

Good bacteria vital to coral reef survival

June 23 2016



Bleached and unbleached coral close-up. Credit: Raphael Ritson-Williams

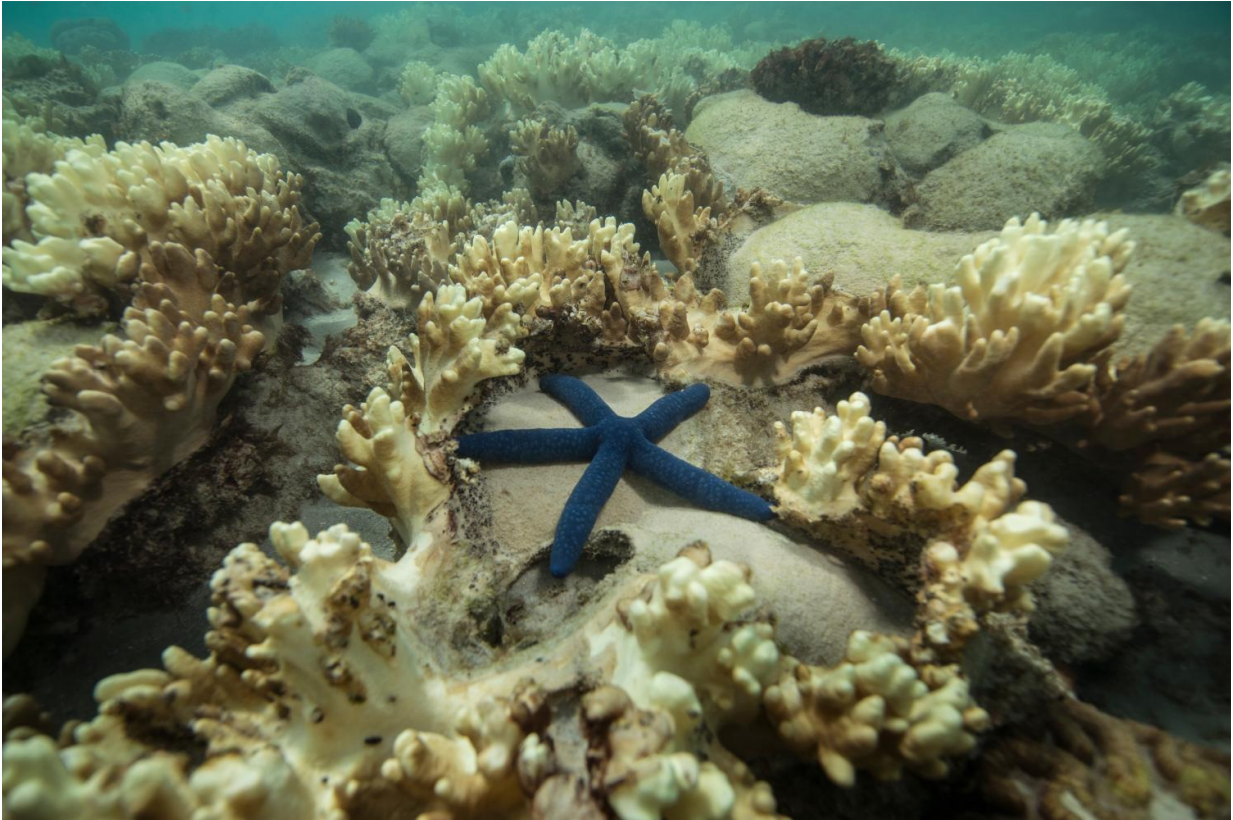
Scientists say good bacteria could be the key to keeping coral healthy, able to withstand the impacts of global warming and to secure the long-term survival of reefs worldwide.

"Healthy corals interact with complex communities of beneficial microbes or 'good bacteria'," says Dr. Tracy Ainsworth from the ARC Centre of Excellence for Coral Reef Studies at James Cook University who led the study. "It is very likely that these microorganisms play a pivotal role in the capacity of [coral](#) to recover from bouts of bleaching caused by rising temperatures."

"Facilitating coral survival and promoting coral recovery are growing areas of research for coral reef scientists," says co-author Dr. Ruth Gates from Hawai'i Institute of Marine Biology, University of Hawai'i. "To do this we need to explore and understand the bacteria that help keep corals and coral reefs healthy."

Dr. Ainsworth and Dr. Gates have identified new directions for research in understanding coral survival in rapidly changing reef environments.

"We know that lasting changes to the community of beneficial bacteria affects important aspects of the function of host organisms such as humans or corals, including their ability to withstand further stress," says Dr. Ainsworth.



Starfish are surrounded by decomposing coral on the Great Barrier Reef, captured by the XL Catlin Seaview Survey at Lizard Island in May 2016. Credit: The XL Catlin Seaview Survey

"Corals rely on good bacteria but crucially we don't yet understand these microbes well enough to know how they influence coral survival."

Their latest research has been published in the journal *Science*, and gives an overview of the current understanding of bacterial communities on corals. It highlights the vital importance of good bacteria to coral health.

The scientists discuss how corals, and coral reefs that survive large-scale changes in the environment over the coming decades, are likely to be very different from those of today.

They say the interaction between corals and [good bacteria](#) is crucial to long-term survival.

Their work comes from recent advances in understanding the complexity of the coral's genetic make-up and the unique bacterial communities that corals maintain.

"Preventing physical contact with corals and maintaining high water quality on reefs during stress events will reduce stress loads on corals and creates the best case scenario for survival and recovery," says Dr. Gates.

More information: "Corals' microbial sentinels," *Science*, [DOI: 10.1126/science.aad9957](https://doi.org/10.1126/science.aad9957)

Provided by University of Hawaii at Manoa

Citation: Good bacteria vital to coral reef survival (2016, June 23) retrieved 18 April 2024 from <https://phys.org/news/2016-06-good-bacteria-vital-coral-reef.html>

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