



# Fishy don't like sandy sandwiches...

## Reef recovery and the control of algal outbreaks

**PROJECT NAME:** Reef HQ Aquarium provides a rare experimental setup for researchers to investigate the role fish have on reef recovery by grazing algae.

**PROJECT DATES:** June –November 2014.

**PROJECT LEADER:** Professor David Bellwood. James Cook University, Townsville, Australia.

**PROJECT FOCUS:** Coral reefs around the world are degrading. Many reefs exhibit shifts from one state to another with a shift from coral to algal domination been recorded in many coral reef systems. Australian reefs are not immune to such degradation with inner shelf reefs on the Great Barrier Reef and elsewhere, being most at risk due to their proximity to the mainland.

Increased sedimentation is one of many factors affecting the health of the reef, and it can cause herbivorous fish to stop grazing on algae, just like we avoid eating sandy sandwiches. These fish play a pivotal role in the maintenance of healthy reef ecosystems as they act as lawnmowers; cropping algal turfs and keeping the algae under control. If this activity is suppressed it can have cascading effects contributing to the degradation of reefs as algae compete with and ultimately overgrow corals.

**What is the current state of algal turfs and herbivorous activity within the aquarium?** By answering this question we will be able to provide insights into the steps that need to be taken to successfully reduce the growth of algae and reverse the current algal expansion within the reef aquarium.



Cages are installed in the tank to compare algal growth in the presence of, and in the absence of, herbivorous fishes and sea urchins. © Reef HQ Aquarium.

**PROJECT OUTCOMES:** Reef HQ Aquarium currently provides a good proxy for inshore reefs on the Great Barrier Reef. The aquarium contains a well-established community of fishes representing many of the functional roles found on the reef. In addition, the current conditions in the aquarium are similar to some inshore reefs on the Great Barrier Reef, showing an increase in the length of the algal turfs. By assessing the conditions and carrying out steps to reverse declines in the Reef HQ Aquarium we can provide an insight into steps which may be ultimately be undertaken to help regenerate sections of the Great Barrier Reef.

