



Planning for Coastal Change in Levy County

Project Status, Findings, and Next Steps

Presentation to the
Levy County Planning Commission

Kathryn Frank, Assistant Professor,
Urban and Regional Planning, UF

March 3, 2014

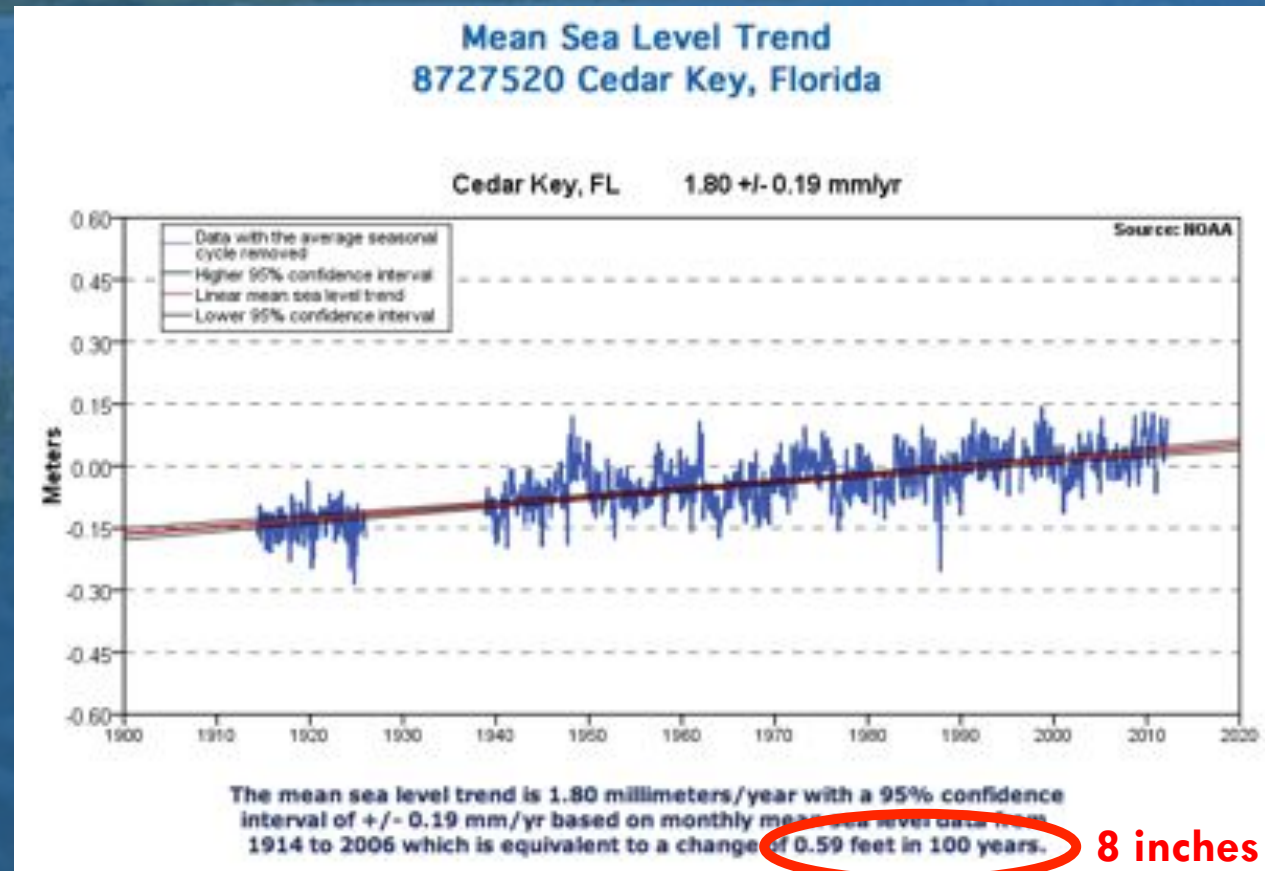
Purpose of the Presentation

- Provide an update of our project
 - Feb 2012 – Aug 2014
 - Technical analysis of sea level rise and coastal changes
 - Community outreach and input
 - Planning and design recommendations
- Present major findings and receive feedback for final report
- Discuss potential next steps for local leadership

Historic Sea Level Rise



Cedar Key tide gage



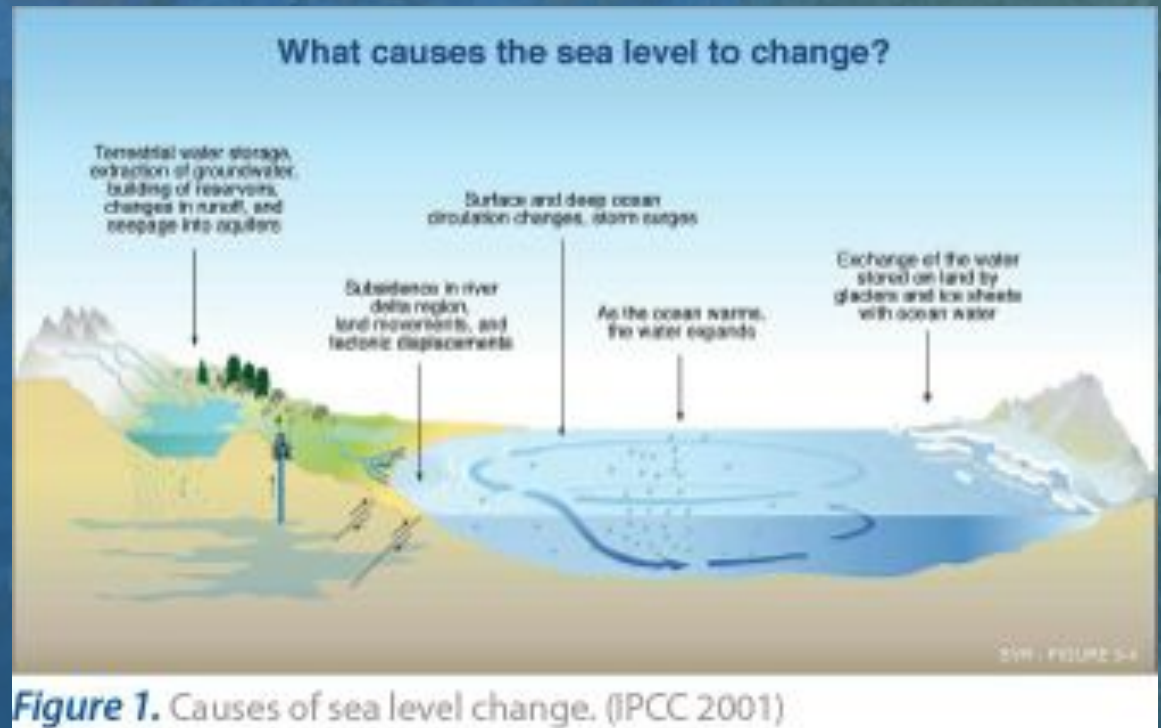
Reasons Why the Sea is Rising

Global

- Warmer temperatures expand ocean water
- Glacial melt and land stored water drain into the ocean

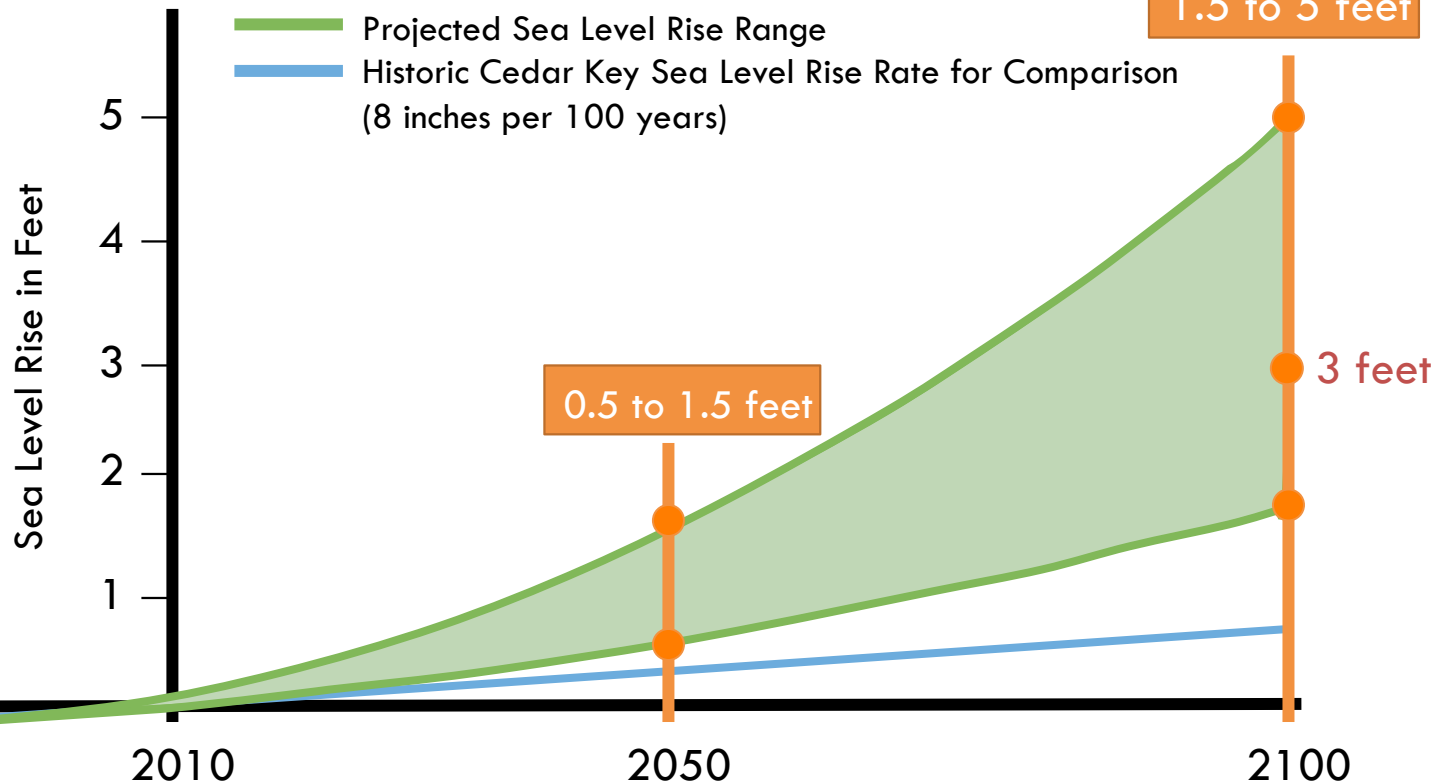
Regional

- Changes in ocean circulation
- Land movement
- Changes in freshwater outflows to the ocean



Sea Level Rise Projections for Levy County

US Army Corps of Engineers Guidance



Impacts of Sea Level Rise

- **Habitat** and species changes
- More frequent **flooding** at high tide
- **Storm surges** farther inland
- Saltwater intrusion into **aquifers**
- **Erosion** and **corrosion** of infrastructure
- Release of **pollutants**



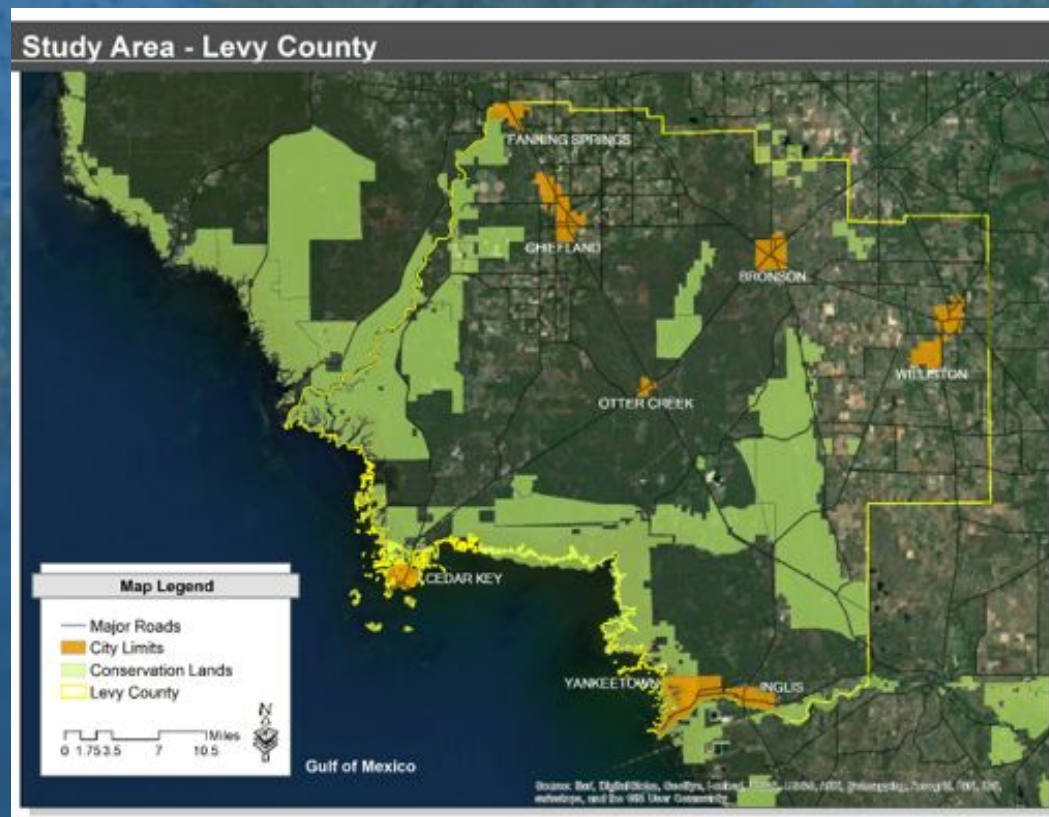
Related Impacts

- Insurance rates
- Property values
- Public expenditures
- Local economies
- Public health
- Quality of life



Study Area and Project Goals

- **Project Goal: Initiate conversation about sea level rise and adaptive planning and design within Levy County**

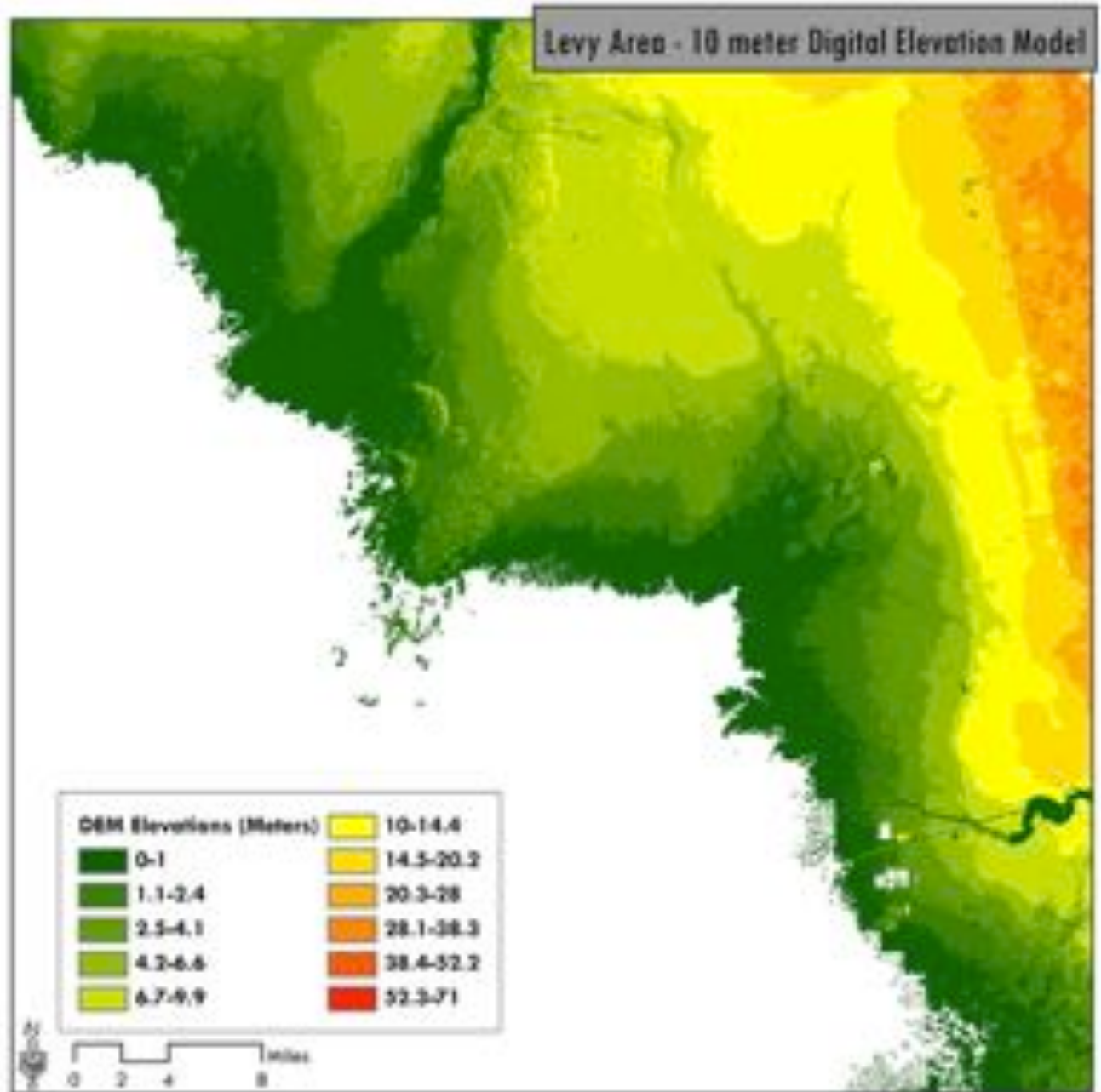


Project Update

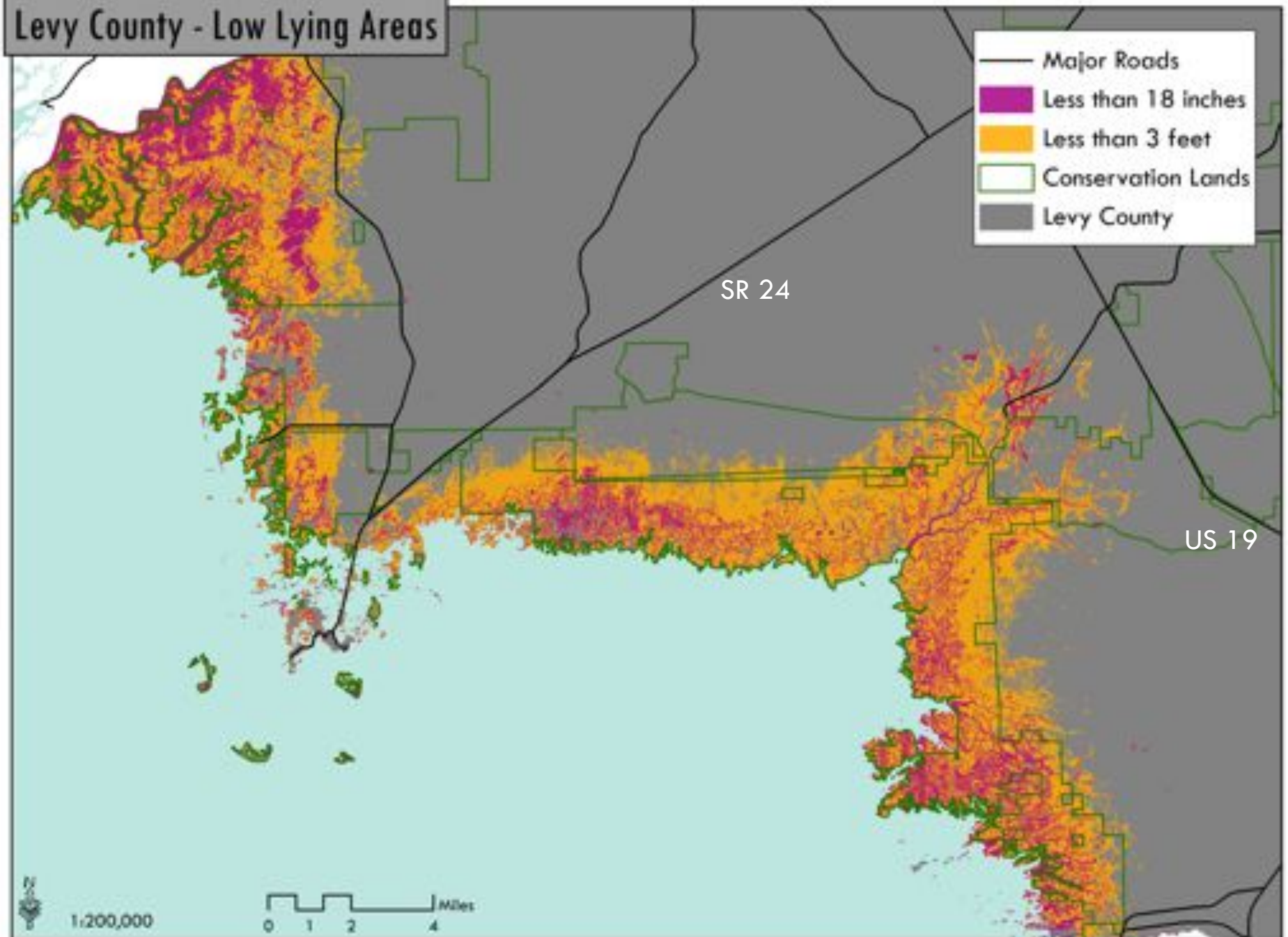
Activity	Time	Results
Research and communication	Spring 2012-now	Learning and relationships, 5 commission presentations, ChangingLevyCoast.org
Cedar Key Summer Youth Program	Summer 2012	90 children, six-week coastal change curriculum, camp celebration, public input
Levy County outreach	Fall 2012	3 workshops, 30 people, 2 festivals, public input
Cedar Key-Rosewood adaptive design	Spring 2013	Local analyses, 2 workshops, 22 people, 1 festival, public input, design recommendations
Oral environmental histories	Spring 2013	8 people interviewed, 15 minute video
Yankeetown-Inglis adaptive design	Summer 2013	Local analyses, two workshops, 20 people, public input, planning and design recommendations
Middle school essay contest	Fall 2013	About 20 essays submitted, awards for top 3
Cedar Key Arts Center exhibit	Spring 2014	7 artists, month-long show, possibly more shows
Project conclusion and sharing	Spring-Summer 2014	Final report and guidebook

Key Observations

- Gradually sloping coastline
- Extensive low-lying areas along the coast
- Porous substrate and karst geology – water can rise from beneath
- Freshwater flows are important – upland activities that affect groundwater and freshwater flows can intensify coastal change



Levy County - Low Lying Areas

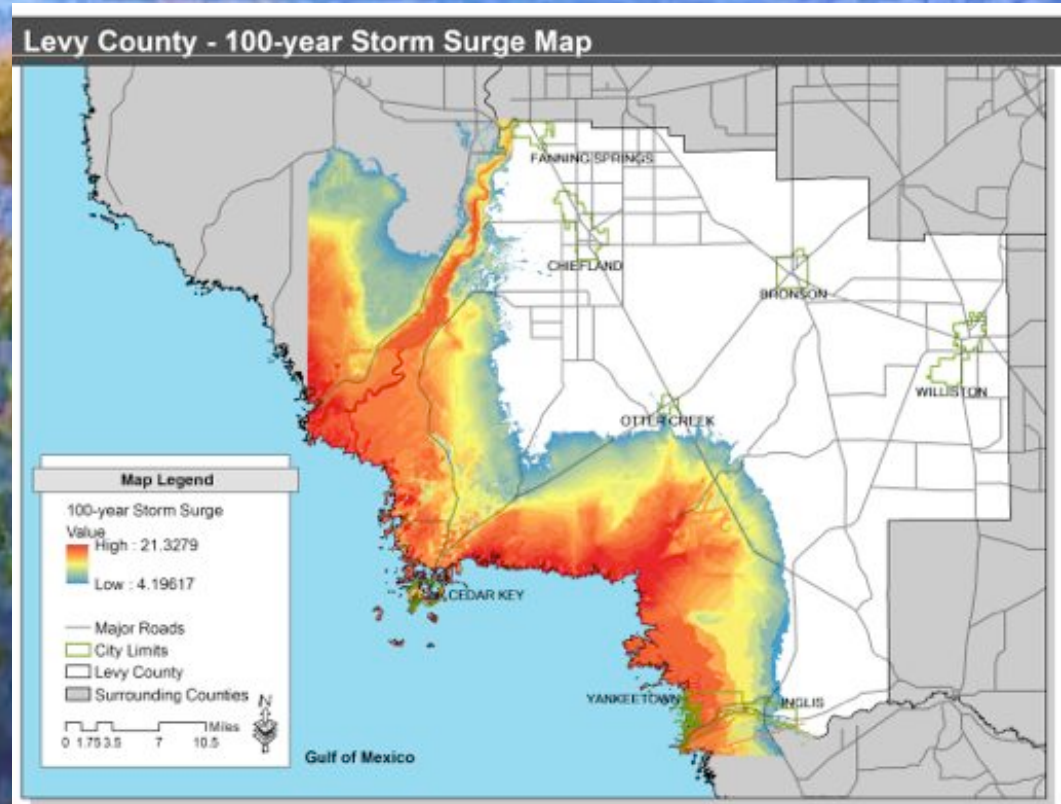


Low Lying Areas

Levy County Low Lying Areas 3	Added Acres	Cumulative, Total Acres	% of All Lands below 6 Feet
Less than 1.5 feet	22,385	22,385	20%
Less than 3 feet	47,006	69,391	43%
Less than 4 feet	14,997	84,388	14%
Less than 5 feet	12,439	96,827	12%
Less than 6 feet	12,233	109,060	11%

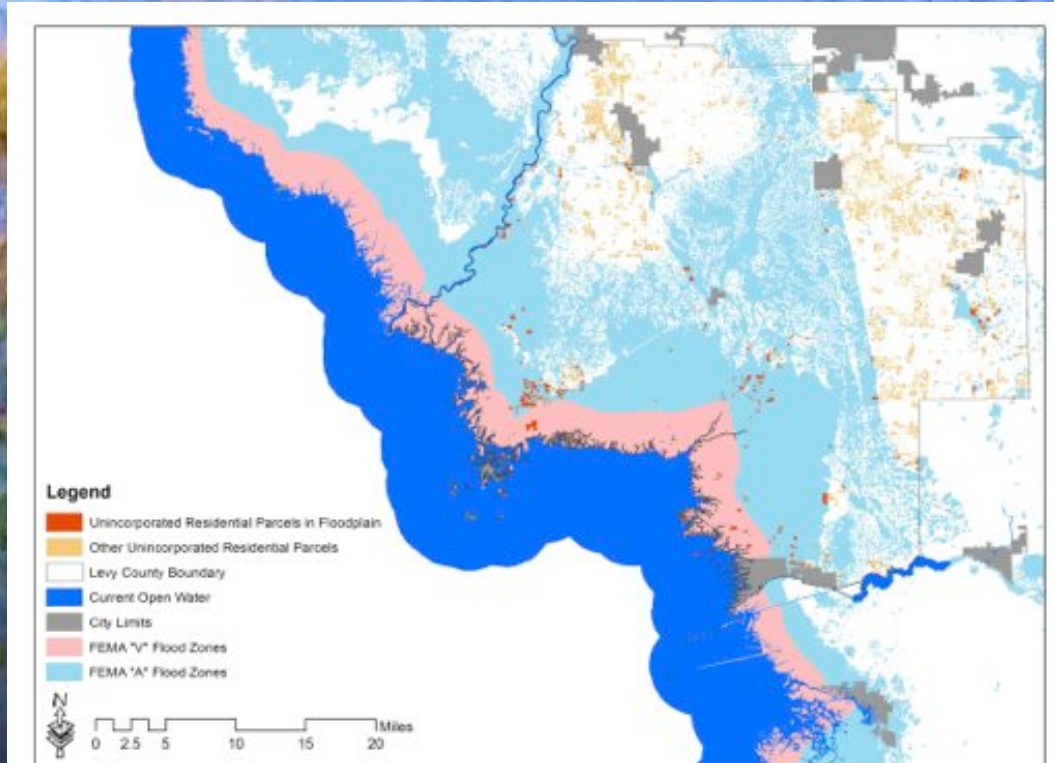
Flooding and Storm Surge

- Coastal Levy County is already vulnerable to flooding and storm surge
- Portions of US 19, SR 24, CR 326, CR 347, and CR 345 are within the 100 year storm surge zone
- Sea level rise will make flooding more frequent and severe
- Managing existing vulnerabilities is a no-regrets approach to planning



Existing Vulnerability to Flooding and Storm Surge

- Unincorporated Levy County
 - 2,061 residential parcels are in the 100 year flood plain (A and V FEMA flood zones)
 - The total value is \$225,252,876



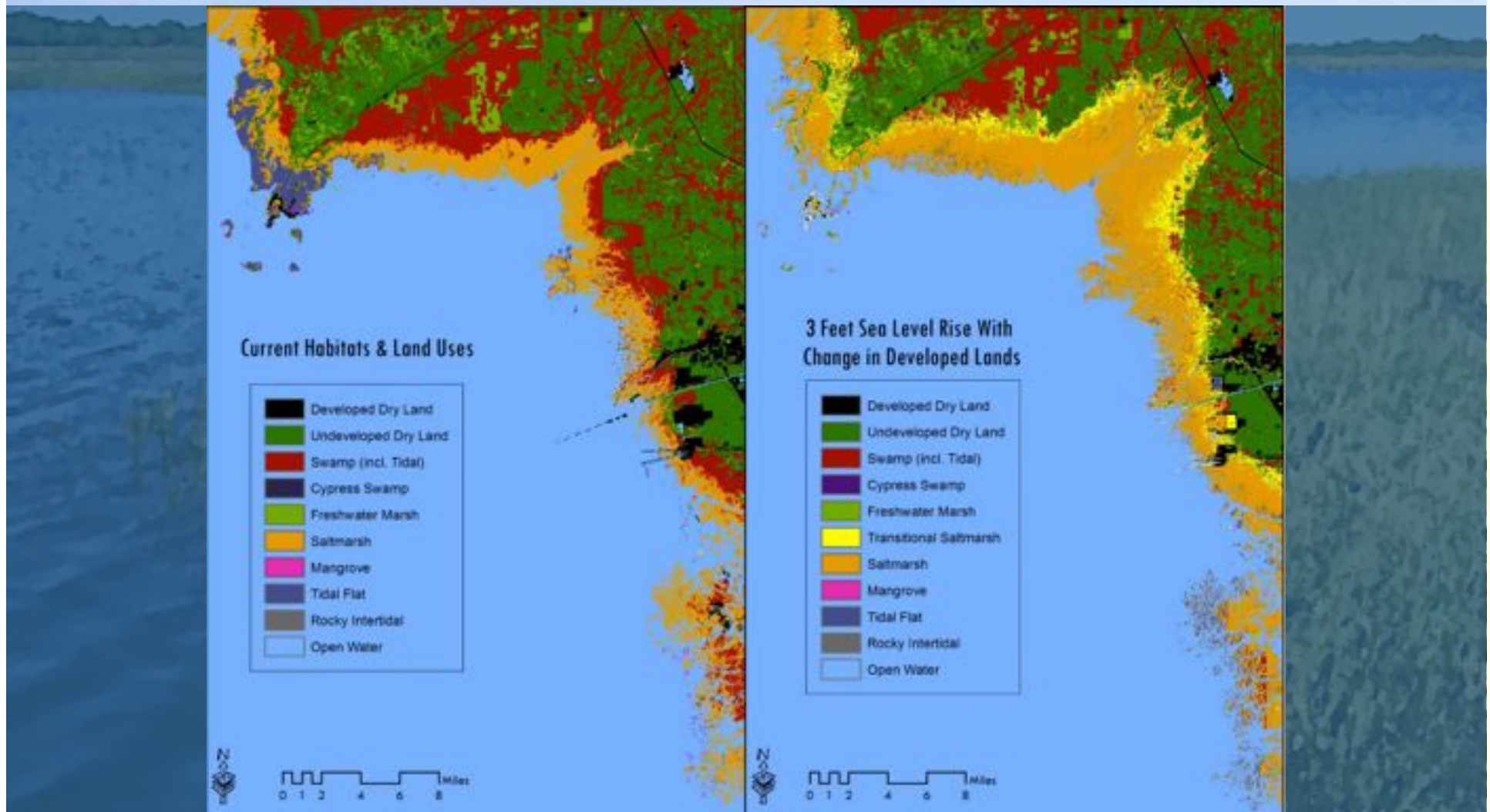
Sea level rise could put these areas at greater risk

- Could affect property values and safety of constituents
- Could increase number of emergencies or lead to bigger emergencies
- Reconsider our capital improvements and investments
 - Do we need to reconsider infrastructure design?

Impacts to natural areas and resources

- The coastal environment in Levy County is an important resource to both human and natural communities
- Coastal habitats and watersheds are already stressed
 - Upland activities have affected freshwater flows and recent droughts have impacted the region
- Extensive conservation and natural areas along the coast are likely to be impacted by sea level rise
 - We need to better understand how tourism and natural resource production can be impacted by changes in the coastal landscape

Sea Level Affecting Marshes Model (SLAMM) showing changes in habitat with 3 feet of sea level rise



(SLAMM data provided by The Nature Conservancy)

Impacts to natural areas and resources

(cont'd)

- SLR is likely to put public and working lands in competition
 - Forest converting to marsh
- We need to plan ahead so we can:
 - Avoid/minimize land use conflicts and protect natural resources
 - Better prioritize land allocation and future conservation efforts
 - Maintain critical ecological corridors and adapt them to future sea level rise

Social, Economic, and Cultural Change Findings

- Major coastal economic activities (aquaculture, tourism, retirement, etc.) will be affected by sea level rise and related concerns, such as insurance rates and water quality
- Shifting population and spatial organization of the built environment require strategies for managing change that maintain community identity and values
- A holistic approach to community planning can foster integrated adaptation and community revitalization



Findings from Public Outreach

- Communities in Levy County are resilient and well able to adapt if planning begins soon
- The foundation for adaptation planning should be in the community, with guidance by experienced local leaders and professionals.
 - People have been open to discuss the topic, however most residents are still working to understand the issues and scale of changes
- Planners and community leaders must continue the process started in this project to maintain and build the momentum for planning.

Design and Planning Recommendations

- Holistic considerations include
 - Infrastructure and built environment
 - Water supply and quality
 - Community and economic redevelopment
 - Hazard mitigation
 - Ecosystem adaptation
 - Social and cultural fabric
- Plans should address long and short range adaptation priorities, with an eye toward “low hanging fruit” and careful phasing.



Design and Planning Recommendations

- A comprehensive focus on identifying funding sources must take place.
- Plans should be based on stakeholder input and local concerns, while addressing large scale/long term planning considerations.



Closing Remarks and Next Steps

ChangingLevyCoast.org