

Rising sea level estimates require collaborative response, experts say

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Credit: Tiago Fioreze / Wikipedia

Policymakers and scientists must act quickly and collaboratively to help coastal areas better prepare for rising sea levels globally, say climate change experts from Princeton and Penn State universities.

Their analysis will appear Friday, Dec. 16, in the journal *Science*.

Recent estimates suggest that global mean [sea level rise](#) could exceed two meters by 2100. These projections are higher than previous estimates and are based on the latest understanding of how the Antarctic ice sheet has behaved in the past and how sensitive it is to future [climate change](#). The projections pose a challenge for scientists and policymakers alike, requiring far-reaching decisions about coastal policies to be made based on rapidly evolving projections with large, persistent uncertainties.

"An effective approach to managing coastal risk should couple research priorities to policy needs, enabling judicious decision-making while focusing research on a few key questions," write co-authors Michael Oppenheimer, a professor of geosciences and international affairs in the Woodrow Wilson School at Princeton, and Richard Alley, a professor of geosciences at Penn State.

The researchers say scientific developments are emerging too fast to be captured by the Intergovernmental Panel on Climate Change (IPCC) assessments. "Policy-makers are left without a means to contextualize recent estimates, which remain highly uncertain," the authors write. "But ignoring such estimates could prove disastrous."

They say waiting another few decades to decide on specific adaptations in the hope that scientific predictions will become firmer may put completion off until the last quarter of this century. At that time, actual sea level rise could be approaching two meters, with a much larger rise still to come.

"Scientists can contribute to improving the basis for policy judgments by presenting policy-makers with projections that are as fully probabilistic as possible while also characterizing deep uncertainties, rather than just handing the worst-case or most-likely estimates," write Oppenheimer and Alley. "Coastal protection is a risk management issue, and risks cannot be fully managed outside a probabilistic context."

More information: "How high will the seas rise?," *Science*
[science.sciencemag.org/cgi/doi ... 1126/science.aak9460](https://science.sciencemag.org/cgi/doi/10.1126/science.aak9460)

Provided by Princeton University

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