

New database gives scientists hope for helping coral reefs

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Acropora corals growing on a reef crest, Lizard Island, Great Barrier Reef, Australia. Credit: Photo by Tom Bridge (tethys-images.com).

With the future of coral reefs threatened now more than ever, researchers have announced the release of a new global database that enables scientists and managers to more quickly and effectively help corals survive their many challenges.

In a paper describing the database, published recently in *Scientific Data*, Professors Andrew Baird and Sean Connolly from the ARC Centre of Excellence for Coral Reef Studies (Coral CoE) say the Coral Trait Database will assist scientists working on [coral reefs](#) answer a multitude of questions.

"The trait database is the first of its kind for corals and will allow coral reef scientists to begin to address many significant, unresolved questions - and much faster," Professor Baird says.

"Traits are fundamental to most aspects of the ecology and evolution of organisms," he explains. "For example, the Great Barrier Reef is now in the grip of perhaps the largest coral bleaching episode in history, and this database can help scientists explain why some species are more susceptible than others."

Associate Professor Joshua Madin from Macquarie University's Genes to Geoscience Research Centre, who led the team developing the database, adds, "In fact, there are hardly any questions you can't ask of the database: its number of uses are extraordinary, but progress in these areas has been hindered by the lack of readily accessible trait data."

Baird, Madin and their colleagues spent thousands of hours compiling the database over the past few years. They sifted through papers published in journals, tables printed in books, and examined other resources scattered around the globe.

Some of the data had been buried in obscure, often difficult to access - but highly informative - books dating back to the 1800s. The Coral Trait Database promises to save a lot of time, money and effort across all fields of coral reef studies.

"A lot of these data were not easily accessible, and it was expensive for many to get to," explains Professor Sean Connolly. "So much of the Coral Trait Database content was previously only available to the "elite". The existence of this tool also means the coral reef research community can cut down on redundant research efforts."

Coral reefs remain one of the most diverse and valuable ecosystems on the planet, hosting more species than any other marine environment. Globally, an estimated 275 million people rely directly on coral reefs for food, protection from waves and storms, income, and cultural value. They are also crucial in providing protection and habitat for healthy fish populations. However, in the past 20 years, coral cover has diminished by as much as 95 percent in some locations.

Climate change and the El Niño of the recent months combined are currently contributing to a global mass-bleaching event - and on a scale previously unseen in recorded history. Added stresses from pollution and over-fishing further complicate coral reef health.

"Coral reefs are changing rapidly, and that is unlikely to slow down," Madin says. "If we don't understand these changes, we can't protect these species-rich ecosystems. We need to speed the science up, and to think creatively about how to do that."

"We hope this database will support scientists trying to make a difference by providing them access to the data they need quickly, and at no cost."

More information: Joshua S. Madin et al. The Coral Trait Database, a curated database of trait information for coral species from the global oceans, *Scientific Data* (2016). [DOI: 10.1038/sdata.2016.17](https://doi.org/10.1038/sdata.2016.17)

Joshua S. Madin et al. A Trait-Based Approach to Advance Coral Reef Science, *Trends in Ecology & Evolution* (2016). [DOI: 10.1016/j.tree.2016.02.012](https://doi.org/10.1016/j.tree.2016.02.012)

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