

## Marine Aggregation

**CDRR 1: New Partnerships, New Approaches  
to Achieving Climate, Risk and Resilience Success**

# Southeast Florida Regional Climate Change Compact and its Coastal Resilience Working Group



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# SE Florida Regional Climate Change Compact



SOUTHEAST FLORIDA  
REGIONAL COMPACT

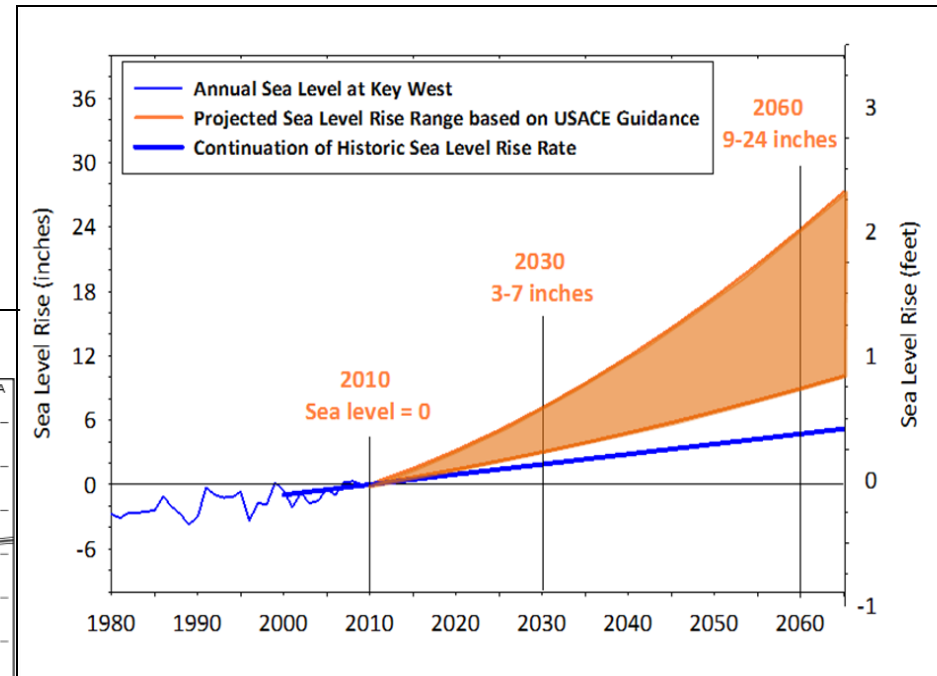
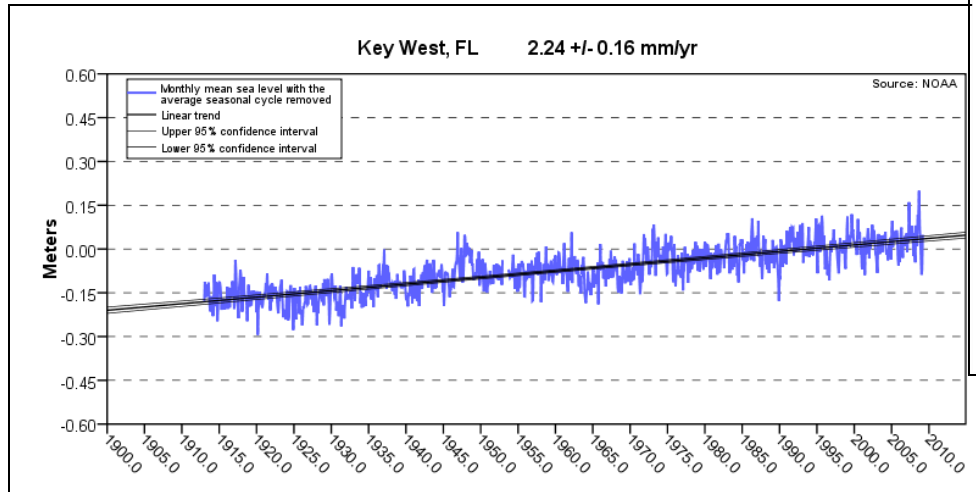
CLIMATE  
CHANGE



- Fully Ratified January 2010
- Commitments include:
  - Policy Collaboration
  - Develop Regional Tools
    - Unified SLR Projection
    - Vulnerability Assessment
    - GHG Emissions Baseline
  - Create a Regional Action Plan
    - Mitigation and adaptation strategies
  - Convene Annual Summits



Nine inches of sea level rise at Key West over the past 100 years tracks with the global average rate. The Compact's projection is 3-7 inches of rise by 2030 and 9-24 inches by 2060.



Key West tide gauge data

Increased storm severity is an unwelcome prediction. Florida has proven resilient in the past,

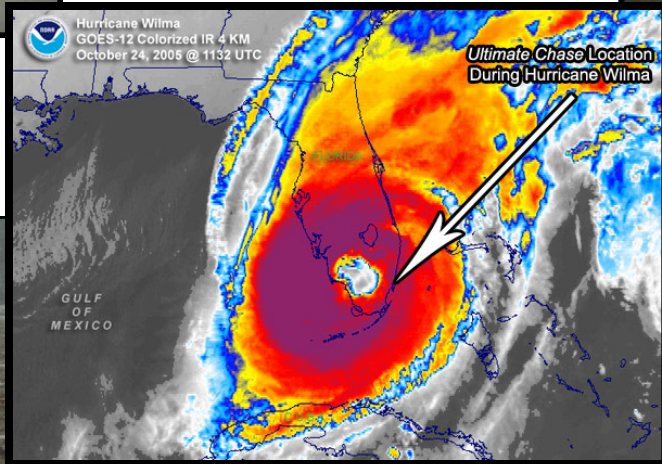
but the rising sea and growing population are challenges.



**U.S. Highway 1  
(above and below)**



MartinKucera.com



**All images of Hurricane Wilma's impacts on the Keys in October 2005**



**Key West  
(above and below)**





# SE Florida Regional Climate Change Action Plan

- Details 106 recommendations across 7 planning areas
- Natural Systems (NS) planning area has 14 recommendations
- **“NS-7 Coordinate ‘living shorelines’ objectives... to foster use of natural infrastructure (e.g. coral reefs and mangroves) instead of or in addition to grey infrastructure (e.g. bulkheads).”**



## A Region Responds to a Changing Climate

Southeast Florida Regional Climate  
Change Compact Counties

Regional Climate Action Plan

October 2012



# Coastal Resilience Working Group

- **Scope:** All forms of natural, “living” and hybrid grey-green approaches to coastal resilience that protect the SEFL mainland or the Florida Keys.
- **Timeline:** 3-years, 2014-2016
- **Goal:** Improve coastal resilience in the Compact region by increasing the efficacy, number and scale of nature-based erosion control and flood attenuation projects
- **Objectives:** clearing house for best practices and info, id local examples, assess regional opportunities for new projects including consideration of the “triple bottom line;” promote new projects with particular attention on a diverse set of high profile projects

# Build out SEFL Coastalresilience.org

## SLR, storm surge, ecological and social layers

The screenshot displays the Coastal Resilience Network web application. The browser address bar shows the URL: `network.coastalresilience.org/network.html?xmin=-9132287.869915226&ymin=2824306.59570124&xmax=-8900072.177984772&ymax=2939420.7602987597&mapt=gy%7C&sdefs=%5B%5D&dash`. The page title is "Coastal Resilience Network".

The interface includes a "Map Layers" panel on the left and a "Legend" panel on the right. The "Map Layers" panel is set to "Left Map" and shows the following layers:

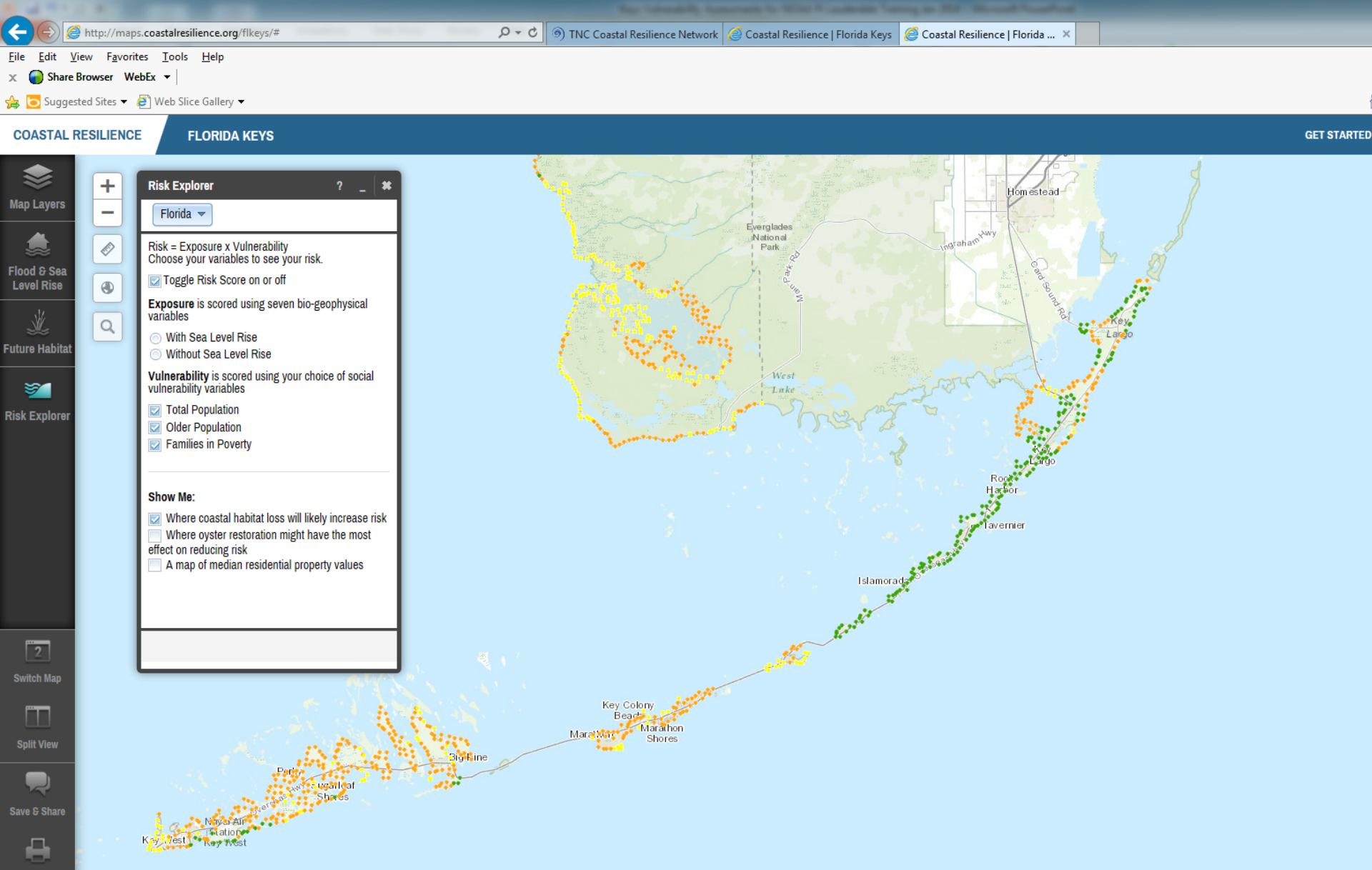
- Critical Facilities**
  - Communication Systems
  - Electric Power Facility
  - Hazardous Materials Facilities
  - Wastewater Facility Regulation
  - Solid Waste Facilities
- Community Facilities**
  - School
- Social Vulnerability**
  - Number of people living in poverty
  - Percent employment in farming, fishing, or hunting
  - Percent of housing units that are multi-family
  - Percent population under age 5
  - Percent population age 65 or older
  - Social Vulnerability Index
- Inundation Scenarios**
  - Analysis Extent
  - Mean Higher High Water with Sea Level Rise**
    - Sea level rise of 1 foot
    - Sea level rise of 2 feet
    - Sea level rise of 3 feet
    - Sea level rise of 4 feet
  - Hurricane Wilma Type Storm Surge with Sea Level Rise**
    - Storm at mean higher high water
    - Storm at MHHW plus 1 ft SLR
    - Storm at MHHW plus 2 ft SLR
    - Storm at MHHW plus 3 ft SLR
    - Storm at MHHW plus 4 ft SLR

The "Legend" panel shows the following categories:

- Landuse\_and\_Other\_Management**
  - Public Conservation Lands
- Social\_and\_Economic**
  - Emergency Response
    - Fire Stations
  - Community Facilities
    - School
- Inundation\_Scenarios**
  - Hurricane Wilma Type Storm Surge with Sea Level Rise
    - Storm at mean higher high water (MHHW)
    - Storm at MHHW plus 1 ft SLR
    - Storm at MHHW plus 2 ft SLR
    - Storm at MHHW plus 3 ft SLR

The map shows a coastal area with various overlays. The inundation scenarios are visible as blue and green areas. The social vulnerability is shown as a light blue overlay. The critical facilities are shown as red and yellow icons. The map is powered by Google Earth.

# Further localize Arkema et al.- style Risk Explorer approach for SEFL







# Coral Reefs

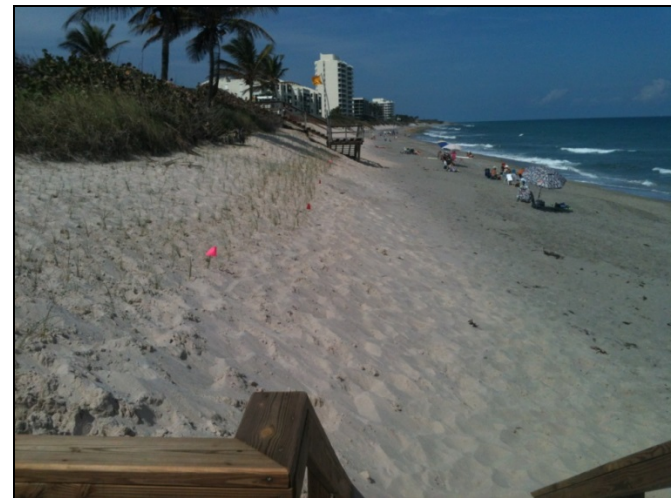


# Beach/Dunes

(photo of A1A erosion from Hurricane Sandy in Fort Lauderdale courtesy of South Florida Sun Sentinel)



Dune restoration photos courtesy of Palm Beach County Department of Environmental Resources Management





# Mangroves



# Palm Beach County's Snook Islands Living Shoreline Project

Rare Natural Mangrove Shoreline

.....Created Mangrove in Rock Planter.....

.....Created Oyster Bar.....

Hidden Bait Fisherman

Hidden Sport Fisherman

Rare American Oystercatcher Birds



 Miles of hardened shoreline in need of greening



Protect, restore and enhance natural defenses, conduct demonstrations and scale up.

