

Some coral reefs keep up with sea-level rise, research finds

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This healthy inner reef near Palau shows exceptionally luxuriant coral growth and good carbonate production. New research from Florida Tech finds that healthy reefs such as this one may be able to keep up with rising sea levels. Credit: Florida Institute of Technology

Rising sea-level is threatening island nations that are no more than 3 feet above the high-tide line, but a new study has found that healthy coral reefs may be able to keep up and thus protect these vulnerable areas.

The findings from Florida Institute of Technology biology professor Rob van Woesik, published this week in the journal *PLOS ONE*, are based on an extensive field study in Palau and Yap in Micronesia.

Building sea walls on tropical coasts to keep out the ocean is a substantial economic investment for small-island nations. "We know that coral reefs naturally build walls of limestone, and we found that some healthy reefs could produce enough of the material to keep up with [sea-level rise](#) under moderate [climate](#) change," van Woesik said.

He added, "Coral reefs, however, will not be able to keep pace with sea-level rise under rapid climate change, or business-as-usual, which is what's occurring today."

"We also found that nearshore reefs produce less limestone than reefs in other habitats, such as in lagoons and outer barrier reefs, so the nearshore reefs are most vulnerable to sea-level rise."

These results stress the need to reduce land-based pollution and sediment as the climate continues to change.

"Damaged coral reefs do not have the capacity to keep up with sea-level rise, inflicting a large economic burden on the coastal societies to build sea walls," van Woesik added.

This study emphasizes a need to protect nearshore reefs as sea-level rise continues. Where [coral reefs](#) cannot keep up with sea-level rise, natural storm barriers will disappear, resulting in the loss of habitable land for millions of people worldwide.

More information: Robert van Woesik et al. Keeping up with sea-level rise: Carbonate production rates in Palau and Yap, western Pacific Ocean, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0197077](#)

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