

Introduction

The Initiative on Coastal Adaptation and Resilience (iCAR) engages stakeholders to facilitate the adoption of policies and practices that reduce vulnerability to coastal hazards within the context of a changing climate and extreme weather events. This transdisciplinary initiative brings perspectives from climate/physical sciences, engineering, policy, and social sciences to examine interactions between communities and the environments. iCAR also engages in research and education to provide the understanding and ideas needed to make critical decisions regarding our changing and vulnerable coasts. While the current focus is on local communities in Pinellas and Hillsborough Counties (Fig. 1) the ultimate goal is to create a methodology that is scalable and transferable to create more resilient communities to any type of hazard.



Photo Award: Kara Doran
Photo Contest: Terrence North in the Holiday Park Neighborhood of St. Petersburg during Hurricane Hermine, 216 around 10:30am.

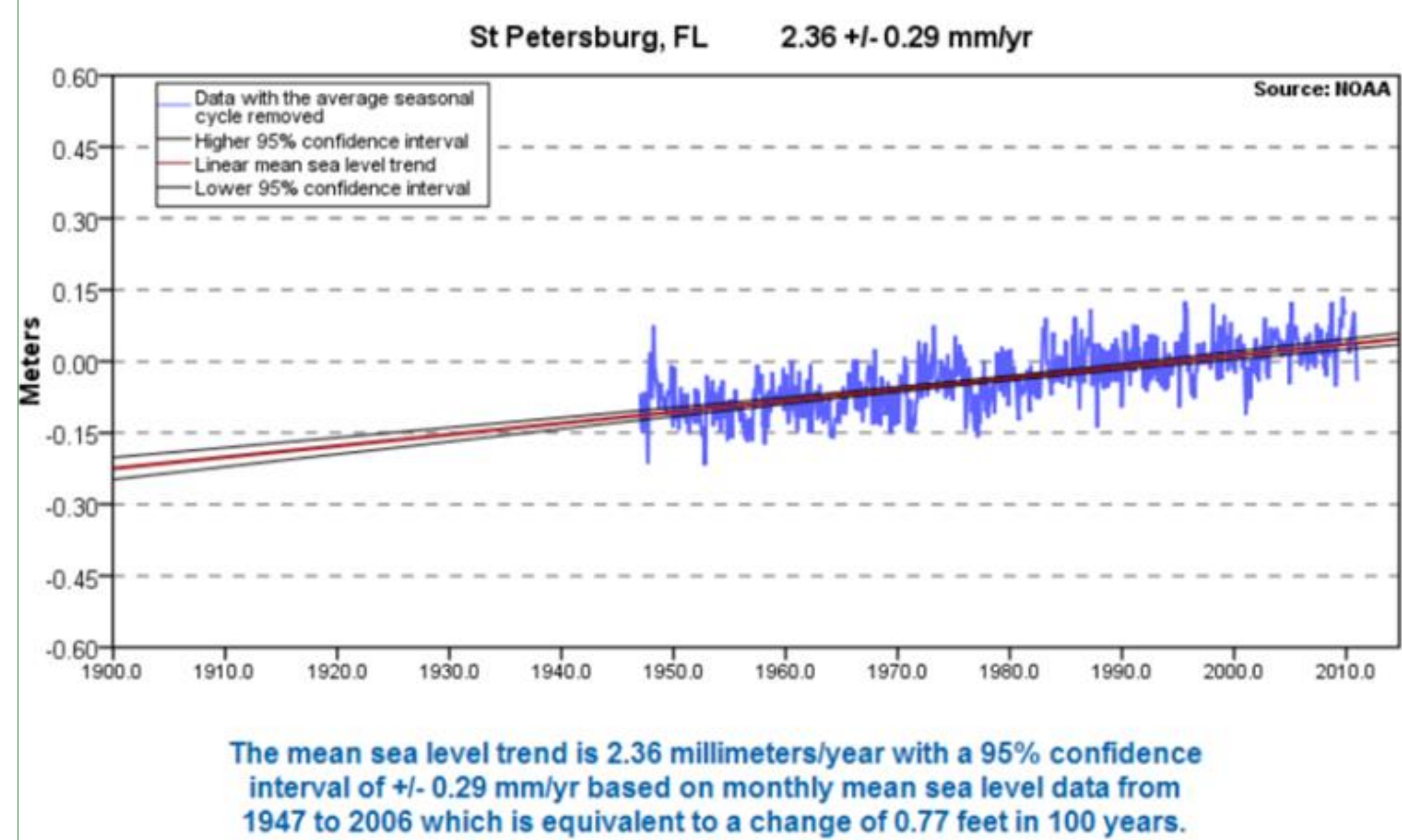
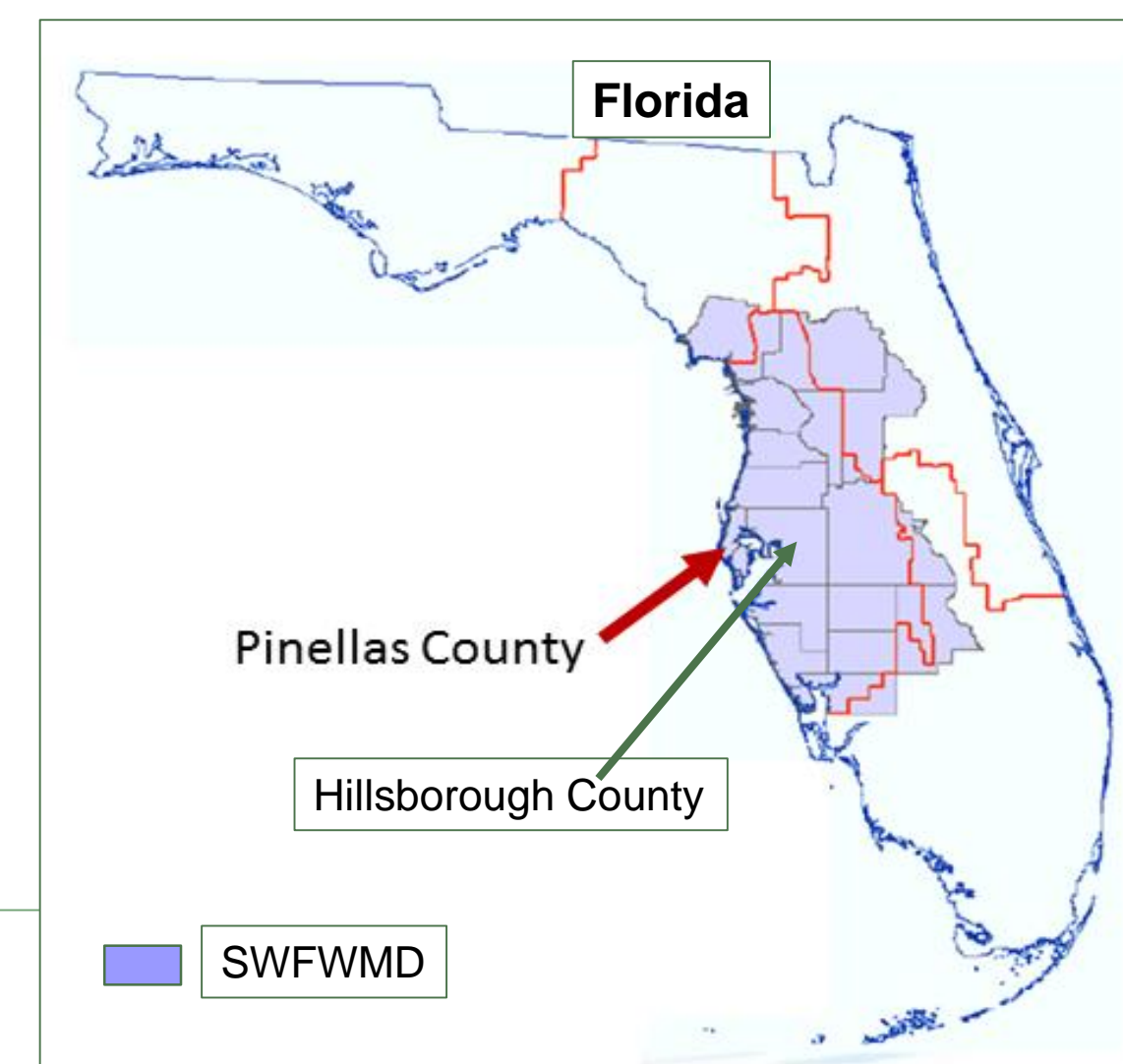
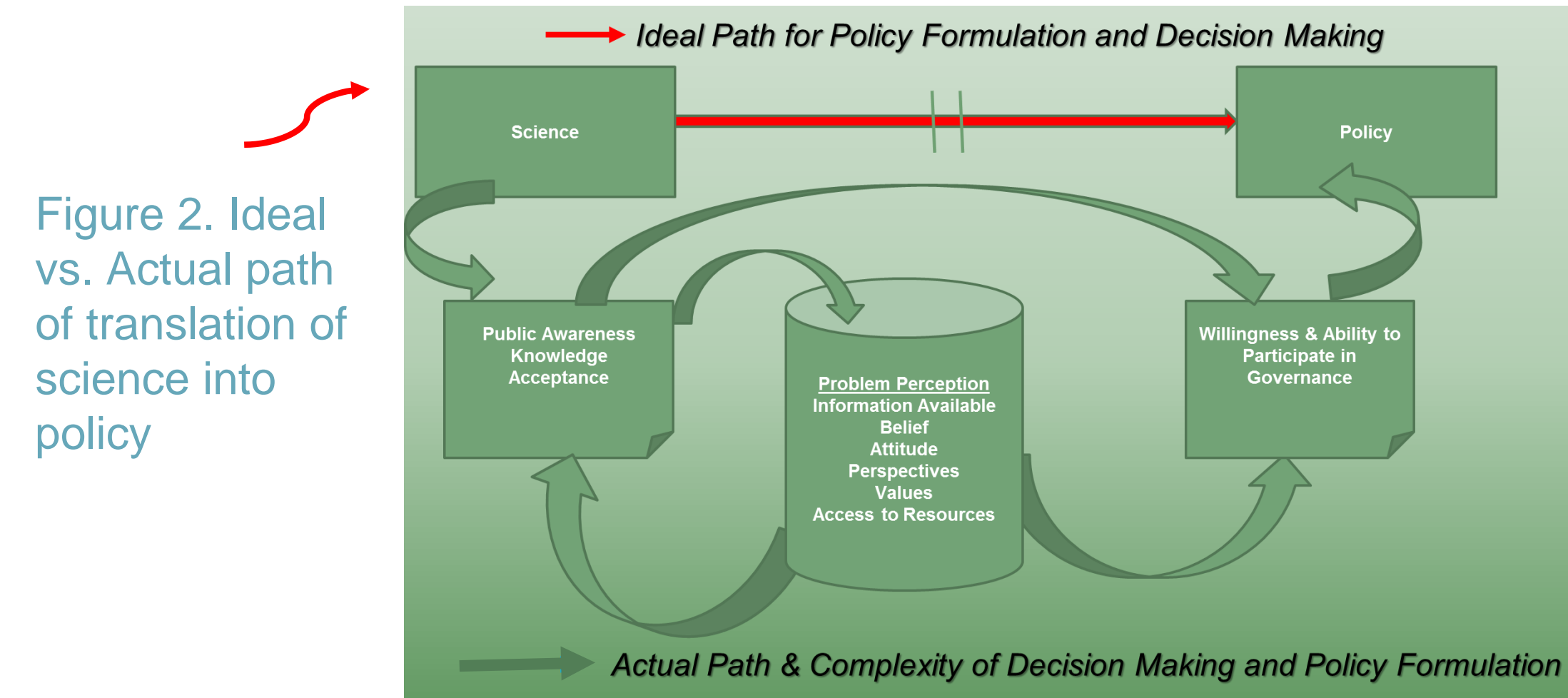


Figure 1. Data from Saint Petersburg Gauge (#8726520): threat from SLR, flooding.

Complexity of Translation of Science into Policy



Ideally science should be translated into policy (Fig 2) but the actual process of translation of science into policy is complex, and impacted by economic feasibility, public knowledge and awareness, and decision-making levels. Hence iCAR facilitates communication among scientists, policy makers and communities through various activities (Table 1). Table 2 summarizes examples of workshop topics and outcomes as well as research topics and gaps.

Engagement: Community Activities and Annual Workshops

Community engagement activities include: i) **annual workshops** where community members, scientists, policy makers (elected officials), government officials, NGOs and business come together to discuss resilience issues and solutions, ii) **community education speaker series called iCAR Climate 101** where we bring in speakers, once a month, to a community education center, to educate public about various aspects of climate change and sea level rise issues related to resilience, iii) K-12 STEM workshop called **'Crowdsourced Flood Mapping: Mapping Flood Vulnerabilities and Solutions'** where students learn about causes of coastal flooding and did field work to visit areas known to have storm drain problems.

Table 2: Examples of Workshop Topics and Outcomes Regarding Coastal Adaptation and Resilience in Tampa Bay

Topics	Outcome
<ul style="list-style-type: none"> Analyzing Coastal Climate Hazards Regional Responses to Climate Change Assessing Vulnerabilities and Impacts: Health, Habitat and Transportation Implementing Adaptation Strategies: City and Regional Levels Communicating Risk to the Public: Strategies and Challenges Adaptation Strategies in Tampa Bay: Identifying data, policy and research gaps Explore ways to reduce socio-economic marginalization 	<ul style="list-style-type: none"> Network and share information with other individuals engaged in coastal resilience planning throughout Florida Shaping research agendas and future climate adaptation efforts in the Tampa Bay region and beyond including identification of data and policy gaps Engaged with City and County elected officials to promote 'governing for resilience' Emphasize the role and value of social network in resilience and adaptation in research and policy development Explore relationships between vulnerability & resilience for flood-related disasters

Key Community Interests and Future Topics (Research Gaps)

- Communities are not uniform - stakeholder analysis is necessary to understand competing interests in communities. A comprehensive review of regional and local stakeholder analysis could be helpful.
- Future recommendations for workshop panels: bringing businesses into resiliency, how to do stakeholder analysis related to resiliency, unpacking the "local" -- all would be good ideas for next year. Also, making social justice mainstream - not a side topic that we only remember when reminded.

Key Results: iCAR Research Project

Coastal Flooding Assessing Climate Resilience In Diverse Communities

Research Objectives are: i) to identify *patterns* of biophysical and socio-economic vulnerability in St. Petersburg and surrounding communities; ii) to identify the *specific challenges* and *needs* of communities facing these two types of vulnerability with specific focus on marginalized communities; and iii) to assess what *information* is being received by disparate communities, how communities learn about problems and solutions to climate-related events.

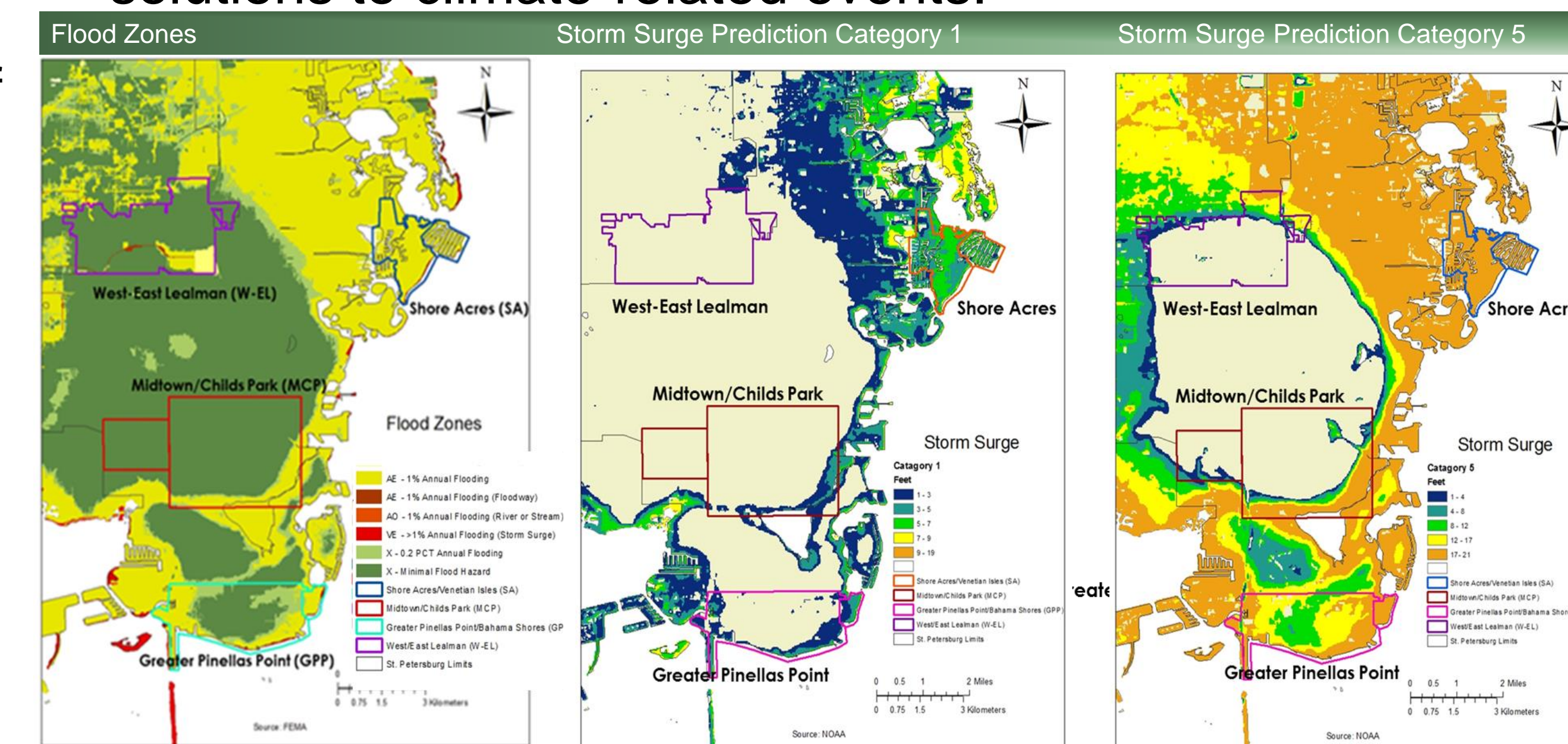


Figure 3. Biophysical vulnerability of diverse study communities

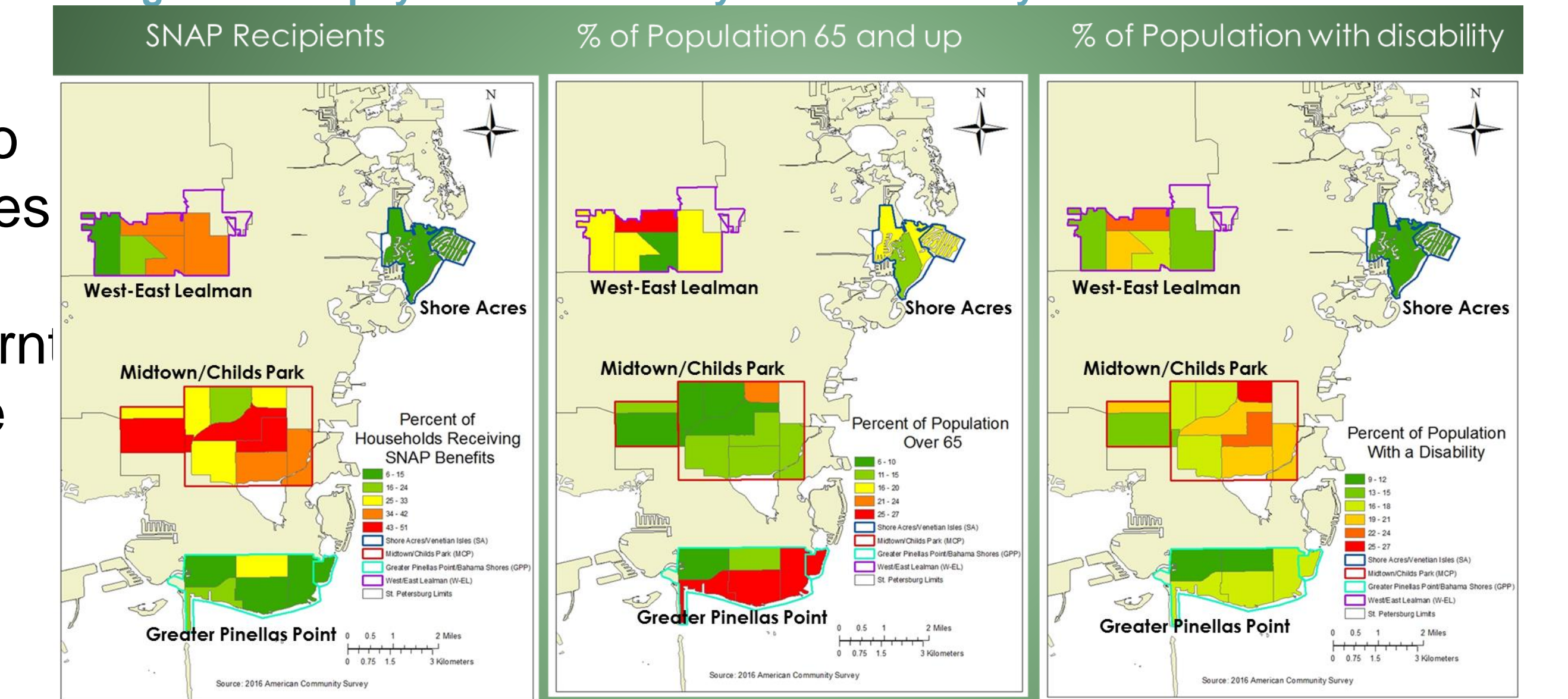


Figure 4. Socioeconomic vulnerability of diverse study communities

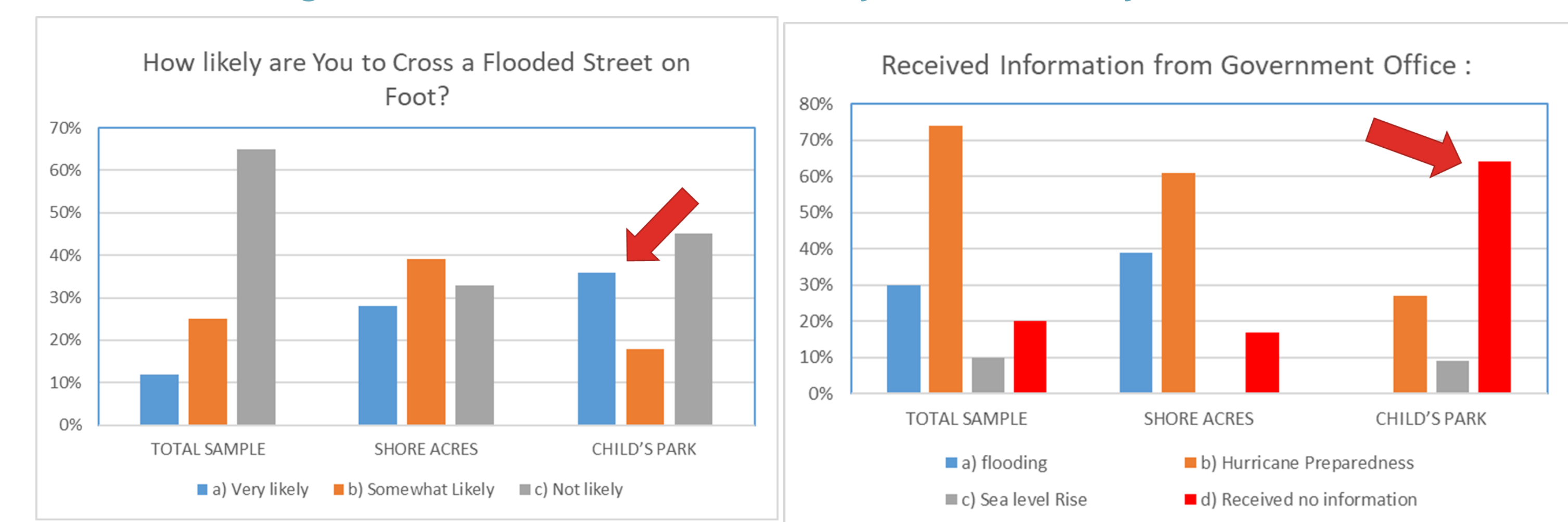


Figure 5. Examples of survey results related to awareness and information

Science Education K-12

STEM Workshop: Mapping Flood Vulnerabilities and Solutions : A Geospatial Analysis, Summer '19 Workshop, Middle and High School Students



References

Socio-Economic Data: <https://factfinder.census.gov/>
 Climate Central Reports: <http://sealevel.climatecentral.org/>
 Sea Level Rise Viewer: <https://coast.noaa.gov/digitalcoast/tools/slr.html>
 St. Petersburg Tide Gauge: <https://tidesandcurrents.noaa.gov/>

Methods:

- Mapping of biophysical and socioeconomic vulnerability measures
- Community-based qualitative research methods
- Survey data: 120+ surveys, mainly from SA and MCP
- Interviews: 5
- Group meetings: 3
- 100+ hours of participant observation at other community discussions/events

Key Findings:

- Results from the mapping project (Fig 3) shows that Shore Acres (SA) and Greater Pinellas Points (GPP) neighborhoods have greater **'potential for resiliency'** (in the context of access to resources, income and education) in spite of their increased biophysical vulnerability than Midtown/Childs Park (MCP) and West East Lealman (W-EL).
- While MCP and W-EL neighborhoods are not biophysically vulnerable, they are **socioeconomically vulnerable** (in the context of poverty, unemployment, education, disability and dependence of SNAP as well as environmental risk/exposure) (Fig 4).
- Standard ways of dispersing information are not reaching socioeconomically vulnerable communities (Fig 5)

There are many sponsors that support various iCAR activities

Thank you sponsors:
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