

NERRS Science Collaborative Progress Report for the Period 9/1/12 through 02/28/13

Project Title: Planning for Sea Level Rise: A Pilot Study to Evaluate and Improve the Development and Delivery of Habitat Vulnerability Assessments and Adaptive Conservation Designs to Coastal Decision Makers

Principal Investigator(s): Kathryn Frank, University of Florida

Project start date: 11/15/11

Report compiled by: Kathryn Frank

Contributing team members and their role in the project: Emily Montgomery (Co-PI) at the Guana Tolomato Matanzas National Estuarine Research Reserve, and Briana Ozor (Research Assistant) at the University of Florida.

A. Progress Overview

The goal of the project is to develop an integrated sea level rise adaptation planning process that identifies potential impacts of future sea level rise on coastal habitats and species, designs ecological migration corridors, and builds governance and civic capacity for adaptation. The planning process is being piloted in the Matanzas Basin of Northeast Florida in partnership with the Guana Tolomato Matanzas (GTM) National Estuarine Research Reserve, and with the aim of documenting a transferable model for use by other reserves in the National Estuarine Research Reserve System (NERRS).

The majority of the work this reporting period pertained to six project components, five of which relate to the Matanzas Basin pilot study:

(1) *Consultation with the project's Matanzas Basin Steering Committee.* The Steering Committee, with assistance from GTM Research Reserve staff and a volunteer videographer, created an 11-minute video about the importance of planning for sea level rise in the Matanzas Basin. This video is available on the project's website. The Steering Committee held its fourth quarterly meeting on December 7, 2012. At the meeting, the project team updated the Steering Committee members on the outcomes of the Fall 2012 residential stakeholder (public) workshops. They also discussed the framework and attendees for the Spring 2013 professional stakeholder workshops, including strategies to gain attendance of people who may not believe that sea level rise will accelerate in the future. The research team and Steering Committee have set the agenda for the next Steering Committee meeting to be held on March 18, 2013.

(2) *Technical analyses.* The project team completed the Sea Level Affecting Marshes Model (SLAMM) runs for all sea level rise scenarios and wrote a draft manuscript of the findings for publication in a peer-reviewed journal. The project team acquired elevation data with improved vertical resolution. Using these data, the team created maps of low-lying areas (less than three feet above current sea level), and ran the Hazus storm surge model for various storms (e.g., 100 year storm) for several sea level rise scenarios. In Fall 2012, Kathryn Frank's Advanced Environmental Planning class of 9 doctoral and master's students aided the synthesis and communication of the various technical findings, including for sea level rise scenarios, elevation, SLAMM, and storm surge. To build capacity of the students, the class took a field trip to the Matanzas Basin. Researchers are currently collecting data and modeling future land use using Land Use Conflict Identification Strategy (LUCIS) and habitat and species migration corridor design. Results from

these analyses will figure prominently in the multi-stakeholder public workshops to occur in Fall 2013 and Spring 2014.

(3) **Visualization and communication of sea level rise science and technical findings.** In preparation for the stakeholder workshops, the project team developed messaging and materials to effectively recruit workshop participants and present sea level rise science, concerns, and ethics, and the locally specific technical findings. The team designed workshop poster advertisements for email dissemination. For the workshops, the team created visually appealing Powerpoint presentation slides and a script, clear and compelling elevation maps, videos of inundation simulations (edited versions of work from the previous reporting period), and a 6-minute “welcome to the project” video by Michael Shirley, director of the GTM Research Reserve. In addition, the team created five large (3 feet by 4 feet), matted posters for display at the workshops. The posters introduced workshop attendees to the project and study area, presented maps resulting from the technical analyses, and summarized sea level rise impacts and types of adaptive strategies. To maintain a place-based focus, images from the Matanzas Basin were used in all of the materials. The team, Steering Committee, and others (including a professional photographer) created and donated photos for use by the project. The photos highlighted the beauty, importance, and vulnerability of the area. All the communication materials had a consistent color palette and style, and the team created a project logo.

(4) **Collaborative workshops with stakeholders.** GTM Research Reserve staff advertised the first round of stakeholder workshops, for residents of St. Augustine, Palm Coast, and smaller coastal communities in the study area, via email and in person at various community events, and through the project’s Steering Committee. This followed the typical outreach method of the GTM Research Reserve’s Coastal Training Program, including setting up a workshop online RSVP system through EventBrite.com. With Steering Committee input, the project team finalized the overall structure of the resident workshops, including the process agenda, presentations, and interactive exercises. Researchers conducted four public workshops on December 5 and 6, 2012, in St. Augustine and Marineland. Two workshop sessions were held on each day and each workshop was three hours. The project PI (Kathryn Frank), co-PIs (Michael Shirley and Emily Montgomery), and Collaboration Lead (Dawn Jourdan) delivered all the presentations and facilitated the interactive exercises. The workshops consisted of a keypad polling for audience identification and evaluation purposes, overview presentation, a technical presentation, a large group visioning exercise, and a small group role-play game concerning adaptive strategies. Exactly 100 persons attended the workshops, averaging 25 persons per workshop. The project team recorded participant input through the keypad polling and written notes, and the team has processed the results for use in the next steps of the project.

(5) **Outreach and transfer.** Prior to conducting the stakeholder workshop in December 2012, the project team wrote and mailed letters to elected officials in the Matanzas area informing them of the project and the upcoming workshops. The project’s website, PlanningMatanzas.org, continued to be a main avenue for public outreach and project record-keeping. The Wordpress-based website includes a blog of current events and discussion topics, and several pages of background information about the project, sea level rise, and the Matanzas Basin. The team also established a parallel Facebook page that automatically receives new blog posts from the Wordpress site. The project team posted on the website the Steering Committee video, the GTM Research Reserve director’s “welcome” video, and materials from the December 2012 workshops, thus giving interested persons the opportunity to view the resources at their leisure. As of March 1, 2013, the

PlanningMatanzas.org site had received 3,623 views. The Steering Committee video alone received 594 views. As a result of the public workshops and media coverage of Hurricane Sandy's impacts on the Northeastern U.S., the Matanzas project was the focus of one local television channel's nightly news segment, several local newspaper articles, and a University of Florida homepage (ufl.edu) photo and video. The homepage video received 1,156 views.

(6) **Overall project management and reports.** The project team drafted two reports: (i) Matanzas Basin findings and recommendations and (ii) guidebook of the transferable planning process for use by other reserves. The drafts contained the activities and outcomes of the project's first year. The project team will add to these drafts as the project progresses in the second and third years of the project.

B. Working with Intended Users

Describe the progress on tasks related to the integration of intended users into the project for this reporting period.

Several mechanisms for integrating users of the Matanzas Basin vulnerability assessments and habitat migration corridor designs were applied and expanded upon in this reporting period.

The project team collaborated with the Matanzas Basin Steering Committee at a meeting in December 2012 and the direct connection is ongoing via Basecamp, email, and phone calls. Steering Committee members continued to express their commitment to assisting the project to bring the important issue of sea level rise to decision-makers, stakeholders, and the public. Steering Committee members were deeply interested in the technical findings and committed to their responsibilities of pre-testing workshop formats and techniques. Their guidance was very helpful in designing the Fall 2012 stakeholder workshops and will be helpful in designing the Spring 2013 workshops, especially as the team reaches out to stakeholders who may be skeptical of sea level rise science.

The project team engaged local residents of the Matanzas Basin at the first set of stakeholder workshops in December 2012. Researchers presented the results from the technical analyses that have been conducted, as well as a general overview of sea level rise impacts and possible adaptation strategies. Stakeholders participated in keypad polling, a visioning exercise, and a role-play game in order to gauge their level of local sea level rise awareness and determine what qualities of the Basin they value most. The information gathered at these workshops will be incorporated into the conflict assessment and future scenarios analyses to be presented Fall 2013-Spring 2014.

The project partnership between the University of Florida researchers and the Guana Tolomato Matanzas Research Reserve staff continued to flourish due to continuous communication and recognition of each group's unique expertise, resources, and relationship with the Matanzas Basin community. In addition to face-to-face communication at the Fall 2012 stakeholder workshops and the December 2012 Steering Committee meeting, UF and Reserve team members held frequent conference calls and email correspondence.

Last, the public accessed information about the project at their convenience through the main project website, PlanningMatanzas.org. Website visitors can learn of past and upcoming project events such as the stakeholder workshops, obtain answers to questions about sea level rise and

how it affects the Matanzas Basin, read descriptions of the scientific models used, learn about the importance of ecological conservation, and obtain the materials used during the workshops. The blog gets updated regularly through text and video formats. Visitors are encouraged to provide feedback in the comments section.

What did you learn? Have there been any unanticipated challenges or opportunities?

Although the first set of stakeholder workshops attracted 100 local residents, the project team recognized that the majority of these participants were already interested in and had a positive attitude towards sea level rise planning. The project team and Steering Committee saw the opportunity to engage persons skeptical of sea level rise and will make efforts to do so as we continue to gather technical data and experience with engaging the stakeholders of this area.

The Spring 2013 workshops will differ somewhat from the Fall 2012 workshop format and content. The workshops in Spring 2013 will target special interest groups, rather than general citizens, and the presentations and activities will need to be geared towards these groups. The team, with Steering Committee input, will design and advertise the workshops to be attractive and useful for these groups of stakeholders.

Who has been involved?

The University of Florida research team worked closely with the GTM Research Reserve director and staff on technical and community outreach matters. The Reserve staff members have proved invaluable in setting standards for the technical analyses, understanding ecological and social features of the Matanzas Basin, connecting with the local Steering Committee, developing a collaboration evaluation plan, and planning and conducting the stakeholder workshops.

There are currently twelve members of the Matanzas Basin Steering Committee, and they have regularly attended the past four meetings. These citizens, business leaders, and planners have generously committed their time and have played an active, engaged role at the meetings and in additional conversations. One hundred local residents participated in our stakeholder workshops in December 2012. They collaborated with researchers during the workshops, assisting researchers in understanding the values and priorities of local residents in the Basin.

Has interaction with intended users brought about any changes to your methods for integration of intended users, the intended users involved, or your project objectives?

As a result of conversations with the Steering Committee and interest from workshop participants, the GTM Research Reserve staff will provide workshop materials, including the adaptive strategies role-play game, and educator support to conduct additional outreach with youth at local high schools. The team has also made the role-play game materials available to a local college professor and an extension agent (Maia McGuire, who is a member of the project team) for their use. Other minor changes are discussed above in response to “What did you learn?”

How do you anticipate working with intended users in the next six months?

Three of the professional stakeholder meetings will be in Spring 2013 (possibly April and May). The local stakeholder groups for these meetings are: government officials, inland developers, and

natural resource based economic interests. The team will continue to work with the Matanzas Basin Steering Committee to prepare for this next set of workshops. Members are assisting in identifying potential candidates for the stakeholder groups.

Another group of intended users of the project results is the NERRS reserves. The project team will communicate with the NERRS Climate Change Committee in the next six months to identify sea level rise adaptation planning process needs across the NERRS and specific reserves that may be interested in the transferable process generated by this project.

The project website will continue to provide public and professional outreach. There will be project updates with the direct opportunity for website visitors to provide feedback.

C. Progress on project objectives for this reporting period

Describe progress on tasks related to project objectives for this reporting period.

The first project objective is to develop a transferable planning process for use by other NERRS reserves. The major accomplishments were the conducting of literature reviews and drafting the final reports.

The second project objective is to pilot test the planning process in the Matanzas Basin. Major accomplishments were to hold another meeting of the Matanzas Basin Steering Committee, to finalize vulnerability assessments in the Basin, and to conduct three stakeholder workshops.

The third project objective is to coordinate the Matanzas Basin process with statewide ecological greenways planning. Statewide projects conducted by project team members and related to this objective are active and ongoing.

The fourth project objective is to conduct related science, social science, and applied research. Manuscript writing for scholarly journal publication is underway, including for the SLAMM habitat modeling results and project communications approach. An evaluation plan for the stakeholder workshops was finalized and applied to the December 2012 workshops.

What data did you collect?

The project team collected information about the activities and evolution of the project through archived draft documents, meeting notes, the project website blog, Basecamp posts, and email messages. All major components of the project, including process transfer and collaboration, have included literature reviews.

The technical team gathered more accurate elevation data and the results of Hazus storm surge runs using these data.

The team gathered data from the Fall 2012 stakeholder workshops that will be used in the analysis of future scenarios and conflict assessment. Stakeholders' values in relation to the Matanzas Basin and priorities for planning were gathered, as well as their preferences for a range of adaptation strategies.

Has your progress in this period brought about any changes to your methods, the integration of intended users, the intended users involved or the project objectives?

The project team continued to recognize new opportunities for working with the Matanzas Basin Steering Committee. With an interest in engaging persons skeptical of sea level rise and reaching out to stakeholders beyond those who participated in our Fall 2012 workshops, the team thought it would be helpful to empower the Steering Committee members and give them the tools to reach out to other stakeholders. The team is developing Powerpoint slides and a script for a fifteen-minute presentation that Steering Committee members may use to bring information derived from our project to other stakeholders in the area through their personal networks.

Have there been any unanticipated challenges, opportunities, or lessons learned?

The team adapted to changes in researcher availability and stayed on schedule.

What are your plans for meeting project objectives for the next six months?

The project is on schedule to meet objectives during the next reporting period (March 2013 - August 2013). The team will further evaluate the December 2012 stakeholder workshops for building stakeholder capacity and generating useful planning information. Geospatial data overlays of critical facilities and important sites, LUCIS, and habitat migration corridors will provide additional insights. The collaboration team will make preparations for the next set of stakeholder workshops. Stakeholder input during these workshops will be documented and synthesized with the stakeholder input from the Fall 2012 workshops, and applied to the next set of multi-stakeholder public workshops focused on future development and conservation scenarios (Fall 2013-Spring 2014). Also during the next six months, the technical team will continue work on the analyses and designs that will inform the future scenarios presented at the next set of public workshops. Steering Committee input into the methodology for designing the habitat migration corridors will occur, possibly through a sub-committee with leadership by Reserve staff.

The team will also continue to conduct research at the NERRS level, work with NERRS Climate Change Committee, and coordinate team members' related specialized studies. Final report and journal article writing will be ongoing.

D. Benefits to NERRS and NOAA

Other sites in the NERRS can use planning process piloted in the Matanzas Basin, including the technical analyses, visualization and communication techniques, and the workshop format and materials developed to engage the local resident stakeholders. The project's resulting guidebook will explain, and provide examples of, the approach, tools, and materials.

E. Describe any activities, products, accomplishments, or obstacles not addressed in other sections of this report that you feel are important for the Science Collaborative to know.

None.