



Is Everything Better Under The Sea?: South Florida's Battle Against Sea Level Rise



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Abstract

South Florida is among many regions of the world that is currently being affected by climate change due to rising sea levels. While there are multiple causes of sea level rise in South Florida, major reasons include ice melting from the poles and ocean water thermal expansion. South Florida has a limestone bedrock which is porous and allows groundwater to rise at the same rate as the ocean. This area is home to approximately eight million residents in vibrant communities with highly diverse demographics. Currently, Miami Beach is investing in short-term solutions including flood pumps and ongoing construction to raise the elevation of infrastructure. Will these efforts be effective and is this efficient use of limited financial resources? Many local governments and residents are confident they will overcome this issue and trust the work being done will sustain the region. But is confidence and trust enough to overcome such a significant threat to this vulnerable region? This research will examine the ongoing adaptation efforts of policy makers, the significant threats of sea level rise towards South Florida residents, and what options exist for South Florida to continue to be the unique and vibrant community for future generations.

Overview

Future scenarios predict that sea levels will rise from 0.66 ft to 6.6 ft by 2100 (Figure 1). To analyze South Florida's efforts to adapt to sea level rise, a collection of secondary sources were compiled to understand political efforts, overall threats towards community, and ways in which they can assist their coastal communities become resilient.

Multiple sources consisted of legislative proposals from local governments to state officials. Due to the lack of support from the state government in the past, local policy makers in South Florida have dealt with the issue of sea level rise alone. In May 2018, the local government requested financial assistance from the state, to help invest in flood mitigation strategies such as flood pumps. This also requests that the Florida congress, calls upon the National Science Foundation (NSF) and the National Oceanic and Atmospheric Administration (NOAA) to provide research and conduct a review on the effectiveness of natural approaches to reduce risk. January of 2019, the Miami-Dade legislature proposed a request urging the state government to create a committee on climate change, to propose policy solutions to address the problem of climate change and its negative impacts in Florida.

Coastal communities are characterized by wealth property owners. If they were to no longer live in their communities, they would have the means to relocate. Lower-income communities are located inland in South Florida however, flooding occurs inland as well (Figure 2). If low-income communities were to be forced to relocate, many would not be able to without government assistance.

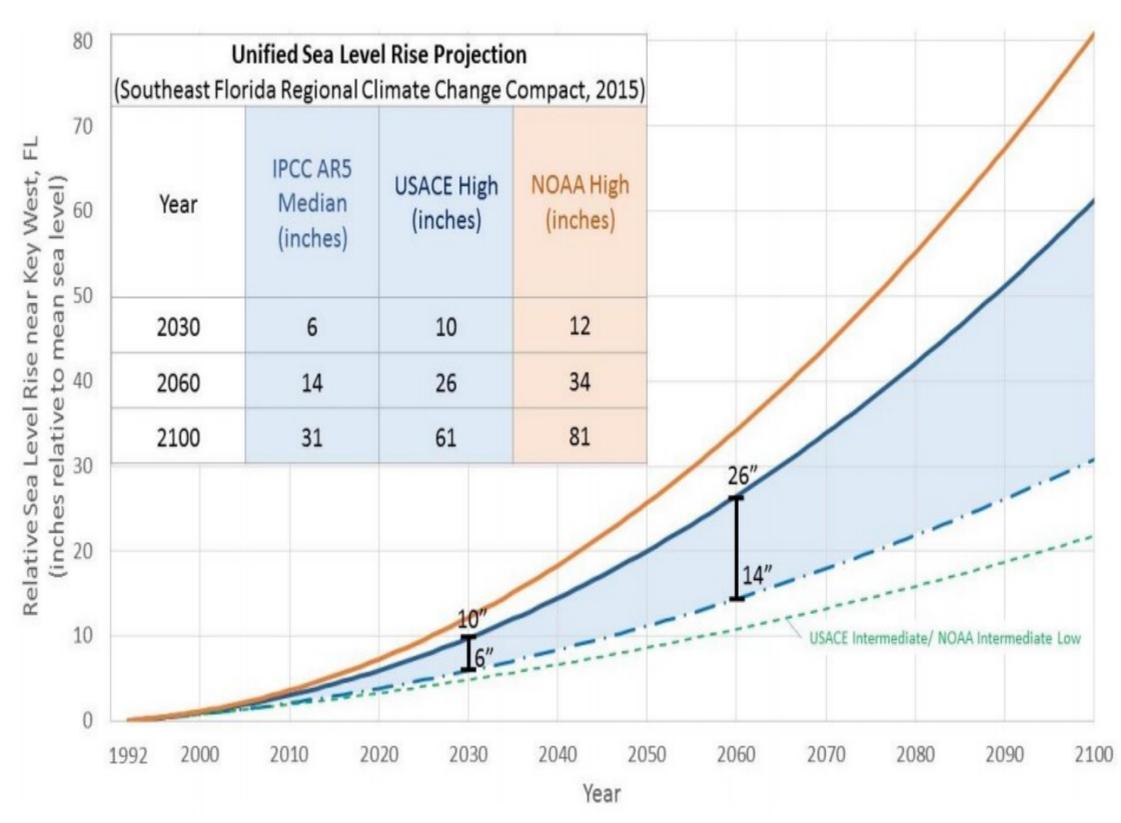


Figure 1: Sea level rise projection for South Florida. Source: Regional Climate Compact

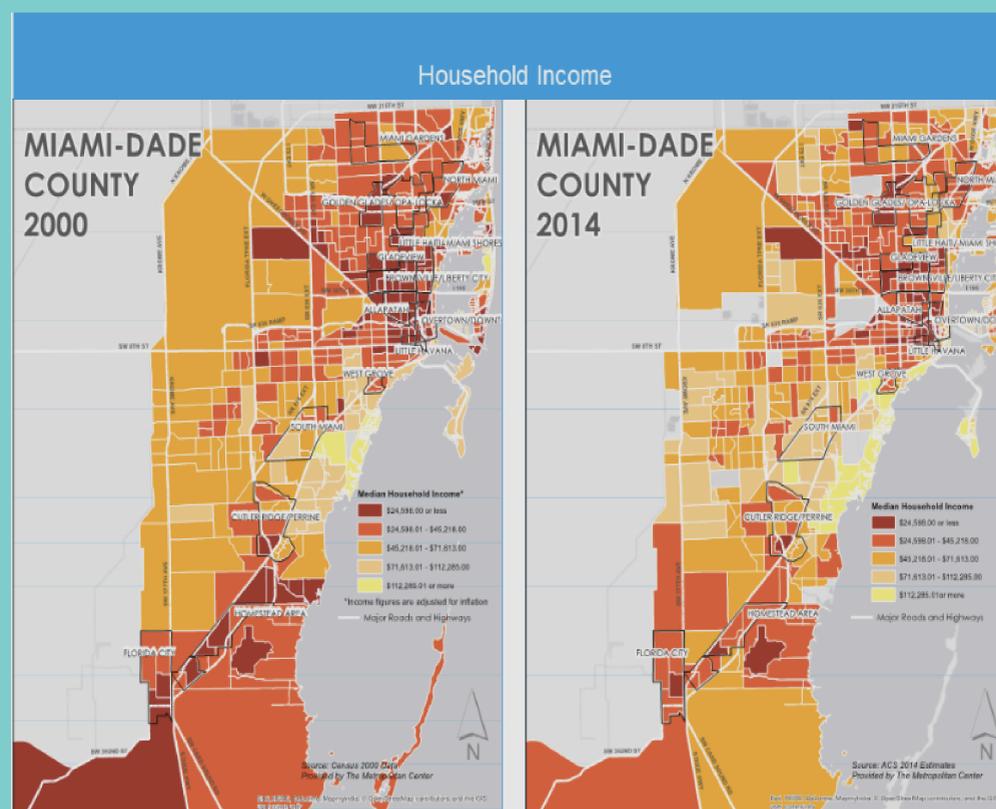


Figure 3 Map of South Florida showing areas of high poverty. Source: The Metropolitan Center

Conclusion

South Florida will remain vulnerable to climate change due to the region being entirely surrounded by water and its naturally sinking bedrock. Policy makers are optimistic that they'll be able to prevent sea level rise from getting worse with the installation of flood barriers and by raising roads and buildings. The legislation bill in May 2018, was passed on June 5, 2018. The research that will be conducted by the NSF and the NOAA will provide strategies that will help South Florida come up with ways in which their communities can adapt to current and future sea level rise.

The bill from January 2019, is still pending. Florida's recently elected governor, Ron DeSantis, proclaims that he is pro environmental and his primary focus is to find ways in which coastal communities in Florida can become resilient towards rising sea levels. DeSantis no longer wants South Florida to fight this battle alone as it has with the former governor, Rick Scott. Introducing this bill to the Senate is a big step, considering that Rick Scott believes that climate change is a hoax and sea levels were not affecting Florida. The remaining concern of this bill is whether or not it will be passed in Florida's House of Representatives, which is characterized as fairly conservative.

With the findings of these bills and legislations that have been proposed and passed, it's clear that the government of Florida is willing to help South Florida adapt to the ongoing threat of sea level rise. With the assistance from the state, South Florida will be able to receive the financial assistance for flood mitigation strategies.

It's expected the government will not be able to save every part of South Florida and certain communities will be forced to relocate. It is uncertain what the government is doing for these communities that don't have the means to relocate. For the sake of South Florida's future, the government must also come up with ways in which they can save the vibrant communities of South Florida from sea level rise.



Above: Installing flood pumps in Miami Beach, FL. Source: MiamiHerald.com