

Corals storm back after 'sea-weeding' project

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Dr. Adam Smith removes macroalgae from corals off the coast of Magnetic Island. Credit: Roxana Caha

A volunteer seaweed removal program involving citizen scientists has seen a dramatic improvement of up to 600% coral regrowth off the coast of Magnetic Island.

Led by James Cook University Senior Research Officer Hillary Smith and Professor David Bourne (JCU and Australian Institute of Marine Science), the joint Earthwatch Institute program, which has been ongoing since 2018, saw volunteer citizen scientists help remove macroalgae (aka "sea-weeding") from experimental plots at two reef sites.

The findings from the first three years of the project, published today in the [*Journal of Applied Ecology*](#), show that in areas of reef that were weeded, significant regrowth was recorded, in a welcome sign for rejuvenation of corals.

Over the same time period, no change in [coral cover](#) was recorded in plots where the team didn't remove the macroalgae.

"We have yet to see a plateau in coral growth within these plots at Magnetic Island, which is characterized as one of the degraded reefs on the Great Barrier Reef," Smith said.

"We also found an increase in coral diversity, so this method is benefitting a wide range of different coral types.

"Every time we return, the seaweed is growing back less and less, so this method could provide lasting benefit without requiring endless effort."

Smith said while corals and seaweed are both natural parts of a reef, when there is widespread coral loss from [extreme weather events](#), such as bleaching or cyclones, seaweed is much faster to regrow and outcompete coral.

Many reefs around the world are seeing corals being replaced by macroalgae as [climate change](#) and local stressors devastate global reef ecosystems, placing increased focus on developing active management

approaches.

The removal method used by volunteers involved pulling the seaweed off the seafloor by hand.

"It's just like weeding your garden," Smith said.

"The benefit of this project, from our point of view, is that there's a lot of funding going in to high-tech interventions for reef restoration, but the accessibility of using those techniques in developing countries, where many coral reefs are located, is currently limited.

"This technique, pending future research, is something that could be implemented quite easily by [reef](#) managers with limited resources, particularly in these developing or island nations."

Smith said her team were now scoping other locations where the weeding technique could be useful, including the Whitsunday Islands, which are home to a different species of predominant [seaweed](#).

"We would also like to look at reefs in Singapore and Indonesia, which experience more urban pollution, and French Polynesia and the Wallis and Futuna Islands which experience fishing stressors," she said.

"A project like this enables people to take ownership of their local environment and also makes them aware that there are small things they can do to help our planet."

"Earthwatch Australia wants to see this program scaled up, as we are incredibly proud to see successful coral recovery that can be achieved with [citizen scientists](#) and everyday people who want to take action to save our [coral reefs](#)," said Fiona Sutton Wilson, CEO of Earthwatch Australia.

For those interested in getting involved, sea-weeding research will be continuing at Magnetic Island until at least 2025.

To find out more about how to participate, visit

<https://earthwatch.org.au/expeditions/recovery-of-the-great-barrier-reef>.

More information: Hillary A. Smith et al, Sea-weeding: Manual removal of macroalgae facilitates rapid coral recovery, *Journal of Applied Ecology* (2023). [DOI: 10.1111/1365-2664.14502](https://doi.org/10.1111/1365-2664.14502)

Provided by James Cook University

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