risk along the coast and a series of options for adjustments that can be made, primarily by homeowners.

The categories of adaptation described are: regulatory and planning; design and engineering; ecosystem; and, social. Although the toolkit is directed towards homeowners, it does include some strategies that can be utilized by small business owners and it provides a ten-step process that might apply to business owners as well.

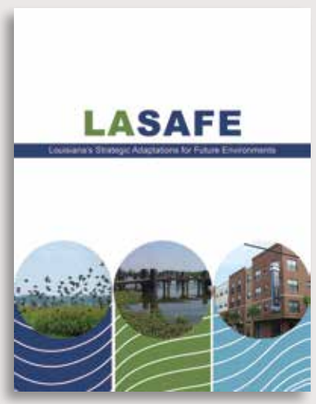

Photo From: *Lowlander Center*

Louisiana Strategic Adaptations for Future Environments (2015)

The *Louisiana Strategic Adaptations for Future Environments* (LASAFE) report was produced by the Louisiana Office of Community Development and intended to supplement the State's 2017 Coastal Master Plan. The Master Plan projects, if fully implemented, are projected to lead to a no net loss condition between 2032 and 2041, a long time horizon for communities immediately at risk. The LASAFE framework is intended to address the interim "resilience gap" as Louisiana seeks to fund and implement the projects identified in the Master Plan.

The framework presents a three-part strategy, in which areas that are most vulnerable will be abandoned, less vulnerable areas will be fortified to better withstand inundation, and underdeveloped areas further inland will be reshaped to meet future population needs, including those moving in from the coast.

The majority of the communities addressed by this report are located within the area designated for retrofitting by LASAFE. This is an area that cannot be abandoned, due to its economic and cultural value. As a result, the state's strategy will be to harden existing assets, use large-scale strategies where possible, support economic interests, explore niche industries, and attempt to preserve current population levels and economic activities.

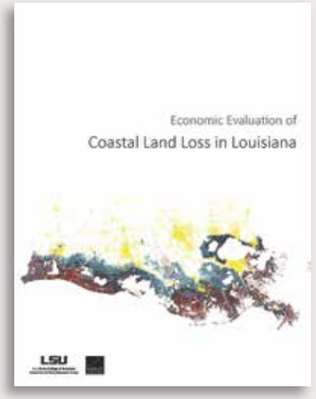


II. Project Overview

C Review of Subsequent Reports

Economic Evaluation of Coastal Land Loss in Louisiana (December 2015)

The *Economic Evaluation of Coastal Land Loss in Louisiana* report quantified economic activity at risk of disruption from land loss, including business operations, employment, and disruptions to commodity and trade flows. The report also looked at physical capital stocks including non-residential structures and infrastructure. It showed that between $410 million to $580 million in annual payroll is directly at risk, and that between $2.4 billion to $3.1 billion in annual sales is directly at risk. The data from this report continues to build the case for the need to take adaptation measures immediately. This report utilized the land loss estimates from the 2012 Coastal Master Plan, which have since been shown to be too conservative, and did not factor in future economic growth or change, resulting in an estimate of risk that may be too low in light of more recent data.



Louisiana and the Surging Sea: A Vulnerability Assessment (2015)

The *Louisiana and the Surging Sea* report, authored by Climate Central in 2015, looked at people, property and infrastructure located at an elevation that was within six feet above the current high tide line. This calculation was intended to account for the future impacts of sea level rise, but did take levees into account and considered areas behind levees as being protected. Taking levees into account, around 5,631 square miles of land are below the six-foot line, with nearly half of that land located in the following parishes: Terrebonne, Cameron, Vermilion, Lafourche, and St. Mary. The total unprotected property value was estimated at $7.8billion, and the unprotected population at 236,398.


Photo From: *Louisiana Sea Grant*

C Review of Subsequent Reports

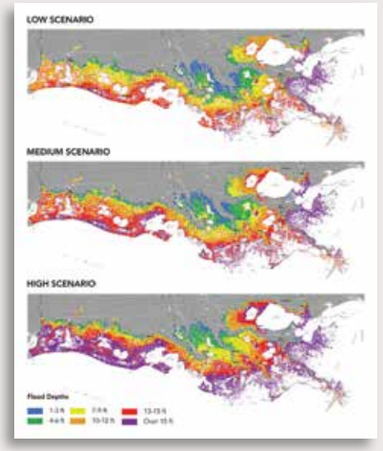
Coastal Restoration and Protection Master Plan (2017)

Every five years the state of Louisiana creates a new version of the *Coastal Restoration and Protection Master Plan*. One of the most striking changes between the 2012 Plan and the 2017 Plan are the projections for the coastal impact of sea level rise and climate change; 2017 projections anticipate a much more serious scenario of storm surge height.

These projections alter the content of the Master Plan in terms of coastal restoration and structural projects, requiring a higher level of protection and in some cases the abandonment of projects that are now deemed no longer able to be constructed, or, if constructed would not benefit the coastal communities.

The maps contained in the Master Plan show the expected flood depths of the surges for 100-year storms with no additional protective actions across three scenarios (CPRA, 2017, 75).

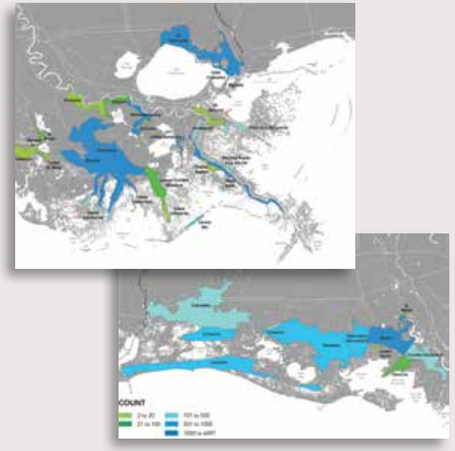
Master Plan Figures 3.14-3.16



Nonstructural projects have been included within the mix of projects proposed as beneficial to the coastal communities and as a complement to the structural projects that have been evolving through the efforts of the scientists and engineers. A total of 32 project areas have now been identified across the coast for nonstructural projects. In the plan, all three nonstructural measures are described as useful for each project area: floodproofing of non-residential, elevation of residential, and buyouts of residential. Some nonstructural projects are expected to be completed within the first 30 years.

The Master Plan dedicates $6 billion to nonstructural while $19 billion is dedicated to the structural. These funds are intended to cover floodproofing of 1,400 non-residential structures, elevation of 22,500 residential and the acquisition of about 2,400 residential structures in the areas most at risk (CPRA, ES-16). A map of the nonstructural projects reflects the areas that have the most structures at risk and thus needing mitigation (CPRA, 2017, 136-137).

Master Plan Figure 5.1



The challenge for regional small businesses is the timing of available options to reduce risk; storms with significant storm surges could occur next year, while non-residential floodproofing may not be offered for many years. *In fact, it might never be offered if the funding for this component of the Master Plan is not obtained. The 5-year 2017 Master Plan and the plan for the current year (2017) give little indication of the source of funding for the $6 billion other than the category "state surplus."*

What is important about the Master Plan draft is that it recognizes that non-structural must be in the coastal protection "mix" and that non-residential structures must be protected as well as residential.

II. Project Overview

C Review of Subsequent Reports

Regional Impacts of Coastal Land Loss and Louisiana's Opportunity for Growth (March 2017)

Finally, another assessment of the anticipated damage to coastal Louisiana infrastructure, in addition to infrastructure farther inland as coastal land disappears as a buffer, was reported in an early 2017 study commissioned by CPRA from LSU (Barnes and Virgets, 2017). The timing was set to offer more analysis of the infrastructure impact if CPRA's proposed 2017 Master Plan were not accepted by the Louisiana State Legislature. The new coastal inundation predictions included in the 2017 Coastal Master Plan draft were used for the calculations. The study methodology was based on the one created for the earlier study conducted also by Barnes et al., 2015, in collaboration with Rand.

If there are no coastal restoration or protection projects completed – 'a future without action'— as much as $3.6 billion in Louisiana business, residential and infrastructure assets are at risk due to land loss over the next 50 years. The report explores the areas that would be expected to require the most infrastructure replacement and business disruption recovery. New Orleans ($1.7 billion) and Houma ($1.4 billion) face the highest infrastructure replacement costs, while the business disruption costs spread more evenly from New Orleans to Lake Charles.

The findings do not deviate from earlier studies. They are merely refined to current/future expected conditions. **The conditions without successful restoration and protection projects will be dire.** In fact,

Governor John Bel Edwards declared a state of emergency for the Louisiana coast "as a necessary means of raising the national profile of this crisis and expediting priority restoration projects with the level of urgency those projects require" (Office of the Governor, April 19, 2017).


Photo From: *Louisiana Sea Grant*

D Coastal Resilience and Adaptation for Small Businesses Facing Natural Hazards

In addition to reviewing recent reports, the team also reviewed academic literature on coastal resilience and adaption, and on small businesses and the impacts of disasters, which informed the engagement strategies used with small/medium-sized businesses along the coast.

Literature on Coastal Resilience and Adaptation

There is an extensive literature on coastal resilience and climate adaptation that is beyond the scope of this report in many ways. Over time there have been any number of variations on the definition of resilience, with no one definition being accepted as the primary consensus definition. According to Quinlan (2003): "Resilience consists of (1) the amount of change a system can undergo and still retain essentially the same structure, function, identity, and feedbacks on function and structure, (2) the degree to which a system is capable of self-organization (and re-organize after disturbance), and (3) the degree to which a system expresses capacity for learning and adaptation."

Much of the literature on resilience considers various dimensions or systems across the community, including: social, economic, institutional, infrastructural, political, and environment. Although much of the discussion around resilience has focused on the notion of rebounding, some authors have argued for ensuring that risk reduction measures are included into the consideration of what constitutes resilience, as well as into our understandings of recovery. Laska (2012) has termed this "essential resiliency" and "exceptional recovery".

The concept of social memory, particularly in relation to natural hazards along the coast, is another useful contribution from the academic literature. **Social memory is defined as the long-term knowledge within systems and communities regarding how to respond to and recover from a hazard.** It can also be understood to include the knowledge regarding risk avoidance and risk reduction (Colten and Giancarlo 2011). Past disasters are only a partial view of what may happen in the future. Community-based businesses cannot rely fully upon social memory when the nature of the risks is changing around them.

The constant change, and increasing risks, necessitates the use of adaptation strategies for survival. Climate adaptation has been defined as the actions that systems, including communities and businesses, take in order to reduce the negative impacts from changing environmental conditions.

Adaptation is focused on reducing vulnerability and can take many forms, including psychological adaptation and adaptations by the business community. However, small businesses have repeatedly been found to have lower adaptive capacity than large business due to their lack of additional cash reserves and limited ability to distribute risk (Howe 2011).

The concept of psychological adaptation, involving adapting to changing life circumstances, can include: "appraisals of situations, affective responses, cognitive analysis and reframing, disengagement, defensive responses, and emotion regulation" (Aronson and Schob 2014). This concept is an important corollary to that of social memory, as climate change is necessitating a fundamental change to the understanding of risk along with corresponding behavior changes.

Climate adaptation depends upon decision-making under uncertainty, a topic on which Emery Roe (2013) has written, arguing that infrastructure managers have had to develop key skill sets to allow for minute-by-minute adaptations in the face of unexpected contingencies. He argues that there are two key dimensions: volatility and the range of options or resources available.

Situations in which there is high volatility and there are few options can result in full system failure, as managers tend to adopt a just-for-now response. Situations in which there is high volatility and a high degree of options require just-on-time adaptations in which the greatest risk is misjudgment. Depending upon the community, or the business, either one of these models might be applied to risk along the Louisiana coast.

II. Project Overview

D Coastal Resilience and Adaptation for Small Businesses Facing Natural Hazards

Literature on Small Businesses and Disasters

The Entergy analysis that reveals the expected magnitude of infrastructure damage throughout coastal Louisiana over the coming years speaks to small business challenges in broad terms (America's Wetland Found. and Entergy Corp., n.d., 7). However, small businesses are integral parts of communities and are as dependent on general community resources as are the other elements, such as residential neighborhoods, large businesses, public facilities, and non-profit organizations. If the infrastructure does not recover or its recovery is extremely delayed, small businesses, no matter what they or government and volunteer organizations do to support them, will struggle to recover (Webb et al., 2002).

> Considering the specific ways in which small businesses are impacted negatively by disasters so that they can take steps to mitigate damage is necessary for those who advocate for their success and understand the importance of small businesses within coastal Louisiana.

Hurricanes Katrina and Rita had a dramatic impact on Louisiana businesses (Terrell and Bilbo, 2007). There was an initial statewide decline of more than 5,000 employers. The business failure rate after the storm was 11.7% statewide and 26.5% in southeast Louisiana. Orleans had the highest net loss of employers at 26.7%; St. Bernard had the highest percentage loss (53.9%). Important to this study, failure rates were highest among small businesses (42.4% for businesses with 1-5 employees). As would be expected given the number of small businesses that are in retail and service sectors, the largest net loss was in those two sectors with the lowest point identified to be in the first quarter of 2006. These figures reflect the use of the word "catastrophe" for the event rather than disaster.

A study done to determine the impact of small grants on the recovery of small businesses also produced findings about their recovery from Katrina in general (Turner et al, 2011). After the storm 60% of the businesses closed temporarily and 4% closed permanently because of the storm. Due to the destruction of the community, St. Bernard businesses showed the worst decline compared with other communities and parishes. The study found that impacts to sales revenue persisted across the board five years after the hurricane, resulting in cash flow challenges and increased operating costs. Some 14% of businesses changed location and 11% changed their line of business.

One third of the businesses cited the lack of access to capital loans as a primary challenge because of the expectation for collateral. The state of Louisiana was responsive to the needs of the small businesses by virtue of adding an additional $35 million to their existing bridge loan program and then an additional $200 million when the federal SBA loans and insurance payouts were not forthcoming (Committee on Small Business and Entrepreneurship, 2008).

The loans were made available for Hurricane Rita in Southwest Louisiana Chamber of Commerce Center in Lake Charles, for example, that was set up as a Business Recovery Assistance Center. As part of the assistance, not only was the recovery of existing businesses addressed, but some 356 new businesses were also assisted. According to the McNeese State University SBDC Director, Donna Little, whose staff provided much of the assistance, it also included supporting the small businesses to develop disaster plans "so the next time they will be ready."

Photo From: *Louisiana Sea Grant*

D Coastal Resilience and Adaptation for Small Businesses Facing Natural Hazards

Literature on Disaster Resilience Efforts for/by Small Businesses


Photo From: *French Wetmore*

While disaster mitigation efforts have been underway for many years, challenges remain for how best to help small businesses enhance their resiliency in locations subject to extreme disasters. Many different dynamics must be considered – such as whether population recovers or not (Corey and Dietch, 2011), or where the proximity of the business is to the most destroyed areas (Marshall et al, 2015). As a result of these dynamics, a clear vision of important actions for which to advocate is more complicated than would be expected.

Webb et al., 2002 analyzed the results of several different studies to determine the ability of small businesses to prepare, and factors that help businesses recover. Businesses surveyed took an average of 4 out of 17 emergency preparedness measures. Those from the studies relevant to coastal storm disasters include:

- Attended meetings/received information,
- Talked to employees about preparedness,
- Purchased hazard insurance,
- Developed business emergency plan,
- Developed business disaster recovery plan,
- Arranged to move business to other location,
- Obtained emergency power generator, and
- Had assessment of building for wet or dry floodproofing.

Inexpensive and quick strategies that protect against multiple types of events were preferred over specific, expensive efforts. Higher scores on the preparedness scale did not necessarily predict better recovery because most businesses had only immediate preparation elements, such as first aid kits. Additionally, retail and service sector businesses had fewer of the preparedness factors than businesses in insurance or real estate. Furthermore, counter to what might be anticipated, previous disaster experience did not positively affect recovery preparedness.

The following are measures that were not mentioned by Webb et al.

- Provide businesses with risk exposure information—in method useful to their direct needs to know,[2]
- Relocate critical equipment above high-water mark for actual events if they have occurred,
- Back-up electronic data,
- Establish a rain garden program (for urban heavy rain flooding),
- Consider elevating structure if in floodplain with known vulnerabilities,
- Become familiar with disaster grant programs available for businesses,
- For businesses that lease or rent, understand the rights of tenants

As the research has shown, the type of preparation is a very important issue when considering what small businesses can do in advance to remain successful after a disaster. On the positive side, **businesses with mitigation and adaptation practices adopted before Katrina were found more likely to have increased revenues after the disaster** (McDonald et al., 2014).

This accomplishment was characterized as resilient as opposed to two lesser recovery categories: *survived event*—having lower levels of employees and profits—and *recovered businesses*—who have covered damage costs and return to pre-event levels. A simple way of appreciating this definition of resilience is that the disaster trigger did not cause a disaster for the prepared businesses. It was as if "nothing happened." This achievement is particularly difficult for small businesses that lack rainy day funds or the mean to mitigate.

Findings from other previous studies include the fact that businesses that used outside assistance were less likely to have recovered, reporting that they were actually worse off than those that did not, in part as a function of the need for the outside assistance which was always insufficient. This finding needs to be explored much more extensively to understand its cause. Similarly, no literature was found for this review that identified the benefits of local social interaction among small businesses that might have contributed to more resilience, although earlier research has advocated for considering the social dimensions of disaster recovery (Tierney and Oliver-Smith, 2012). To the extent that the small businesses are members of local business associations, this possibility might be researched in the future.

Finally, a very recent study in the City of New Orleans on the disaster resilience of small and mid-sized businesses in six historic corridors within New Orleans revealed additional information about the impact of Katrina on such businesses and how they have approached disaster preparedness (AECOM, 2017). While they may have some different characteristics than small/mid-sized businesses across the impacted areas, their similarities likely make their experiences useful in understanding disaster preparedness, or lack thereof, of small/mid-sized businesses.

After inquiring about the measures that the businesses had taken, the report specified a series of measures that were either taken by the corridor businesses or have been recommended by the report authors as best practices.

Methods to Engage Small Businesses to Adopt Resilience Measures

The resilience methods appropriate to small/medium-sized businesses have been quite broadly identified, with consensus from the literature on the utility of taking action to prepare for disasters. However, the challenge continues to be: **"How are small/medium sized businesses supported to undertake these measures that would contribute to their future resilience?"** It is indeed the "million-dollar question."

This report describes five different approaches to learning what measures small businesses have undertaken and what motivates them to do so. The five approaches are described in the Findings section below. Each has a varying degree of the quality the New Orleans report describes as useful: to engage the businesses, community leaders who work with businesses in ways that will encourage resilience measure adoption. Specifically, the report recommends:

- Establish or strengthen neighborhood (community) groups,
- Establish "Resilience Champions" to identify and celebrate resilience practices,
- Establish group rehearsal drills, known in emergency response jargon as "table top exercises."

During the 21st century, more interest has been paid to community and other group dynamics as a means in which to increase resilience. This new focus comes from the frustration of there not being adequate willingness individually by business owners to strengthen their resilience. New research by Meyer and Kunreuther, 2017 tries to explain why it has been so difficult for at risk homeowners and business owners to take precautionary actions against harm from a future disaster event. They explain that the risk reduction "contrary" behavior is based on the ways in which humans react – mindless behavior when done regularly and mindful behavior when not done regularly but not necessarily based adequately on knowledge of what the appropriate action would be. They sum up the causes of the disaster resilience resistant behavior as these: myopia, amnesia, optimism, inertia, simplification and herding, with the latter being the tendency to make the same decisions as others.

In order to overcome these responses, Meyer and Kunreuther, 2017 offer actions government officials and community leaders can take to encourage home and business owners to take the "right" action. For example, offer flood insurance at a constant price over multiple years if the owner agrees to let it be automatically renewed. This would overcome the

[2] *Hyphenated phrase added by authors of this report.*

D Coastal Resilience and Adaptation for Small Businesses Facing Natural Hazards

Methods to Engage Small Businesses to Adopt Resilience Measures *(continued)*

amnesia and inertia tendencies. Or phrase the likely probability of the next storm in ways that are clearer as to how often they would be expected to occur – such as so many times in the life of the mortgage.

As this research relates to the small businesses in coastal Louisiana, the authors suggest that the Meyer and Kunreuther "behavioral risk audit problem-solution matrix" should be developed to help all involved understand how actions taken with small business owners can be used to overcome these risk perception distortions, ensuing preparedness errors that stem from them, and what the possible remedies there are to improve risk reduction actions.

From the perspective of the authors of this report, such efforts need to be conducted in the context of group activities – meetings, identification of business owners who have overcome the described biases and participation in resilience drills as the report proposed. The reason for making this case is the growing appreciation within the last 15 years of the interpersonal dynamics of groups and the recognition that "herding" can be a positive if the action that will be imitated is the one that is desired, such as risk reduction measures.

As will be discussed in the findings, the coastal communities that have achieved the highest willingness among business owners to enhance their resilience have indeed participated in such group activities. What is still a challenge is how to bring business owners "to the table" in a much more frequent way throughout the coastal area. Why would a business owner want to take precious time to attend a meeting when they believe that the resilience measures that they will learn about are expensive beyond their small business means? It is evident that the near (unaffordable) cost as compared to future possible benefit stands out strongly when there is limited ability to afford actions. The cost might be the most serious challenge, especially when the actions are often seen as normally done at the same time that recovery is taking place, unfortunately a time of extreme financial and simple uncertainty of the future existence of the business. In the Findings section where we discuss engagement efforts this project attempted we offer some solutions to financial challenges as well. But they still stand as paramount in the "resistance" to adopt resilience measures.

Photo From: *French Wetmore*

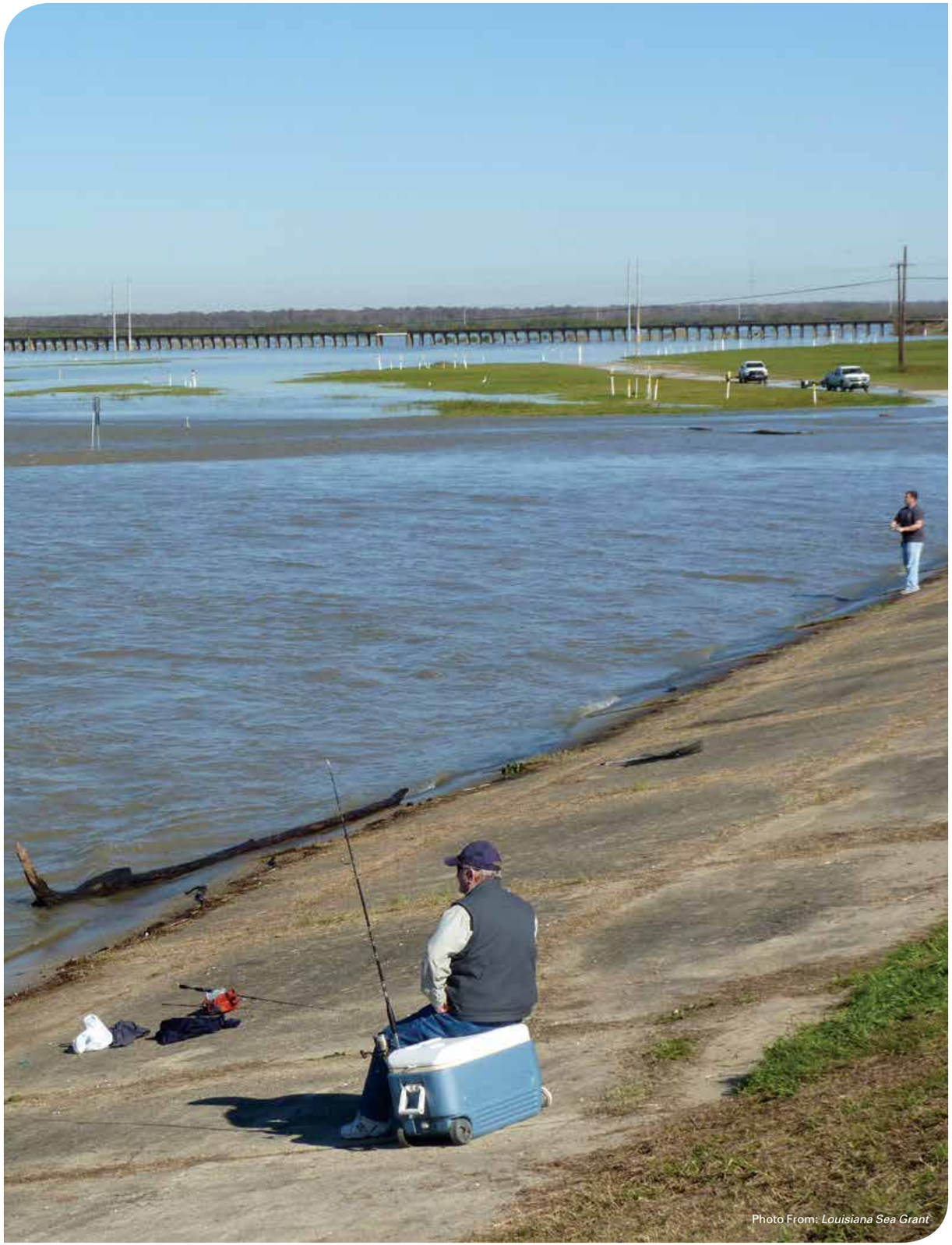


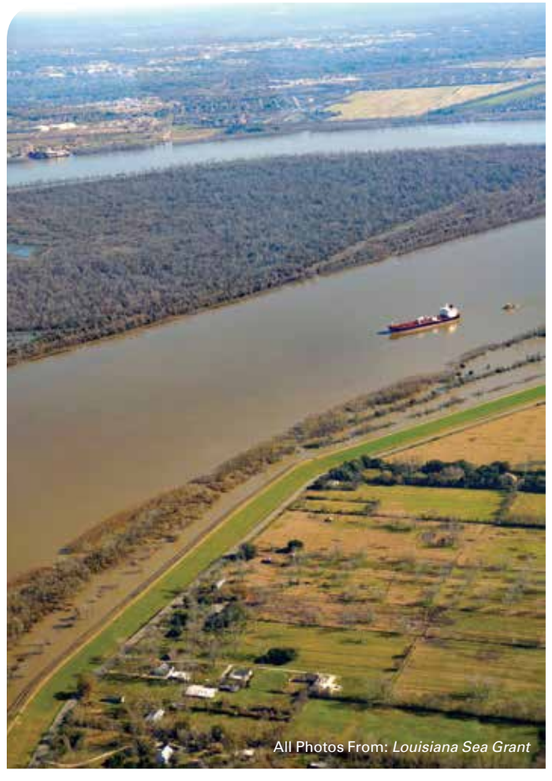
Photo From: *Louisiana Sea Grant*

A Findings from the Engagement Strategies by Community

The project team tested five approaches to engagement across eight coastal communities in order to understand the business community's approach to risk reduction and identify support activities to which the businesses might be receptive.

As previously described, the models of engagement ranged from a more limited interaction consisting solely of interviews with a small subset of stakeholders, such as in Houma, to a more in-depth approach, consisting of coordination with parish government, business consultation visits, and incentives for business participation in a workshop, such as in Lower Plaquemines.

Although the first four strategies were tested simultaneously, the fifth engagement strategy was developed as a result of preliminary findings from the first four strategies. The following findings describe how the five engagement strategies were applied in the focus communities along the coast, and the resulting findings within each community.



All Photos From: *Louisiana Sea Grant*

All Photos From: *Lowlander Center*

All Photos From: *Lowlander Center*

III. Findings and Recommendations

Engagement Strategy 1

Informal interviews were conducted with leaders in local government and other local institutions regarding the challenges and adaptation efforts of small businesses, but no interactions with business owners themselves. This approach was utilized in the following communities: Leeville and the Town of Golden Meadow in Lafourche Parish, the City of Houma in Terrebonne Parish, and the City of Gretna in Jefferson Parish.

GOLDEN MEADOW & LEEVILLE

Golden Meadow and Leeville were selected as examples of small, at-risk communities. These two communities are very close to each other, with only Golden Meadow located within the protective levee system, but both facing ongoing risk regardless. The project team met with local opinion leaders and other community business representatives in order to obtain some insights into the concerns and needs of small businesses. Businesses in both communities are dependent upon the traffic going to and from Port Fourchon to support their operations. Their success is intricately tied to that of the Port.

Many of the businesses in Leeville have taken steps to protect their facilities, such as elevation, but just as many have decided to take no measures and intend to retire when they face another significant loss in the future. This type of response appears to be grounded in an understanding of the significant risks faced by communities outside of the levee system as well as in the economic reality that the community as a whole will not be viable without the success and survival of Port Fourchon that is further south along Highway 1.

Some businesses have expanded their operations to meet changes in current needs, perhaps in response to the closure of other businesses. One example provided by the stakeholders was Boudreaux's Motel, which expanded its operations to also include additional rooms and a bait shop.

The main concern that business owners have in Golden Meadow is power failure, although subsidence and land loss remain a key concern for all residents and businesses. As in many of the communities studied, some businesses have moved inland, while others have remained in place by choice or necessity. In some cases, business owners are looking to see if there are opportunities for work within coastal restoration that can supplement or replace their current business lines.

Photo From: *bridgehunter.com*

The Port itself, although not within the two communities analyzed, does provide support services to its tenant businesses, including hurricane awareness meetings and recommendations for construction practices. The Greater Lafourche Port Commission actually voted to reduce rent to help tenants weather the economic downturn. The Port is not a cargo port but has a vital national security function due to the amount of oil it handles and the oil industry it supports for the country's energy needs. Highway 1, the road that connects the Port to Lafourche Parish, is being elevated in the area outside the levee system.

Various stakeholders, such as the LA 1 Coalition, are actively engaged in lobbying private industry, Federal and State government for funds to reduce the risk to the Highway itself. However, the cost of elevating Highway 1 to completion is extremely high and the project may never be fully funded.

Engagement Strategy 1

HOUMA


Photo from: *commons.wikimedia.org/wiki/File:LA-24_Bridges_in_Houma.JPG*

The city of Houma was selected as an example of a larger community that includes a diverse set of small and medium sized businesses facing a wide array of risks. Like much of the coast, Terrebonne Parish has been significantly impacted by the decline in the oil and gas sector that began in 2014. A newspaper analysis in late 2015 described 700 of 1,000 jobs lost in the area over the past year as being in "mining & logging" (Arguello, 2015). These jobs would represent direct employment by the industry, and do not really capture the auxiliary impacts. Many businesses in Houma provide support services to the oil and gas industry and the economic impacts that trickled down from oil and gas, but are now challenged by industry declines that have created a far more pressing concern than longer-term storm risks. In fact, Houma and Lafayette have seen the greatest negative economic impacts statewide.

According to stakeholders at the Terrebonne Economic Development Authority (TEDA), the downturn in oil and gas has resulted in small businesses having insufficient capital to pay off their loans and having to turn to pay cuts for employees or even layoffs. However, many small businesses have strong relationships with their employees (or even employ family members and close friends) and have avoided layoffs at all costs, even to the point of endangering the survivability of their businesses.

Some businesses have responded by diversifying their product lines and identifying other areas of the marketplace in which their skills are needed. For example, welding companies are turning to decorative metalwork and many businesses are looking towards coastal restoration work as a source of future employment. TEDA is trying to facilitate relationships between local companies and the larger firms that typically secure the coastal restoration work through holding fairs and other events to advertise opportunities. However, bonding remains a challenge for the small local firms to bid independently.

Despite the economic impacts of the decline in oil prices, some businesses are entering the market at this time. These are typically retail and restaurants that serve the general population or the inland areas of the Parish that are in fact growing. This growth is due in part to a migration from areas that are more prone to flooding. Businesses that are not dependent upon the waterfront are looking to move to areas that are less prone to flooding, such as areas above Highway 90. According to the stakeholders interviewed, businesses often move in groups or clusters as the migration of one business leads to the migration of its neighbors. Population has also migrated inland, with the Parish experiencing 7% growth from 2000-2010 while losing population along coastal areas.

There is some discussion of elevation as a means of protecting those businesses that must remain in the most at-risk areas. A recent article in The Times described the high number of home elevations completed in the past ten years, just over 1,000, and argued for a similar program to support businesses (Gommel, 2015). However, not all businesses can afford elevation and some are dependent on remaining at ground level. In many instances these businesses are exploring low cost methods, such as flood-proofing, often through trial and error as they work to remain in place as long as possible.

Other businesses entering the market are looking to entirely different markets such as solar power. Force Industries, which was profiled in late 2015 by The Times, has hired more than seventeen employees in the past six years and recently built a new headquarters. This particular company sells and installs solar panels.

III. Findings and Recommendations

Engagement Strategy 1

GRETNA

The City of Gretna was selected following a meeting with key stakeholders in Jefferson Parish in which it was brought up as an example of a community in which businesses are not sufficiently aware of their risk and the rising costs of commercial flood insurance have resulted in a tremendous decrease in businesses purchasing policies.

A meeting was held with experts in Gretna's floodplain management community, including individuals with connections to local businesses. The primary concern from businesses in Gretna was the rising cost of flood insurance, and the resulting decision by many businesses to drop their insurance. The participants were aware that there was residual risk, but felt that the cost of flood insurance was simply unsupportable.


Photo From: *pinterest.com/pin/336784878357933759*

Engagement Strategy 2

Informal interviews were conducted with leaders in local government and other local institutions regarding the challenges and adaptation efforts of small businesses, as well as attendance at local workshops designed for certain types of business owners. Under this model, engagement with the community and with those entities working with the community was a bit more robust than under the first model, and some limited interactions with business owners did take place. This approach was used with the Town of Delcambre in Iberia and Vermillion Parishes.

DELCAMBRE

The community we selected as our focus for one with a high-energy engagement in general resiliency is the Town of Delcambre (population about 1,800), just south of Lafayette (see Community Profile, Appendix A). In 2005 Hurricane Rita drove a 15-foot storm surge through Delcambre, which caused 90% of the community to flood, the population to decline significantly and a large number of businesses to close. Following Rita this community has had an interesting history of resiliency efforts that began with elevating a significant number of homes and continuing to do so after Hurricane Ike three years later (2008).

In addition to the home elevations, Delcambre focused on enhancing economic activity as a means of surviving. Two key efforts continue, developing the waterfront for economic purposes—seafood sales—and enhancing the price and accessibility (through direct marketing) of the local seafood catch.


Photo From: *Louisiana Sea Grant*

[3] *Per conversation of Wendell Verret, Director, Port of Delcambre and "Resilience: One Louisiana Community's Comeback from a Two-Hurricane Punch", NOAA Coastal Services 17(4), 2014.*

Engagement Strategy 1

DELCAMBRE *(continued)*

The other key resilience goal is to create a safe harbor to protect boats from the damaging storm surge. The community worked with various partners on a redevelopment plan that included this protection. It was completed in 2006 and updated in 2010. Students from the University of Louisiana at Lafayette were part of a project focused on increasing resilience through this planning process. The plan was used to support funding applications that enabled the waterfront development to be completed: the Delcambre Direct Seafood Marketplace on the South Pier (Sea Grant 2014). In addition a new boat launch with parking, docks, etc. was created with differential charges for varying degrees of use. The town was even willing to pass a millage for the new waterfront development as a component of the broader safe harbor efforts, which are not yet completed.[3]

Community leaders understood that significant efforts had to be undertaken or the community was going to cease to exist. The port officials have played an important role in both of the most recent efforts while from the beginning of the community's commitment to resilience, initiatives have often been led by a group of committed elected officials and business leaders.

LSU Sea Grant, the University of Louisiana – Lafayette (partially through funding received by the Center for Hazards Assessment, Response, and Technology at the University of New Orleans), have all played a role in these efforts since 2005. The Delcambre struggle now needs to expand economic activity beyond boutique seafood to encompass the specialties of more businesses. According to the US Economic Census there are currently 88 businesses.

What is not yet known is the degree that businesses have also sought to reduce extreme weather impacts to their individual businesses' – buildings, equipment, records, etc., while seeking the economic growth that they recognize is critical. Structure elevation of homes has been encouraged throughout the community; these successes may help to encourage businesses to take equivalent actions for themselves.

Engagement Strategy 3

Informal interviews were conducted with small businesses, as well as with business support organizations and local government officials, followed by targeted workshops aimed at the business community. Local government officials and business support organizations assisted with the marketing and promotion of the workshops. This approach was used with Chalmette in St. Bernard Parish and the Town of Jean Lafitte in Jefferson Parish.

CHALMETTE

Photo From: *flickr.com/photos/kyngpao*

The business community in Chalmette was engaged beginning with outreach to the St. Bernard Chamber of Commerce, Meraux Foundation, and city officials. The project team met with the Chamber and the Meraux Foundation to discuss the project and their insight into the needs of businesses in Chalmette.

The Chamber acknowledged the need for assistance and professional development for small/medium sized businesses, but noted that past efforts to engage these businesses, including a workshop hosted with the Center for Hazards Assessment, Response, and

Engagement Strategy 3

CHALMETTE *(continued)*

Technology (CHART) at the University of New Orleans, proved difficult to draw business owners in due to their time constraints.

Through the Meraux Foundation and the Chamber, the project team was connected with a number of local businesses that might be receptive to further engagement. The team conducted informal interviews with three business owners, to better understand the kinds of challenges they are facing and what steps they take to protect their businesses in the case of a disruption. The questions that guided these interviews included:

- Whether business owners were taking changing weather conditions, such as risk from storm surge, subsidence, increased rainfall, into account when making business decisions?
- Whether changing weather conditions have impacted any recent decisions made regarding operations, business locations, or new purchases? For example, in some places businesses have moved parts of their operations further inland to protect their business from storm surge.
- What kinds of measures business owners might take to protect their businesses from changing weather conditions? For example, flood proofing, diversifying their business line, etc.
- Whether business owners are planning for the long term and how they plan for business needs given changing weather conditions?
- What kinds of support would be helpful to small/medium business owners? For example, micro loans, information on what can be done to support small/medium businesses, assistance building support networks with other businesses, etc.

Business owners noted a range of actions, depending on their business types and all had learned lessons given the impact of Hurricane Katrina on Chalmette. One business had expanded geographically to be less likely to have his business severely impacted, while another purchased a motor home that could be used as a mobile office in the event of an evacuation. The importance of digitizing files and having backups of client contact information were lessons learned the hard way during Katrina. While one business, working in the insurance industry, was concerned about coastal erosion, others seemed less concerned about how changing weather might impact their businesses and were instead focused on shorter-term risks, such as Internet competition, and managing their businesses. Additional support for small/medium sized businesses cited as helpful through the Chamber and other entities included providing job training and professional development.

Photo From: *Meraux Foundation*

In addition to the individual business interviews, the project team worked with the St. Bernard Chamber to organize a workshop for small business on business continuity. Prior to the workshop, the project team distributed flyers to local businesses and used social media to spread word of the workshop. The Chamber and Meraux Foundation also shared the event with their networks. Even with the widespread efforts to publicize the event, turnout for the workshop only included two participants. However, the discussion with the participants did provide additional information concerning the needs of small/medium-sized businesses.

Engagement Strategy 3

JEAN LAFITTE

The Town of Jean Lafitte was selected as an example of a small, tight-knit community facing significant flood risk, but with engaged leadership dedicated to resilience. The project team has a history of sustained engagement with Mayor Timothy Kerner and key stakeholders in Jean Lafitte, and the town has embraced mitigation efforts in the past decade, evidenced again by a significant number of home elevations to reduce flood risk.

The project team met with the Mayor to gain better insight into the challenges facing businesses in Jean Lafitte and to elicit support for hosting a workshop with business owners in the town. While some of the larger employers in town are in the extraction, shipping or seafood industry, a number of smaller employers include restaurants, sport fishing, tour operators, gas stations/convenience stores, and the Piggly Wiggly grocery store. These business owners were invited to a workshop on business resiliency through a combination of in-person visits, emails, and phone calls.

Photo From: *flickr.com/photos/garyjwood*

However, given that many of the targeted businesses in Jean Lafitte are small, family run operations, it proved difficult for them to attend a workshop held during business hours. As a consequence, the project team ended up having a productive discussion with leaders from the local government.

Additionally, the project team conducted an informal interview with one business owner whose experience with flooding led to on-site mitigation. See Appendix B for this case study.

Engagement Strategy 4

Sustained and comprehensive engagement with a network of business leaders, the Chamber of Commerce, elected officials (mayor and parish president, port manager, deputy manager), and others encompassed this strategy. Under this approach, the research team engaged with the community over the course of several months and participated in several gatherings around different focus issues. Research team members assisted the community in pulling in outside resources and expertise from state agencies and others. The approach generated a more comprehensive understanding of the small businesses challenges and thus the more extensive report that follows. This approach was used with Morgan City in St. Mary Parish.

MORGAN CITY

Photo From: *Louisiana Sea Grant*

Morgan City was selected as a focus community due the local business community's strong organization and receptivity to discussion of risk reduction and resilience; it is also challenged by unusual flooding problems that require, among other actions, large projects at significant costs. Additionally, the Lowlander team has a long-term relationship with some of the small business owners in the community. This

III. Findings and Recommendations

Engagement Strategy 4

MORGAN CITY *(continued)*

"connectiveness" permitted the team to participate in several meetings with community officials to speak specifically about the challenges of small businesses, to meet small business owners and to learn about all of the issues that converge to "threaten" the community and its small businesses.[4]

Morgan City is a particularly interesting community to study in this situation because its risk comes from the interior of the state rather than the coast. Floodwater and sediment wash down the Atchafalaya River, especially during major floods when the Morganza Floodway is opened on the Mississippi River above Baton Rouge to protect it and other communities south on the river, especially the metropolitan area of New Orleans. Morgan City is seen as "favored' by having the sediment enhance protection from storm surges from the Gulf of Mexico, as the sediment is in fact creating land, but conversely Morgan City experiences negative economic impact due to the loss of navigability.

Embedded in this safety is the major economic risk to the community that the river poses—that ocean-going cargo ships cannot enter the harbor nor can large ships be constructed within the harbor because they cannot leave the shipyards. The shipyards have had to diversify toward building small boats. This year there have been no ships coming into the harbor; there were 20 last year. This is a huge impact on the economy. According to a previous study completed by LSU and cited by local stakeholders, one ship contributes $300,000 to the local economy. The ships would return if the channel were adequately dredged.

These economic challenges, and the underlying river dynamics, are the primary focus and concern of Morgan City businesses. As in many other communities along the coast, the immediate survivability of the businesses is of greater concern than their risk from some future event. However, it is important to note that Morgan City could still be damaged by a storm surge or by flooding, despite the accretion of land.

The community's two major large industries have been halted. Thus, no different from the businesses in other communities that stay focused on their economic success rather than storm damage, Morgan City businesses also stay focused on the economic impact of these river dynamics. The sediment content of a high river flow halts just those opportunities that should be a benefit to a coastal community that gets protection from a sediment barrier between itself and the storm surges that could threaten it from the Gulf of Mexico.

Currently the community, parish and levee board leaders are enhancing their conversations with the state's Coastal Protection and Restoration Agency and its associated non-profit applied research organizations to examine whether fresh water and sediment can economically be moved east to areas that need it, while benefitting Morgan City. Given the loss of so much land in coastal Louisiana, it just might be unwise for the state to allow a sediment-rich community to shrink away because of lack of effort to find solutions that could also benefit eroding areas.

The viability of small/medium businesses that serve these larger businesses stymied by the harbor sedimentation is also threatened. Their employees are seeking to be retrained to enter the oil/gas extraction industries, hoping to be hired by larger companies directly if smaller companies do not provide the services. About 80% of all employees in Morgan City work in the oil and gas industry.

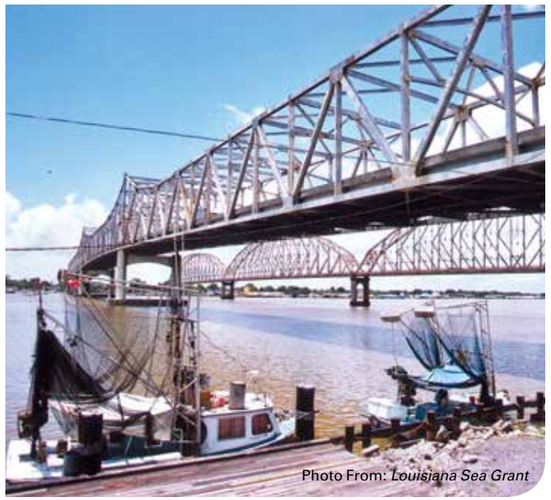


Photo From: *Louisiana Sea Grant*

[4] *Although Morgan City is not served by Entergy, learning about community resiliency in one community can be applied to other communities at risk as well.*

Engagement Strategy 4

MORGAN CITY *(continued)*

Morgan City has an industrial development district and a cultural district, the latter emphasizing smaller businesses. The lack of private residential housing for middle-income residents influences the employees of the local businesses to commute back and forth to Terrebonne Parish for housing. The peak of population in the City was 16,586 in 1970; it has now declined 30% to about 11,000. The population decline and workers commuting to/from Terrebonne in turn diminishes the variety and number of small businesses that can serve employees after work hours. The community is seeking to determine a way to construct more middle-income housing to attract those employees back to the city. It is considering development of closed schools in historic buildings to provide such higher end housing. If it succeeds in identifying interested developers, it will need a marketing plan for this housing growth.

Small/medium businesses struggle from lacking resources to advertise. A single Chamber of Commerce and one Tourism Commission represent both the parish and the city at present. Businesses struggle with the more 'generic' marketing offered by these organizations while they desire resources to enhance their presence on social media, an indicator of the struggle of the businesses. As mentioned previously, Delcambre formed a seafood marketing board to overcome this challenge. Morgan City has an active Main Street program whose mission is to promote downtown and advance economic development downtown.

Photo From: *Louisiana Sea Grant*

Photo From: *Louisiana Sea Grant*

Small businesses in the historic district of the old downtown near the river imagine how their businesses could be enhanced when tourism/recreational boats are docked at the new wharf due to be completed by summer, 2017. Currently such boats skip Morgan City and thus fail to frequent the small, historic shops along the wharf. Additional amenities will be needed to create the ambiance expected: a place for fueling and recreation such as bike rental and tour vehicles for land trips. Similar to the new economic benefit in the City of Gretna of a river boat cruise up the Mississippi River, Morgan City could become the most southern point of a river boat cruise up the Atchafalaya and perhaps into the Mississippi River.

The Port of Morgan City recently built a new large, highly resilient Category 5 structure with extensive staffing and teaching facilities in anticipation of the Coast Guard moving in with them. That did not come to pass. However, the facility could form a base for community activities in the specialty of disaster and homeland risk reduction. It also might be used as an anchor for all businesses in the community to consider more systematically what their businesses need to sustain themselves through a wind and rain event. Identifying a location for risk reducing activities where workshops and drills can be held regularly is a likely positive continual benefit for the community. Morgan City is fortunate to have conceived and created such a site.

III. Findings and Recommendations

Engagement Strategy 5

Expanded engagement was conducted with small/medium business owners, including individual consultation regarding potential flood mitigation measures for business structures. Under this approach, the research team received significant support from local government officials, including promotion on the parish government website and at the government offices. They provided the necessary coordination to host a targeted workshop featuring a national expert on flood proofing and insurance as part of the presenters.

Additionally, engagement with the business community, through repeated visits prior to the event, led to sharing of information and increased attendance at the workshop. In this model of engagement, small/medium sized business owners received a $50 stipend for their attendance at the workshop, as compensation for their time, and were encouraged to put the funds towards implementing mitigation actions at their businesses. This is a viable approach used to encourage participation at workshops. This engagement strategy was used in Lower Plaquemines Parish below Myrtle Grove.

LOWER PLAQUEMINES

Lower Plaquemines was selected as a focus community due to the fact that it struggles with some of the most serious coastal challenges while still exhibiting resilience. The Future of the Gulf Coast report, based on a series of interviews and focus group exercises with community leaders, found Plaquemines Parish to be above average/or average on the resilience indicators.[5] However, the results do point out one of the parish's lowest resilience measures: risk knowledge, including knowledge about coastal restoration and protection. The engagement with Plaquemines Parish for the purpose of this report did not probe knowledge and commitment to adaptation/mitigation, but the project team did find information being disseminated. In particular, the walls of the waiting room for the main office of the Plaquemines Parish Government in Belle Chasse are covered with mitigation posters and brochures. Unfortunately, this information does not currently include information specifically aimed at businesses.

The geographic target selected for engagement was Lower Plaquemines Parish below Myrtle Grove, an area more at risk than Belle Chasse. The population across the parish declined by 14% from 2000-2010, while Belle Chasse grew by 28%. This paints the picture of the challenges for the lower communities. The Coastal Restoration Director for Plaquemines who is also a small business owner in Lower Plaquemines, Vincent Frelich, explained in a recent interview (March 15, 2017) that the layers of disasters have compounded the risk (Laska et al. 2014). In addition to the multiple hurricanes, the current extreme decline in Gulf oil and gas activity is added to the impacts of the BP oil spill, which still persist. He explained: "The recreational fishers 'went East' after the spill and have never returned. It has severely impacted all of those small businesses."

Photo From: *Lowlander Center*

[5] *Note: these findings include Belle Chase—the urban/suburban Census designated place—and the rest of the parish south of it.*

LOWER PLAQUEMINES *(continued)*

The project team initiated contact with Parish Councilperson Trufant-Salvant, who represents a portion of this area; she indicated interest in a targeted workshop for small/medium size businesses and offered to assist with workshop logistics. Her staff and the staff of Councilmember Edgecombe also assisted in making the workshop a success. Attendees were recruited by distributing flyers to all known small businesses, an announcement of the event was displayed on the Parish website and flyer posters were displayed in both the main Plaquemines Parish government building as well as the Port Sulphur government building, nearby to the workshop venue at the YMCA. The attendees were offered $50 for their time and participation, and were encouraged to consider using the money toward a small mitigation step.

About 15 small business owners attended in addition to government officials and the project team. The group was very engaged, questioning the project team presenters about the storm risk reduction measures that they presented and adding others that had been successful for them. French Wetmore, a nationally recognized expert on building floodproofing who has consulted in Louisiana since after the 1983 spring floods, led the presentation and interaction with attendees.

A method of engagement was used to generate conversation, in which attendees held a "clicker" that enabled them to anonymously answer relevant questions. The votes on each question were tallied and viewed on the screen, prompting additional conversation. Website references were given for follow-up information to be acquired on line and contact information for Lowlander staff. The Plaquemines Gazette carried a front-page story of the event (See Appendix E).

Photo From: *Lowlander Center*

III. Findings and Recommendations

B Summary of Key Findings

Photo From: *French Wetmore*

Although five different engagement strategies were utilized during this process, it was not possible to fully test the relative utility of each strategy. Instead, each strategy provided some lessons for future successful engagement and revealed data regarding small businesses across the communities. Through the use of the five engagement strategies, and the review of reports and other relevant documents, the following key findings were identified across the coastal communities.

Key Finding 1

Small/medium-sized businesses play a key role within coastal communities, helping define the community, reinforcing community cohesion, and playing a crucial role in the viability of those communities.

Small businesses, such as restaurants, provide a critical gathering site for important social activities in all of the coastal communities. Within the communities, small business provided important points of connection that increased the resilience of the community as a whole. For example, business owners in Gretna and Plaquemines all gather at particular restaurants on a frequent basis. These gatherings, including informal interactions while obtaining services such as prepared food, contribute to reinforcing community cohesion and also help to maintain a viable community.

These sites also provided an avenue for information sharing, including information regarding adaptation strategies. In fact, the success of the fifth engagement strategy was due in part to the fact that restaurants posted the announcement for the Lowlander workshop on their Facebook pages where the restaurants post their daily specials. Several attendees indicated that they had seen the announcement as a result of social media.

Small businesses owners are often community leaders, supporting the overall success of the community and not simply their business interests. Morgan City provided an example of this kind of civic engagement among business owners. Community members benefit from the revitalization and resilience efforts that are promoted by the business owners, while also benefitting from being able to purchase from small/medium businesses in the community rather than driving long distances for such purchases benefits communities in time saved and ease of purchase.

Given the interconnected nature of the local economies in coastal communities, supporting the resilience of the small/medium-sized businesses creates positive economic impacts for larger businesses in the community, and vice versa. For example, the increased traffic at the Port of Delcambre has had positive impacts on all surrounding businesses.

Key Finding 2

Small/medium sized businesses within coastal communities have a long history of making minor adaptations to their business practices in order to survive and thrive in the face of change.

Small/medium sized businesses in coastal communities are already modifying their business practices in response to changes in the broader economy, such as the recent downturn in oil and gas, and in response to increasing risks from flooding. In the Houma area this has meant relocating to areas further inland for some businesses, and adapting to deal with more frequent floodwaters for those businesses that must remain on the water. For other businesses it has meant diversifying their product lines to make use of production capacity during down times in oil and gas to serve other sectors.

Across the broader region, some mid- and larger-size businesses have chosen to move their administrative offices further inland, while retaining a minimum presence along the coast. Often when one business has moved, neighboring businesses have followed and thus, this option has new impacts on communities as business clusters shift location.

As is likely always the case, but especially in an area that has been frequently impacted by significant extreme weather disasters as well as economic downturns due to other factors such as the oil spill and the decline in oil and gas offshore production, the first and foremost effort of the small business owners is to make economic adaptations rather than physical improvements. While coastal residents are aware of the harm to the business that physical/structural damage to the building and its content can wreak, consideration of these risks appears to almost always come second. It would be an interesting study to identify the turning point of economic security needed to enable small businesses to think/act about physical storm risk reduction. From the interviews we conducted, it appears that even small changes are more often going to be economic rather than physical.

Key Finding 3

Some communities have been successful at supporting particular industries, such as fisheries.

Various communities and organizations have focused on assisting fisheries. In Delcambre this has led to a marketing effort (Delcambre Direct Seafood) that has allowed participating fishers to obtain higher prices for fresh caught shrimp by selling directly to consumers at the dock. Other efforts have included identifying safe harbors for the vessels during storms, and promoting aquaculture as an alternative to traditional shrimping, crabbing, or oyster harvesting. This example does balance the importance the businesses have given to the physical risk reduction with the economic.

Economic development leaders across the communities are looking at strategies to diversify the skill sets of the fisheries communities, as an alternative to value added strategies.[6]

Photo From: *Louisiana Sea Grant*

[6] *In some cases, such as in Houma, communities have also attempted to support small businesses as they attempt to enter the market being created by coastal restoration activities, but have been met by many impediments.*

III. Findings and Recommendations

Key Finding 4

Even businesses that do see the value of engaging in hazard mitigation struggle to fund these effort; thus, additional options are needed.

A repeated concern in engaging small/medium sized businesses is finding appropriate funding mechanisms to mitigate risk within coastal communities. This is the most serious challenge that businesses at risk to extreme weather incidents face. Limited resources, both financially and time-wise, can make it difficult for these businesses to be able to invest in preventative measures. With many of the small businesses being family owned, the recovery of the family is dependent on the recovery of the business, which when it happens, also helps stabilize the community in recovery. The small business and the family network are in many cases integrated.

Photo From: *Lowlander Center*

Much attention to mitigation comes in the aftermath of a disaster. The U.S. Small Business Administration provides Business Physical Disaster Loans following a declared disaster to cover losses not covered by insurance, with the added incentive of eligibility for an additional 20 percent loan amount increase above the real estate damage if business owners make improvements to mitigate future risk of property damage (U.S. Small Business Administration, n.d.). To the contrary, getting businesses to invest in reducing their risk prior to an event – whether through technical assistance or other incentives – is far preferable and far more difficult to obtain.

An example of a preventative loan program is *Shore-Up CT*, initiated in Connecticut in 2014 to help small business and residential property owners implement mitigation measures. The state-funded low-interest loan program provides financing in coastal areas for elevations, flood protection, and wind-proofing activities, providing between $10,000 to $300,000 15-year loans, with 2.75% fixed interest rates (Connecticut Department of Housing, n.d.). Other programs geared towards residential construction might be adapted for small/medium-sized businesses. For example, MyStrongHome allows homeowners along the Gulf Coast to pay for a reinforced roof, which meets the Insurance Institute for Business and Home Safety's (IBHS) FORTIFIED requirements, out of savings from lower insurance bills going forward (Rowling, 2017).

Small/medium sized businesses could potentially apply similar cost savings from lower insurance rates to the upfront costs of implementing IBHS' FORTIFIED for Safer Business and FORTIFIED Commercial standards to protect their structures. The program requires a down payment with the remaining balance being paid by the savings the owner obtains through the reduced cost of flood insurance.

Since some small/medium-sized businesses may be wary of taking on additional debt to implement larger-scale mitigation measures, such as elevation, focusing on smaller-scale and low-cost measures to reducing risk may be the best option. Funding investments in mitigation actions that see more immediate returns, such as dry or wet floodproofing, business continuity and other hardening measures is recommended from a feasibility and cost perspective. Recall, that businesses are able to wet and dry to three feet elevation to benefit the cost of their flood insurance. This is not possible for home flood insurance.

In order to implement these smaller-scale, low-cost mitigation measures, businesses may consider pooling their resources. A model for this could be the "hoi" financing mechanism used within coastal Louisiana Vietnamese communities. As described in communication with May Nguyen, Tulane University Environmental Law Clinic (March 3, 2017), who conducted research on these communal lending

(continued on next page)

Key Finding 4

(continued)

pools, members pay in and take turns drawing down funds, which have been used within Vietnamese communities in the New Orleans area to help start small businesses, expand inventory, and provide for health care and education. The benefit of these community-driven financing mechanisms is that members can set their own terms, often with better rates than banks, and repayment is more likely given that the members are part of the same community and there is social pressure to avoid defaulting (Mullaney, 2006). However, such financing mechanisms are subject to threat from events that impact the whole community. When Hurricane Katrina hit in 2005, many of the "hoi"s within the Vietnamese community disbanded and people lost their investments.

If such a pool were set up within a small/medium size business community, in which owners paying a set amount into the fund and taking turns drawing down to implement smaller-scale mitigation measures, it could strengthen the business community to be better able to withstand events and could encourage peer-to-peer learning, as members implement measures.

A similar style community self-help program was seeded with a grant of ~$70,000 to a fishing community following Hurricane Katrina. The storm damaged the community's economic tool, their fishing fleet. The grant was not enough to repair even one boat, but with the mutual aid and sharing of resources to get a boat back into the economy, the fishers were able to restore their fleet a boat or two at a time.[7] It is critical for income to be generated so that repair can happen for family/community income. The fleet was repaired for many years before the homes of this particular community were restored.

Key Finding 5

Engaging with small business owners requires a series of coordinated strategies, catering to the specific characteristics of the businesses and communities.

The use of the five engagement strategies in this study allowed the project team to evaluate best approaches to future engagement with small/medium-sized business communities.

Although, as described above, there were limitations to the evaluation of the strategies, the most successful appeared to be those that included longer-term engagement across a wide array of stakeholders, and in which trusted community members served as partners and advocates for outside specialists brought in to assist.

Photo From: *Louisiana Sea Grant*

[7] *Dr. Kristina Peterson obtained a grant from Heifer Project International that supported this effort.*

III. Findings and Recommendations

C Proposed Recommendations

Recommendations for Updating the Resilient Energy Gulf Coast Report

An update of the Resilient Energy Gulf Coast Report should consider the value of human lives and ecosystems, in order to get a more robust economic value assessment.[8]

Additional analysis should be done on the role of small/medium-sized businesses in coastal communities, and the economic impacts of disruption to these businesses should be included in the modeling for business interruption calculations. Small businesses form a support network for both larger businesses and for the residents of the area. Without them active communities cannot exist.

SPECIFIC RECOMMENDATIONS ARE LISTED BELOW:

RECOMMENDATION:
One key area in which this analysis could be revisited is through the addition of further modeling of economic impacts related to the services that small/medium-sized businesses provide, both to industry and the community.

RECOMMENDATION:
Another key way to revisit this analysis is to expand consideration of the impacts of the adaptation measures for single-family residential construction to include commercial structures.

Recommendations to Support Small/Medium Business Resilience

1. How-to Guide for Reducing Hurricane Risk to Small Businesses

Supporting small/medium sized business resilience requires providing information in useable and easily accessible formats. One of the key findings of the interactions with local businesses was that some businesses have taken steps to protect their properties, but there is a lack of knowledge as to low-cost measures that can be taken. Developing and sharing a how-to-guide would be a tremendous asset and a great contribution by Entergy.

Although there have been many useful reports published, the typical business owner does not have the time to engage with large reports. They are, however, willing to look at small pamphlets or other materials that make the findings easily accessible. Several of the low-cost adaptation measures identified in the Entergy Report for residential housing stock would also apply to small size businesses in many cases and could be presented in such a fashion how-to guide.

Case studies and examples of what other similar businesses have done are powerful motivators for action. Showcasing these stories can be a great asset and promote adaptation. The *Working on the Water* workshop series conducted across St. Bernard Parish in 2016 has done some of this for fisheries, but there is a need to focus on other sectors as well.

Photo From: *French Wetmore*

[8] *While it is with reluctance that loss of life is assigned a monetary value, federal agencies do it and government estimates are available. Ecosystem loss monetary evaluations are more readily available.*

Recommendations to Support Small/Medium Business Resilience

(continued)

2. Incentives for Risk Reduction

Entergy might explore incentives for small/medium-sized businesses to undertake risk-reduction measures, as well as to become more informed regarding such measures. Compensation for attending workshops may also incentivize small businesses to attend and thus be exposed to risk-reduction measures. Approach #5 of the Lowlander research did offer $50 for participation, and it functioned as an incentive. In addition, attendees were encouraged to use the $50 as a beginning investment for a risk-reduction effort. While the amount is mainly symbolic, the request may have reinforced consideration of be the best way to incentivize business owners to begin the engagement process.

3. Coordinating Efforts for Risk Reduction

If small and medium sized businesses can be supported to work together in support of risk reduction efforts more progress will be made. This recommendation is based on observations from Delcambre and Morgan City in particular. Additionally, the conversation among attendees at the Plaquemines workshop and in the *Plaquemines Gazette* newspaper article about the event demonstrated ease of conversation among attendees about risk reducing measures. This collaboration can take the form of information sharing but can also be encouraged to go further such as risk sharing pools.

4. Addressing Limited Access to Coastal Restoration Projects

Small and medium sized businesses that wish to bid on coastal restoration projects, as well as other larger projects, are unable to do so due to the large amount of bonding required. Addressing this challenge in some way would increase their ability to diversify into coastal restoration as their traditional business lines are phased out.

D Concluding Remarks

These conclusions and recommendations should not reflect an opinion that the risk reduction of small businesses in coastal Louisiana to extreme weather events is easy. Case in point: metal buildings designed for flood water flow-through and elevation of contents and equipment serve as a major risk reducing action for areas that experience fresh-water flooding. For coastal Louisiana that is subject to saltwater inundation, that solution cannot be used because of the way in which salt water acts as a catalyst to rust. More appropriate non-rusting building materials must be identified and promoted to facilitate flow-through wet floodproofing as a more viable method for coastal use.

The reason why Lowlander Center believes it is possible to support risk reduction for small coastal Louisiana businesses is the sentiment expressed by the business owners we talked with in the coastal communities/parishes we studied. They want to stay put "as long as it is reasonable to do so."

Photo From: *Lowlander Center*

Photo From: *Louisiana Sea Grant*

COMMUNITY PROFILE: Chalmette, LA

LOCATION

Chalmette, LA is in St. Bernard Parish, just east and south of New Orleans between the Mississippi River and the Mississippi River Gulf Outlet (MRGO). A part of the New Orleans Metropolitan Statistical Area, Chalmette also serves as the parish seat for St. Bernard.

Photo From: *flickr.com/photos/auvet/3285678083*

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2010-2015, Chalmette has a population of 21,311 people. There is an estimated 16,017 people over the age of 16 with 10,055 in the labor force, of whom 8,947 are employed. The estimated median household income is $40,968 and the mean household income is $54,097.

The estimated occupation by sectors is broken down by management, business, science and arts occupations at 24.1%; service occupations at 21.9%; sales and office occupations at 23.7%; natural resources, construction and maintenance occupations at 16.9%; and production, transportation and material moving occupations at 13.4%.

Per the 2012 Economic Census, there are two utilities in Chalmette; 22 manufacturers; 17 wholesale traders; 81 retail traders; 15 transportation and warehousing businesses; one information establishment; 25 finance and insurance companies; 13 real estate/rental and leasing companies; 29 professional, scientific or technical services firms; 17 administrative and support and waste management/remediation services, 4 educational services; 41 health care and social assistance agencies; two arts, entertainment and recreation facilities; 56 accommodation and food services; and 26 other services.

CHALLENGES

The population in St. Bernard parish has declined by 46% from 2000-2010, corresponding to the devastation caused by Hurricane Katrina. There have also been demographic changes moving toward an older population with lower household income. Given the smaller population, there is a need to attract people to come to businesses that currently exist in the community.

Although the Mississippi River Gulf Outlet (MRGO) was closed in 2009, there continues to be a need for wetlands restoration to protect the area from storm surge.

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

Concerning business revitalization, there has been an attempt to target entrepreneurship through the Startup St. Bernard Entrepreneur Competition (Meraux Foundation & St. Bernard Economic Development Foundation) as well as industrial workforce development with Nunez Community College. The St. Bernard Port has been actively working with fisheries as well. There are identified New Market Tax Credit Areas in Chalmette as well as an Enterprise Zone.

Residents and businesses can get to know their risks by viewing the St. Bernard Parish Hazard Mitigation Plan: sbpg.net/wp-content/uploads/2016/07/St_Bernard_2015_Hazard_Mitigation_Plan.pdf

Another local resource for business continuity and resilience is the New Orleans Main Streets Resilience Guide: nola.gov/city-planning/major-studies-and-projects/main-street-resilience-plan.

COMMUNITY CHAMPIONS AND CONNECTIONS

Businesses interviewed in the area have implemented some adaptation measures, such as expanding their business operations to other communities like Slidell, expanding line of products, or in one case purchasing a mobile home from which they could operate their business in event of a disaster. There did not appear to be much in terms of floodproofing or other long-term adaptation measures, although there was a recommendation that micro-loans be created for things like generators and floodproofing. (We wish to thank Clements Insurance Service, Fradella's Collision Center, Rocky and Carlo's Restaurant and Bar, and workshop attendees for their participation.)

The Meraux Foundation has served as a major source of information and support for this endeavor: merauxfoundation.org.

The St. Bernard Chamber of Commerce, located in the St. Bernard Port, Harbor and Terminal District, has served as a champion and resource for this study and related outreach efforts: stbernardchamber.org, stbernardport.com.


Map source: *Google Maps*

The St. Bernard Economic Development Foundation focuses on business attraction, retention & expansion: sbedf.org. Others playing a role in the area concerning economic development are the Regional Planning Commission: norpc.org, and Greater New Orleans, Inc.: gnoinc.org.

Appendix A: Community Profiles

COMMUNITY PROFILE: Delcambre, LA

LOCATION

Delcambre is about 20 miles south of Lafayette, Louisiana and is located along Highway 14 in Vermilion and Iberia Parishes. It is the farthest inland port in that section of Louisiana, with access to the Gulf of Mexico through the Delcambre Canal, also known as Bayou Carlin. It is home to the Annual Delcambre Shrimp Festival.


Photo from: *Louisiana Sea Grant*

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2011-2015, Delcambre has a population of 2232 people, with a 2015 population estimate of 1866 people. There is an estimated 1702 people over the age of 16 with 1066 in the labor force, of whom 979 are employed. The estimated median household income is $46,150 and the mean household income is $ 53,991.

The estimated occupation by sectors is broken down by management, business, science and arts occupations at 21.5%; service occupations at 11.8%; sales and office occupations at 30.4%; natural resources, construction and maintenance occupations at 17.5%; and production, transportation and material moving occupations at 18.9%.

There was no data available for Delcambre from the 2012 Economic Census. However, our researchers discovered that there are 88 businesses, employing 728 people, in Delcambre across a wide range of categories. The majority is either retail trade or other service. The highest sales are associated with the five businesses engaged in wholesale trade.

CHALLENGES

Flooding through the Delcambre Canal as well from significant rainfall events such as occurred in August 2016 continue to be a risk, although many homes and businesses have been elevated. In research for this report, the fishing economy has been impacted by low prices for shrimp at the dock. They were also impacted by the Deep Water Horizon oil spill. Currently no harbor of refuge exists in Vermilion Bay for commercial fishermen and vessel groundings are a problem during a surge.

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

Work in the community has included efforts to elevate businesses as well as leveraging grants from recent hurricanes (2005-2016) to create a safe harbor and promote community resilience.

The town was willing to pass a millage to support the conversion of the public docks into a marina to support fishermen. Shrimpers use a common marketing platform and social media to announce when they will be at the dock, but prices are not disclosed. This direct marketing website (delcambredirectseafood.com) includes videos to assist shrimpers with marketing.

COMMUNITY PROFILE: Delcambre, LA

(continued)

Participants register to dock & sell product, and to be promoted on the website. Value added marketing (peeled, packaged, branded) is included as a component of this. As shared at the website, "The Twin Parish Port Commission, along with our partners LSU Ag Center and Sea Grant, have created a marketplace where consumers are able to contact seafood producers (fisherman) directly to purchase fresh shrimp and other seafood when they arrive at the dock." The local gas station has seen an increase in business following the success of the direct marketing initiative.

The community is also working on other initiatives in terms of adaptation and resilience which were recognized in a 2015 Spirit of Community Award by the Climate Community of Practice. As cited in the article referenced at the beginning of this profile, "Delcambre also is working with its waterfront business owners, mainly seafood processors, to evaluate storm surge models, understand flood insurance issues and learn about hazard mitigation techniques for business owners and their businesses, (Lauren) Land (with Louisiana Sea Grant) said."

The Iberia Parish Government has a Homeland Security webpage with a link to their draft 2015 Hazard Mitigation Plan: iberiaparishgovernment.com/dept-911.asp. The Vermilion Parish 2015 Hazard Mitigation Plan Update is on the Vermilion Parish Police Jury website: vermilionparishpolicejury.com/PDFforms/HAZARDMIT/Vermilion Parish Hazard Mitigation Plan 5.14.15.pdf.

COMMUNITY CHAMPIONS AND CONNECTIONS

Community Champions include Louisiana Sea Grant: laseagrant.org; the University of Louisiana at Lafayette: louisiana.edu; the LSU Ag Center: lsuagcenter.com; and the Twin Parish Port District of Iberia & Vermilion: portofdelcambre.com.

Map source: *Google Maps*

The Acadiana Economic Development Council serves as a driver for economic development in seven parishes including Vermilion and Iberia: teamacadiana.org/acadiana. The Vermilion Chamber of Commerce is a resource for business promotion, as is the Vermilion Economic Development Alliance and the Vermilion Tourist Commission: vermilionchamber.org, developvermilion.org, vermilion.org. The Greater Iberia Chamber of Commerce, Iberia Industrial Development Foundation, and the Iberia Parish Convention and Visitors Bureau also assist promoting the area: iberiachamber.org, iberiabiz.com/site.php, iberiatravel.com.

We wish to thank those who spoke with us about the needs of this area.

COMMUNITY PROFILE: Golden Meadow/Leeville, LA

LOCATION

Located along Bayou Lafourche and Louisiana Highway 1 in Lafourche Parish, the towns of Golden Meadow and Leeville are about 60 miles southwest of New Orleans. It is a part of the Houma–Bayou Cane–Thibodaux Metropolitan Statistical Area.

Photo from: *coastal.la.gov/project/larose-to-golden-meadow-levee-system/#tabs1-photos*

Appendix A: Community Profiles

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2011-2015, Golden Meadow has a population of 1783 people, and zip code 70357, which includes Golden Meadow, Leeville and Port Fourchon, has a population of 2591. Golden Meadow has a 2015 population estimate of 2060 people, showing an increase—there is no comparable data for the overall zip code area. In Golden Meadow, there are an estimated 1487 people over the age of 16 with 859 in the labor force, of whom 803 are employed. In the overall zip code area, there are an estimated 2113 people over the age of 16 with 1219 in the labor force, of whom 1147 are employed. The estimated median household income for Golden Meadow is $52,938 and the mean household income is $ 66,207. The estimated median household income for the overall zip code is $42,946 and the mean household income is $ 58,474.

The estimated occupation by sectors in Golden Meadow is broken down by management, business, science and arts occupations at 22.7%; service occupations at 21.2%; sales and office occupations at 12.3%; natural resources, construction and maintenance occupations at 18.9%; and production, transportation and material moving occupations at 24.9%. The estimated occupation by sectors in zip code 70357 is broken down by management, business, science and arts occupations at 17.3%; service occupations at 14.9%; sales and office occupations at 18.2%; natural resources, construction and maintenance occupations at 14.7%; and production, transportation and material moving occupations at 34.8%.

There is no 2012 Economic Census data for Golden Meadow. The U.S. Census Bureau 70357 zip code business statistics for 2014 lists 113 establishments with 3821 employees, with an annual payroll of $265,708,000. The South Louisiana Economic Council identifies the area's key industries as food manufacturing; inter-modal industries; plastic product manufacturing; and metal parts manufacturing. Golden Meadow currently lists 89 businesses on their website: townofgoldenmeadow-la.gov/business.html.

CHALLENGES

As in other communities profiled, loss of coastline and wetlands that offer storm protection continue to be an ongoing issue. Subsidence of land and the sinking of Louisiana Highway 1 have led to the proposed elevation of the highway by means of a bridge between Golden Meadow and Port Lafourche. The portion of the Highway 1 bridge between Leeville and Port Lafourche is complete, but now bypasses the community of Leeville.

Businesses that have no ability to operate elsewhere are hanging on as long as possible. Although there hasn't been a recent levee failure, there are still fewer permits due to the costs of insurance. Power outages are a key concern for businesses. Many businesses in Leeville have elevated, while others plan to leave.

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

Recent storms and higher tides have raised awareness of flood risks. In a review of local adaptation measures, some businesses seek work in coastal restoration; some chains take a strategy of staying as long as possible and maximizing revenue. Other businesses have moved inland while in Leeville businesses are elevated businesses. There appears to be a different perception of risk inside vs. outside the levee—people inside the levee have contingency plans and backup power.

Map source: *Google Maps*

Lafourche Parish has an Emergency Preparedness webpage with a link to their hazard mitigation plan: lafourchegov.org/government/departments/homeland-security-emergency-preparedness

COMMUNITY CHAMPIONS AND CONNECTIONS

In interviews, Golden Meadow residents consider themselves safe from flooding because they are inside the levee, but not immune from power outages—they have been lucky to escape bad flooding in recent events. In Leeville, they have weathered events and many businesses are elevated, but it is questionable whether they will return if faced with another major event. We wish to thank those who spoke with us about the needs of this area.

Entities working on business resilience and development are the South Louisiana Economic Council: bayouregion.com; Lafourche Chamber of Commerce: lafourchechamber.com; and the Bayou Industrial Group: bayouindustrialgroup.com.

COMMUNITY PROFILE: Gretna, LA

LOCATION

Gretna is in Jefferson Parish on the Westbank of the Mississippi River from New Orleans, south of the French Quarter. A part of the New Orleans–Metairie-Kenner, LA Metropolitan Statistical Area, Gretna also serves as the parish seat.

Photo from: *flickr.com/photos/49503039321@N01/*

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2011-2015, Gretna has a population of 17827 people, with a 2015 population estimate of 17880 people. There are an estimated 14249 people over the age of 16 with 8177 in the labor force, of whom 7360 are employed. The estimated median household income is $36,880 and the mean household income is $ 55,017.

The estimated occupation by sectors is broken down by management, business, science and arts occupations at 25.8%; service occupations at 18.8%; sales and office occupations at 24.4%; natural resources, construction and maintenance occupations at 16.9%; and production, transportation and material moving occupations at 14.1%.

The 2012 Economic Census lists eight utilities in Houma; 18 manufacturers; 27 wholesale traders; 144 retail traders; 13 transportation and warehousing businesses; eight information establishments; 38 finance and insurance companies; 26 real estate/rental and leasing companies; 73 professional, scientific or technical services firms; 28 administrative and support and waste management/remediation services, two educational services; 66 health care and social assistance agencies; eight arts, entertainment and recreation facilities; 74 accommodation and food services; and 49 other services.

CHALLENGES

Based upon information in Gretna's Hazard Mitigation Plan and Nonstructural Assessment and Enhancement Plan referenced below, Gretna is protected from Mississippi River flooding by federal levees to the north and east, and from coastal storm flooding by the Greater New Orleans Storm Damage Risk Reduction System in the south and west. Open drainage canals and pump stations have been set up to deal with rainfall in this low-lying and flat area. The entire community is at risk of flooding from rain and storm water that overloads the drainage system, and from the failure of one of the miles of levees that surround the area.

In research for this report, local businesses that wish to floodproof their properties report that they cannot find the products to do so. Commercial flood insurance prices have become too high for many businesses and they have had to either drop their insurance or leave the area.

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

The City of Gretna has a flood mitigation information page with a link located on its home page. Included on this page are two documents, the Gretna Hazard Mitigation Plan and the Non-Structural Storm Mitigation and Enhancement Plan. The second document was developed by the University of New Orleans Center for Hazards Assessment, Response & Technology (UNO-CHART) in conjunction with the Louisiana Department of Transportation and Development: gretnala.com.

Map source: *Google Maps*

Appendix A: Community Profiles

Jefferson Parish has a Jump Start Jefferson re-entry placard program so businesses can pre-register themselves in the event of an evacuation: placards.jumpstartjefferson.com.

A local resource for business continuity and resilience is the New Orleans Main Streets Resilience Guide: nola.gov/city-planning/major-studies-and-projects/main-street-resilience-plan.

COMMUNITY CHAMPIONS AND CONNECTIONS

In addition to the City of Gretna, others playing a role in the area concerning Economic Development are the Jefferson Parish Chamber of Commerce: jeffersonchamber.org; Jefferson Convention & Visitors Bureau: visitjeffersonparish.com; Jefferson Parish Economic Development Commission: jedco.org; the Regional Planning Commission: norpc.org; and Greater New Orleans, Inc.: gnoinc.org.

We wish to thank those who spoke with us about the needs of this area.

COMMUNITY PROFILE: Houma, LA

LOCATION

Houma is about 50 miles southwest of New Orleans. It is the only city in Terrebonne Parish and serves as the parish seat. It is a part of the Houma–Bayou Cane–Thibodaux Metropolitan Statistical Area.

Photo from: *en.wikipedia.org/wiki/Houma,_Louisiana*

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2011-2015, Houma has a population of 33982 people, with a 2015 population estimate of 34287 people. There are an estimated 26176 people over the age of 16 with 15757 in the labor force, of whom 14818 are employed. The estimated median household income is $47,052 and the mean household income is $ 62,838.

The estimated occupation by sectors is broken down by management, business, science and arts occupations at 26.1%; service occupations at 15.5%; sales and office occupations at 26.9%; natural resources, construction and maintenance occupations at 15.7%; and production, transportation and material moving occupations at 15.7%.

The 2012 Economic Census lists one utility in Houma; 32 manufacturers; 68 wholesale traders; 167 retail traders; 57 transportation and warehousing businesses; nine information establishments; 95 finance and insurance companies; 61 real estate/rental and leasing companies; 145 professional, scientific or technical services firms; 45 administrative and support and waste management/remediation services, 10 educational services; 159 health care and social assistance agencies; nine arts, entertainment and recreation facilities; 90 accommodation and food services; and 67 other services.

The South Louisiana Economic Council identifies the area's key industries as food manufacturing; inter-modal industries; plastic product manufacturing; and metal parts manufacturing.

CHALLENGES

Although the overall population in Terrebonne grew approximately 7% from 2000-2010, coastal area populations declined. As in other communities profiled, loss of coastline and wetlands that offer storm protection continue to be an ongoing issue.

In research for this report, the impacts from lower gas prices were identified as trickling down to support businesses that find themselves with insufficient

COMMUNITY PROFILE: Houma, LA

(continued)

capital to pay loans and make payroll. Efforts at direct sale of seafood have had the unfortunate effect of driving prices down.

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

In a review of local adaptation measures, some businesses were identified as migrating toward areas less prone to flooding, often with the move of one business leading to others. Businesses which rely on the waterfront or on proximity to customers are remaining in place. Some businesses have turned to delivery to fill gaps. There are efforts to assist local companies with connections to larger firms and with bonding. An article in The Times raised the question of elevating small businesses, as so many residences had been elevated.

The Terrebonne Parish Consolidated Government website has a flood protection webpage with links to numerous resources, a separate floodsafe information page tied to recovery assistance and mitigation planning, as well as educational videos on flood related topics. They also have a Department of Coastal Restoration and Preservation which works to, "… achieve a proper balance between development and conservation, restoration, creation and nourishment of Coastal Resources in Terrebonne Parish…" tpcg.org

COMMUNITY CHAMPIONS AND CONNECTIONS

As referenced elsewhere in this profile, the government of the City of Houma has been consolidated into the parish, which now functions as the Terrebonne Parish Consolidated Government.

Map source: *Google Maps*

The Houma-Terrebonne Chamber of Commerce has their own Emergency Preparedness and Business Continuity plan, shared as a best practice document on the U.S. Chamber of Commerce website. They hosted in 2016 a small business disaster preparedness workshop by U.S. Chamber of Commerce Corporate Citizenship Center: houmachamber.com, A 8.1 Crisis Plan Houma-Terrebonne Chamber.

Other entities working on business resilience and development are the South Louisiana Economic Council: bayouregion.com; the Terrebonne Economic Development Authority: tpeda.org; and the Women's Business Alliance: wbahouma.org.

We wish to thank those who spoke with us about the needs of this area.

COMMUNITY PROFILE: Town of Jean Lafitte, LA

LOCATION

The Town of Jean Lafitte is in Jefferson Parish approximately 30 minutes south of New Orleans in Bayou Barataria, at the entrance to the Barataria Basin. The town of Jean Lafitte is incorporated but has several connecting communities that relate to Jean Lafitte as their economic and social core. The connecting communities are Barataria, Lafitte, Rosethorn and Crown Point.

Photo from: *townofjeanlafitte.com*

Appendix A: Community Profiles

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2010-2015, the Town of Jean Lafitte has a population of 2,055 people with a 2015 population estimate of 1,972 people. There are an estimated 1,560 people over the age of 16, with 985 in the labor force, of whom 925 are employed. The estimated median household income is $47,986 and the mean household income is $66,289.

The estimated occupation by sectors is broken down by management, business, science and arts occupations at 23.6%; service occupations at 14.1%; sales and office occupations at 24.1%; natural resources, construction and maintenance occupations at 17.6%; and production, transportation and material moving occupations at 20.6%. Although the ACS shows the agriculture, forestry, fishing and hunting, and mining industry employs only 8.4% of the population, it is a source of community pride that many in the area still work in the historic fields of fishing, oystering, shrimping and crabbing. The town's business webpage has a special category for seafood, and their manufacturing section consists primarily of maritime-related businesses. There have been concerns voiced in the past about undercounting in the U.S. Census data. ("Jefferson Parish Council challenges Lafitte census data," Paul Rioux, The Times-Picayune, February 3, 2011.)

CHALLENGES

When Hurricane Isaac flooded 150 to 300 homes in Jean Lafitte in 2012, news accounts said it was the sixth storm in seven years to impact the area (Hurricanes Katrina, Rita, Gustav, Ike and Isaac and Tropical Storm Lee). Loss of wetlands and coastline have made the area vulnerable to these increasing severe weather impacts, with the related economic impacts on the community.

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

Since Hurricane Isaac, the community has received financial assistance for elevating homes and recently adopted a freeboard ordinance. Jean Lafitte has also received or been approved for funding for a series of six ring/tidal levees around coastal areas of Jefferson Parish.

In discussion with community stakeholders, a housing needs assessment and some assistance with direct marketing is needed. A sawmill would be a means to capture and utilize waste lumber.

The Town of Jean Lafitte adopted a comprehensive resiliency plan in 2013 as, "a roadmap to guide decisions related to economic, social and physical resiliency." They also have a webpage devoted to flood mitigation: townofjeanlafitte.com/town-plan, and townotfjeanlafitte.com/flood-mitigation.

As reported in the Times-Picayune, the Coastal Protection and Restoration Authority met with area residents on February 16, 2016 on their 2017 Coastal Master Plan Process, which will update their 2012 plan. "Lafitte, Jean Lafitte and Barataria were targeted for "nonstructural" flood risk reduction efforts, including floodproofing of homes and businesses, elevating homes and voluntary buyouts, as part of the 2012 update of the state's coastal Master Plan. (Coastal Protection and Restoration Authority)"

Article: nola.com/environment/index.ssf/2016/02/lafitte_flood_meeting_cpra_mas.html.

Plan: coastal.la.gov/a-common-vision/2012-coastal-master-plan.

COMMUNITY CHAMPIONS AND CONNECTIONS

Mayor Timothy P. Kerner, the son of the town's founding mayor, has been the local champion and point of contact for this study, arranging for the municipal government to serve as the local sponsor of community outreach related to this endeavor. This outreach included visits by the Lowlander Center and related contractors to local businesses. We wish to thank the following businesses for allowing us to visit them at their business sites: Bayou Food; Bayou Fuel; Bev's Snoballs; Big Dog Charter Fishing; Boutte's Restaurant; C&M Boat Rentals; Cajun Consulting; Dry Boat Shed; Fishing Charter; Fuzzy Bar; Goose Bayou Marine Office; Griffin's Fishing Charters; Jan's Restaurant & Sweet Shop; Jean Lafitte Harbor (Store & Fuel); Jean Lafitte Marina; Joe's Landing Charter Services; Lafitte Harbor Marina; Lenora's Flowers, Gifts, & Balloons; Nunez Seafood; Pile Driving; Rojas Charters; T&S Rentals; Tidewater Docks, Inc.; and Voleo's Seafood Restaurant.

Map source: *Google Maps*

COMMUNITY PROFILE: Town of Jean Lafitte, LA

(continued)

A portion of Jean Lafitte is included in the Jefferson Parish Enterprise Zone overseen by the Regional Planning Commission, serving as an incentive for economic development: norpc.org. Other community resources tied to economic development and resilience are Jefferson Parish Chamber of Commerce jeffersonchamber.org; the Jefferson Convention & Visitors Bureau visitjeffersonparish.com; Jefferson Parish Economic Development Commission jedco.org; and Greater New Orleans, Inc.: gnoinc.org.

Photo from: *flickr.com/photos/apostrophesuz*

COMMUNITY "WINDSHIELD" SURVEY OF BUSINESSES

JEAN LAFITTE COMMERCIAL			
BUSINESS TYPE	CODE	NUMBER	TYPICAL BUSINESSES
Fishing	Fish	24	Charters, Sport recreation
Restaurants, bars	Rest	11	
Light Industrial	L.I.	8	Services & suppliers, recreational docks, marinas
Small Commercial	S.C.	6	Repairs, Services, Construction, Hardware, Retail stores
Groceries	Groc	5	Incl. gas station one-stops
Commercial Seafood Suppliers	Seafood	3	Docks, Wholesale refrigeration
Government	Gov	3	Fire, admin, tourism, water utilities
Heavy Industrial	H.I.	2	Engineering, extraction, helicopters
Rental	Rent	2	Real Estate, Motels, Mobile homes
Community	Comm	1	YMCA, American Legion
Other		2	

Appendix A: Community Profiles

COMMUNITY PROFILE: Morgan City, LA

LOCATION

Per the Morgan City website, "The City of Morgan City is conveniently located"right in the middle of everywhere" approximately 70 miles west of New Orleans, 60 miles south of Baton Rouge and 60 miles east of Lafayette on scenic Highway 90." It is in Saint Mary Parish on the Atchafalaya River.

Photo from: *Louisiana Sea Grant*

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2011-2015, Morgan City has a population of 12019 people, with a 2015 population estimate of 11835 people. There are an estimated 9310 people over the age of 16 with 9310 in the labor force, of whom 5022 are employed. The estimated median household income is $43,354 and the mean household income is $58,222.

The estimated occupation by sectors is broken down by management, business, science and arts occupations at 26.2%; service occupations at 20.6%; sales and office occupations at 23.8%; natural resources, construction and maintenance occupations at 9.6%; and production, transportation and material moving occupations at 19.7%.

Per the 2012 Economic Census, there are in Morgan City no utilities; 19 manufacturers; 39 wholesale traders; 82 retail traders; 33 transportation and warehousing businesses; nine information establishment; 45 finance and insurance companies; 38 real estate/rental and leasing companies; 53 professional, scientific or technical services firms; 25 administrative and support and waste management/ remediation services, one educational service; 58 health care and social assistance agencies; eight arts, entertainment and recreation facilities; 49 accommodation and food services; and 39 other services.

In a survey of the area for this study, new hotel construction was identified, with employment concentrated in construction, manufacturing, retail, and professional/scientific/tech services.

CHALLENGES

Riverine and coastal flooding continue to be issues for this community, with the most recent flooding event having occurred in 2015, although there were concerns that there would be flooding during Louisiana's historic 2016 rainfall event.

Economically, small businesses in the area report an interest in revitalizing Main Street, but there is difficulty getting support from government & economic development group. The community recognizes a need for branding and dock revitalization. The economy is not sufficiently diversified.

A lack of housing and businesses such as restaurants is turning Morgan City into a place that people commute to work in, but don't live in. The Coast Guard relocated to Houma because of the housing challenges. Poor conditions, partly due to sedimentation at the wharf result in potential customers not being able to stop to fuel or to shop. Dredging is a tremendous challenge for the port, as without local dredging capabilities the prices are too high, and many of the dredge operators dump the silt upstream which reduces the effectiveness of the dredging. A great deal of silting occurs originating from the Red River. Additionally, USACE rules that restrict the use of discharge present a challenge and smother potential opportunities. The Port and some businesses cannot survive if navigation is not kept open with maintenance dredging.

COMMUNITY PROFILE: Morgan City, LA

(continued)

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

Morgan City's website provides a webpage on floodplain information, including links to NOAA's Atchafalaya River stage monitoring, St. Mary Parish Hazard Mitigation Plan, and other resources: cityofmc.com/index.php/city-government/floodplain-compliance.html

The Port of Morgan City (Morgan City Harbor and Terminal District) is looking to do a demonstration of a method of agitating the silt in the bar channel to increase its flow. portofmc.com.

On economic development, there has been a state Cultural District and an Industrial Development District created in the area. crt.state.la.us/Assets/OCD/arts/culturedistricts/pdf-Maps/MorganCity2014.pdf, louisianasiteselection.com/Details.aspx?p=s2588.

COMMUNITY CHAMPIONS AND CONNECTIONS

In addition to the Port and the City of Morgan City, there is an active Main Street Program whose mission is to promote downtown and economic development downtown: morgancitymainstreet.com/index.html.

St. Mary Parish has a Chamber of Commerce: stmarychamber.com. There is Cajun Coast Visitors and Convention Bureau with an office in Morgan City to assist with promoting the area as well: cajuncoast.com. Despite these local resources and activities such as the Convention Bureau creating videos (cajuncoast.com/media/videos), local businesses feel that a marketing plan is needed for the City.

We wish to thank the public officials and local business owners who met with us and discussed the needs of this area: Frank Grizzaffi-Mayor; Mac Wade-Director, Morgan City Harbor and Terminal District; Cincy Cutrera-Economic Development Manager Morgan City Harbor and Terminal District; Donna Meyer-President, St. Mary Chamber of Commerce, and the Frame Shop, a 50-yr-old business owned by generations of the Price family—currently Deborah (Jackie, Frank, Leonard).

Appendix A: Community Profiles

COMMUNITY PROFILE: Plaquemines Parish, LA

LOCATION

Plaquemines Parish, LA is south and east of New Orleans on the Gulf of Mexico and includes the Mississippi River Delta. It is a part of the New Orleans–Metairie, LA Metropolitan Statistical Area. The parish seat is Belle Chasse, LA. Louisiana Highway 23 is a main north-south road in the parish.

CURRENT DEMOGRAPHICS

Per the U.S. Census Bureau American Community Survey (ACS) estimates for 2010-2015, Plaquemines Parish has a population of 23,559 people, with a 2015 population estimate of 23,495 people. There are an estimated 18025 people over the age of 16 with 10884 in the labor force, of whom 10405 are employed. The estimated median household income is $50,314 and the mean household income is $65,046.

The estimated occupation by sectors is broken down by management, business, science and arts occupations at 25.1%; service occupations at 17.7%; sales and office occupations at 21.1%; natural resources, construction and maintenance occupations at 21.1%; and production, transportation and material moving occupations at 15%.

According to the 2012 Economic Census, there are in Plaquemines Parish eight utilities; 37 manufacturers; 54 wholesale traders; 66 retail traders; 99 transportation and warehousing businesses; two information establishments; 21 finance and insurance companies; 41 real estate/rental and leasing companies; 51 professional, scientific or technical services firms; 37 administrative and support and waste management/remediation services, two educational services; 21 health care and social assistance agencies; 13 arts, entertainment and recreation facilities; 61 accommodation and food services; and 44 other services.

CHALLENGES

The population declined by 14% from 2000-2010 corresponding to the impact of Hurricane Katrina, but Belle Chasse, in the inland part of the parish to the north, grew by 28%; it is where nearly half of the parish population lives. As in other communities profiled, loss of coastline and wetlands that offer storm protection continue to be an ongoing issue particularly in lower (southern) Plaquemines.

COMMUNITY RESILIENCE/ADAPTATION PLANNING AND RESOURCES

Foundational work to assist Plaquemines Parish in their adaptation/resilience activities occurred through the Blue Ribbon Resilient Communities initiative sponsored by the America's Energy Coast Leadership Forum in 2011. This included the use of a Resiliency Index whose results in summary stated the following: "The resiliency index shows the Plaquemines Parish community at above average levels across the board. The community rates high on disaster recovery and emergency response planning as well as warning and evacuation but lower on risk knowledge, coastal restoration and protection. The parish's long-term resiliency is tied to its rating as one of the most vulnerable regions of Louisiana due to subsidence, sea level rise and other effects of climate change." futureofthegulfcoast.org/plaquemines-parish-la.

Plaquemines Parish has a webpage devoted to homeland security and emergency preparedness, including parish plans tied to hazard mitigation, preparedness, evacuation and other topics:

COMMUNITY PROFILE: Plaquemines Parish, LA

(continued)

plaqueminesparish.com/homeland-security-emergency-preparedness.

Plaquemines Parish also has a recently updated comprehensive plan which references changes since Hurricanes Katrina and Rita: "One thing the storms did was unite the parish – no East Bank vs. West Bank, Belle Chasse vs. So. Plaquemines, but this is going away. The master plan should be a uniting force – One Parish." plaqueminesparish.com/wp/wp-content/uploads/2015/02/Appendix_A_Public_Involvement_20134253617.pdf

COMMUNITY CHAMPIONS AND CONNECTIONS

There are identified New Market Tax Credit Areas and an Enterprise Zone in lower Plaquemines overseen by the Regional Planning Commission, serving as an incentive for economic development: norpc.org. Other community resources tied to economic development and resilience are the New Orleans Chamber of Commerce neworleanschamber.org and Greater New Orleans, Inc.: gnoinc.org.

As a part of this Lowlander study for Entergy, Lowlander staff did a "windshield survey" of businesses in Lower Plaquemines. The list was compared with the official business list by Parish Council Member Edgecombe's Administrative Assistant Frannie Delahoussaye while Council Member Trufant-Salvant and her Administrative Assistant Nerissa Antoine assisted in arranging for a location, publicizing the workshop through the Parish website and offices and participating in the workshop.

COMMUNITY "WINDSHIELD" SURVEY OF BUSINESSES

LOWER PLAQUEMINES COMMERCIAL			
BUSINESS TYPE	**CODE**	**NUMBER**	**TYPICAL BUSINESSES**
Small Commercial	S.C.	27	Repairs, Services, Construction, Hardware, Retail stores
Light Industrial	L.I.	17	Services & suppliers, recreational docks, marinas
Restaurants, bars	Rest	15	
Rental	Rent	7	Real Estate, Motels, Mobile homes
Groceries	Groc	4	Incl. gas station one-stops
Heavy Industrial	H.I.	4	Engineering, extraction, helicopters
Fishing	Fish	2	Charters, Sport recreation
Agriculture	Ag	1	Citrus
Commercial Seafood Suppliers	Seafood	1	Docks, Wholesale refrigeration
Government	Gov	7	Fire, admin, tourism, water utilities
Community	Comm	2	YMCA
Other		19	

Special thanks goes to the fishermen at the Cajun Kitchen and the Chevron Gas Station/Restaurant in Port Sulphur for speaking with us during the windshield survey.

Voleo's Seafood

Voleo's Seafood is a family run restaurant in Jean Lafitte. Having experienced a number of flood events, owner David Volion made a series of adjustments to the restaurant's operation to minimize disruption to its operation.

To minimize damage to the interior of the restaurant, he added water-resistant cypress wood to the walls and left the concrete flooring bare.

To protect kitchen equipment, wheels were added so that items could be easily moved out of the restaurant, rolled onto a truck, and hauled to safety in the event of a flood. Following Hurricane Isaac, the restaurant was back in business very quickly whereas otherwise it would have had to be closed for a long duration to repair the building and repair/replace the equipment. Similar mitigation techniques could be applied in other small businesses, in which elevation is not a possibility.


Photo from: *Louisiana Sea Grant*

There are several actions that small businesses can consider in order to remain viable, including their operations and structures. Planning for business continuity is a key component of protecting operations and can range from a brief, informal process, to a more in-depth effort.

Protecting the structure, contents and equipment is another key challenge. Below are some basic questions and considerations for both business continuity and protecting structures/contents.

Protect Your Structure and Contents.

Plan for Business Continuity: Continuity of Operations/ Business Continuity Planning.

Making sure that key operations can continue immediately following a disaster, as well as preventing interruptions when possible, is critically important to the survival of your business.

Key Tasks and Functions

1. What are the important tasks that need to be completed in order to ensure continuous operation of the business? For example, maintaining an open store front, ordering supplies, and meeting reporting obligations.
2. Who is responsible for those actions? For example, is the action undertaken by the owner or manager? An employee or volunteer?
3. Are there any specific deadlines associated with this function, how often is it needed, and are any specific supplies and/or equipment needed? For example, is a particular form or Internet access required? Can this function be performed remotely if need be?
4. Are there particular functions that your business can perform following a disaster to assist with disaster recovery? For example, can you assist with restoration or repair work?
5. If key tasks, such as sales or manufacturing are tied to a specific site: Are your facilities and buildings protected from natural hazards? Are you at risk from flooding or high winds? Are you impacted by boil water orders?

Key Contacts - Internal

1. Who are the managers, owners and leadership? Are there any employees or key volunteers? Who are those individuals that are critical to the operations of the business? For example, it will be important for those individuals tasked with key functions to be able to communicate with each other as soon as possible in the event of a disaster.
2. What resources are available to the business? Are there any specific skills or resources that business owners, employees or volunteers can provide? For example, are there employees with prior experience with disaster recovery and/or knowledgeable regarding State and Federal grants? How can they be reached? Are there contacts from other local associations, or even other parts of the country who might provide knowledge and/or other assistance?
3. Is there a local contact who can assist with the location of the key contact? For example, a spouse, family member or friend who might be able to assist with their location?

Appendix C: Overview of Actions to Support Small Business Resilience

Key Contacts - External

1. Who are the primary clients? Can you reach them in the event of an emergency? Is there a means to continue meeting obligations and/ or generating sales remotely? For example, can you reach your clients to let them know your expected length of shut down?
2. Are there any agencies, vendors, or other entities with which you need to interact in order to ensure continuity of operations? For example, an accountant or consultants? Are there key contacts for vendors and alternative vendors in the event that the primary vendors are compromised?
3. What resources are available to the business? Are there any specific skills or resources available to the business from external sources? For example, are there contacts from other parts of the country that might provide knowledge and/or other assistance? Are there agencies or foundations that might offer assistance after a disaster?

Technology, Equipment, and Data Management

1. Does the business own any equipment? What information must be kept in order to ensure that equipment can be replaced if it is damaged and/or lost? How will the equipment be protected? For example, what make/model of computer is being utilized and what kind of software has been purchased?
2. What equipment is removed in the case of an evacuation?
3. Are there any electronic records that will need to be protected? For example, is there a system in place to ensure that information is being backed up in multiple ways? How often does that occur? Who is responsible for that?
4. Are there any physical records that need to be protected? Can they be digitized? For example, are there historic records or key documents such as tax filings with the IRS?

Out of State Contacts

Is there an out of state contact that can serve as a coordination point for employees and clients? For example, is there an individual or other business that might be willing to serve as the focal point for communication and data sharing among employees and clients following a disaster? This individual can help to keep track of where everyone has gone and monitor their status.

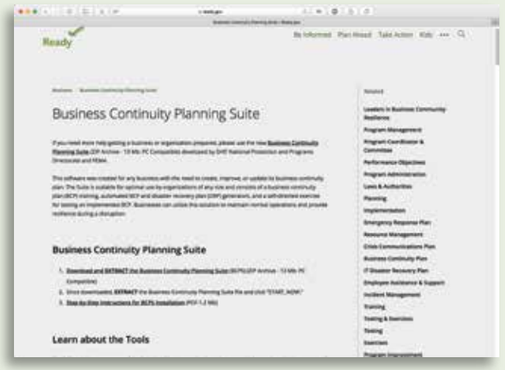
Finances

1. What kinds of accounts are maintained by the businesses? Who is responsible for maintaining the information on these accounts? For example, bank accounts, credit lines, etc.
2. How can accounts be accessed in the event of an emergency? For example, do local institutions have a state or regional contact? What information/documents need to be available, such as checks or account numbers?
3. Who manages payroll? Are employees still paid in the event of a disaster? Are those policies clearly communicated to all employees? For example, does the payroll vendor have a continuity plan?
4. Who will manage accounts in the event of an emergency? How will they be authorized to make emergency purchases if needed? How can donations and grants be accepted? Does the business owner evacuate with all necessary documentation? Is the accountant still accessible?
5. What type of insurance coverage does the business have? Does it fully cover equipment? Does it cover business interruption? What does it not cover? Having a full understanding of what is and isn't covered is critical.

Appendix D: Resources for Small Business Owners

1. **Insurance Institute for Business and Home Safety – Open for Business Program:**
disastersafety.org/ibhs-business-protection/ofb-ez-business-continuity

2. **Ready.gov – Business Continuity Planning Suite:**
ready.gov/business-continuity-planning-suite



3. **Governor's Office of Homeland Security and Emergency Preparedness – Get a Game Plan:**
getagameplan.org/planBusiness.htm

Appendix E: Newspaper Report of Lowlander Workshop

The Plaquemines GAZETTE

The 2017 Oilfield Crawfish Boil-off, a charitable event sponsored by the Buras Volunteer Fire Dept, will be held on Saturday, April 29 from 11 a.m. to 5 p.m. at Fort Jackson.

89 YEARS, NO. 40 | APRIL 25, 2017 | BELLE CHASSE, LA | 50 CENTS

Costs of Plaquemines Gov. Complex could top $42 Million

By Jason Browne

The Plaquemines Parish Government Complex on F. Edward Hebert Boulevard is on pace to cost $42 million to renovate less than half of the property: $4 million to purchase the property, $22 million already spent on renovations and another $16 million in queue.

Meanwhile, the contract to begin renovating the Plaquemines district attorney's new office at the complex still has not been signed.

Parish president Amos Cormier III said he and his legal team have until later this week to debate whether or not they will appeal judge Jerome Barbera's March 20 ruling that Cormier must sign the contract allowing CDW Services to begin renovating Building 200 at the government complex for DA Charles Ballay and his staff. Cormier has stated that if he does sign the contract he'll terminate it

COMPLEX– SEE PAGE 3

Future District Attorney's Office

$3,169,551 Grant Funds
+ $325,000 Parish and District Attorney Funds
$3,169,876 Total Project

Renovation of Building 200 for the District Attorney's office sparked controversy and a lawsuit by DA Charles Ballay when Parish President Amos Cormier, III refused to sign the contract with the low bidder, CDW. Ballay prevailed in court but Cormier is still contemplating his next move on whether to appeal the ruling or sign the contract.

New Plaquemines Administration Buildings

$7,104,729.90 Total Project
Funded By Grants

Designed for offices of the Parish President, Parish Directors, Legal Dept and support staff. When Amos Cormier, Jr. refused to move in, Belle Chasse Council members moved in while their new building was being renovated. They are scheduled to move out in two months and Amos Cormier, III is refusing to move in citing emergency operations concerns. Bldg 100, most, houses finance and purchasing departments.

Lowlander meeting advises small businesses on surviving floods

By Jason Browne

Some of the simplest solutions could make the difference between reopening a business shortly after a flood or waiting on an insurance settlement to start from scratch.

That was the point driven home in a meeting hosted by the Lowlander Center April 18 in Port Sulphur. Dr. Shirley Laska, cofounder of the Lowlander Center and former director of the Center for Hazards Assessment, Response and Technology at

FLOOD– SEE PAGE 2

Small business owners gather at the Port Sulphur YMCA April 18 for a meeting on surviving floods presented by the nonprofit Lowlander Center.

FLOOD

CONTINUED FROM THE FRONT PAGE

UNO, said the nonprofit organization has been traveling the state's coastal communities speaking to small business owners about how they can protect their investment in the event of a flood or a hurricane.

"Small business owners are not well attended to in reference to their needs," Laska said of most programs addressing flood protection. "Usually, homeowners get the attention and small businesses are left to scrap on their own."

Approximately 15 small business owners attended the meeting in Port Sulphur where Laska and her colleagues discussed everything from the importance of keeping flood insurance current to protecting equipment. Or even ways to protect neighbors in a worst case scenario.

"I'm thinking about removing a plank out of the floor so my building will sink instead of floating away and damaging other people's property," said Betty Dinette, owner of Ann's Restaurant, which is located in a trailer in Port Sulphur.

For businesses in fixed locations that aren't elevated, Laska's team recommended creating openings in walls for water to pass through in the event of a flood to avoid destroying the building. Even if the building isn't elevated, they suggested elevating expensive or essential equipment and inventory. Or if elevating equipment isn't feasible, how about just roll it out?

"One of the things that stood out to me was how you can put a lot of your equipment on rollers," said District 7 council member Audrey Trufant-Salvant. "You can put refrigerators on rollers and roll them out to put them on a truck as opposed to just leaving them there."

Laska pointed out that some flood insurance will pay to help evacuate equipment and inventory in the days leading up to a storm.

"If business people had this knowledge pre-Katrina, it would have made a major difference in the way businesses came back online after the hurricane," said Trufant-Salvant.

Danny Fremin, owner of Fremin's Grocery Store, said the Lowlander meeting offered valuable reminders, even to a family business in its third location due to natural disasters since being founded in 1939.

"They reminded me we need to get our placards for permission to get back in the parish after an evacuation," said Fremin.

For more information call Lowlander director Kristina Peterson at 304.266.2517 or email Laska at Shirley@lowlandercenter.org.

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