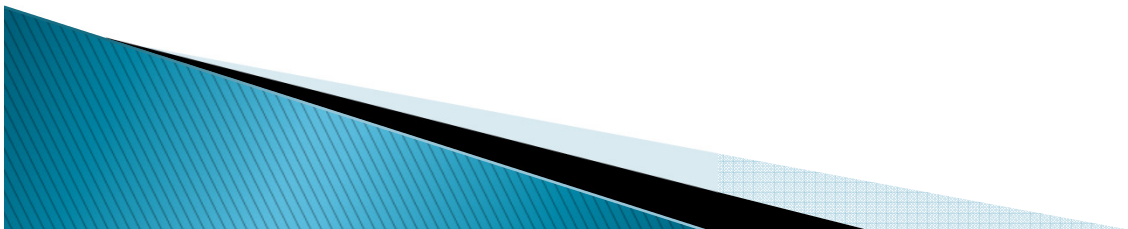




Murray E. Nelson Government and Cultural Center, Key Largo



Alicia Betancourt





UF | IFAS Extension
UNIVERSITY of FLORIDA



Cooperative Planning for Sea Level Rise; Policy and Programs

Alicia Betancourt
UF-IFAS Monroe County

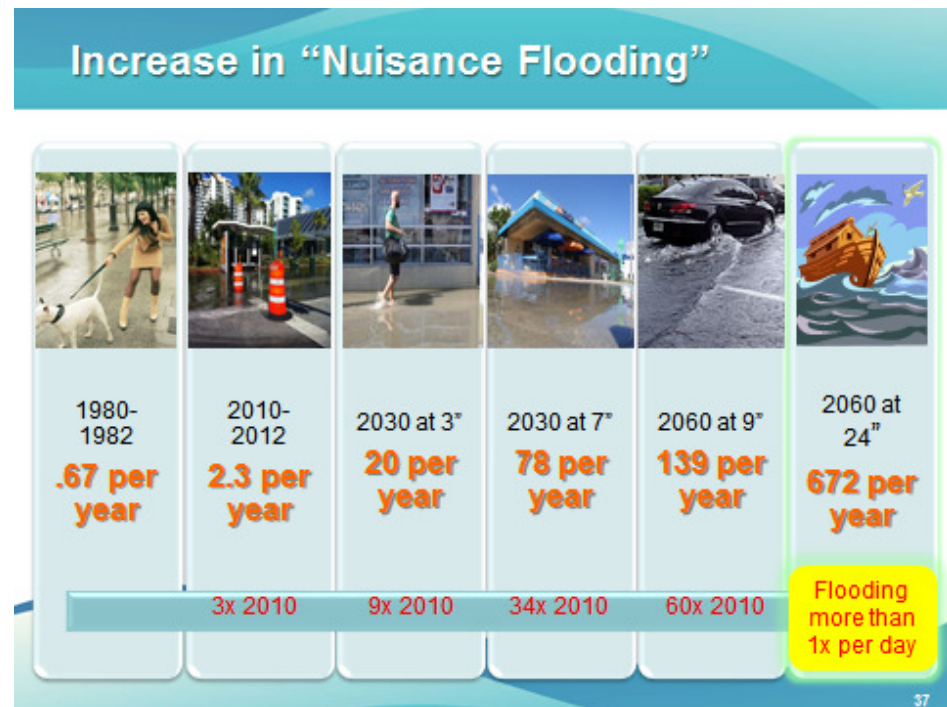
Vulnerable Islands

- ▶ The County ranks 3rd in the nation for human living areas impacted by tidal flooding 2 feet of sea level rise 2060 as shown in the following graph:

Rank	County	Population Displaced
1.	Tyrell, NC	45%
2.	Hyde, NC	42%
3.	Monroe, FL	36%
4.	Dare, NC	21%
5.	Currituck, NC	20%
*	Miami-Dade, FL	3%
*	Broward, FL	1%

Other Vulnerabilities

- ▶ Salt Water Wellfield Intrusion
- ▶ Nuisance Flooding
- ▶ Loss of Habitat



“Build Out” and Population

- ▶ Rate of Growth Ordinance
- ▶ Areas of Critical State Concern
 - Program was created by the "Florida Environmental Land and Water Management Act of 1972.
- ▶ FKAA Percent Change in Functional Population
 - 2015–2020 0.37%
 - 2020–2025 0.37%

https://fkaa.blob.core.windows.net/linkdocs/fkaa_20yr_cimp_dec06.pdf



Duval Street high tide flooding

Milestones

Sustainability and Climate Milestones

Year 2007-2011

- US Mayor's Climate Agreement
- Green Building/Green Initiatives Task Force
- EECB Grant/CCAC
- Sustainability Vision Statement
- GHG Inventories
- 1, 2, 3' SLR Scenarios

Year 2012

- EAR for Comprehensive Plan (Energy & Climate Element)
- Communitywide GHGs
- EECS for County GHG reductions
- Compact's Regional Climate Action Plan

Year 2013

- Monroe County Climate Action Plan
- Bid for Sustainability Action Plan

Year 2014

- GreenKeys! Launched
- Data collection
- SLR modeling for 2030 and 2060
- Community SLR Modeling
- Outreach
- Plan Development

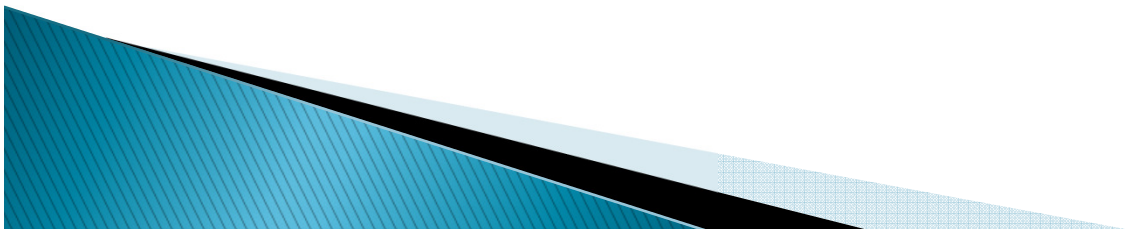
Year 2015

- Finalize GreenKeys! Plan
- Begin implementing recommendations



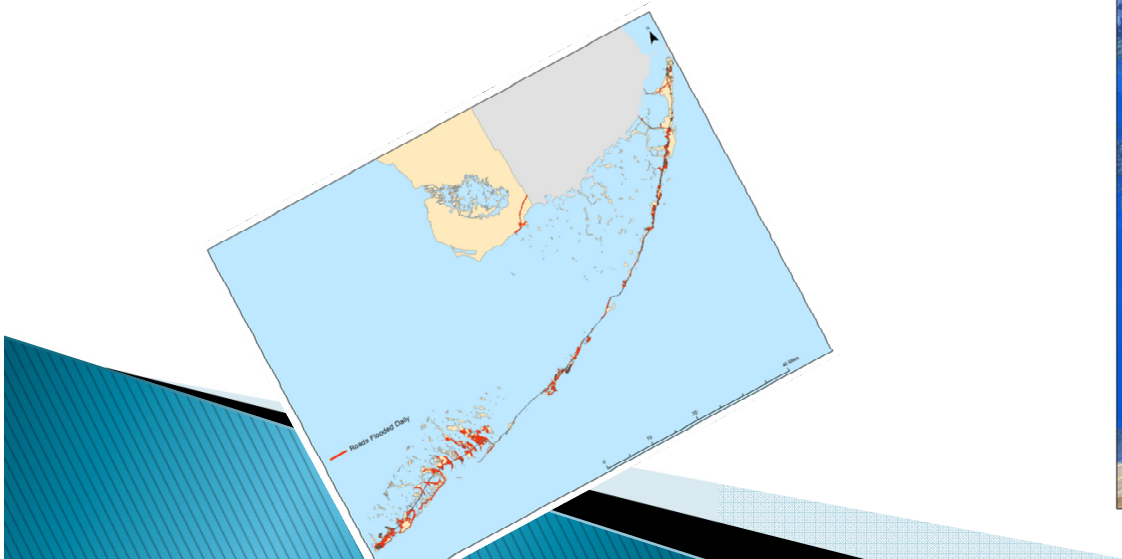
Actions

- ▶ Adopted a SLR Senario Range
- ▶ Used SLR Range to Assess
 - Critical Community Infrastructure
 - Roads
 - Water and Wastewater Infrastructure
 - Electrical Infrastructure
 - Do a “GAP” analysis to determine data needs
- ▶ Monitoring; Wellfield and Flooding
- ▶ Begin Planning
 - Understand infrastructure vulnerabilities
 - Address critical near-term vulnerabilities first
 - Minimize new problems through planning
 - Resilience to flooding and sea level rise as a core concern in all County projects and operations



Outcomes

- ▶ 24 inches of sea level rise (2060, High Scenario)
 - ▶ daily saltwater tides into 94% of Monroe County's freshwater wetland areas*
 - ▶ 289 miles of all roads (33.0%) flooded almost daily
 - ▶ 139 miles (46.5%) county-maintained flooded almost daily
 - ▶ 36 county facility parcels (53%) show flooding encroachment at 24 inches sea level rise



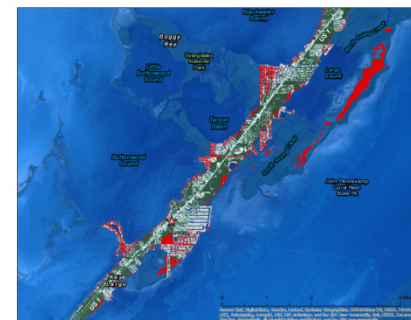
Policy Development

- ▶ Comprehensive Plan
 - Energy Conservation and Climate Element is an optional element developed pursuant to Section 163.3177(7)(k) F.S. to address the unique issues and challenges facing Monroe County (the “County”) relating to energy conservation and climate impacts.
- ▶ Green Keys Plan
 - 5 Year Work Plan
 - with projected funding



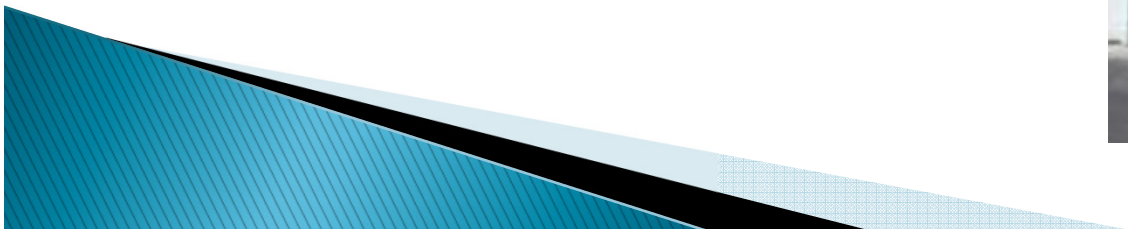
Adaptation Action Areas

- ▶ Optional comp plan designation authorized in the 2015 Florida Statutes (163.3177) to address areas that are “experiencing coastal flooding due to extreme high tides and storm surge and are vulnerable to the impacts of rising sea level.”
 - “Criteria may include areas for which the land elevations are below, at, or near mean higher high water, which have a hydrologic connection to coastal waters, or which are designated as evacuation zones for storm surge.”
 - This designation allows local governments to consider policies and prioritize funding for infrastructure and adaptation planning.



Policy Considerations

- ▶ BAA; Borrow, Adapt, Adopt
 - Increased resilient policies, adoption at the local government level to implement best practices.
 - Allows communities to be more resilient and less reactive to the effects of climate change.
 - Reduced staff cost– time
 - Examples



Water Demand Programs

- ▶ FKAA Septic to Cistern \$\$

- <http://cudjoewastewater.com/sites/default/files/documents/septic-to-cistern-conversions.pdf>

- ▶ SFWMD Water Champ

- http://sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/nr_2010_0430_champ_update.pdf

- ▶ Utility Exchange Programs

- Toilets, water heaters ect..

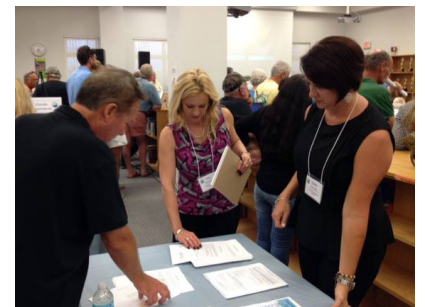
- ▶ UF IFAS Sustainable Floridians

- <http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC-newsletter-sustainable-floridians.pdf>

- ▶ UF IFAS Water School

- Key Partners

http://polk.ifas.ufl.edu/NR/Flyers/Water_School_Brochure.pdf



Questions?

▶ Alicia Betancourt

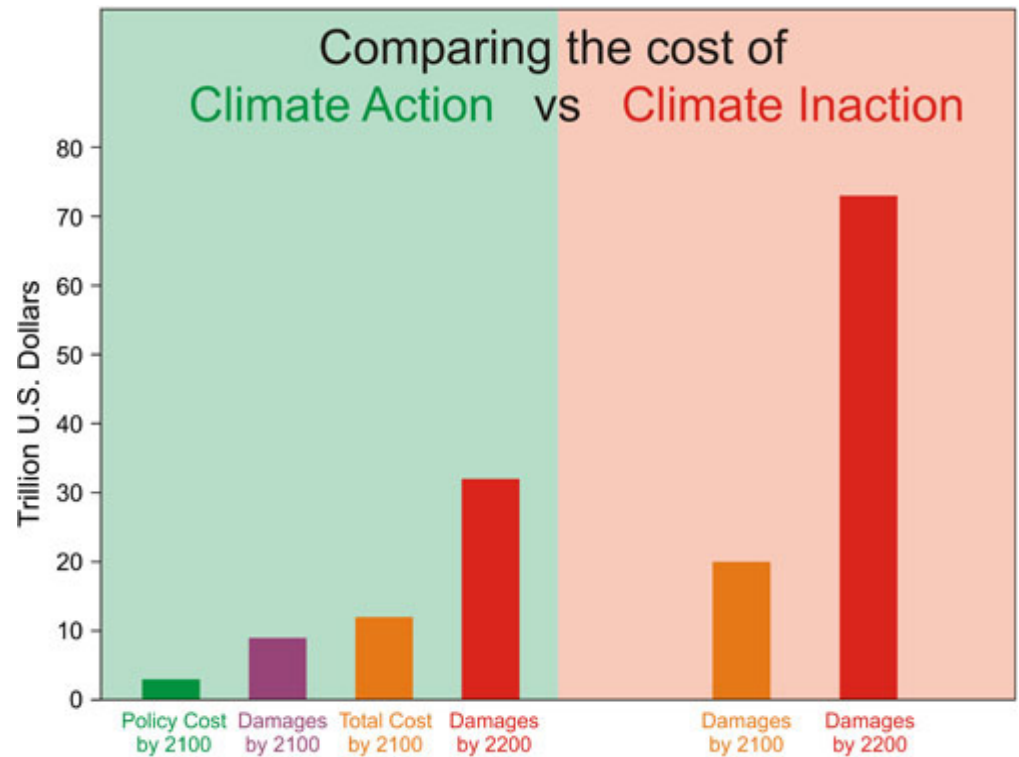
Betancourt-alicia@monroecounty-fl.gov

305-797-1086

Facebook <https://www.facebook.com/MonroeCountyExtension>

Twitter! [@KeysUFExtension](https://twitter.com/KeysUFExtension)

UF UNIVERSITY of
FLORIDA
IFAS Extension
Monroe County Extension



The Big Picture, Skeptical Science