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Combined effects of water quality and climate change on the early life history stages of hard corals

Adriana has been working with Marine ecosystems for the last 10 year. She was awarded an MSc in Venezuela, where she grew up. Her thesis estimated the spatial and temporal variation of coral settlement and early survivorship rates throughout a year in Los Roques Archipelago. Adriana successfully competed for AusAid and AIMS scholarships, which allowed her to fulfill her dream of working with coral reproduction at JCU.

Coral reefs around the world, including the Great Barrier Reef (GBR), are facing increasing pressure from terrestrial runoff, global warming and ocean acidification. Nearshore reefs have developed with seasonal of river runoff, however human activities have increased nutrient and sediment discharges. Adriana's research aims to better understand the interactions of water quality and ocean warming on the first stages of hard corals, and the capacity of reefs to recover from climate disturbances so these important habitats may be managed affectively.

To do this, Adriana will conduct laboratory experiments looking at Fertilization; embryogenesis; larval development; settlement; recruit's growth; calcification and survivorship of the coral. The individual and combined effects of sediments, organic enrichment and temperature will be recorded and sediment property, nutrient and microbial analysis will help to uncover the possible mechanisms of any effect.

So far, Adriana has found that enriched sediments have long lasting effects on *Pocillopora damicornis* recruits, affecting their survivorship days after they were exposed to them. These results indicate that enriched sediments, such as those found in major flood or eutrophication events, might have lethal effects on some coral recruits even with short exposure times.

Publications

Basch, L.V. et al., 2008. Recruitment Dynamics of Scleractinian Corals in a network of National Parks and Marine Protected Areas: West Coast Hawaii Island. In *11th International Coral Reef Symposium*. Ft Lauderdale, Florida, p. 352. Available at: http://www.nova.edu/ncri/11icrs/11icrs_abstractbook_final.pdf.

Humanes, A., 2013. Effects of turbidity and sedimentation on the survival of *Pocillopora damicornis* recruits. In *87th Annual ACRS Conference*. Sydney.

Humanes, A., 2013. Effects of turbidity and sedimentation on the survival of *Pocillopora damicornis* recruits. Oral presentation. In *AIMS@JCU Seminar Day*. Townsville.

