

## **Coastal flooding: An integrative analysis of socio-economic vulnerability and its relationship to successful coastal adaptation and resilience**

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### **Project Summary**

This research will identify the areas of weakness in knowledge, preparedness and resilience to coastal flooding in two communities in Pinellas County, Florida, Gulf of Mexico Region, and create an online GIS framework for information gathering and dissemination. Levels of knowledge, preparedness and adaptability will be compared between an inland neighborhood that is socio-economically vulnerable and a higher-income, non-minority community with bio-physical vulnerability. Flooding may cause property damage, economic hardship, detrimental impacts on family stability and income, potential health hazards from water borne pathogens and dangers associated with standing and moving water. We hypothesize that the biophysically vulnerable neighborhood will be better prepared for adaption and resilience as than the socio-economically vulnerable neighborhood.

Rigorous scientific methods will be used, including deployment of surveys, in-depth personal interviews, and focus groups with residents in the two study areas, and multiple analysis techniques. Data collected will include physical vulnerability measures (floodzone, elevation, stormsurge, proximity, flooding potential etc ); social vulnerability (age, disability, gender, education, household size, employment, socio-economic status, flood experience; knowledge of physical, economic and health related hazards, safety and appropriate responses to flooding, and resources available for flood recovery). Data on extent and history of flooding will also be collected and GIS will be utilized to analyze data layers.

Insights will be shared and discussed with community groups. Recommendations will be made to the appropriate government and non-governmental organizations working on climate change adaptation in our area so that the county can be better prepared for the increased risk from flooding.

### **Objectives & outputs**

This research aims to identify areas of weakness in knowledge, preparedness and resilience in two contrasting communities in Pinellas County, Florida, Gulf of Mexico Region, and create an online GIS framework for information gathering and dissemination. This project, upon completion, will provide an example of a case study that can then be used in other areas. The methodology used here can be easily transferable to other study areas for comprehensive assessment of a community's resilience in the context of environmental and social justice.

This project will build on existing momentum created by an initiative started by this project team. The initiative is called Initiatives on Coastal Adaptation and Resilience (iCAR) (<http://www.usfsp.edu/icar/>). ICAR organizes workshops in which academic, community-based groups, NGOs, local businesses, consulting firms, planners, and state and local governments come together to brain storm issues of resilience. ICAR's missions and goals include:

- Use research and education to provide the understanding and ideas needed to make critical decisions regarding our changing and vulnerable coast.
- Engage stakeholders to facilitate adoption of policies and practices focused on coastal adaptation and resilience.
- This transdisciplinary initiative includes the sciences, engineering, policy and social sciences and will examine the interactions between climate change, water systems, land use, the built environment and ecosystem functions.
- To find multi-dimensional and flexible solutions using an integrative but flexible decision support system.

ICAR recently offered a workshop (9/13/16) called 'Solutions for Coastal Cities: Adaptations and Resilience in Tampa Bay'. Workshop objectives, agenda and summary can be found at (<http://www.usfsp.edu/icar/icar-2016-2/>).