

Study predicts significant Southern California beach erosion

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More than half of Southern California's beaches could completely erode back to coastal infrastructure or sea cliffs by the year 2100 as the sea level rises, according to a study released Monday.

Using a new computer model to predict shoreline effects caused by the rise of sea levels and changes in storm patterns from climate change, the research found that with limited human intervention, 31 percent to 67 percent of the beaches could vanish over the next eight decades with sea-level rises of 3.3 feet (1 meter) to 6.5 feet (2 meters).

Human efforts will likely need to increase to preserve the beaches, study lead author Sean Vitousek said in a statement.

"Beaches are perhaps the most iconic feature of California, and the potential for losing this identity is real," he said. "The effect of California losing its beaches is not just a matter of affecting the tourism economy. Losing the protecting swath of [beach](#) sand between us and the pounding surf exposes critical infrastructure, businesses and homes to damage."

Vitousek was a post-doctoral fellow at the U.S. Geological Survey at the time of the study and is now a professor in the Department of Civil and Materials Engineering at the University of Illinois at Chicago.

The study was published in the American Geophysical Union's *Journal of Geophysical Research: Earth Surface*.

The computer model looks at how sand is transported parallel and perpendicular to beaches as well as historical positions of shorelines and changes caused by waves and cycles such as the ocean warming phenomenon El Nino.

According to the researchers, its reliability was shown by accurately reproducing shoreline changes seen between 1995 and 2010.

Patrick Barnard, a USGS geologist and study co-author, said it shows that "massive and costly interventions" will be needed to save the beaches, which he described as both crucial to the Southern California economy and the first line of defense against coastal storm impacts.

Losing so many beaches would be unacceptable, said John Ainsworth, executive director of the California Coastal Commission.

"The beaches are our public parks and economic heart and soul of our coastal communities," he said.

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