

As Sea Levels Rise, Is Miami Doomed?

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With a population of more than 5.5 million living at an elevation of just 6 feet above sea level, Miami will be one of the nation's first major metropolitan areas to feel the impacts of climate change.

If the climate scientists and researchers that writer Jeff Goodell spoke with for [this article published last week in Rolling Stone](#) are correct, those impacts could leave the city we know today as an urban playground completely unrecognizable.

That's because Miami, he says, won't be there anymore.

 image

A social vulnerability index map for Miami-Dade County, produced by NOAA.

"By the latter end of the 21st century, Miami became something else entirely," Goodell writes in his story, ["Goodbye, Miami."](#) "A popular snorkeling spot where people could swim with sharks and sea turtles and explore the wreckage of a great American city."

Why is this inevitable? Rising sea levels will make it possible for water to slowly creep into the city year after year, decade after decade. Storm surge from increasingly fierce hurricanes and tropical storms will lash Miami's low-lying coastline.

(MORE: [Map of U.S. States Most Vulnerable to Sea Level Rise](#))

And Miami's "remarkably flat topography" puts more than \$400 billion in real estate and infrastructure assets at risk of slowly being swallowed up by the ocean.

"With just three feet of sea level rise, more than a third of southern Florida will vanish," notes Grist.org in a [blog post](#) on the Rolling Stone story.

"At six feet, more than half will be gone; if the seas rise 12 feet, South Florida will be little more than an isolated archipelago surrounded by abandoned buildings and crumbling overpasses," [the story continues](#). "And the waters won't just come in from the east -- because the region is so flat, rising seas will come in nearly as fast from the west too, through the Everglades."

Miami -- and many other communities along U.S. coastlines -- has much to worry about if current predictions come to fruition. Just a few years ago, many climate scientists believed that it would take thousands of years for sea level rise to reach heights that would threaten coastal cities, perhaps rising only by inches in this century.

More recent research, however -- like the findings published in [this New York Times story](#) -- have prompted those estimates to be revised much higher, perhaps as high as 3 to 6 feet by the year 2100.

That's a particularly bad omen for regions like South Florida, where sensitive ecological treasures like Everglades National Park (its elevation varies from 0 to 8 feet above sea level) lie virtually unprotected from the expected onslaught of salt water intrusion into inland water systems.

The bad news doesn't stop at the surface, however. Because Miami is built on a foundation largely made up of limestone -- which water passes through easily -- building higher storm surge barriers won't solve the problem of keeping seawater out, as [National Geographic explains](#):

"It's already contaminating Florida's underground water supply, and it regularly erupts from Miami's sewers during 'king tides,' when the sun and moon exert their most powerful tidal pull on Earth," the [magazine noted in a June story](#) on New York City's plans to combat rising sea levels. "The problem is only going to get worse: By the century's end large parts of Florida may be underwater."

Floridians aren't all standing by idly, however, content to watch their homeland wash away. Florida Atlantic University's Center for Environmental Studies is set this October to host its second annual [summit on the threat of sea level rise](#), with a focus on how builders, architects, designers, planners and insurers can take the steps necessary to prepare South Florida's infrastructure and people in the decades to come.

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Galapagos Islands

A boat sails past Bartolome Island on the Galapagos archipelago. The Galapagos Islands, off the coast of Ecuador in the Pacific, are threatened by tourism. From 1978-2010, the islands were on the U.N.'s list of World Heritage Sites, precious places at risk from environmental threats or overuse. (Martin Bernetti/AFP/Getty Images)

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