

# Are new corals in Sydney dangerous invaders or harmless refugees?

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Populations of *Pocillopora aliciae* are thriving in coastal Sydney. Credit: John Sear

Worsening environmental pressures, such as higher sea temperatures, are causing the catastrophic loss of coral cover around the globe. As the waters of the Great Barrier Reef warm, subtropical corals are heading south in search of cooler waters.

Sydney has recently become home to a new subtropical coral, which raises a significant question: could Sydney be a refuge for corals displaced by [climate change](#)?

The answer, say coral reef researchers at the University of Technology Sydney (UTS), is yes ... but.

A new study, published in *Coral Reefs*, analyzed the metabolism of these new corals under existing and future warming scenarios and found the invading subtropical corals will survive and thrive in coastal Sydney.

Study leader Dr. Jen Matthews, of the Future Reefs Program at UTS, says warming could spell trouble for existing Sydney coral species.

"While we found these corals possess the machinery to withstand large changes in temperature, those temperatures could kill the existing corals in Sydney. This is incredibly important when we consider the future of Sydney's precious ecosystems," Dr. Matthews says.

"Coastal Sydney falls in the temperate climate zone, so the establishment of subtropical coral populations raises some interesting questions, such as how can they survive at the edge of existence? We are continuing to examine how corals can live and breed in temperate, or suboptimal, environments, and how we might use this knowledge to help us to protect Australia's reefs into the future.

"The ecological services and economic revenue of the Sydney [marine environment](#) make it a very valuable ecosystem but it is under continuous threat from climate change and urbanization, causing increased stormwater inflows and habitat modification."

However, co-investigator Dr. Brigitte Sommer (UTS) says there may be exciting upsides—increasing the biodiversity and complexity of Sydney's

[marine ecosystems](#) could bring benefits in terms of refuge for reef fish, coral crabs and potentially other coral species.

"Determining which [coral species](#) will be able to migrate poleward in warming seas and how they will interact with [local species](#) is critical so we can protect these dynamic ecosystems into the future," Dr. Sommer says.

**More information:** Raúl A. González-Pech et al, Physiological factors facilitating the persistence of *Pocillopora aliciae* and *Plesiastrea versipora* in temperate reefs of south-eastern Australia under ocean warming, *Coral Reefs* (2022). [DOI: 10.1007/s00338-022-02277-0](https://doi.org/10.1007/s00338-022-02277-0)

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