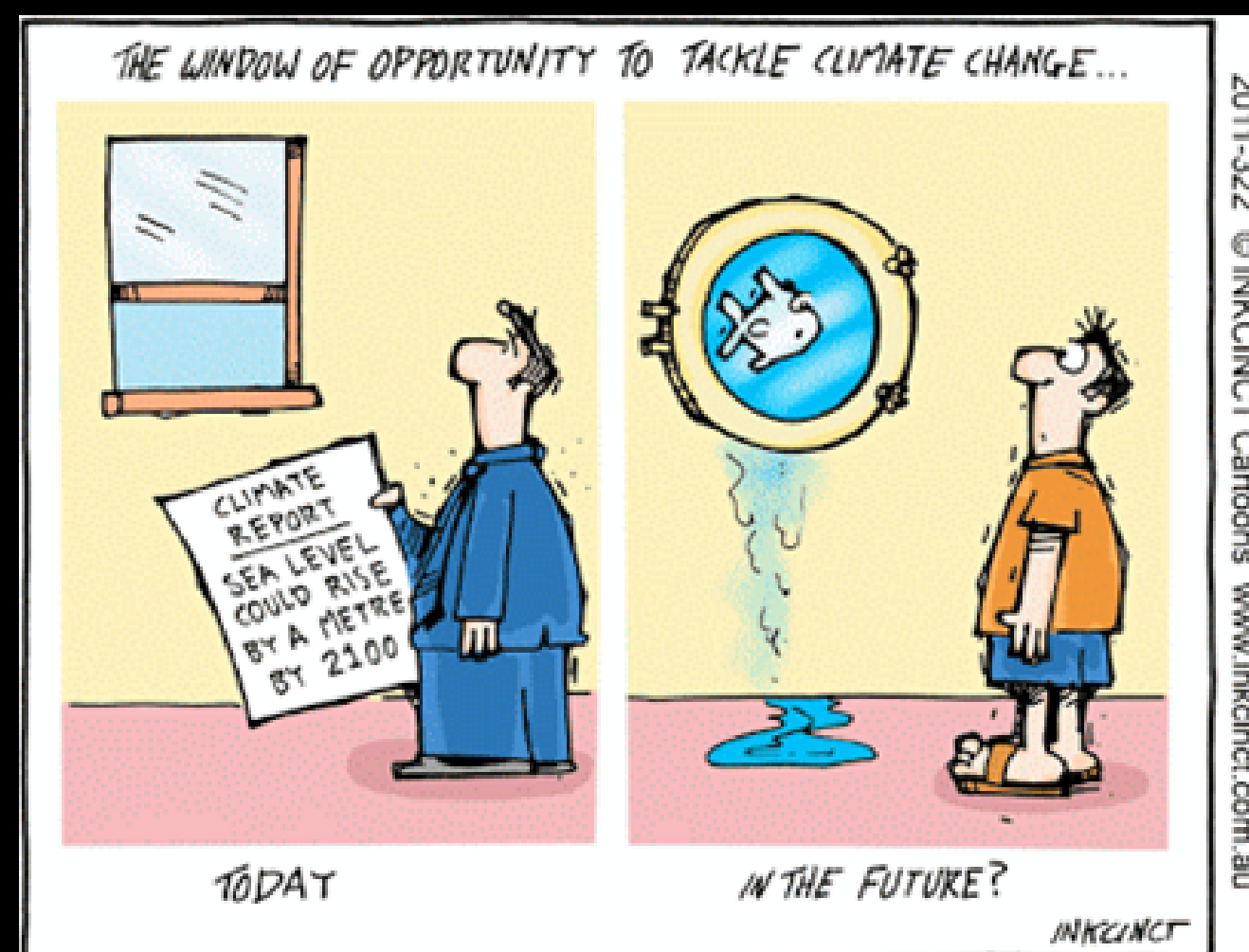


POST-IRMA HOUSING RECONSTRUCTION IN THE FACE OF RISING SEAS:CASE OF MONROE COUNTY, FLORIDA*

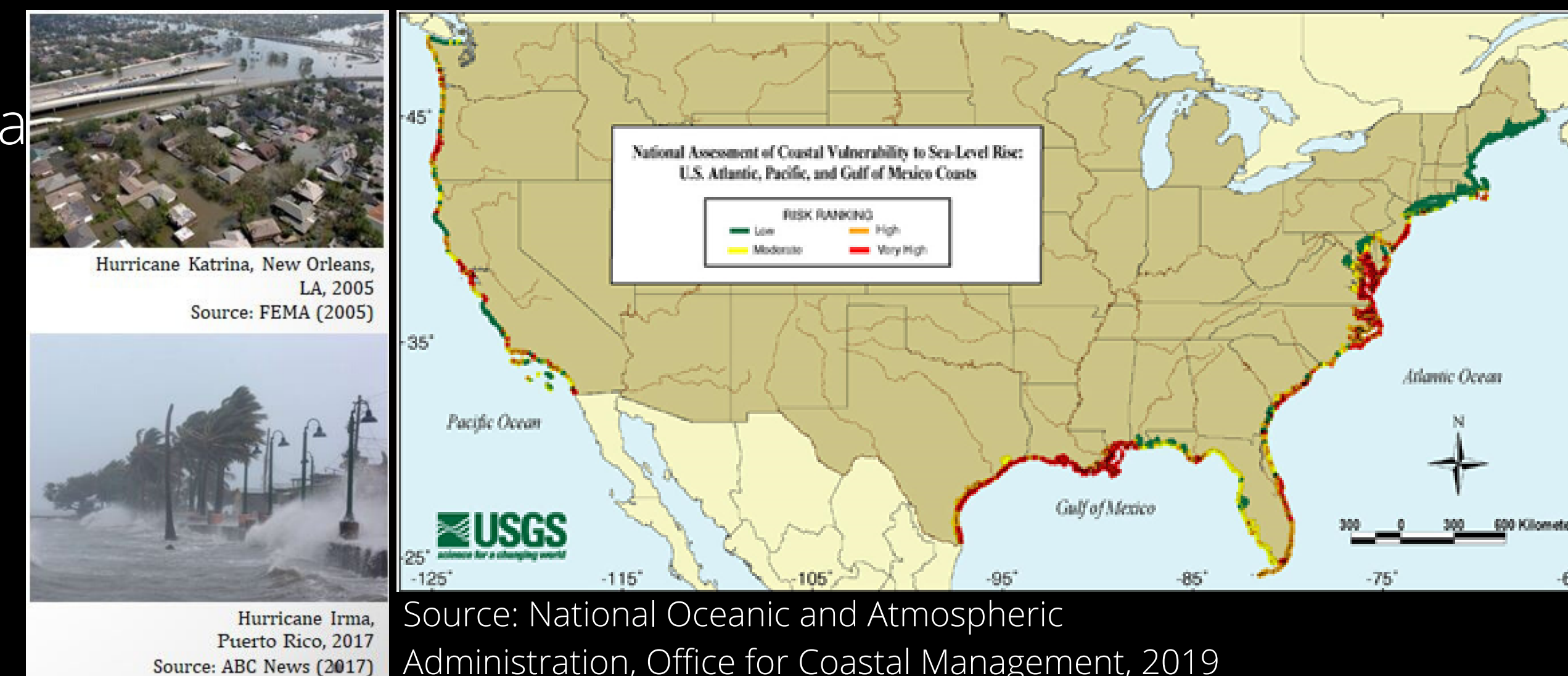
RISE 2019 Conference: Transforming University Engagement in Pre- & Post-Disaster Environments: Lessons from Puerto Rico
November 18-20, 2019

Background

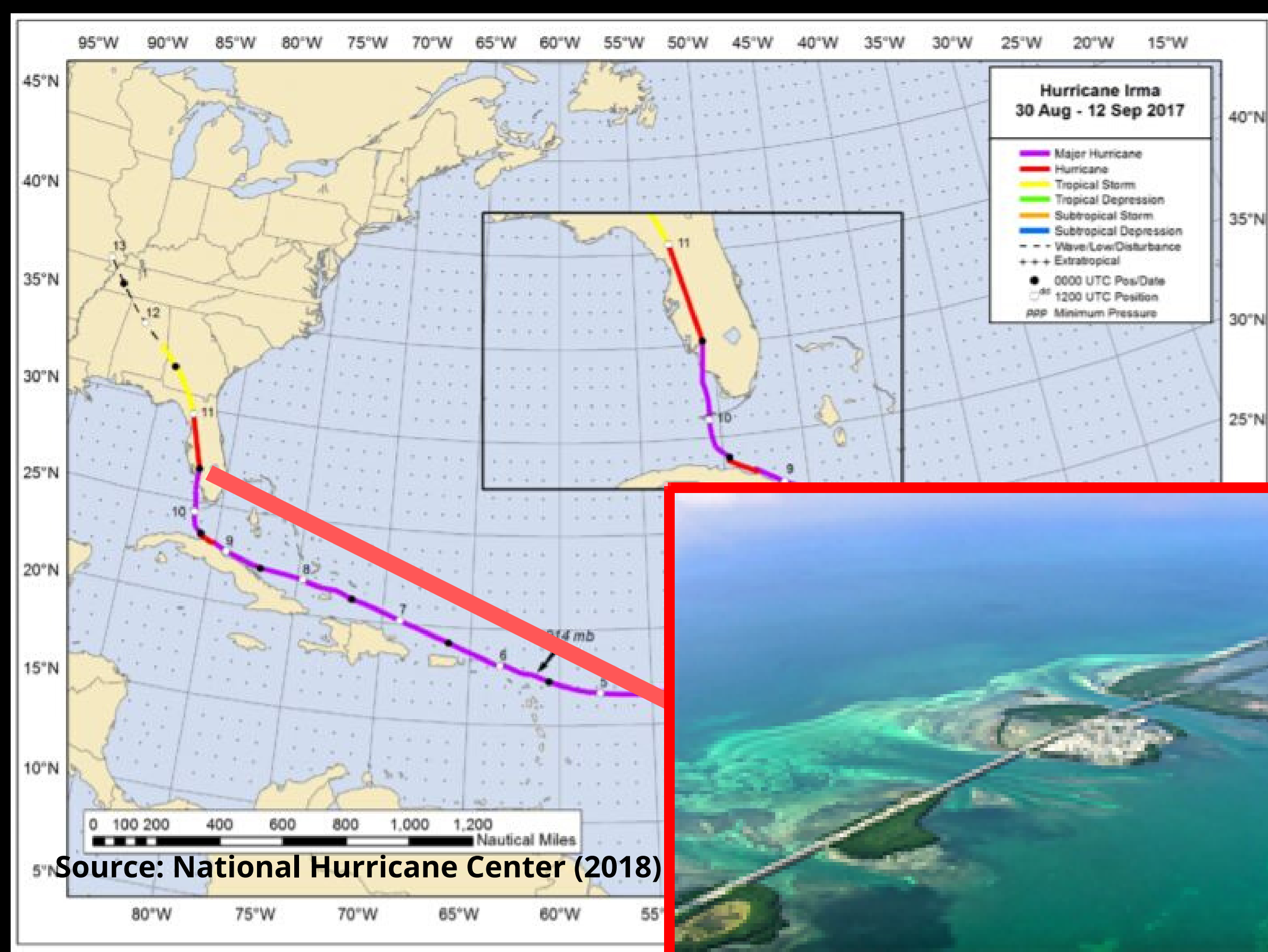


Source: Convenient Solutions, 2011

- Coastal areas (e.g. Puerto Rico, South Florida) vulnerable to;
- the extreme weather events (e.g. Hurricane Katrina, Hurricane Irma) and,
- Sea level rise (Day et al. 1995; Karim and Mimura, 2008)
- 53% of U.S. population live on the coast (UN 2018)
- 300-900% increase in nuisance flooding compared to 50 years ago (NOAA 2018)
- Projected impact by 2030: over \$500 billion/year (DARA, 2012)



Research Context & Methodology

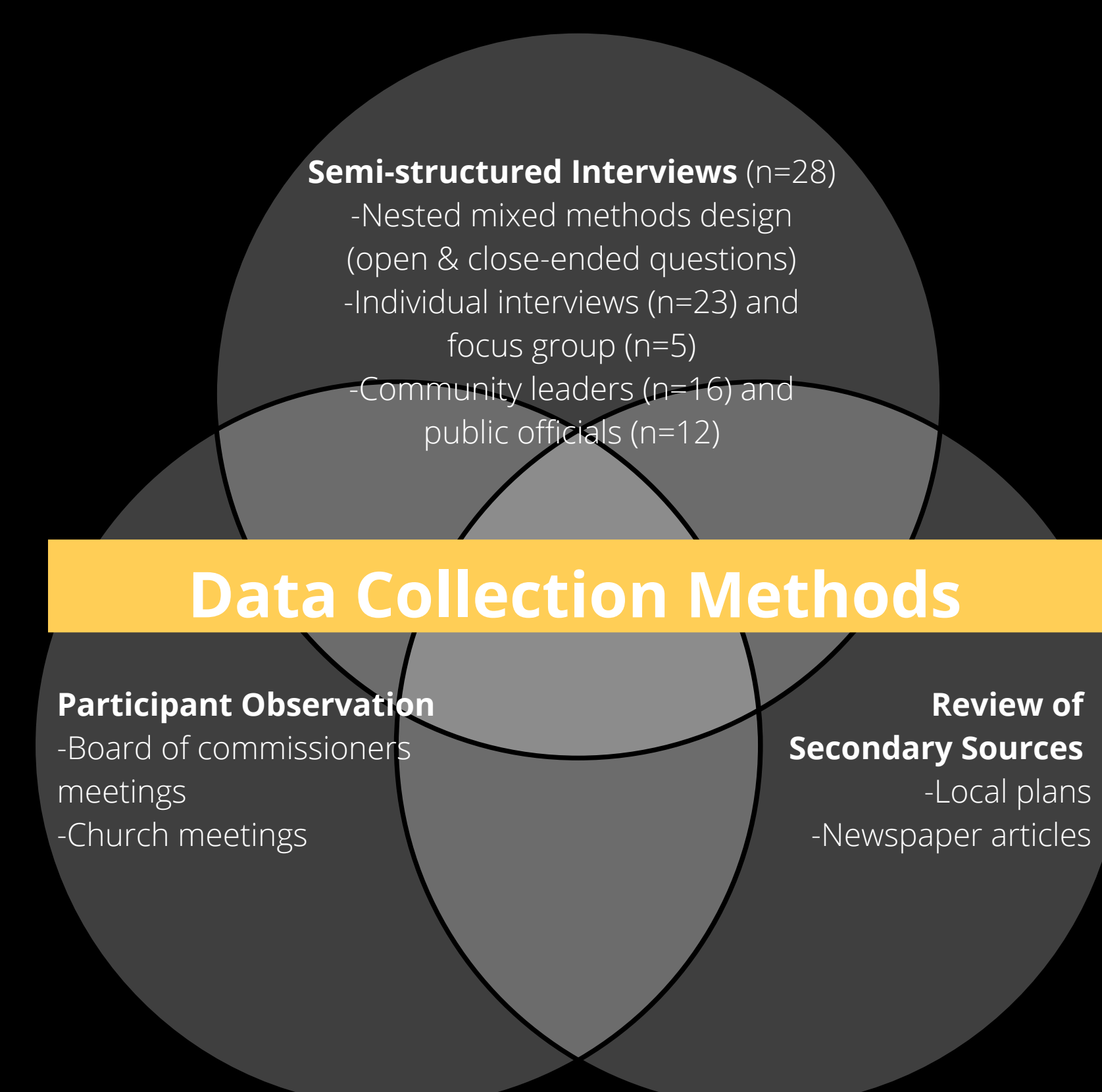


Source: CBS Miami Local (Nov 15, 2015)

•Florida Keys

- Archipelago-linked by 113-mile highway
- Tourism-based economy
- More than 40% of residents can't afford basic living expenses (e.g., food, healthcare, housing, transportation) (Filosa and Goodhue, 2019)
- Hurricane Irma - landfall as Cat-4 hurricane on September 10, 2017
- Impact:
- Death toll: 129, economic damage:\$50 Billion
- 25% of the buildings destroyed & 65% had major damage (Amadeo, 2019;Baumgard2017; Slatest2017)

Fieldwork; between July 24 and August 12, 2018



Research Questions:

R.Q.-1: What are the factors that the Florida Keys residents take into account as they decide whether or not to rebuild in Post-Hurricane Irma recovery process?

R.Q.-2: To what extent do the long-term environmental risks associated with sea level rise affect reconstruction decisions of the residents displaced by Hurricane Irma?

Findings

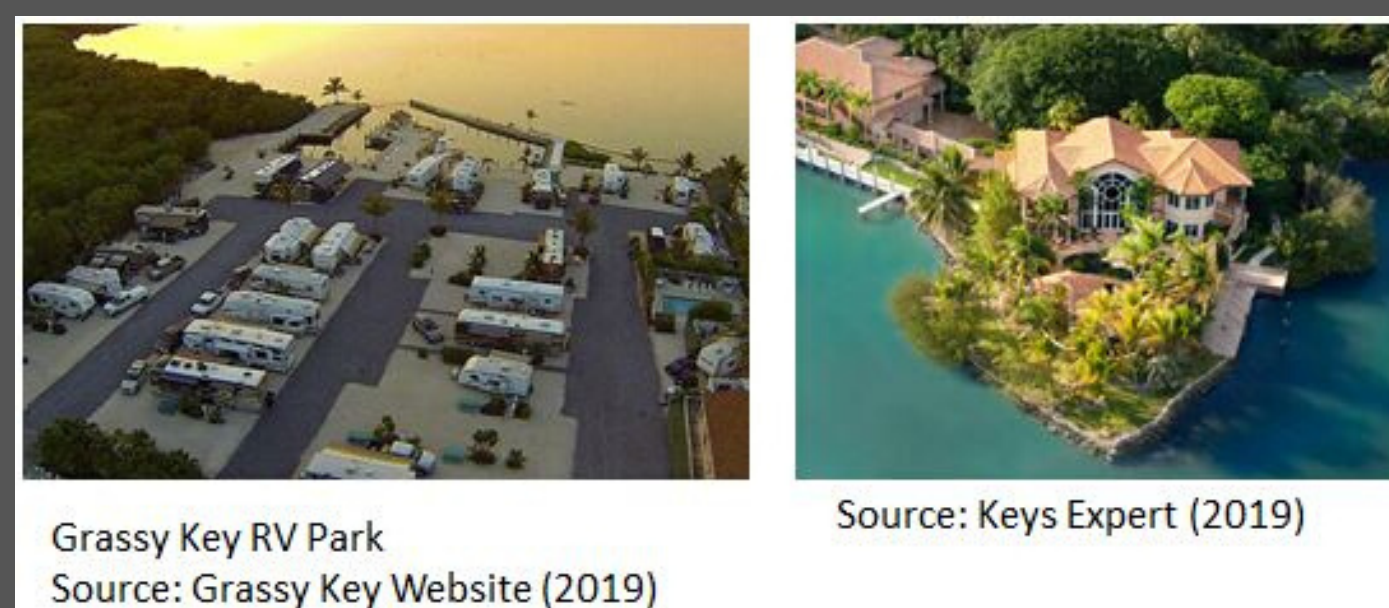
1- The Factors That Affect Reconstruction Decisions

• *Challenges that the residents face in general (exacerbated after the Hurricane)*

- Low-wage, service sector-based, tourism dominant industry
- Lack of affordable housing & shelter
- High cost of living (e.g. housing, goods, services and maintenance costs); the most expensive survival threshold budget in the state (ALICE, 2018).
- Flood-prone geography
- Logistics (long chain of islands linked by a single highway, US-1)

We've had workforce affordable housing crisis for a long time. But a lot of... what was affordable housing are things like... mobile homes... and Big Pine looks like an affordable suburb for Key West... And that's the place got hit the hardest.

A community leader



- Affordable housing: Trailers, RVs, boats, and ground level houses-the most impacted by the hurricane and flooding
- Insurance-related problems (e.g. inadequate coverage of damages, ineligibility for National Flood Insurance Program)

Housing	
● Housing units, July 1, 2017, (V2017)	53,631
● Owner-occupied housing unit rate, 2013-2017	58.7%
● Median value of owner-occupied housing units, 2013-2017	\$429,000
● Median selected monthly owner costs -with a mortgage, 2013-2017	\$2,373
● Median selected monthly owner costs -without a mortgage, 2013-2017	\$669
● Median gross rent, 2013-2017	\$1,507

US Census Bureau,2019

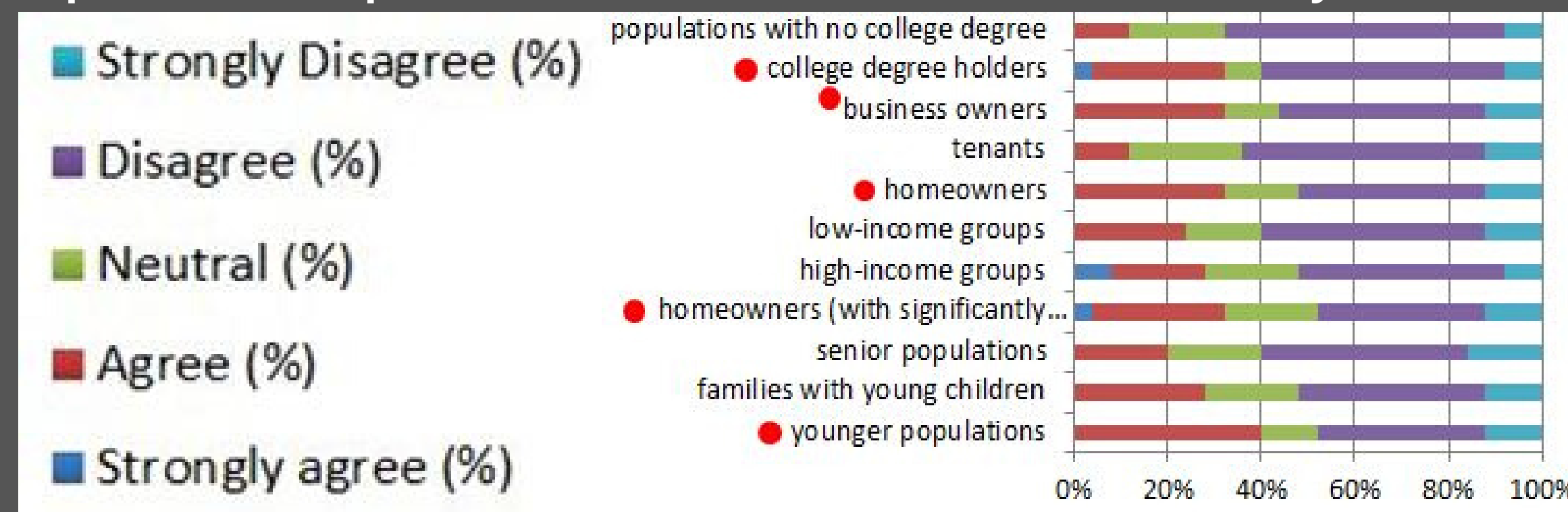
2- Rebuilding Back in the Face of Rising Seas

- The focus on short-term priorities (e.g., housing recovery, debris removal from canals), concern about the next storm rather than SLR
- SLR as a long-term priority in disaster recovery process-the concerns about potential burden on rebuilding costs (e.g. additional taxes) and bureaucratic challenges (e.g. building codes)
- Population groups that take SLR more seriously in reconstruction decisions; homeowners (with and without damage), business owners, younger populations, college degree holders (see the chart)

... I believe that individuals do not feel it [SLR] will personally affect them. I believe people may feel it is beyond their lifetime. It's something that's going to happen far to the future and not affect them today. I think the attachment to their home is stronger than they are concerned about climate change and potentially SLR.

A public official

Population Groups that Take SLR into Account More Seriously



Recommendations for the planners and policymakers:

- Finding the optimum period to act on sea level rise adaptation in the aftermath of a disaster; considering long-term risks soon after addressing the immediate needs, but while the collective memory of the disaster is still present.
- Local officials need support from:
- 1. The upper levels of the government (state and federal)
- 2. Public (e.g., public awareness campaigns would help increasing the support)

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