Sea Level Rise Adaptation Pathways: Miami-Dade County Case Study
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What will Miami look like in 2060 if we do nothing to adapt to an ocean that is 2 feet higher? What is the cost of doing nothing? What about if we elevate everything? Only do what is cost effective? So far, what we know is that it is far more beneficial to be preventative rather than reactive. It is frustrating to see the information-action gap widen while dire projections are released from trusted scientists at NOAA, USACE, IPCC, and more. Governments, businesses, and society don't seem to be as concerned as they should be about sea level rise.

Coastal US cities, including Miami, Tampa, New York, and DC have been ranked as highly vulnerable in terms of financial exposure to sea level rise. However, the risks posed by climate change are not limited to coastal cities, as many recent inland flooding disasters have illustrated. South Florida has a unique situation: low-lying porous limestone geology, high-valued coastal properties, treasured ecosystems, and dense populations at risk. So, why does high-rise construction continue in high-risk areas, and what approaches are various states and coastal or other flood-prone communities using to mitigate and manage the risks? Is coastal development considering future insurance rates and increasing risk? Is there some explanation in risk psychology to explain why perceived risk is misaligned with the actual risk?

This presentation will first explore characteristics of risk perception and why there is more heightened concern for risks that are not as catastrophic as sea level rise (school shootings, terrorism, coronavirus, etc). A historical context will be considered with respect to the shifts in sea level over Earth's history and how it correlates to human civilization. Why are things different this time, and why does there seem to still be uncertainty about the urgency of sea level rise?

Next, a case study for policy and adaptation in South Florida will be presented, the Miami-Dade County Sea Level Rise Strategy. This project is a technical and economic assessment that compared future scenarios to determine which is most cost effective in protecting from acute storm surge and chronic coastal (tidal) as well as inland (groundwater) flooding.

Feasible, cohesive approaches were coupled with visuals to make them readily understood, but also to ensure buy-in and to vet and refine the scenarios. Decision-makers and the community came to workshops to utilize results and learn about options to adapt to sea level rise. Engaging maps include a flood days per year, current vs. future surge, and land typologies. The roadmap for implementation includes guiding principles, immediate projects, policy changes, and mid and long-term projects.

Bio: Dr. Keren Bolter specializes in GIS analysis of people, cities, & the environment to inform data-driven climate resilience. An Urban and Coastal Resiliency expert for Arcadis, she conducts benefit cost analyses for pre-disaster mitigation to support funding resilience. Dr.Bolter also leads climate change initiatives, with a focus on communication that translates information to action. Her background in climate research utilizes LIDAR elevation, storm surge, and

groundwater data. Her analyses overlay assets and socioeconomic data to determine the consequences of climate-related shocks and stressors.

 She has worked as a professor and as a planner in local government, giving her a unique range of perspectives. She has presented her models and research via a TED talk, and on TV stations including NBC, PBS, National Geographic, the History Channel, and the Weather Channel. She is an excellent communicator and facilitator, bridging the climate literacy gap through hands-on stakeholder engagement.