

Seaweed records show impact of ocean warming

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As the planet continues to warm, it appears that seaweeds may be in especially hot water. New findings reported online on October 27 in *Current Biology*, a Cell Press publication, based on herbarium records collected in Australia since the 1940s suggest that up to 25 percent of temperate seaweed species living there could be headed to extinction. The study helps to fill an important gap in understanding about the impact that global warming is having on the oceans, the researchers say.

"Our findings add an important piece in the puzzle that is determining the global [impacts of climate change](#)," said Thomas Wernberg of the University of Western Australia.

"We found that temperate seaweed communities have changed over the past 50 years to become increasingly subtropical, and that many temperate species have retreated south towards the Australian south coast. By extending the observed rates of poleward retreat to other species in the southern Australian seaweed flora, we estimated that projected ocean warming could lead to several hundred species retracting south and beyond the edge of the Australian continent, where they will have no suitable habitat and may therefore go extinct."

The magnitude of the shifts the researchers observed are consistent with patterns of observed warming in those areas.

The findings in Australia represent two of the major global oceans, the Indian and Pacific, Wernberg said. He added that it is also important to

have documented these shifts in Australia because the [Southern Hemisphere](#) has been substantially underrepresented in climate change studies.

The analyses draw on a very extensive marine database of more than 20,000 records of collected seaweeds. "Importantly, we did not select species based on preconceived ideas about which ones should have shifted or not—we looked at all 1,500 or so species in the southern seaweed flora and analyzed all of those species that had sufficient records."

The changes observed in the seaweed community could have cascading effects across marine ecosystems, Wernberg said, as seaweeds are the "trees of the ocean," providing food, shelter, and habitat to a diversity of other species.

"I hope people will appreciate that the threats of climate change to marine environments are not just about exotic tropical coral reefs but also are likely to affect the diversity of life across a much broader spectrum of marine ecosystems," Wernberg said.

Provided by Cell Press

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