

Town of Perdido Beach, Alabama
Special Council Meeting – July 20, 2015-6:00 pm

The Town Council held a Special called Council Meeting at Town Hall on July 20, 2015. Mayor Patsy Parker called the meeting to order at 6:01 pm.

MEMBERS PRESENT: Council Members: Gary Fishbein, Ellen Leslie, Priscilla Condon and Mayor Patsy Parker

OTHERS PRESENT: Lynn Thompson, Town Clerk

MEMBERS ABSENT: Council Members Andy Holk and Sean Hickey

PLEDGE OF ALLEGIANCE: Mayor Patsy Parker

PUBLIC COMMENTS: Mrs. Betty Hutchinson-Town Resident thanked the Town Council for the repair work being done on Pine Street.

ITEM: Resolution 2015-11 Joining into Partnership on a Project Called” Building Resilience in Gulf Coast Communities through a Whole Community Approach”

Motion by Council Member Condon, seconded by Council Member Leslie to adopt Resolution 2015-11.

Discussion:

Roll Call Vote:
“ABSTAIN”

“YES”

“NO”

Council Member Leslie
Council Member Condon

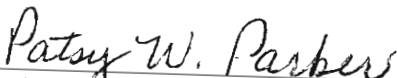
Council Member Fishbein


Mayor Patsy Parker
Motion carried, 3 in favor-1 opposed.

OTHER BUSINESS: None

ADJOURN: Motion by Council Member Condon, seconded by Council Member Leslie to adjourn. All in favor. The meeting adjourned at 6:24 PM

ATTEST:


Patsy W. Parker, Mayor


Lynn Thompson, Town Clerk



Town of Perdido Beach

RESOLUTION 2015-11 Joining into Partnership on a Project Called "Building Resilience in Gulf Coast Communities through a Whole Community Approach"

WHEREAS, the Weeks Bay Reserve, the GEOS Institute, the University of South Alabama, and others are seeking funding from the National Oceanic and Atmospheric Administration (NOAA) through NOAA'S Regional Coastal Resilience Grants Program for a project proposal called "Building Resilience in Gulf Coast Communities through a Whole Community Approach"; and

WHEREAS, the GEOS Institute has built its reputation on helping communities and others increase their resilience to coastal hazards; and

WHEREAS, during the past five years the Town of Perdido Beach has participated in training and assessment opportunities related to community resilience with the goal of developing a resilience plan for the town, including participation in a yearlong grant opportunity sponsored by the Institute for Sustainable Communities; and

WHEREAS, the town has partnered on community resilience efforts with the Weeks Bay (National Estuarine Research Conservancy (NERR) and others, including The Nature Conservancy, the Mississippi/Alabama Sea Grant Consortium, the City of Orange Beach, Baldwin County, the Mobile Bay National Estuary Program and the Institute for Sustainable Communities; and

WHEREAS, The Town of Perdido Beach has been invited to become a partner on a project proposal called "Building Resilience in Gulf Coast Communities through a Whole Community Approach".

THEREFORE, BE IT RESOLVED that the Town Council of the Town of Perdido Beach believes that the Town of Perdido Beach and the Gulf Coast Region will benefit by its participation in said project and does hereby accept the invitation; and

FURTHER, does hereby support Mayor Parker in the signing of the attached letter.

ADOPTED AND APPROVED this 20th day of July, 2015 in special session assembled and under the Seal of the Town of Perdido Beach, Alabama.

Patsy W. Parker

Patsy W. Parker, Mayor

ATTEST:

Lynn Thompson

Lynn Thompson, Town Clerk



Town of Perdido Beach
9212 County Road 97
Perdido Beach, Alabama 36530
251.962.2200

July 20, 2015

Lisa Warr
NOAA Office for Coastal Management
1305 East-West Hwy, N/OCM6
Silver Spring, MD 20910

Re: Support for NOAA-NOS-OCM-2015-2004324 submission: "Building Resilience in Gulf Coast Communities through a Whole Community Approach"

Dear Ms. Warr,

The Town of Perdido Beach would like to express its enthusiastic support for the GEOS Institute proposal "Building Resilience in Gulf Coast Communities through a Whole Community Approach" for the NOAA Regional Coastal Resilience Grants Program. Our Town has worked with Weeks Bay NERR and other partners on community resilience efforts. This proposed project will enable us to build on past work under new conditions. As Mayor, I feel the project will benefit our relatively new municipality in Alabama by using locally relevant climate information and tools to enhance our decision-making and to improve resilience. In addition, Perdido Beach will be more resilient by gaining a better understanding of its vulnerability in the face of a dynamic climate.

Our Town will support this important effort in the following ways:

- Providing local data as available and expertise to the research process,
- Being an active participant on a project advisory team,
- Coordinating and providing locations for local meetings and
- Providing input or advice critical to the project.

The activities outlined in this proposal, as well as outputs and outcomes of the project will enable our community to improve their understanding of future conditions in the region, increase the awareness and use of science in decision-making around resilience issues, and help communities better understand risk and identify specific vulnerabilities. We believe the decision-maker engagement framework can help other Gulf of Mexico regions.

I support this worthwhile effort and we look forward to working with the project partners to see the successful completion of this work.

Sincerely,

A handwritten signature in cursive script that reads "Patsy W. Parker".

Patsy W. Parker, Mayor
Town of Perdido Beach, Alabama

cc: Michael Shelton, Coastal Training Program Coordinator
Weeks Bay NERR

Project name/title: *Building Resilience in Gulf Coast Communities through a Whole Community Approach*

Primary contact: Tonya Graham, Executive Director, Geos Institute
84 Fourth Street, Ashland, OR 97520
541-482-4459 x303

Principal and other investigators: Marni Koopman, Climate Change Scientist, Geos Institute

Project Description with GOAL AND OBJECTIVES

The goal of this effort is to increase overall resilience of coastal communities in three regions of the Gulf Coast, based on Whole Community resilience principles. Whole Community resilience includes strategies that work synergistically across populations and sectors, rather than those that simply shift the risk from one sector to another, or to future generations. Whole Community solutions address ongoing socioeconomic stressors, natural resource conflicts, changing conditions associated with climate change, and expected future trends. Whole Community solutions are developed in a highly collaborative manner that leads to new partnerships and new leadership, thereby strengthening the social fabric of the community.

The primary objective of this project is to implement the ClimateWise® Whole Community resilience planning process as a partnership between the GEOS Institute, three Gulf Coast National Estuarine Research Reserves (Grand Bay in Mississippi, Mission-Aransas in Texas and Weeks Bay in Alabama), their surrounding communities, the Center for Social Ecology and Public Policy, Climate Access, the University of South Alabama, and the University of Southern Mississippi. Whole Community resilience planning includes the following components:

- A synthesis of the leading body of relevant regional climate science specific to coastal Alabama, Mississippi and Texas
- Engagement of formal and informal community leaders and stakeholders
- The development of a local advisory committee that has diverse membership, guides the process, and ensures the transition to implementation
- Cross-sector vulnerability assessment that includes ongoing and future socioeconomic stressors
- Assessment of the frequency of locally-specific extreme events such as severe heat, storms, and floods
- Highly participatory cross-sector workshops in each county
- Development and prioritization of Whole Community solutions specific to each county
- A resilience plan for the region, written for a variety of audiences
- Development of an implementation plan and timeline that identify responsible parties, potential trade-offs, short- versus long-term benefits, important integration points for actions, and potential for new partnerships
- Tracking to identify trends, determine efficacy of specific approaches, and revise strategies, as needed.

There are numerous ongoing projects and initiatives to build resilience in the Gulf Coast, especially in response to the Deep Horizon oil spill. Many initiatives focus on specific sectors, such as human health or environmental quality. We will integrate, build upon and enhance previous and ongoing efforts to ensure compatibility of scientific resources, communications efforts, planning frameworks, and community outreach.

Title page

Building Resilience in Gulf Coast Communities using a Whole Community Approach

Contact info for PI and Financial rep

Proposed period (start and end dates)

Locations

Funding type (grant or coop agreement)

Funding request by year

Project Summary (1-2 pages)

Project name/title Building Community Resilience in 5 Gulf Coast Counties

Proposed funding over each year

Primary contact info Tonya Graham, Executive Director, Geos Institute

84 Fourth Street, Ashland, OR 97520

541-482-4459 x303

Recipient institution

Recipient DUNS number

Principal and other investigators: PI - Marni Koopman, Climate Change Scientist,
Geos Institute

Michael Shelton, Coastal Training Coordinator, Weeks Bay National Estuarine
Research Reserve

Brief project summary – objectives, expected results, and intended benefits

Project Description

A. GOAL AND OBJECTIVES

The goal of this effort is to increase overall resilience of coastal communities in a 5-county region of the Gulf Coast, based on Whole Community resilience principles. Whole Community resilience includes strategies that work synergistically across populations and sectors, rather than those that simply shift the risk from one sector to another, or to future generations. Whole Community solutions address ongoing socioeconomic stressors, natural resource conflicts, changing conditions associated with climate change, and expected future trends. Whole Community solutions are developed in a highly collaborative manner that leads to new partnerships and new leadership, thereby strengthening the social fabric of the community.

The primary objective of this project is to implement the ClimateWise® Whole Community resilience planning process as a partnership between the Geos Institute, two Gulf Coast National Estuarine Reserves (Weeks Bay and Grand Bay NERRs), their surrounding communities, the Center for Social Ecology and Public Policy, Climate Access, the University of South Alabama, and the University of Southern Mississippi. Whole Community resilience planning includes the following components:

- A synthesis of the leading body of relevant regional climate science specific to coastal Alabama and Mississippi
- Engagement of formal and informal community leaders and stakeholders
- The development of a local advisory committee that has diverse membership, guides the process, and ensures the transition to implementation
- Cross-sector vulnerability assessment that includes ongoing and future socioeconomic stressors
- Assessment of the frequency of locally-specific extreme events such as severe heat, storms, and floods
- Highly participatory cross-sector workshops in each county
- Development and prioritization of Whole Community solutions specific to each county
- A resilience plan for the region, written for a variety of audiences

- Development of an implementation plan and timeline that identify responsible parties, potential trade-offs, short- versus long-term benefits, important integration points for actions, and potential for new partnerships
- Tracking to identify trends, determine efficacy of specific approaches, and revise strategies, as needed.

There are numerous ongoing projects and initiatives to build resilience in the Gulf Coast, especially in response to the Deep Horizon oil spill. Many initiatives focus on specific sectors, such as human health or environmental quality. We will integrate, build upon and enhance previous and ongoing efforts to ensure compatibility of scientific resources, communications efforts, planning frameworks, and community outreach.

B. BACKGROUND

The Gulf of Mexico is a vital center for energy production, ports and shipping routes, seafood harvest, outdoor activities, abundant wildlife, and a rich cultural heritage. Yet this area is also one of the most vulnerable areas to the impacts of climate change (Melillo et al. 2014), environmental degradation, and disasters such as the Deepwater Horizon oil spill. Because of its location and geography, the Gulf Coast is seeing dramatic shifts in temperature, precipitation, sea level, and extreme weather (Melillo et al. 2014). Many alterations that we have made for economic benefit in the past have increased the vulnerability of this area to changing future conditions. Also, quickly growing populations in economically disadvantaged areas are increasing socioeconomic stressors, and climate change is exacerbating existing health and infrastructure issues as well.

Coastal communities already experience severe and compounded impacts from rising seas, storm surges, drilling, water diversion, and fertilizer runoff. Vulnerable resources include coastal property, businesses associated with fisheries and recreation, coastal wells that serve residences and agriculture, beaches and beach-related tourism, transportation and other infrastructure, wetland and marsh habitat, intertidal and marine ecosystems and species, and others.

It is imperative that local governments begin to take appropriate action to reduce their risk, protect their residents, and increase the resilience of both human and natural systems. New strategies must be based on credible science and an understanding of how diverse systems and sectors in those communities are linked. Currently, many decision makers assume continued historic conditions, including storm severity and frequency, sea level, heat, and water availability. As all of these variables change in the coming decades, the basic assumption of stationarity will need to also change. By replacing the stationarity assumption with sound science and an understanding of uncertainty, local decision makers and citizens can increase their community's resilience in the face of changing conditions.

Climate change is a hotly contested issue in these two states and some residents do not trust government sources of information. Yet polls tell us that people in the Gulf Coast are concerned about changing conditions. For example, recent polls from the Yale Project on Climate Change Communication show 47% of residents in these five Gulf Counties are worried about climate change, compared to 52% nationally (<http://environment.yale.edu/poe/v2014/>). Even more importantly, almost three fourths of the residents of these counties support mandated cuts in greenhouse gas emissions and the development of renewable energy. This information tells us that a large percentage of

residents are ready for action, so our job is to bring them the information they need in a format that works with their cultural systems and local values.

Coastal MS and AL are both anchored by National Estuarine Research Reserves (NERRs). The NERRs offer education and outreach to local residents, decision-makers, and other stakeholders pertaining to the ecological and economic health of the region. As a trusted resource for science, training, and other information, the NERRs are able to play a vital role in community planning consistent with the valuable ecological resources of the area.

By engaging citizens directly in culturally appropriate ways on the need to develop resilience, as well as positive solutions and synergies, we will move beyond the difficult public conversation that is underway. We will build on existing support for action, and help local citizens to educate their neighbors, friends, and governmental leaders on the links among socioeconomic and natural systems in the Gulf Coast.

DESCRIBE WEEKS BAY and surrounding communities – Weeks Bay estuary is located along the eastern shore of Mobile Bay in Baldwin County in Alabama. It is a unique site of scientific research on estuarine ecology, restoration and the effects of a changing climate in the coastal area. Weeks Bay is one of only three (3) “Outstanding National Resource Waters” in Alabama designated in 1992. Baldwin County is the fastest growing county in Alabama. Since 1990, the population of Baldwin County has increased by over 70% (US Census). Weeks Bay National Estuarine Research Reserve, designated in 1986, is part of a national network of coastal reserves established for the purpose of conducting long-term scientific research and transferring that information to youth, adult and decision-maker audiences. The Alabama Department of Conservation and Natural Resources (ADCNR) and the National Oceanic and Atmospheric Administration (NOAA) manage Weeks Bay NERR as a cooperative partnership, with additional support from the nonprofit Weeks Bay Foundation and volunteers. The Coastal Training Program (CTP) at Weeks Bay NERR conducts workshops and provides technical support to local on several subjects that promote improving coastal resilience. CTP interviewed several Baldwin County communities using the Gulf of Mexico Alliance-developed Community Resilience Index. CTP partners with many coastal agencies and groups to improve capacity of communities to address the potential negative effects of flooding, land use change and a dynamic climate.

DESCRIBE GRAND BAY and surrounding communities–

DESCRIBE IOWA, LA and surrounding area –

C. APPROACH

The Geos Institute takes a Whole Community approach to developing resilience (Koopman and Graham, In press; <http://www.geosinstitute.org/climatewise-program/whole-community-adaptation.html>), which focuses on finding synergies across all sectors and populations, rather than shifting the risk of climate change impacts from one sector to another or from current residents to future generations. Of particular interest is how to prevent the disproportionate impact of changing conditions on already underserved populations and at-risk natural resources.

In this proposal, we make clear distinctions between types of local leaders as follows:

Formal Leaders: Those who hold elected office or are hired to work as part of the recognized local government structure. **Informal Leaders:** Those who who communicate

information through the community's networks, are well-regarded, and are looked to for guidance when the community faces a difficult challenge. These leaders might also represent underrepresented or underserved audiences.

Activities in Years 1 and 2 are designed to build a foundation of support within these communities and develop the outreach information and materials needed for the more public phase of the project in Year 3. Some aspects of the project may move more quickly or more slowly, depending on local attitudes and priorities. Many communities are experiencing a turning point in public awareness and interest in community preparedness, and when this point happens, it is important to harness the momentum and move quickly. It is also important to not move faster than the community is ready to respond.

In collaboration with Weeks Bay NERR, Grand Bay NERR, the Center for Social Ecology and Public Policy, Climate Access, the Univ. of Southern Mississippi, and the Univ. of South Alabama, the Geos Institute will implement an engagement and resilience planning program in five coastal counties (see map attached to proposal) in Alabama and Mississippi. The steps for the resilience planning process include:

YEAR 1

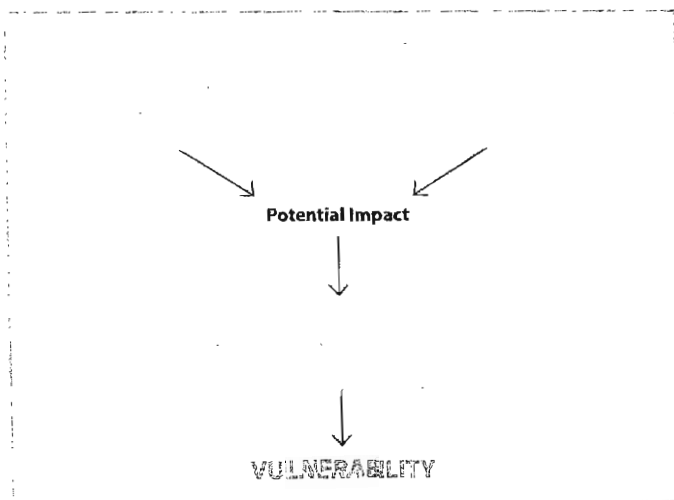
- **In each county, develop a Steering Committee** of 8-12 local experts, educators, scientists, and informal community leaders from diverse sectors and backgrounds. Initially the Steering Committee will involve project partners and a small number of related technical experts. Through the Community Mapping process (see below), we will identify local leaders to be added to the Committee. Some potential participants include: formal and informal leaders, health care professionals, emergency response experts, city infrastructure and transportation planners and managers, energy and water resources managers, natural resource scientists and managers, climate change scientists, social scientists, low income and vulnerable population representatives, social equity experts, and economists.
- **Conduct surveys appropriate to local audiences to gather baseline data** related to local perceptions about changing conditions, ongoing socioeconomic stressors, and support for efforts to increase resilience. This will be used to evaluate the effectiveness of the project's outreach and engagement efforts in Year 3. Dr. Michael Forster at the University of Southern Mississippi has tentatively agreed to manage the evaluation component of this project and we are also in discussions with Southern Oregon University Research Center (SOURCE) to ensure that project evaluation is rigorous and meaningful.
- **Synthesize the leading body of relevant regional climate science specific to coastal Alabama, Mississippi, and Louisiana.** We will use data and tools available from NOAA, Southeast and Southcentral Climate Science Centers, TACCIMO, and other sources to identify historical and ongoing changes in the region and to develop a set of projections for future conditions. We will include such variables as average annual or seasonal temperature and precipitation, change in sea level, drought stress, and stream flow. For examples of climate change projections presented by the Geos Institute as reports and online presentations, please visit: <http://www.geosinstitute.org/climatewise-program/completed-projects.html>.
- **Conduct "Community Mapping"** to better understand the culture of the communities, identify concerned informal leaders, identify underserved or underrepresented populations, and determine how local networks process and respond to community challenges. Dr. Kevin Preister of the Center for Social Ecology and Public Policy has

developed a method for understanding the culture of a community, how its informal networks operate, and who provides informal leadership outside of formal governance structures. We will incorporate Community Mapping into the first year of the project in order to strategically engage concerned people with the most influence. The Community Mapping process will be led by Charles Leister with the assistance of Dr. Preister and will build upon relationships already in place through the NERRs and other project partners. It is critically important to the success of this project that we identify a core group of formal and informal leaders concerned about changing conditions in each of the project sites. This group will conduct outreach using tools and information provided by Geos Institute, the two NERRs, NOAA, Climate Access, and other agencies and organizations.

- **Identify climate change variables and extreme event thresholds** of interest to the local community for further scientific analysis in Year 2. As the project progresses, we will work with local leaders to determine five specific extreme event variables or thresholds of interest in local decision making. Some communities, for instance, are particularly concerned about heat waves and their effects on air quality and human health. Some agricultural communities rely on a certain number of nights below freezing for their crops to succeed. Still other communities have seen increases in storm severity and are interested in future precipitation and flood risk. As we reach out to the community and develop the relationships that are needed, we will learn from them which variables and analyses are most useful for local resilience planning.

YEAR 2

- **Conduct data analyses** specific to the variables and threshold identified in Year 1. An example is available from our work with Austin, Texas where local decision makers were interested in understanding the past and future frequency of severe heat and precipitation in their community (<http://climatewise.org/completed-projects>).
- **Develop outreach materials** to support informal leaders in their communication of the science and the use of sound science in long-term decision making for community resilience. To see an example of the Geos Institute’s dynamic online presentations, visit: <https://pruzi.com/evf/balk/cn/hot-enz/cor>. To the extent possible, we will incorporate local leaders into this presentation to ensure that this information is coming from trusted community members. All climate science and projections will be peer-reviewed by local and national climate scientists for scientific accuracy.
- **Develop a local network** of diverse and concerned leaders to build awareness and engage their colleagues, friends and neighbors around the issue of Whole Community resilience and preparing for changing conditions. Fostering relationships between these informal leaders is particularly important for this project because they will be the ones providing the local leadership on the issue. Helping them develop relationships with other concerned informal leaders is particularly important in maintaining motivation and reducing feelings of isolation in the long-term. We will encourage those relationships by networking them together and providing venues for them to provide feedback and guidance to the Steering Committee.
- **Conduct a series of “living room conversations” and other events** that bring people together



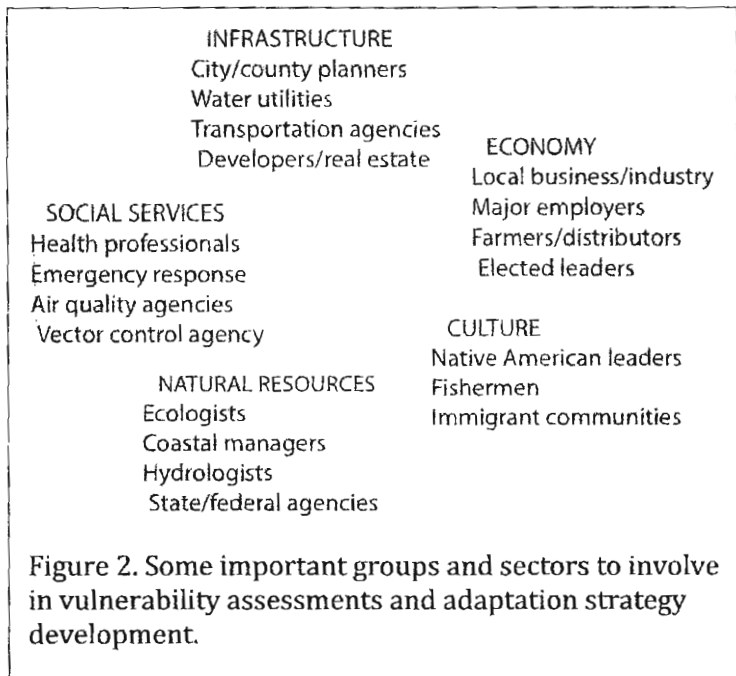
to discuss the issues of climate change and other changing conditions, local stressors, disproportionate impacts to underserved populations, and the links between natural and socioeconomic resources and their resilience. We will use these gatherings to not only disseminate scientific information when appropriate, but also to learn from local people about the community's readiness to take action and the most effective communication strategies.

YEAR 3

- **Develop a cross-sector vulnerability assessment** for the region that covers the following sectors: built, human, cultural, economic, and natural resources. Our process follows a tested approach to vulnerability assessment that considers three primary components: Exposure, Sensitivity, and Adaptive Capacity (see figure). The Vulnerability Assessment will build on the science assessment and additional data analyses. The Geos Institute has developed a vulnerability assessment handbook that will be filled in by local leader and results compiled by the Geos Institute. The vulnerabilities will be further explored and refined in the workshop.
- **Convene a workshop in each project site** that reviews and discusses the vulnerability assessment and develops recommendations for actions to increase community resilience in the face of changing conditions. Local leaders will lead this step and we will continue to support Community Engagement Representatives with small contracts for outreach. The workshop will feature local presentations and discussions related to ongoing and future trends, positive solutions, and community visioning for resilience. We will stress the Whole Community approach that the Geos Institute has developed to boost all sectors together and provide multiple community benefits rather than shifting the risk from one sector to another, or from current residents to future generations. We typically use role playing exercises and a large matrix mounted on the wall to help workshop participants harness their creativity and identify synergies and cross-sector strategies that create Whole Community solutions. Activities and approach will be designed and directed by the local leaders to ensure they are effective.
- **Develop public engagement materials** with the results of the vulnerability assessment and the action recommendations, including an online dynamic presentation.
- **Continue to assist local leaders in leading private and public conversations** to determine local vulnerabilities associated with changing conditions and begin to develop strategies for building community resilience.
- **Complete outreach efforts to the larger public.** At the completion of the workshops, the Geos Institute works with our local partners to develop a written report and dynamic online presentation for wider circulation in the community. We will then work with local leaders and NERR partners to host public gatherings however they believe will be most beneficial to the local effort. In the past, Geos Institute staff has participated in elected officials breakfasts, dinners, and public forums at this stage of the process to answer questions.

Figure 1. The variables that are used to determine local vulnerabilities.

- **Identify implementation steps and develop implementation team.** Toward the end of the process, we will work with the Steering Committee to create an Implementation Team that pulls together individuals who have emerged during the process as energetic and able to move the effort forward, especially those with links to decision making and planning processes where implementation is more likely to be successful. The Steering Committee will continue to support the Implementation Team, which will start by identifying steps to implementation for the strategies that were developed.



This team will conduct outreach with local leaders and decision makers to move strategies forward through all available channels. Where possible, strategies will be incorporated into existing plans and required planning processes to encourage implementation.

- **Share information** about the project and network with other communities in the region. When successful, this project can and should serve as a model to other communities in the region. The project team will determine which components of the project may be applicable to projects in other areas and then disseminate the dynamic online presentations and written reports to other local governments, agencies, universities, and civic organizations in the region. Specific information regarding the networks we will engage in this step is found in the Dissemination section.
- **Evaluator gathers follow-up data on public/participant perceptions** to assess changes associated with this project on science, use of NOAA tools, and understanding of changing conditions as they relate to making decisions that are responsible for both communities and coastal ecosystems. Our evaluator will survey the community to determine their perceptions of science as a decision making tool, use of NOAA tools, the risks associated with changing conditions, and support for local resilience efforts to ascertain the change that can be attributed to our project activities.

This effort builds on a project both NERRs are implementing to build awareness of science called "Connecting Scientists to Citizens Regarding Sea Level Rise." The NERRs are working with local community organizations to build awareness and use of sea level rise tools for coastal citizens and local leaders. The NERRs have developed focus groups and are crafting an engagement plan from that information. This engagement effort will happen in 2015 just ahead of the start of our joint project, which will allow us to integrate learning and engage those individuals who emerge as leaders in their process.

Table 1. Potential variables to be used in the scientific assessment. Actual variables, models, timeframes, and resolution will be determined by the scientific expert panel.

Variable	Potential Model	Potential source	Resolution
Mean temperature (annual and monthly)	Downscaled CMIP5 ensemble GCMs	Southeast Climate Science Center	4km
Mean precipitation (annual and monthly)	Downscaled CMIP5 ensemble GCMs	Southeast Climate Science Center	4km
Hurricanes and tropical storms	GFDL Hurricane model	Bender et al. 2010; Grinsted 2012	9km
Sea level rise	NOAA Sea Level Rise and Coastal Impacts Viewer LIDAR data, if available	NOAA Coastal Services Center	Variable
Historical storm surge data	SURGEDAT	Southern Climate Impacts Planning Program	N/A
Mean sea surface temperature	SST	Muhling et al. 2011	1/36 degree (3km)
Changes in dominant terrestrial vegetation	MC2	Conservation Biology Institute	800m
Grand Bay NERR sea level rise and tidal marsh vegetation projections	Sea Level Affecting Marshes Model (SLAMM)	The Nature Conservancy	30m
Ecological projections for species and habitat	Climate envelope models, functional models	USFWS, ADCNR	variable
Streamflow	Variety of models	USGS (Caldwell et al. 2015)	variable
Runoff (affecting nutrient pollution)	CMIP3/IHA	US BOR/Gibson et al. 2005	12km/0.5degree
Resilience index for Foley, Alabama		Mississippi-Alabama Sea Grant Consortium	N/A
Ground-level ozone formation response to temperature	CASTNET BenMAP	Union of Concerned Scientists	N/A
Socioeconomic vulnerability	Sea Level Rise and Flooding Impacts Viewer Sensitivity analysis (including SOVI)	NOAA Coastal Services Center Estuarine Research Division	30m Census Block

Table 2. Example of matrix structure used for vulnerability assessment across sectors (resources and populations are hypothetical examples only – workshop participants will fill in the matrix during breakout sessions). Additional information on where/how/when specific local resources are impacted is collected so that targeted adaptation strategies can be developed and mapped, increasing the likelihood of implementation.

Resource or population	Likely impact	Exposure	Sensitivity	Adaptive Capacity
Local dam(s)	Increased storm	High exposure	Medium	Low because dam

	severity and runoff could compromise safety and storage	to changes in precipitation and runoff	sensitivity – only extreme storms will cause overflow or failure	received poor marks on its safety inspections and is upstream of residential development
Barrier island wildlife reserves	Sea level rise, storm surge, and increased hurricane risk could lead to loss of areas for breeding and wintering birds (terns, plovers, etc.)	High due to direct impacts from climate change and loss of mangroves	Some species of wildlife more sensitive than others	Low because of extensive loss of habitat and disturbance
Agriculture	Loss of water availability due to changes in precipitation and higher temperatures	Medium in areas with irrigation	Some crops more sensitive than others (cotton)	Farmers with access to new technology and resources have greater adaptive capacity
People with asthma and heart disease – specific populations	Increased ozone formation from higher temperatures will cause more heart attacks, asthma, and demand for health care services	Higher in areas with poor air quality	Some populations more sensitive than others (elderly, young)	People without insurance or those far from health care services have lower adaptive capacity

D. PARTNERSHIPS

Geos Institute – The Geos Institute will serve as the lead organization for the project, coordinating activities through its regional project manager, Charles Leister. In addition to project management, this role encompasses financial management, oversight of all subawards, collaboration with project partners to adjust the project plan as necessary to meet the needs of the communities over the course of the project. Dr. Marni Koopman will oversee the development and peer review of climate projections and all science associated with this project while helping guide the community outreach and planning effort. Geospatial Analyst, Jessica Leonard, will provide data analysis services in the development of future projections. Executive Director, Tonya Graham, will provide overall fiscal management for the project, assist with ongoing project planning and implementation, and serve on the facilitation team for public workshops. Dr. Marni Koopman and Charles Leister will serve as Primary Investigators for the project.

NOAA Office for Coastal Management (OCM) – Marian Hanisko and/or other NOAA staff will provide support for this project by participating in conference calls, meetings, and workshop events; providing demonstrations of OCM tools and resources at workshops as appropriate connecting project partners with NOAA scientists, data and tools; and sharing the results of the project with the NOAA Regional Collaboration Team, the Northern Gulf of Mexico Sentinel Sites Cooperative, and other partners.

Weeks Bay National Estuarine Research Reserve – Michael Shelton, Natural Resource Planner and Watershed/Training Program Coordinator at the Weeks Bay NERR, will provide

support, resources, and venues for meetings and workshops as needed. He will help connect project partners with communities, citizen groups, and scientific assets, and will share results with other NERRs and coastal partners.

Grand Bay National Estuarine Research Reserve – Dr. Sarah Harrison, Watershed/Training Program Coordinator at Grand Bay NERR, will provide support, resources and venues for meetings and workshops as needed. She will help connect project partners with communities, citizen groups, and scientific assets as appropriate. Dr. Harrison will share results with other NERRs and Mississippi coastal partners.

Climate Access – Cara Pike at Climate Access will provide communications and messaging expertise to the local leaders to assist them in reaching out to their colleagues, neighbors and friends. Her expertise will also be used in developing the dynamic online presentation (see below) to be released in Year 3.

Center for Social Ecology and Public Policy – Dr. Kevin Preister will provide training and support for the Community Mapping aspect of this project by traveling to the project sites, training our local staff and volunteers, and providing ongoing guidance through the process to identify informal community leaders and understand how their community networks function as well as what issues they are currently facing.

In addition to these formal project partners who have submitted resumes and letters of commitment, we have secured verbal commitment to the project from the following:

Dr. Michael Forster of the University of Southern Mississippi will provide support either by serving on the Steering Committee or providing project evaluation. We are still considering the best role for Dr. Forster in this project, but his background in social work; knowledge of health impacts from climate change; interest in issues of race, gender, and class; and his ongoing work on community resilience in the region make him a valuable resource for this effort.

Dr. David Brown, NOAA Regional Climate Services Director - Southern Region, has agreed to provide support by providing peer review of all science-based materials produced for this project, including the climate projections and thresholds analysis of extreme events.

David Ruppe, Graphic Designer, will provide graphic design services for the project building on his extensive experience developing climate related outreach materials, including online dynamic presentations of local projections and project outcomes.

- a. Milestone schedules
- b. Project budget
- c. Public engagement and outcomes

The ClimateWise® process is carefully designed to result in increased scientific understanding, collaborative planning, and community engagement on climate change and/or its associated impacts. We have workshop participants fill out questionnaires prior to and after the workshops to track changes in their understanding, planning, and collaboration over time. The process also results in a suite of strategies intended to increase the resilience of natural and human communities in a co-beneficial manner. Yet strategies are not effective if they are not implemented.

The local Implementation Team will identify the most effective approaches to implementation for the Corpus Christi and Apalachicola areas. In previous projects, different areas have followed different avenues to implementation. For instance, San Luis Obispo County, CA adopted all of the adaptation strategies developed through ClimateWise® into their Climate Action Plan (CAP). Once their CAP was complete, they received state funding for implementation, largely because of their inclusion of both adaptation and mitigation in their CAP (Jan Marx, Mayor of San Luis Obispo, personal communication). In Missoula County, ClimateWise® strategies were individually incorporated into the County General Plan and adopted by NGOs and other groups. Finally, in Fresno County, the USDA Forest Service included ClimateWise® strategies in their forest planning documents (USDA 2012) while the city of Fresno is incorporating other strategies into their general plan (Michelle Selmon, CA Dept. of Water Resources, personal communication).

Success of the project is likely to be realized for many years and decades after the planning process. We continue to communicate with our Convening Partners, Implementation Teams, and other leaders for many years to determine whether the project has continued to create positive change and resilience. Our early pilot projects in Oregon and California helped us determine what criteria to look for in a community to increase the likelihood of success. Focus on shared values, integrated solutions, cost savings from interdisciplinary strategies, and new and established relationships all were important for moving the process forward to implementation.

Outcomes

1. The general public is better able to use scientific information to evaluate risks and vulnerabilities related to changing conditions and make effective choices in building local resilience.
2. Science-based information about likely future conditions becomes more easily accessible for all people in this region of the Gulf Coast.
3. The general public becomes engaged in assessing their existing climate-related vulnerabilities, developing preparedness strategies, and is motivated to reduce the magnitude of climate change.
4. Formal and informal local leaders make important community decisions based on sound science, increased understanding of the interdependencies of natural and human systems across time and space, and available scientific tools and information.
5. Local leaders have increased understanding of how changing conditions impact all sectors (cross-sector awareness) and work collaboratively to develop Whole Community resilience.
6. Leaders of neighboring communities become aware of how these communities are addressing increased risk due to changing conditions and learn how they can get started.

Appendices

- a. mandatory detailed budget information – forms SF-424A
- b. letters of collaboration
- c. resumes
- d. data sharing plan
- e. NEPA
- f. Paperwork reduction act
- g. References, lists of data sources, maps, other