CATALINA AGUILAR

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Genomic response of *Acropora millepora* under stress

Catalina was born and grew up in Cali, Colombia. She completed her BSc in Biology at University of Los Andes doing her thesis research on Caribbean octocoral phylogeny. After which, she enrolled in internships with South American research stations. In 2008, Catalina joined a master program at the University of the Ryukyus in Okinawa, Japan, where she continued her work with octocorals phylogeny; sampling corals throughout the Ryukyu Archipelago.

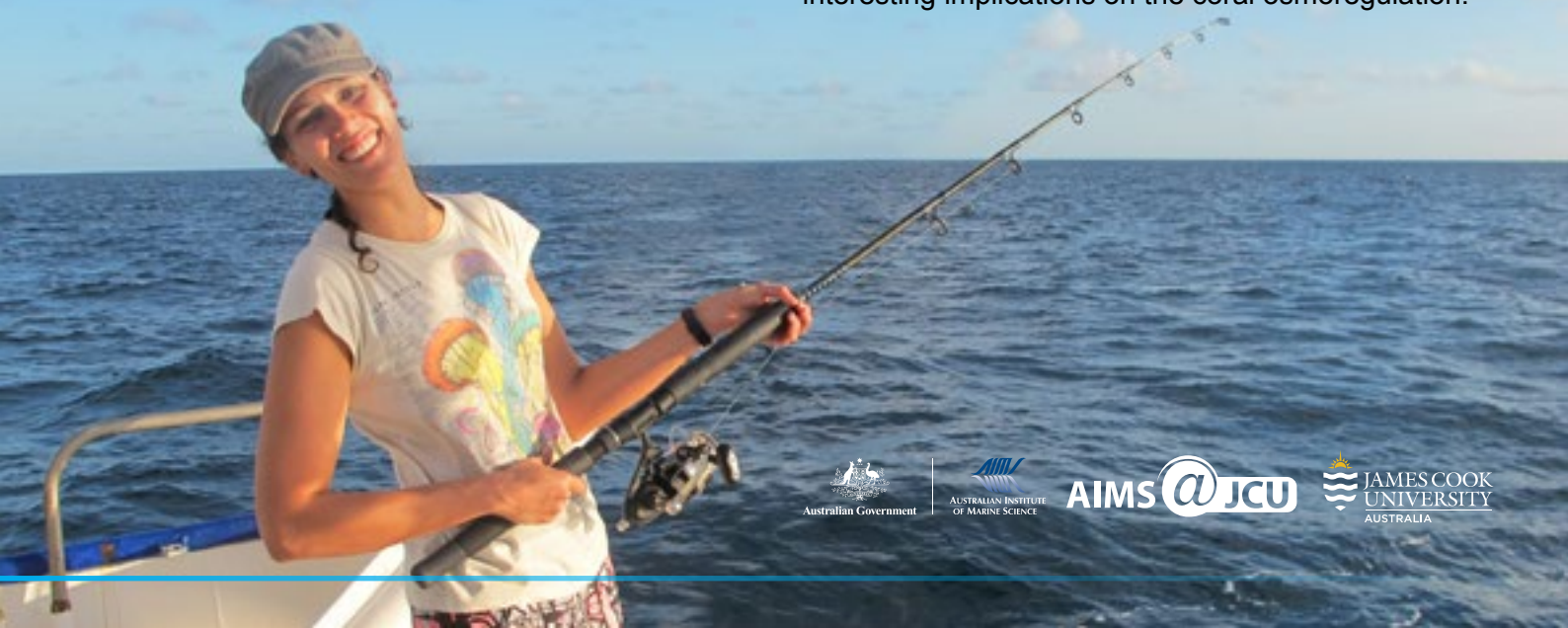
Coral reefs around the globe have been in decline for several decades; climate change is predicted to play an ever more significant role in this loss. In Northern Australia, the contrasting seasonal rainfall is set to intensify, this will lead to an increase in annual salinity fluctuations which have been associated with coral mortality in the wet season.

On a larger time scale, some studies have found that changes on the water chemistry such as the predicted by ocean acidification, may stress corals and compromise their immune system. There are precedents for this: in both Drosophila and mammals; hypercapnia directly suppresses the innate immune response. Some corals have been found to produce a molecule called dimethylsulphoniopropionate (DMSP) in response to stress. DMSP is involved in the sulphur cycle and may have some implications on the local climate regulation.

Based on earlier investigations of the innate immune response in Acropora, Catalina used Illumina RNAseq technology to investigate the effect of ocean acidification on the coral response to an immune challenge. The project involved exposing different life stages of the coral Acropora millepora to stress conditions (high CO_2 and low salinity). After exposure, coral samples were collected at different time points for RNAseq analysis as well as for DMSP quantification.

A. millepora reads from high-throughput sequencing were mapped on to the *A. millepora* genome and the results are now under analysis.

Catalina has found that elevated CO_2 may compromise the innate immune response of corals, as in higher organisms. Moreover, she found that both juveniles and adult corals produce high levels of DMSP under low salinity conditions, which have some interesting implications on the coral osmoregulation.



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Conferences

3rd Asia Pacific Coral Reef Symposium (APCRS), Kenting, Taiwan, 23-27th June 2014

Australia Marine Science Association (AMSA) conference, Canberra, 6-10th July 2014

Australian Coral Reef Society (ACRS), Sydney, 9-13th July 2013

12th International Coral Reef Symposium (ICRS), Cairns, 9-13th July 2012