

Report: US to get seas rising by 2030 (Update)

June 22 2012, by JEFF BARNARD



Global sea levels could rise two to three times higher over the next century than previously estimated, according to a study released Friday by the US National Research Council.

The West Coast will see an ocean several inches (centimeters) higher in coming decades, with most of California expected to get sea levels a half foot higher by 2030, according a report released Friday.

The study by the National Research Council gives planners their best look yet at how melting ice sheets and warming oceans associated with climate change will raise sea levels along the country's Pacific coast. It is generally consistent with earlier global projections, but takes a closer look at California, Oregon and Washington.

Although the six inches expected for California by 2030 seem minor, the

report estimated that sea levels there will be an average of three feet higher by 2100. About 72 percent of the state's coast is covered by sandy cliffs, and the rest include beaches, sand dunes, bays and estuaries.

Seaside cliffs will be cut back about 30 yards (meters) over the next 100 years, and sand dunes will be driven back even more, said Robert A. Dalrymple, a professor of civil engineering at Johns Hopkins University and chairman of the group that wrote the report. Coastal wetlands will be able to keep pace for about 50 years, but will eventually be overwhelmed without new sources of sand, and room to move inland.

The report noted that dams hold back about a third of that sand, which once washed into the sea from the Klamath River in Northern California.

Northern California, Oregon and Washington can expect a less dramatic increase — about four inches by 2030 and two feet by 2100 — because seismic activity is causing land to rise north of the San Andreas Fault, offsetting increasing sea levels, and drop south of it. The fault runs out to sea at Cape Mendocino.

Oregon has the advantage of tough basalt formations on much of the coast, but long stretches of Washington are low-lying sandy beaches.

"Anything close to the seas is vulnerable," Dalrymple said.

The most immediate threat over the next few decades will come from periodic ocean-warming El Nino events, said Gary Griggs, director of the Institute for Marine Sciences at the University of California at Santa Cruz, who was one of the scientists assembled by the council to produce the report.

"During those events, sea level is elevated as much as a foot above

normal and then we've got typically larger waves coming in with the high tides," particularly in the Northwest, he said.

The report noted that some computer models suggest storms will be stronger as global warming progresses. But Dalrymple said there was no clear consensus in scientific literature, and data from ocean buoys showing waves getting bigger in the Northwest don't go back far enough to conclude that trend will continue.

If a major earthquake occurs beneath the Pacific Ocean off Oregon and Washington, in what is known as the Cascadia subduction zone, that would cause the land to drop, allowing sea level to rise another three to 6 feet (1.8 meters) immediately, the report said. Such a major temblor occurred 300 years ago, but becomes more likely as time passes.

The report was commissioned by states and federal agencies looking for detailed information so they can plan for an accelerated rate of erosion along beaches, bluffs and sand dunes that are already crumbling into the sea. It projected that sea level will rise a little lower in 2100 than the projections currently used by California officials.

"A lot of the data we had before was worldwide data or has the caveat, 'Can't be used for planning purposes,'" said Susan Hansch, chief deputy director of the California Coastal Commission. "It all comes down to the better data you have, the better decisions you can make."

Sea levels rise for two reasons due to global warming.

Warmer water expands, which can cause as many as 23 inches (58 centimeters) of sea level to rise by 2100, according to the Nobel Prize winning Intergovernmental Panel on Climate Change. Warmer temperatures also cause ice sheets in Greenland and west Antarctica to melt slowly, adding another foot or more to sea levels by 2100, scientists

said.

Those estimates, however, were for the planet as a whole. Some places will see higher seas, while others will get less dramatic increases.

Globally, sea levels have risen about eight inches over the last century, but the rate has been increasing significantly, said Griggs.

The report summarized published projections and updated it with an analysis of tidal gauge readings and satellite measurements along specific sites on the West Coast.

Copyright 2012 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.

Citation: Report: US to get seas rising by 2030 (Update) (2012, June 22) retrieved 25 April 2024 from <https://phys.org/news/2012-06-higher-sea.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.