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3D-Printed Reefs Offer Hope in Coral Bleaching Crisis

Fabien Cousteau and Dutch engineers hope new technology can slow damage in the ocean.



THE GREAT BARRIER REEF MAY BE DYING FASTER THAN WE THOUGHT

By [Laura Parker](#)

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The news on coral reefs alternates between doom and hope. Reefs are among the most fragile ecosystems on the planet and essential to marine life. They are also highly sensitive to climate change and are dying at a dramatic rate.

By the century's end, virtually every reef in the ocean will suffer annual life-threatening bleaching events, according to a report published earlier this year in [Nature's Scientific Reports](#). Australian scientists who surveyed the [Great Barrier Reef](#) last month now say the world's largest coral reef system, which lost about a fourth of its coral last year in its worst-ever bleaching event, faces another bleaching problem this year that could be even worse. A paper [published Thursday on the cover of Nature](#) confirmed those fears by documenting hundreds of miles of bleached Australian reef, a consequence of warmer water.

But—and here's the hope—fake reefs may be less vulnerable to climate change and more durable in the changing ocean chemistry than natural reefs. Scientists are using 3D-printing technology that enables them to create fake reefs mimicking the texture and architectural structure of natural reefs in ways that haven't been achieved in prior restoration efforts.

Experimental installations of these 3D-printed reefs are now going on in the Mediterranean, the Caribbean, the Persian Gulf, and Australia. If they succeed in the coming years in luring not only fish but also baby coral polyps, which attach themselves to structures and multiply, they can grow into new reefs and reestablish some of the most important habitats on Earth.



This close-up image shows coral polyps losing their pigment as a result of bleaching, spurred by warm water.

PHOTOGRAPH BY KEITH A. ELLENBOGEN, AP