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ARC Centre of Excellence for Coral Reef Studies

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Spatial and temporal variation in the growth of branching corals

Kristen completed her BSc in Canada studying biology. Her love of the ocean took her to Honduras where she volunteered as a research assistant at the Utila Centre for Marine Ecology. She then travelled to JCU to undertake a semester of research, awarding her a Graduate Certificate of Science in Marine Biology. Kristen received first class distinction for her honours project, investigating summer growth rates of corals at Lord Howe Island, under the supervision of Morgan Pratchett.

Branching corals are important for reef complexity and structure; they are the dominate source of food and shelter for many reef associated organisms. Climate change has altered the ocean temperature and acidity. It is important to determine how these changes will impact on coral growth rate. It is very difficult to hindcast for this, so the only way to determine changes in growth is to compare current and past data.

Kristen's research will investigate the growth of important habitat forming corals, *A. muricata* and *P. damicornis*, at a range of locations along the east coast of Australia, taking advantage of locations with established datasets, such as Lord Howe Island, Davies Reef and Lizard Island. In doing so, current measurements of linear extensions can be directly compared to prior measurements to assess whether coral growth is increasing or decreasing. These results will be instrumental to our understanding on the affects of climate change on vital habitat forming corals and be influential for future management strategies.

Kristen has found significant reductions in growth of two important branching species at Lord Howe Island, the most southern reef in Australia. Increasing temperature was expected to favour an increase in growth rates at this subtropical location, as coral growth was thought to be limited by cold temperatures in the winter months. However other factors such as a reduced saturation state may be hindering coral growth. Possibly it is the synergistic effect of temperature stress and declining aragonite saturation.

Publications

Anderson, K., Pratchett, M. & Baird, A., 2012. Summer growth rates of corals at Lord Howe Island , Australia. In *12th International Coral Reef Symposium. Cairns, Australia*, pp. 9–13.

