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At a rare field hearing, U.S. Sen. Bill Nelson calls Miami Beach ground zero for sea level rise

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'HERE IS THE PROOF': Sen. Bill Nelson attends a field hearing to draw national attention to the dangers posed by rising seas at Miami Beach City Hall on Tuesday, April 22, 2014.

Miami Beach became ground zero for climate change Tuesday when U.S. Sen. Bill Nelson convened a rare field hearing to draw national attention to the dangers posed by rising seas.

"For those who deny sea level rise and climate change, here is the proof," Nelson said halfway through the two-hour hearing at Miami Beach City Hall, and one of several times he pointedly called out colleagues in Congress who deny that climate change is occurring.

A half-dozen witnesses, including a NASA scientist, a mayor and a county commissioner, forecast a dire future with a three-foot rise in seas by the beginning of

the next century. At that rate, large swaths of Florida's coast would be inundated, with billions of dollars in damage, even as climate change fuels more severe hurricanes. But the panel also offered hope, saying there's still plenty of time to plan.

"It's a slow, steady, persistent creep. But the fact that it's slow means there's time," said Fred Bloetscher, an associate civil engineering professor at Florida Atlantic University who testified about potential fixes for South Florida.

Nelson, the state's former insurance commissioner, said he held the hearing to make "part of the official record of the Senate" the federal government's take on climate change as well as the growing list of sea rise-related problems encountered by South Florida residents — from contaminated drinking water in Broward County to Miami Beach's flooded streets. He also tapped an insurance industry expert to address whether the 5.7 million South Florida residents living along the nation's hurricane highway can expect coverage under increasingly waterlogged conditions.

Over the last 150 years, the earth's temperature has risen, said Piers Sellers, deputy director for Sciences and Exploration at the Goddard Space Flight Center in Maryland. At

the same time, rising temperatures and warming seas have caused polar ice caps to melt. About 250 cubic kilometers are melting each year, he said.

Using 17 satellites positioned around the earth, NASA has measured an increase in sea level of about three inches since 1993, he said, which would mean the seas are rising at a faster pace. Scientists generally accept increases of about five to eight inches over the last century.

What's worse, he said, is South Florida will likely see more severe weather and an increase in the frequency of Category 4 and 5 hurricanes with warming oceans and a more volatile climate.

In Miami Beach, residents are already seeing changes, Mayor Philip Levine told Nelson. The seven-mile long island is lowest at its core, so water collects there. And not just during storms. When strong high tides occur, the island regularly floods, he said.

"Sea-level rise is our reality in Miami Beach," he said. "On a beautiful sunny day, we can see our streets flooded."

In Broward County, officials have wrestled with creeping saltwater contamination of inland freshwater wells, County Commissioner Kristin Jacobs said. Topography coupled with drainage canals dredged in the 1930s and '40s mean inland areas often suffer worse flooding, she said.

"At one foot [of] sea level rise, \$4 billion in taxable property is inundated, and that doesn't include Miami-Dade," she said.

The insurance industry has not accepted that climate change has caused changing weather patterns, and no companies include the risk of climate change in determining insurance rates, said Megan Linkin, a natural hazards expert with the Swiss Reinsurance America Corporation. But it does accept the United Nations' prediction from the Intergovernmental Panel on Climate Change that more severe storms will come, she said.

And rising sea levels will likely make some properties so vulnerable, she said, that they could not be insured at a reasonable rate.

"People won't want to pay," she said.

Nelson welcomed the industry's recognition of increased hurricanes, but he complained that "myopic vision" had kept the industry from addressing the climate matters he started asking about 20 years ago when he was the state's insurance commissioner.

"The fact is there's been five to eight inches [of sea rise] in the last century and they're going to have to build it in" to models that calculate insurance rates, he said.

Most of those who testified Tuesday said steps can be taken to protect South Florida and address the gloomy predictions. Four counties including Broward and Miami-Dade struck agreements to create a joint action plan in 2009. Next week, Miami-Dade's climate change group is expected to approve its plan.

And outfitting canals with pumps farther east can direct water and keep saltwater from rushing in, FAU's Bloetscher said. FAU is also in the process of improving flood maps. Old maps, he said, miscalculated the amount of land that would be inundated by as much as 50 percent. Once better maps are created, better solutions can be tailored for specific areas.

The biggest challenge will be what to do with all the water once it is collected, he explained. Dirty urban water can't be dumped in the ocean or the Everglades, which is undergoing a massive restoration.

"Quantity is easy," he said. "Quality is the problem."

Nationally, the matter is drawing increasing attention, particularly with the IPCC's report last month warning that countries are not doing enough to prepare. Even so, on Tuesday, between 20 and 30 demonstrators with the Sierra Club and 350.org, an international environmental group, gathered outside the hearing with signs, insisting that more urgency is needed.

"We were happy that Sen. Nelson was there to address the issue of sea level rise, which is the big issue for us in South Florida. But that's just a start," said Jim Harper, president of 350.org's South Florida chapter. "Talking about things is great, but we need more action to address the increasing severity of climate change. We need climate action now if we want to be able to have some future here in South Florida."

Inside the hearing, Nelson, who was born in Miami and grew up playing in Biscayne Bay, echoed the sentiment.

"I hope we can continue to keep these discussions going," he said, "so we can come to a reasonable conclusion as to what we need to do before it is too late."