



## **NOAA SLR Grant - Interviews with Business & Community Leaders - Final Report**

**Project History:** In 2016, CORE Logic, a California based company that provides businesses and governments with financial and property risks based on analytics, placed Collier County ninth on a national list of communities to be at greatest risk from storm surge values – with an estimated loss of \$43+ billion. To better understand the threats associated with increased storms, two Florida universities combined their science departments and expertise and applied for a grant from NOAA’s National Centers for Coastal Ocean Science.

In May of 2017 the University of Florida and Florida Gulf Coast University were awarded a three-year \$995,487 grant from NOAA to develop tools and strategies to help Collier County’s business and government leaders plan for the impacts of sea-level rise and climate change. The project was designed to predict the impact of sea-level rise (SLR) and storm surge for three time frames (2030, 2060, and 2100).

Collier County contains the largest area of tidally influenced public lands along the Gulf of Mexico and is also one of the fastest growing areas in Florida. Both the human and natural components of the regional ecosystem are under increasing risk from SLR, hurricanes and tropical storms as they become more frequent and intense. Beaches, mangrove forests, and salt marshes, which anchor our tourism industry and provide fishery habitat and flood protection, are highly susceptible to storms.

If these habitats are lost, coastal communities will be at much greater risk of flooding. Wildlife and fisheries habitat will also be degraded or destroyed. These assets are the very engine of the local economy. During 2019, based solely on registered guests at commercial lodgings, Collier County hosted 1.9 million visitors that added \$2.3 billion to the local economy.

When the grant is completed in 2020, it will generate two products for Collier County. First, using a suite of state-of-the-art computer models, scientists are creating inundation maps, salinity distribution maps, shoreline habitat distribution maps, beach and barrier islands vulnerability maps, and economic impact maps for current and future climates and for sea-level rise scenarios specific to this region. Second, it is integrating these maps into an Adaptation of Coastal Urban and Natural Ecosystems (ACUNE) web-based interactive decision-support tool. ACUNE will allow end users to make decisions in coastal planning, zoning, land acquisition, and mangrove/marsh restoration.

Collier County government staff, elected officials and natural resource managers have started using ACUNE to project storm paths, their intensity and accompanying surge. ACUNE is also being used by Collier County’s emergency planners as a Rapid Forecasting System for determining likely impacts of tropical storms. By 2020, the final year of the grant, computer modeling tools and simulations will be completed. Elected officials and staff will be able to use them to prepare a long-term adaptation plan for improving resilience and determining where future building can safely occur in Collier County.

**Business & Community Interviews:** To fulfill the grant’s community engagement commitment, the League of Women Voters of Collier County (LWVCC) organized and conducted confidential and private interviews with business and community leaders during the winter and spring of 2019. In addition to these interviews, two focus sessions were conducted in Everglades City and on Marco Island.

Led by League Members, Judy Hushon and Sally Woliver, a team of 10 volunteers were recruited from Greater Naples Leadership, Leadership Collier and the League of Women Voters.

These volunteers, Jennifer Boddicker, Susan Calkins, Ray Carroll, Amy Clifton, Linda Denning, Anne Foster, Craig Jones, Lynn Martin, Alison Wescott and Van Williams, received interview training and were responsible for following interview protocol, completing and submitting the interview forms. Katherine Arnett, FGCU graduate student, provided volunteer support by maintaining the interview list and all completed interviews. We are grateful to all who contributed their time. Letters were sent to 114 leaders requesting the interviews and the 79 who were able to participate represented the following sectors of our community:

- Commercial and Retail
- Development, Engineering and Real Estate
- Farming/Ranching & Agribusiness
- Education
- Financial
- General Business
- Health Care & Senior Living
- Media
- Municipal Government and Related Services
- Nonprofit Organizations
- Religious Leaders
- Tourism
- Utilities

The interviews lasted from 30 minutes to one hour and all covered the same questions:

1. What barriers does your business or community sector face with recognizing or discussing the effects of climate change? Are there fears, misunderstandings, denials that inhibit dialogue?
2. What concerns does your sector have with respect to the present and future impacts of sea-level rise and increased storminess?
  - a. Has your sector used climate effects in its decision making?
  - b. Have recent climate events (e.g., Hurricane Irma, nuisance flooding, fire) affected your sector?
  - c. Are any of these effects being experienced now? Or are they perceived as being near or far into the future?
  - d. Could any of these effects cause your sector to diversify or change its focus?
  - e. Could climate change effects provide new opportunities for your sector?

These confidential interviews allowed participants to privately express their comments, concerns and questions regarding the impact of SLR and increased storminess on their businesses. The interviews concluded with each participant listing what they considered to be the most important assets (facilities, properties, etc.) to their business. Interviewees were asked to elaborate on the value of their assets, now and into the future, by designating a low, medium or high value.

The locations of these assets are being mapped and included with the GIS database being prepared as a final grant product. The information gathered from these interviews reflects a remarkable diversity of opinions from our business and community leaders. The results of these interviews will be used to help our local governments and our elected leaders in Collier County better understand the economic impacts to Collier County businesses and how to prepare for the effects of sea-level rise and increased storm activity.

They also reflect the concerns of the interviewees as to how to explain and incorporate SLR and storminess into their future business planning. The following pages summarize the key information learned during these interviews.

### **NOAA SLR Final Report - Business & Community Leaders Responses**

The interview team was pleased with the willingness of the participants to share their candid concerns and questions regarding the economic impact of SLR and increased storminess on Southwest Florida. This eagerness to talk was reflected in the fact that most of the interviews exceeded the allotted half hour of time by at least 30 minutes. In the recent past, speaking about climate change and SLR has been a taboo subject in SWFL and the twin topics were often readily dismissed in local business and government circles. No doubt the double whammy from Hurricane Irma in 2017 followed by issues from red tide and blue-green algae during 2018 provided a fertile environment for the interviews.

#### **Key Findings:**

- 1) Nonprofits, religious organizations, and the public sector found themselves on the front lines after Irma. They provided important insights for the community to consider in preparing for future storms.
- 2) Even three years after Irma and other climate driven disasters, shreds of skepticism still remain in discussing climate change and SLR.
- 3) Discussing and understanding the relationship between climate change, red tide, and the intensity and frequency of future hurricanes was hard for many who participated in the interviews.
- 4) It was much easier for many in these interviews to share their concerns about red tide, blue-green algae and Irma's impacts than to address their root cause.
- 5) At the same time, there were many respondents who were eager for answers and more knowledge.
- 6) There is a heightened awareness that storms are getting stronger and many noted that "sunny day flooding" is a common occurrence along local roads during the summer.
- 7) Others noted that saltwater intrusion is increasing in wells being used by municipalities for water.
- 8) There is a genuine concern for Collier County's natural assets - especially our beaches. Many interviewees, when asked to identify their assets, listed area beaches as their number one priority.
- 9) Respondents in the financial, development and real estate sectors noted that rising insurance premiums would prompt quicker action from our government leaders than any other factor.
- 10) The majority of interviewees remarked that they were interested in reading the results of the interviews and wanted to know the concerns of their peers.

The next section of the report represents a cross-section of verbatim responses to the questions among all sectors interviewed. We were careful not to edit the content to illustrate the diversity of opinions and understanding that exists among our business and community leaders. In keeping with the promise of confidentiality, none of the quotes are directly attributed to any one person. Instead, responses to questions have been amalgamated into the following sectors:

- A) Commercial & Retail, General Business, Media and Tourism
- B) Education, Healthcare & Senior Living, and Public Utilities
- C) Agribusiness, Development, Engineering, Financial, and Real Estate
- D) Nonprofit/Social Services, Municipal Governments & Related Services, and Religious Organizations

#### **Interview Responses by Sector**

##### **A) Commercial & Retail, General Business, Media, and Tourism**

- It can be a real challenge to grasp the science. It's easy to gloss over nuances. Having the tool that the NOAA study will provide will help the media show more specifically what the dangers of sea level rise will bring to Collier County.

- In this business, we do not talk about climate change. The media has generated problems around the algae crisis. The media stirs up problems. We do not allow staff to say the words, "hurricane season", or "tropical storms". We prefer the term "weather events", or "weather conditions".
- I am concerned first for the people who work for us, they live in pre-built communities where the elevation is not high enough to protect residents from flooding. They sit at or below base flow elevations. Homes are the biggest investment many people will make in their lifetimes.
- The perspective about sea level rise and climate change is different for Native Americans. There is a deep involvement with the land of Collier County as their historic home. We are in agreement with science that climate change is real and happening now. We are engaged in resiliency planning, and welcome help and cooperation from outside groups, especially the government of Collier County.
- We can deal with unpredictability, rainy season, fire season, and we know that's part of SW Florida. What impacts us the most is water quality; that keeps people from visiting and spending money. During the summer of 2018 there was lots of misinformation that contributed to people not visiting. We had to be proactive in showing that Collier County was okay to visit. Clearing up those fears and misunderstandings became a priority.
- The "facts" are convoluted and still not established enough to discuss solutions.
- No corporate talk locally or statewide, but emergency protocols have been created via collaboration between our managers in Florida-based locations. Reaction and significant insurance coverage appear to be the modus operandi for now. Generally, our centers rely on insurance policies that cover liability and property damage.
- Climate change, if related to red tide is an issue, but I'm not aware of the impacts of climate change. A one or two degree increase in temperature might be bad for climate change, but probably good for business - people like warmer water and warm air temperatures.
- Loss of sea life is a big concern for fishing, but this is not directly related to SLR or increased storminess.
- Climate change is providing new opportunities for our sector - docks and seawalls need to be raised.
- As a Board Member, I see our Greater Naples Chamber of Commerce becoming more comfortable taking stands on issues (water quality, adaptation planning, storm water, storm surge, SLR, etc.).
- Most of our sector is uninsured for wind and rain. I personally don't understand how global warming and SLR are tied together.
- Our business is more cautious in choosing new locations and how extensively to remodel older ones. Insurance rates are rising. We are making location choices based on the longest ROI.
- If water quality is impaired, we are all impacted.
- We do need to be aware that our shore line is changing and will change more in the future. Eventually we will have to plan for and address those changes in how we promote Collier County as a tourist destination.
- These issues (climate change and SLR) are becoming more mainstream. We will also need to start covering effects of climate change other than hurricanes and will need to learn how to do it in the right way; e.g. effects like sunny-day flooding.
- Climate change and SLR never come up. People talk about their problems all the time on the boat, but climate change is not one of them. Clients are more likely to bring up problems with red tide or blue-green algae when they spot it. The algae crisis is visible, dead fish, the color of water, climate change is not yet visible.
- We have a diverse customer base; with very differing views on causes of climate change—advertising has to be more cautious and carefully worded.

## B) Education, Healthcare & Senior Living, Municipal Services and Public Utilities

- We want more resilient infrastructure, but guidance and regulations are behind (e.g. 100 year storm design). Although everything is now backed up with generators, federal funding is not keeping up with needs.
- In the downtown area the city began replacing drainage pipes, but then encountered asbestos. I am unaware of what was done to address the issue. Drainage is still impacting our business.
- From the perspective of the healthcare sector, we need to be preparing for and addressing the rise in mosquito borne diseases.
- We regularly discuss response times and during storminess we have trouble with many inland low-lying pockets that are difficult to reach. Roads and infrastructure are not built to handle current conditions, so our department is transitioning to high clearance vehicles.
- There was a problem reaching Everglades City during Irma – we had to use air boats. Many of the county roads are sited too low.
- The mental health impact that accompanies hurricane losses for those in lower socioeconomic classes is very real. People whose homes or livelihoods are damaged and cannot easily recover suffer increased mental health distress and need more psychological help.
- Our downtown location has been experiencing issues for years from increased rainfall and roads flooding to and near our primary location. We are adding a second floor emergency room with a second floor drive up and drop off.
- We discussed the lessons learned from the high degree of sheltering in schools during Irma. One of these was that they needed to redesign the waste systems (toilets) which had trouble during Irma. Three schools experienced flooding.
- Special shelters are needed for handicapped and those requiring special equipment such as oxygen. There is also a need for more long-term shelters within the county, not in the schools for people whose homes are destroyed or unlivable. We have other concerns too, during last year's fire season, one school had to be evacuated because of air quality. And increases in temperatures mean we must make sure our sports teams are properly hydrated.
- We talk about climate change internally all the time, but we face some problems if we try to talk about it externally due to politics. We are including CO2 cost in future planning. Our primary efforts have focused on keeping power on or getting it back on during storm events. Actually, some inland infrastructure is at risk from SLR because of the porous karst.
- The barriers we are experiencing are in people recognizing the effect. We are concerned about our ability to respond especially in extraordinarily dry conditions. Historically, the forest floor has dried out, now our water table is lower and the dry season is getting much drier. We've had three to four major wildfires over the past two fire seasons and dozens of smaller fires that significantly impacted Collier County residents. The barriers we face are the costs and ability to respond adequately.
- The two biggest concerns are a possible economic slowdown from storms and also water quality, but are these due to climate change and SLR?
- Non-native trees caused a lot of road debris (after Irma); more education about native plant landscaping might make a difference.
- Can people afford appropriate insurance, and can Florida handle a big storm insurance-wise?
- We worry about our ability to meet the needs of residents to respond adequately. We work hard-seasons, back to back. Fire Season: Jan. to May; Storm Season: June to Oct. It is harder to keep up and respond to the regular incidents (22,000 per year). Irma and wildfires were on top of the regular call volume. We have also had to deal with fuel shortages, our resources have stayed the same, while the incidences of wildfires and storms are increasing and temperatures are getting hotter.

- During Irma, all of our kidney dialysis centers lost power, hospitals had water issues and water pressure dropped because of water main breaks.
- Most Marco residents (even after Irma) do not see climate change as an imminent threat, but possibly one their grandchildren will face.
- One of our current initiatives is children's mental health. Storm related stress on parents affects the whole family. Parents may not be able to function well if in distress.
- There are no climate or SLR discussions. Discussions of business interruptions because of Irma, sure, but no one has connected the dots between climate change, increased storms and hurricanes.
- I am worried about the health effects, long hot summers, and pollen (asthma). People may be afraid for the wrong reasons. They are mainly concerned about their property values. The real fear is that we won't act fast enough. Residents don't want people to know about it. Miami is better. They know they have a problem and they are doing something about it.

### C. Agribusiness, Development, Engineering, Financial, and Real Estate

- If this area and others become uninhabitable, it will be disruptive, lots of angst, and LOTS of lawsuits. It is hard to imagine. Naples has always been a place of choice in bad times.
- It is a very open topic now, although clients in low-lying areas are cautious because of property values. Within the company offices, climate change and SLR are pretty much accepted reality.
- There are political factors that affect dialog. Our sector avoids discussions that "stir the pot". Short-term threats get more attention.
- Farmers are used to dealing with weather aberrations. Ten years ago growers were trying peaches and blueberries when our weather was cooler. They're not grown here now. However, more tropical crops like mangos and coconuts are becoming commercially viable.
- I believe that the financial sector here in general is in denial on the whole subject of global warming, but this reflects the more conservative views of our clients.
- By design our industry looks backwards to establish the value of properties we appraise. As a sector, we are not good at looking forward. Yes, there is a real irony to this approach. Maybe the insurance industry will begin to address the impact of climate change and SLR; it is happening west of 41.
- I would like to see a planning step inserted into the dialogue after the science becomes accepted. I personally need to be convinced from the science side that there is a problem and want to understand what climate change and SLR will mean to our area. I am not convinced the climate change and SLR are a threat, especially in the near term.
- Most real estate agents do not want to discuss it. People do not want to admit they may have an elevation problem with their property, and they do not want others to find out in case they have to sell.
- This is a seasonality discussion - people worry about increased storminess at the beginning of the storm season (June), and then by November they are over it.
- Irma dramatically changed the conversation to a "property value conversation". Climate effects could lead to a decline in property values. Our real estate market may not be seen as a safe place to invest.
- Our big concerns are storm preparation, do we have enough insurance, are we protected from flooding, in considering a new building - will we be far enough east from the Gulf of Mexico to avoid storm surge?
- It is hard to make a plan when facts are unclear and disputed. I understand the seas have risen and may be accelerating, but will that continue? I am not sure about the long-term consequences. From a real estate point of view, we don't hear buyers or sellers speaking about climate change. Higher insurance rates, though, do affect sales.
- Our sector is not addressing environmental issues like sea-level rise because we are not willing to frighten potential developers. There is no dialogue.

- Developers are not making a connection between the increased severity of hurricanes and rain storms and local flooding with climate change. In their minds, the storms stand alone. Climate change is a politically charged topic everywhere and certainly in our community. The political make up of our government, corporate leadership and the political leanings of developers tends to support the position of the current administration: climate change is not real and does not pose a danger. Storms happen - nothing to see here.
- Science should drive decision making. Our chief economist prepared a report sent to our customers that referenced climate change and its impacts. A client was irate over the article. Our clients tend to be conservative. This is a barrier and we have to be careful talking to clients, even if they are purchasing coastal property.
- Local governments, e.g. the Village of Estero are asking for different models so they can make sure roads and other public projects are built to address SLR. Our industry needs to answer their questions. How do we establish minimum elevation? What is a consistent and reliable source for information?
- Wet storms are hard on farmers, but occur in summer when crops not grown in SWFL. Therefore, less effects, but farms located along east 41 are now experiencing salt water intrusion.
- I think the financial sector does not see this as an imminent threat. We do have concerns though for more storms like Irma. If there were more storms like Irma, more people would not retire here and our clients would unquestionably see major changes and disruptions to their businesses and lives.
- I think the majority of people think climate change is fake news. More than 75% of the full-time residents probably think climate change is a hoax. Political orientation and education play main roles in recognizing and accepting the science of climate change.
- I am concerned about affordable flood insurance for our sector.
- Some farmers can get so much money for their land that they sell to developers and move to the center of the state where there are fewer climate effects.
- Developers will follow the people - we are their customers. My sector needs more education. I am thinking about developing a course based on my FEMA Flood Plain training and what I am seeing in Florida.
- Our bank is being built higher and stronger. We are also investing in a generator to maintain power.
- Rainfall like we saw from Hurricane Harvey could devastate our business and others. That much water has no place to go. Water management from increased storminess is my greatest concern.
- Our industry is driven by customer demand, and any changes – e.g. Solar or Green Buildings – depend on what the customers want and will buy. Education in the wider community with ongoing conversations, particularly through HOAs, will change the conversation.

#### **D. Nonprofit/Social Services, Governments and Religious Organizations**

- We are engaged at every level, locally, statewide and nationally in the climate change dialogue. It is part of our strategic plan. I personally believe we could be doing more to share the science locally through educational programs at every level.
- Climate changes, especially increased storminess, are being considered in decision making. For example, we are incurring additional cost by upgrading at our new location, adding hurricane glass and installing a generator to protect our assets and hasten getting back to business after a storm.
- Irma showed our employees which facilities are safest. Storm damage is inevitable but cost to improve is a factor. If our county is flooded, how will our workers get out to help others? A 20-foot storm surge would affect our county's ability to function.
- I believe we need to do more with education, both on site and partnering with other organizations. We must improve our messaging if we are going to see large scale behavioral changes.

- SLR/climate effects are impacting Naples now and into the foreseeable future. There will be a real cost to Naples dealing with the consequences of saltwater intrusion in our water supply.
- If climate change and red tide continue to negatively impact the area, people will stop moving to Naples to retire. This will have a negative impact on the financial health of the Naples nonprofit community. Large segments of our population depend on our sector to be their “safety net”.
- The Garden has collected seeds and seedlings to maintain various native species. Ecosystems are changing as a result of SLR. Coastal plants are the most pressured ecosystem – they are being pressured by SLR and can’t move inland because of development that pushes out.
- Community dialogue is "evolving" especially since Irma and the discussion is one of addressing problems (like beach renourishment and stormwater management). In many cases using "nature's cycles" vs. using the term climate change can more effectively advance the conversation.
- We get together now with other nonprofits to plan for the effects of climate change through Future Ready Collier. Many of us became important relief centers before, during and after Irma. And we are incorporating that new role into our business plans.
- After Irma, there were more discussions of preparedness with nonprofits and I observed great collaboration among agencies, the Chamber, the Community Foundation, and The United Way.
- Our sector is more concerned about ‘real time issues’ which are deemed more important and critical - such as domestic violence, human trafficking, drugs, food insecurity, and housing.
- Although we do not anticipate moving in the next 10 years, we are preparing now for moving our location out of Naples and further east away from the coast to continue to meet our mission.
- Our challenge is having a conversation now about preserving pieces of our historic district, especially when we may be impacted by SLR in the next 10-20 years.
- Everything has changed post Irma. Prevention is a big part of the Board’s goals. All data is now in the cloud; downed servers drove this decision. Generators are being installed. There are plans being discussed about protection for high-value items like the organ, musical instruments, AV systems, etc.
- Storm events have broad reaching effects on the economy, when revenue is lost, the county cannot provide services. Demand for services remains, but tax revenues diminish if homes are lost. During the 2008 recession Collier County tax revenues dropped from \$300 million to \$162 million.
- Wilma was an eye-opener! On the construction side of the organization, engineers checked each home community, and they realized homeowners need better protection with stormwater systems.
- The former sewer system was purchased second hand and refurbished in 1992. Our residences are below sea level. The sewage system requires grinders and pumps for each house. When the power went out after Irma the grinders and pumps stopped, and the sewage flowed above the ground into the streets and houses. We had no generators for three weeks and all of our homes were affected. Two people died due to the contaminated waters, and one child became very ill.
- Preserving the Naples historic residential district and the 64 homes within it have led to conversations with architects, builders and owners about using weather-proof materials, building and remodeling to new elevations and retaining building character while offering protections from flooding, wind, etc.
- Flooding due to SLR and increased storminess is a threat perceived to be in the near future. In addition, if philanthropically-minded people move away, or no longer consider Naples an attractive place to retire due to climate change, it will hurt the finances of our nonprofit community.
- Several improvements have already been made: 1) The Florida building code is more stringent. 2) Collier County is working to raise its Community Rating Systems (CRS) currently under FEMA. Our county’s CRS is rated 5/10 (lower is better). This affects the insurance rates residents and businesses pay. This is an improvement over 7, which was our score for many years. The score of 5 allows citizens to save 25% on their flood insurance. We are aiming for a better CRS score of 4 in the near term.

## Concluding Observations & Notes

We sincerely wish we had the space to incorporate every single interview in its totality. In compiling this report, if we had included all interviews, they would have filled over 20 pages. The results of the interviews inspired our interview team and several great ideas were shared with us while we were preparing this report. Those ideas, and a few final observations, are summarized below:

- Many of the respondents expressed how valuable the science data is and one succinctly commented that “clear information is hard to come by, but I would hope, both nationally and locally, that there would be transparency, in a study like this, in clearly articulating the risks we face and further encouraging cooperation across sectors to be prepared.”
- We heard quotes like this often during the interviews - they are a clear mandate for climate change education. As a community, we must learn more about how SLR, storm surge and increased storminess will impact our businesses and lives in Collier County. We cannot afford to ignore the science.
- Conversations about the economic impacts of climate change need to continue with all community leaders. Water quality is key to Collier County’s future and sustainability.
- We believe that hearing directly from the FGCU and UF science teams will be important to answer the concerns and doubts expressed in the interviews. Once their GIS tool and report are completed (anticipated by summer 2020) that will be an opportune time to share their findings and continue the conversation.
- Another respondent mentioned he would be quite interested in knowing results of these interviews and asked specifically to see a final report.
- One interviewee noted that the need for reliable data and solutions is pressing.
- Another believes that there could be new business opportunities just to focus on the flooding issues. He sees many technological advances as we “rise to the challenge” of climate change. He has faith in the ability of humans to respond creatively to these challenges.
- One of our interview team members became inspired after one of her interviews and is looking into how offshore reefs can be built to help prevent beach erosion and slow down storm driven surge.
- Other interview team members were impressed by how not only the nonprofit groups responded during and after Irma, but that an entire Facebook group, the Marco Patriots, was started to address issues and serve as a place to talk about post Irma impacts. This online community continues to work together to help each other and be an “emergency service”.
- This report will be shared throughout the community through the League of Women Voters of Collier County, who played the leadership role in organizing these interviews.
- Several of the organizations that participated in the interviews have offered space to deliver this report.
- Undertaking adaptation and resiliency planning must directly follow the results of the NOAA Final Report so we can protect our community’s property values and continue to be a tourist destination and home for current and future residents.

The last word in this report belongs to the voice of the generation who will be most impacted by climate change and SLR: *“I didn’t talk much today in the meeting, but as a member of the younger generation with young children I think totally differently about this whole problem. I would like to be able to raise my children and have grandchildren here and protect the beautiful life style we all love in Collier County. I don’t want to lose time while this subject continues to be debated. Let’s make decisions.”*