Sea Level Rise Kickoff
Regional Community Institute of Northeast Florida, Inc.
November 8, 2012

Welcome!

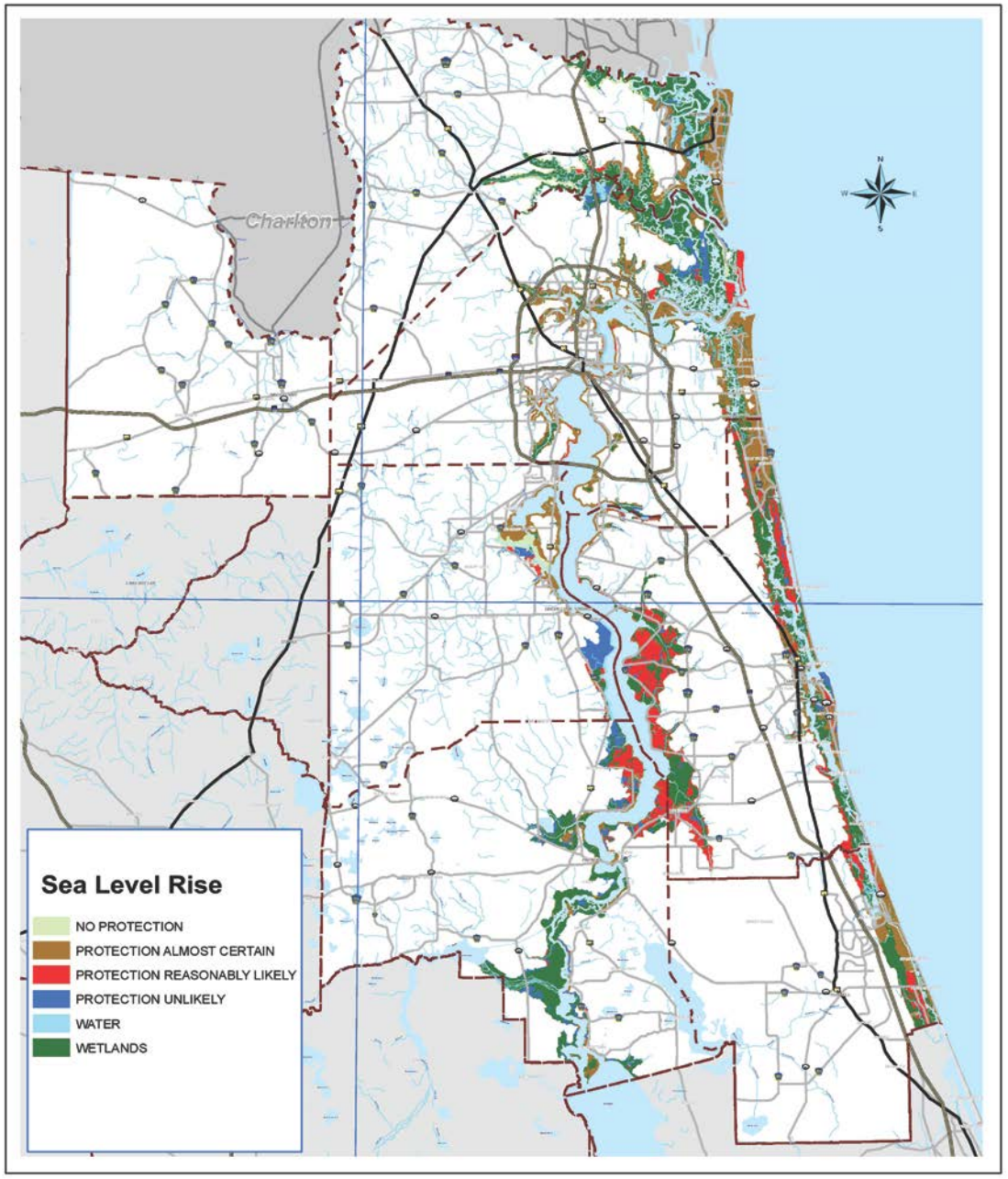
- Introductions
- What is the Regional Community Institute of Northeast Florida, Inc.?
- RCI History
- RCI Outputs

How did we get here?

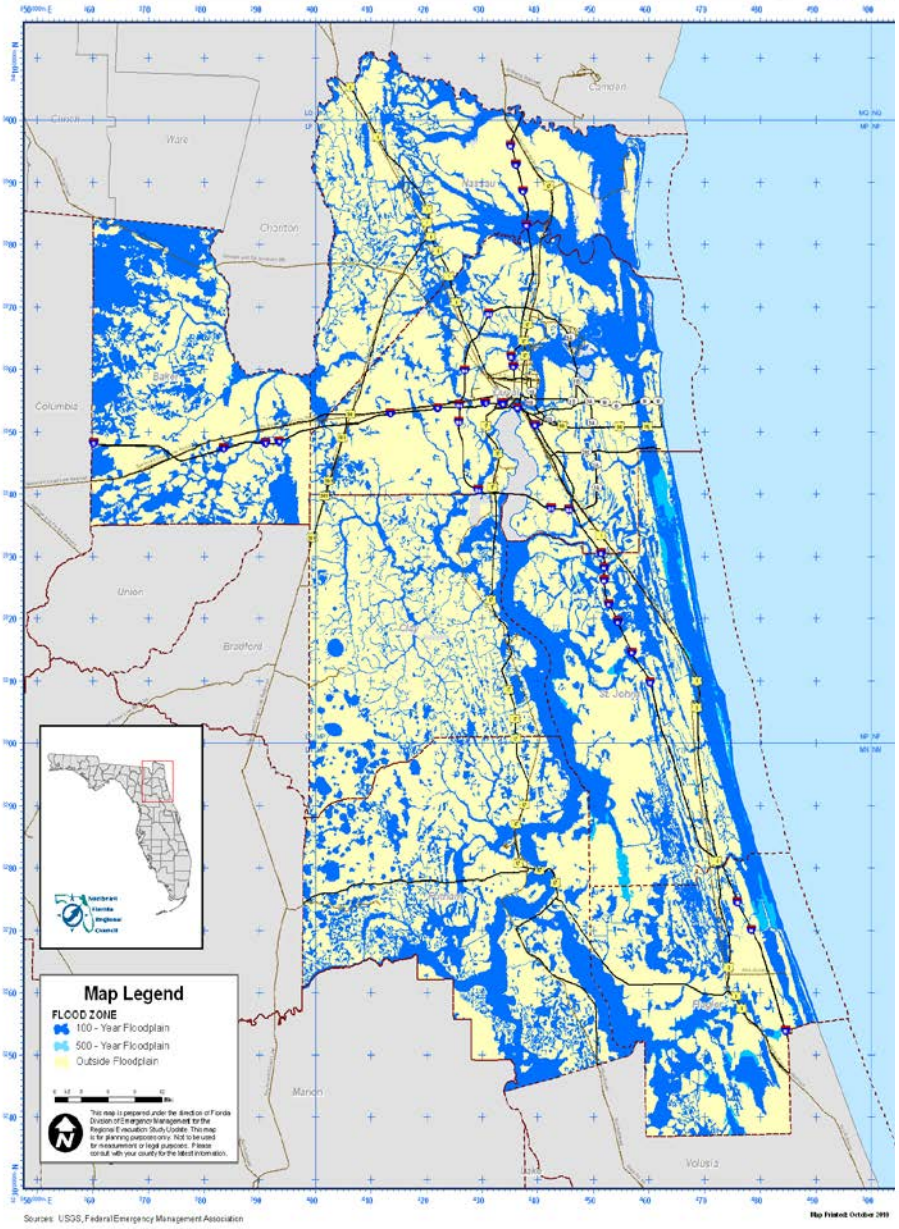
- Reality Check First Coast
- Preferred Growth Pattern Polling
- Public Input into Goals
- First Coast Vision
- Action Item: Bring together leadership and experts from the Region to determine climate change impact and, if indicated, mitigation and adaptation plans.
- NEFRC collection of information related to climate change since January 2012
- Information provided refers to sea level rise

Past and Current Efforts

- 2004-2006 SLR mapping and workshops in the Region
- Currently, U F and the Guana Tolomato Matanzas NERR are doing an assessment of SLR in Matanzas Basin
- SE Florida Climate Compact

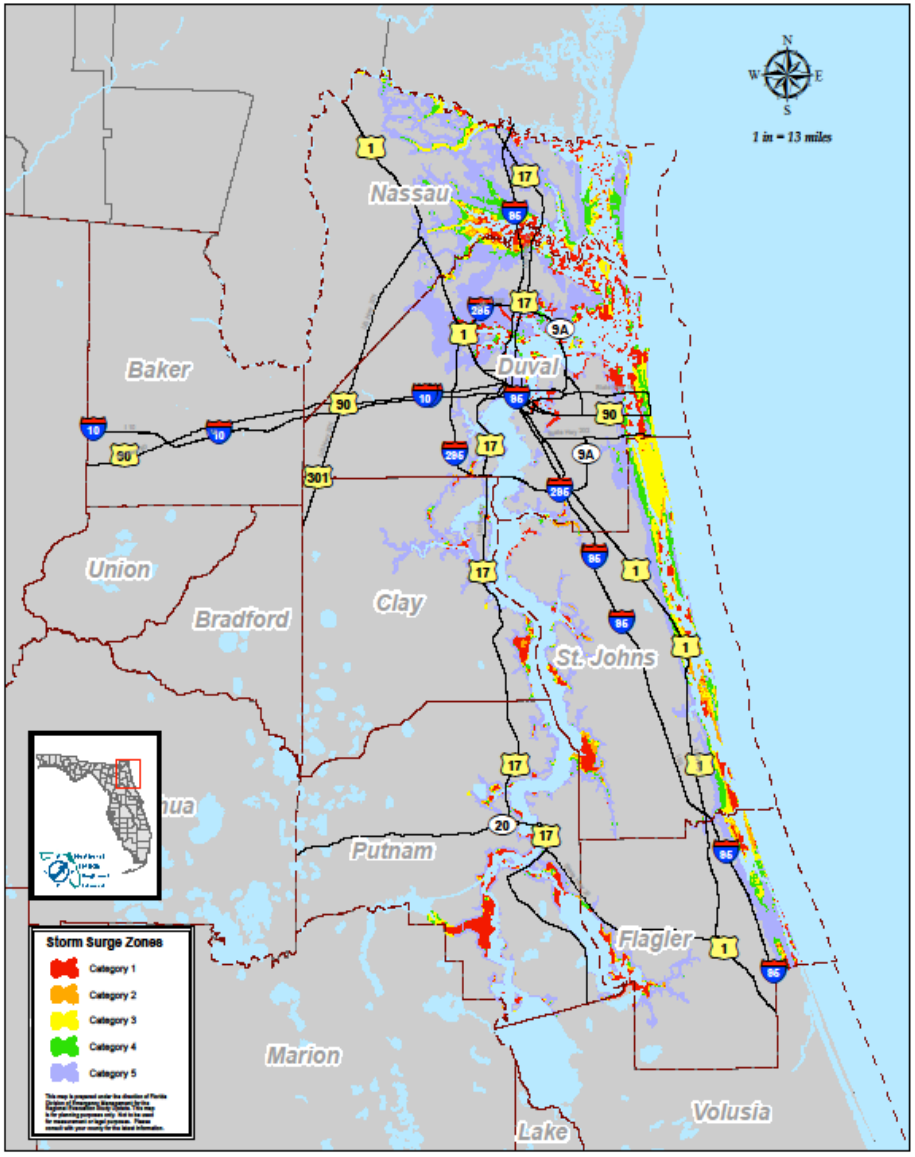


Northeast Florida
FEMA Floodplains

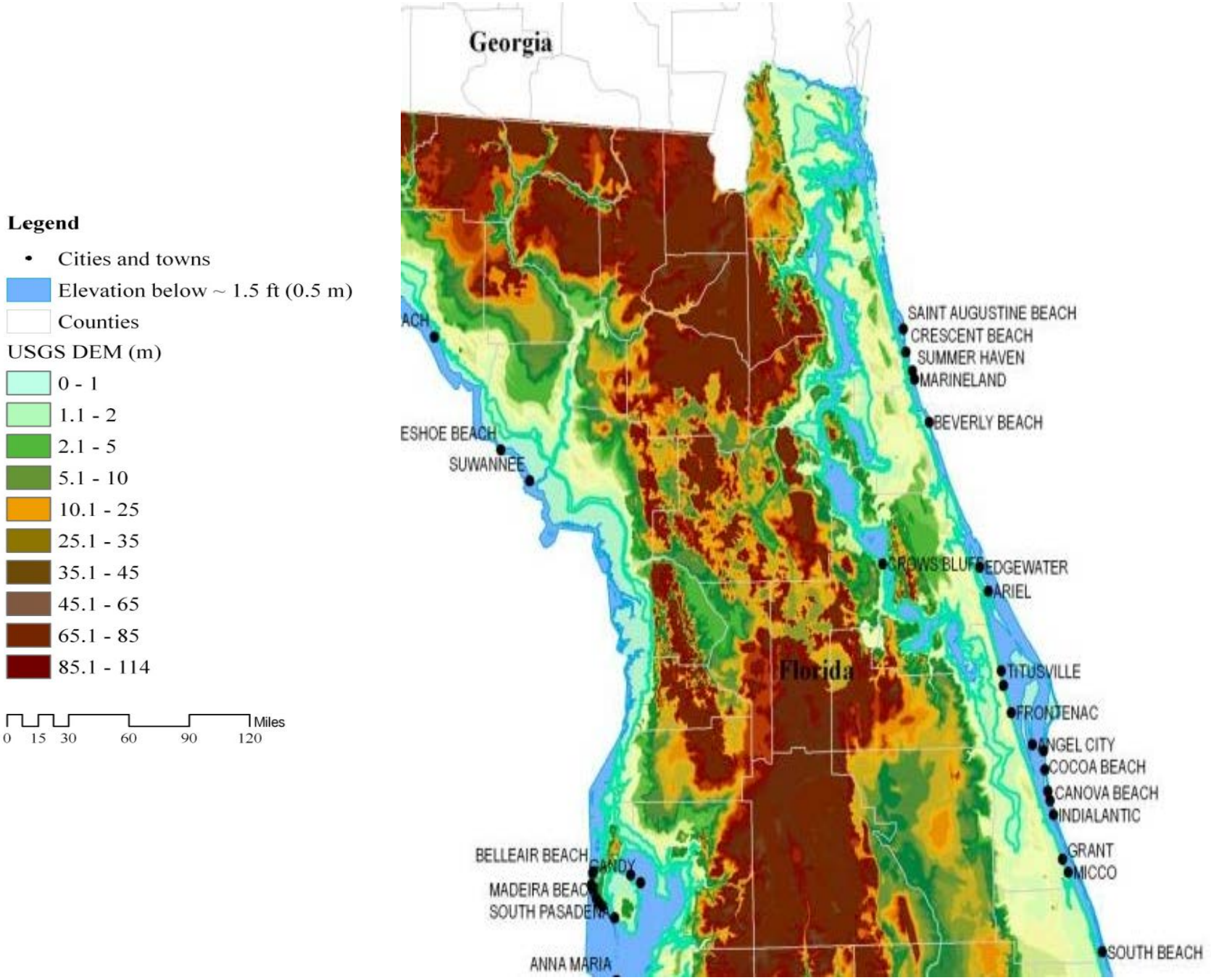


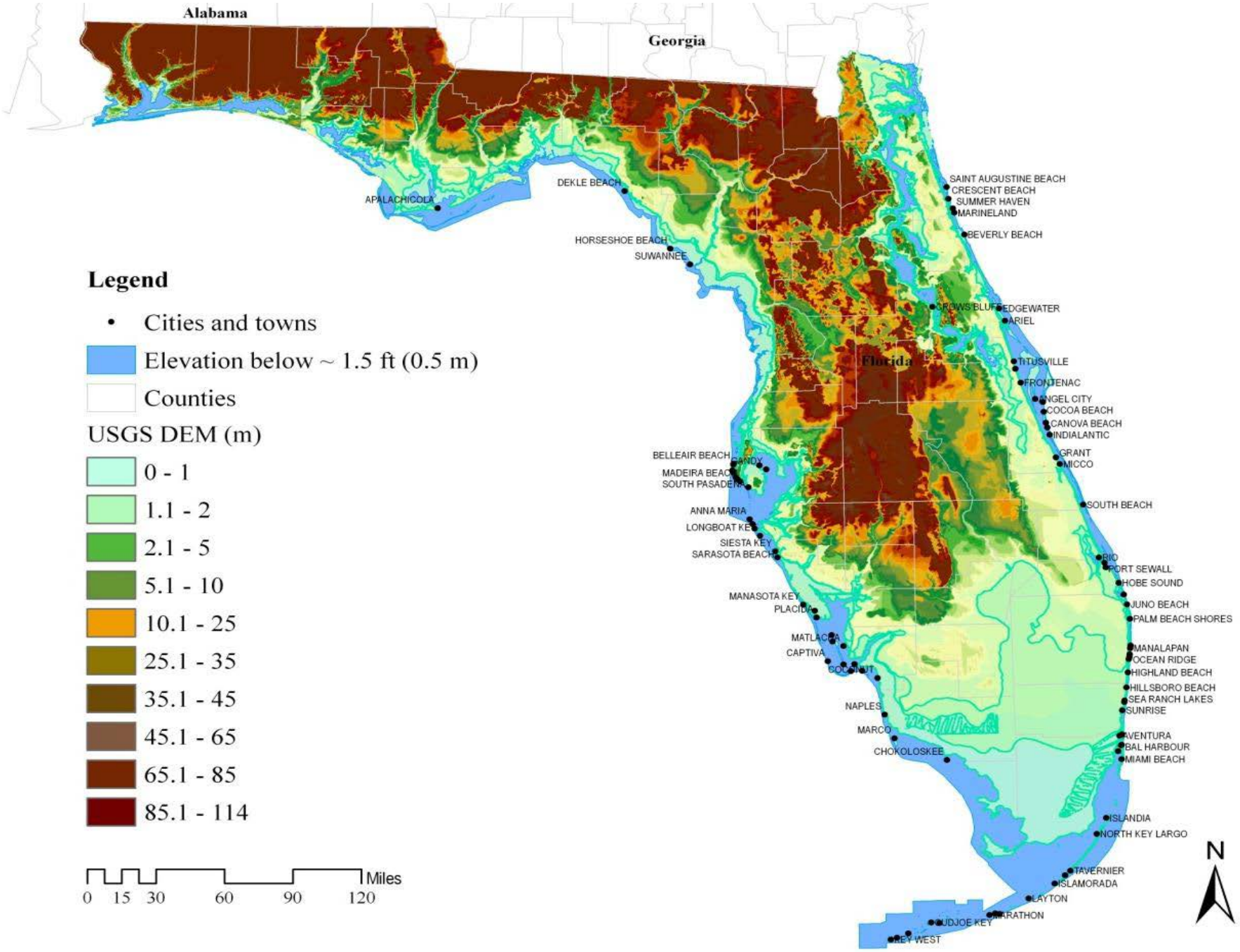
Sources: USGS, Federal Emergency Management Association

Northeast Florida Regional Evacuation Study 2010
Storm Surge Zones



Florida's population living on land less than 4 feet above high tide (2.4 million) is almost half of the national total (4.9 million for the Lower 48 states). For more detail on risks to Florida from sea level rise and storm surge, see Climate Central's Surging Seas Florida factsheet.


Georgia
Florida
Legend
Cities and towns
Elevation below ~ 1.5 ft (0.5 m)
Counties
USGS DEM (m)
0 - 1
1.1 - 2
2.1 - 5
5.1 - 10
10.1 - 25
25.1 - 35
35.1 - 45
45.1 - 65
65.1 - 85
85.1 - 114
0 15 30 60 90 120 Miles
SAINT AUGUSTINE BEACH
CRESCENT BEACH
SUMMER HAVEN
MARINELAND
BEVERLY BEACH
ESHOE BEACH
SUWANNEE
CROWS BLUFF
EDGEWATER
ARIEL
TITUSVILLE
FRONTENAC
COCOA BEACH
CANOVA BEACH
INDIALANTIC
GRANT
MICCO
BELLEAIR BEACH
MADEIRA BEACH
SOUTH PASADENA
ANNA MARIA
SOUTH BEACH


Alabama
Georgia
Florida
Legend
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0 - 1
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SAINT AUGUSTINE BEACH
CRESCENT BEACH
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MARINELAND
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ARIEL
TITUSVILLE
FRONTENAC
ANGEL CITY
COCOA BEACH
CANOVA BEACH
INDIALANTIC
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SOUTH BEACH
BELLEAIR BEACH
MADEIRA BEACH
SOUTH PASADENA
ANNA MARIA
LONGBOAT KEY
SIESTA KEY
SARASOTA BEACH
RIO
PORT SEWALL
HOBE SOUND
JUNO BEACH
PALM BEACH SHORES
MANASOTA KEY
PLACIDA
MATLACHA
CAPTIVA
MANALAPAN
OCEAN RIDGE
HIGHLAND BEACH
HILLSBORO BEACH
SEA RANCH LAKES
SUNRISE
NAPLES
MARCO
AVENTURA
BAL HARBOUR
MIAMI BEACH
CHOKOLOSKEE
ISLANDIA
NORTH KEY LARGO
TAVERNIER
ISLAMORADA
LAYTON
MARATHON
UDJOE KEY
KEY WEST

Surging Seas / States / Florida - Microsoft Internet Explorer provided by NEFRC

http://sealevel.climatecentral.org/surgingseas/place/states/FL#show=cit

Surging Seas / States / Florida

File Edit View Favorites Tools Help

Convert Select

Surging Seas

Sea level rise analysis by CLIMATE CENTRAL

Maps | Basics | Research | Responses | Activate | News

Search by City, State, or Zip

Share view: Like Send

List: **Cities** | **Counties**

Water level +4ft

Things below **+4ft** in

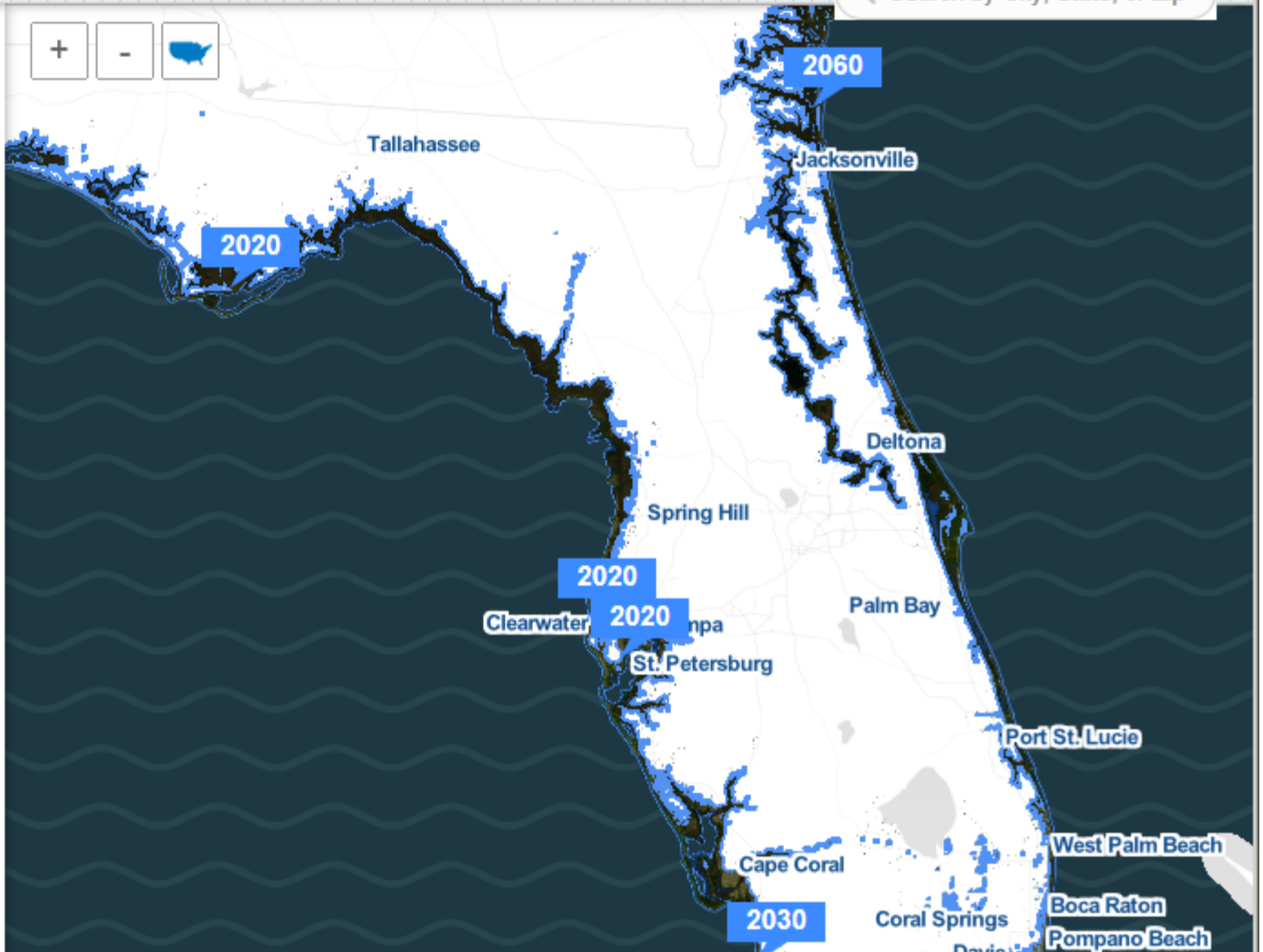
Florida

Population	2,423,168	12.9%
Homes	1,297,717	14.4%
Acres	1,821,435	5.3%

Over 1 in 6 chance sea level rise + storm surge + tide will overtop **+4ft** by **2020** at nearest flood risk indicator site: Clearwater Beach - Gulf Of Mexico, 67.0 miles away.

Learn more:

- Florida data download
- Florida map | facts | plans
- Surging Seas report
- Map accuracy | speed tip



Sea Level Explorer
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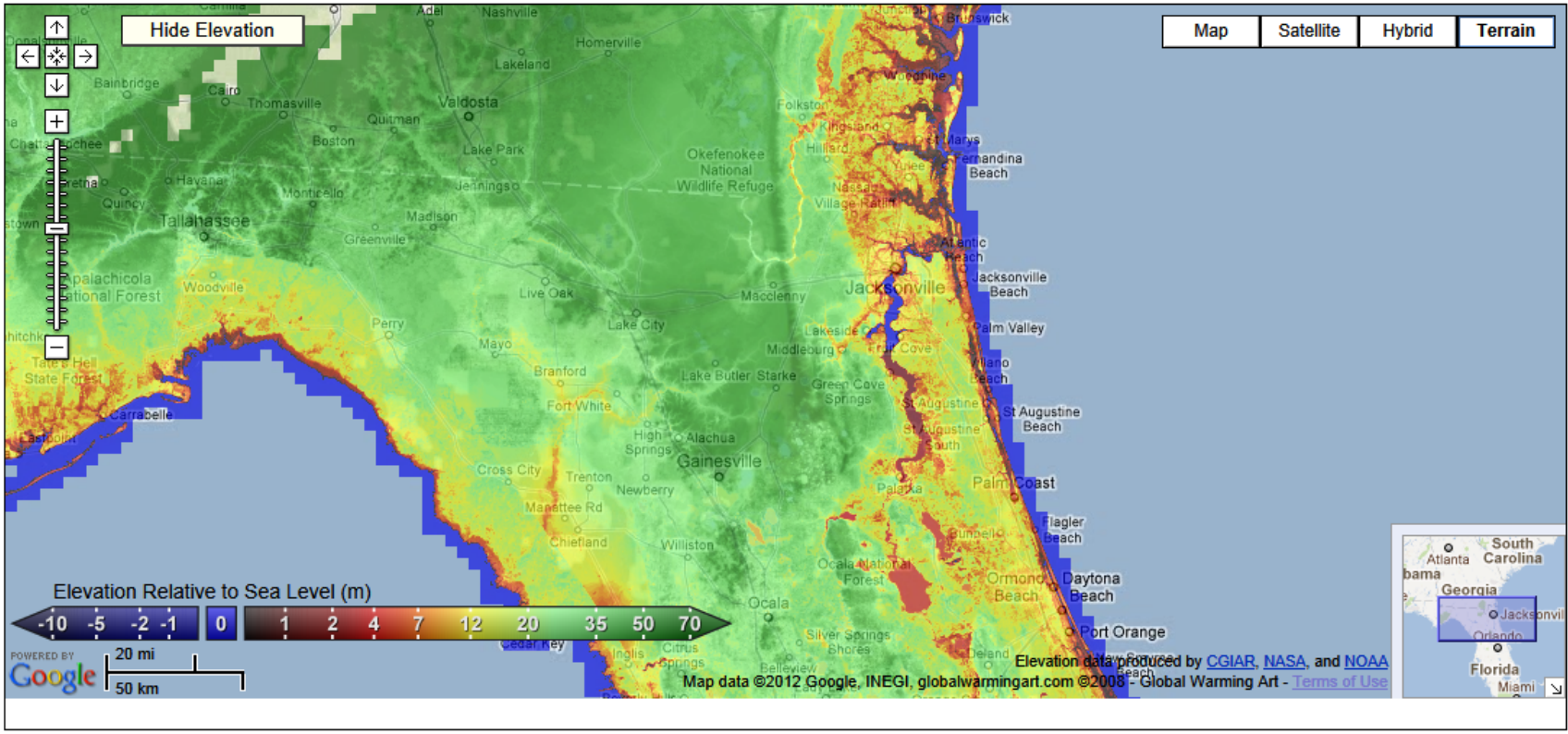
Sea Level Rise Explorer

Selected Locations



Link to this view: http://www.globalwarmingart.com/sealevel?lat=30.06&lng=-82.073&zoom=8

Description

The map shown above allows you to explore the regions of the Earth that are most vulnerable to sea level rise.

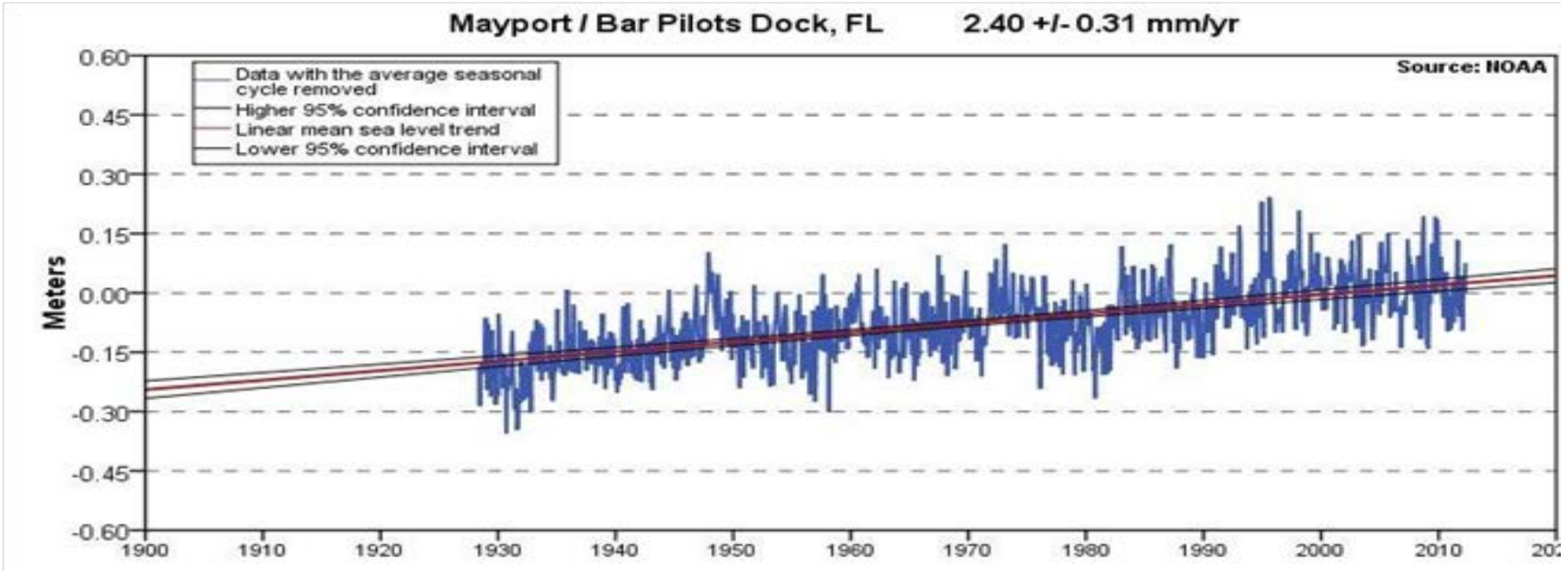
As with other Google Maps, you can click-and-drag the window to scroll or double click to zoom.

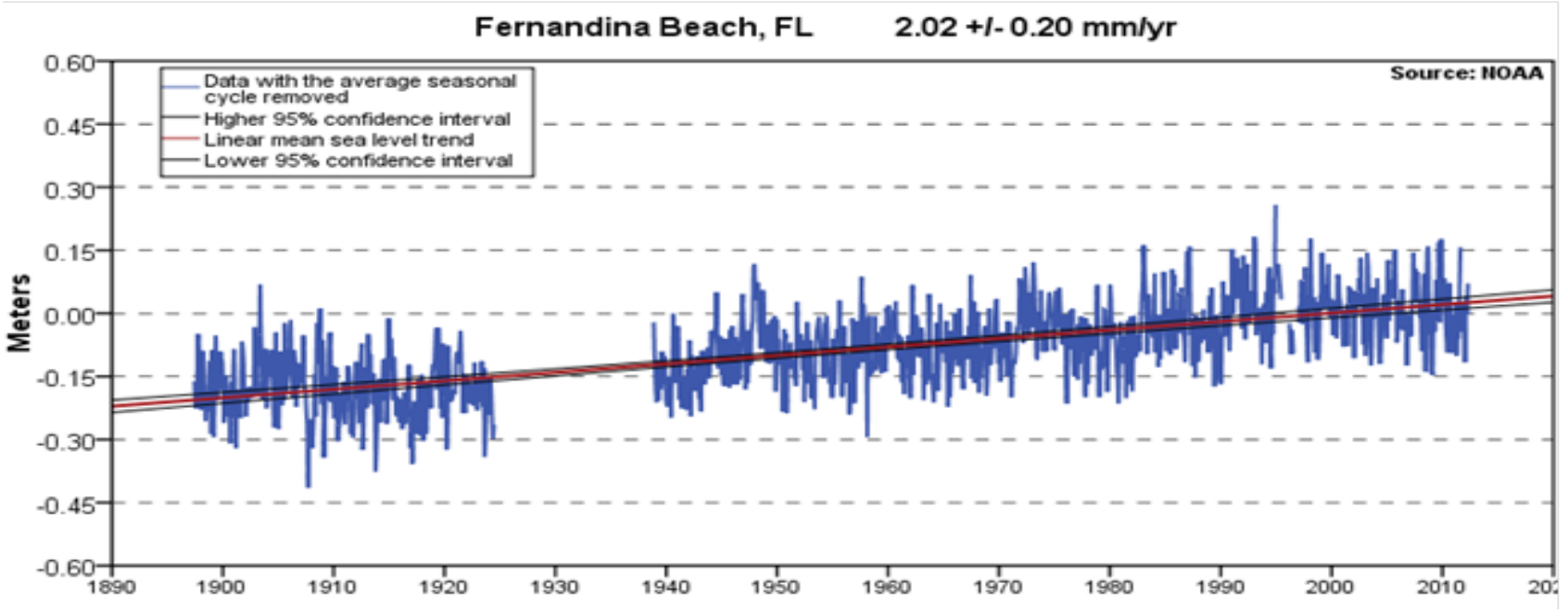
Potential for Sea Level Rise

As global warming progresses, sea level is expected to rise primarily due to the melting of continental ice sheets in Greenland and Antarctica. However, the ultimate amount of flooding is highly uncertain. A full deglaciation of both poles would raise sea level as much as ~65 meters (210 feet), though it is very likely that the ultimate sea level rise will be only a fraction of this possible total.

During the twentieth century, sea level rose 20 cm. It is predicted that sea level rise will accelerate during the twenty-first

Sources of potential sea level rise	
Thermal expansion of the oceans	0.2-0.4 m per degree C[1]
Mountain glaciers and ice caps	0.15-0.37 m[2]
Greenland Ice Sheet	[3]


Mayport / Bar Pilots Dock, FL
2.40 +/- 0.31 mm/yr
Source: NOAA
Data with the average seasonal cycle removed
Higher 95% confidence interval
Linear mean sea level trend
Lower 95% confidence interval
Meters
0.60
0.45
0.30
0.15
0.00
-0.15
-0.30
-0.45
-0.60
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010


Fernandina Beach, FL
2.02 +/- 0.20 mm/yr
Source: NOAA
Data with the average seasonal cycle removed
Higher 95% confidence interval
Linear mean sea level trend
Lower 95% confidence interval
Meters
0.60
0.45
0.30
0.15
0.00
-0.15
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1890
1900
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1940
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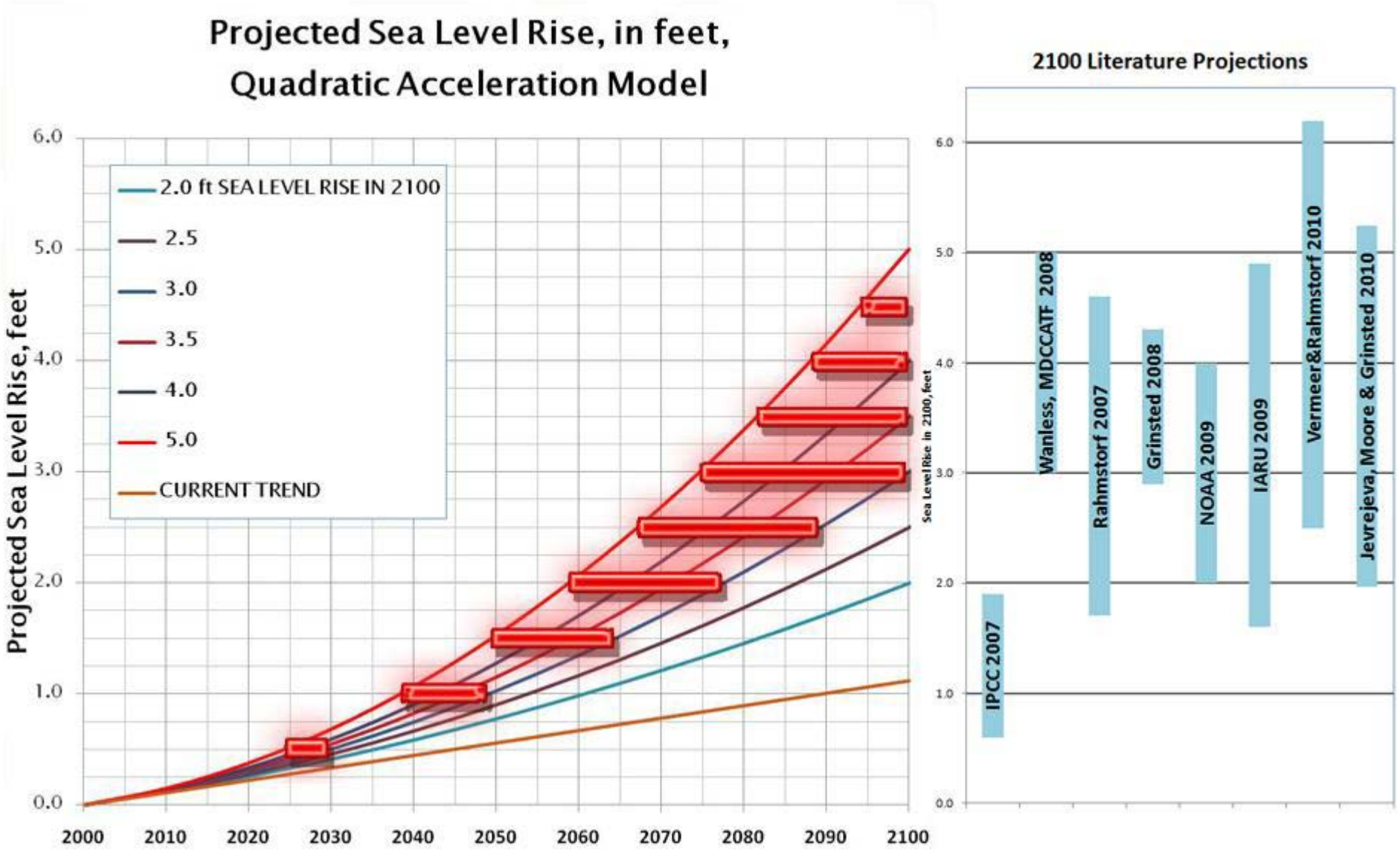
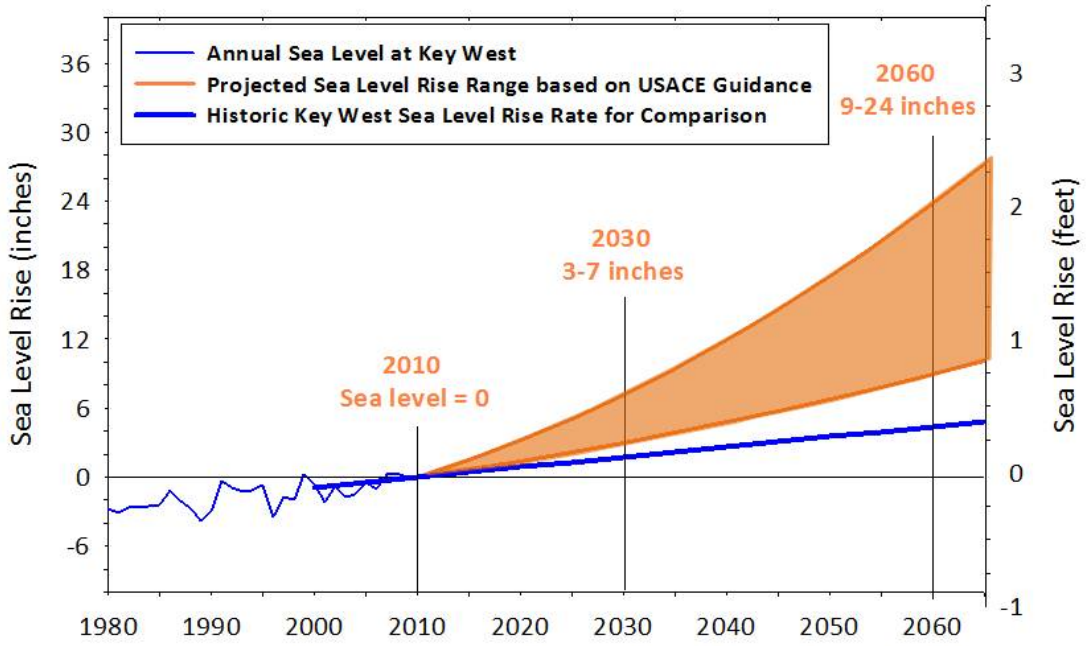

Projected Sea Level Rise, in feet,
Quadratic Acceleration Model
Projected Sea Level Rise, feet
2.0 ft SEA LEVEL RISE IN 2100
2.5
3.0
3.5
4.0
5.0
CURRENT TREND
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2000
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
2100 Literature Projections
Sea Level Rise in 2100, feet
IPCC 2007
Wanless, MDCCATF 2008
Rahmstorf 2007
Grinsted 2008
NOAA 2009
IARU 2009
Vermeer&Rahmstorf 2010
Jevrejeva, Moore & Grinsted 2010

Unified SLR Projection

Southeast Florida Regional Climate Compact/Action Plan



Unified Southeast Florida Sea Level Rise Projection for Regional Planning Purposes. This projection uses historic tidal information from Key West and was calculated by Kristopher Esterson from the United States Army Corps of Engineers using USACE Guidance (USACE 2009) intermediate and high curves to represent the lower and upper bound for projected sea level rise in Southeast Florida. Sea level measured in Key West over the past several decades is shown. The rate of sea level rise from Key West over the period of 1913 to 1999 is extrapolated to show how the historic rate compares to projected rates.

Slide Sources

- Slides 4, 5 – NEFRC
- Slides 6, 9 – climatecentral.org
- Slides 7, 8, 12 – White Paper: Berry, L., Bloetscher, F., Hernández Hammer, N., Koch-Rose, M., Mitsova-Boneva, D., Restrepo, J., Root, T., Teegavarapu, R., 2011: Florida Water Management and Adaptation in the Face of Climate Change, Florida Climate Change Task Force.
- Slide 10 – globalwarmingart.com
- Slide 11 – NOAA.gov
- Slide 13 – Southeast Florida Regional Climate Change Compact

What resources are available?

- Historical data
- Projections for level/range of rise, rate of acceleration, and timeframes
- Detailed work related to the Matanzas Basin
- Tools to visualize sea level rise
- Resiliency assessment tools
- Examples of adaptation and mitigation plans/approaches, best practices, lessons learned
- Educational tools

Why now?

- Insurance companies are considering a community's failure to plan as a risk factor
- FEMA Community Rating System is being revised to provide benefits to communities for planning
- Assessing and addressing coastal/waterfront resiliency can save money
- The same actions that a community may take to address SLR also address flooding and extreme weather events

Policy Work Referral: Adopted NEFRC Motion

"The Northeast Florida Regional Council asks the Regional Community Institute of Northeast Florida, Inc. to consider Sea Level Rise and its potential to impact Northeast Florida. If they determine our Region is vulnerable, we ask them to determine working assumptions for level of rise and planning timeframe, to assist local governments in assessing their resiliency, and to recommend regional strategies if they believe it appropriate."

August 2, 2012

We can use existing information, and just get started!

RCI Work Program 2012

- Kickoff
- Form Committee
- Schedule Meetings and Presentations (all are welcome)
  - USACE
  - SJRWMD?
  - GTMNERR
  - Allen Tilley
  - Others?

RCI Work Program 2013

- January/February
  - Presentations
  - Are we vulnerable?
  - If so, what assumptions shall we use for range/level of rise and planning timeframe? What will trigger review of assumptions?
  - Invite coastal and waterfront local governments to participate in sea level rise resiliency assesments

RCI Work Program 2013

- March-May
  - Assessments
  - Summarize lessons learned
- June-August
  - Policy recommendations
- September-October
  - Committee presents to RCI Board
  - RCI Board presents to NEFRC Board

- Questionnaires
- Questions?
- Meet and greet
- Nibble
- Thank you!