Progress Report STP 2019-037 (FY 2019-2020)

How does environmental disturbance effect macroalgal assemblages at Ningaloo

Marine Science

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Progress Report

Tropical macroalgal meadows can cover extensive areas of the shallow seascape, providing habitat for an abundance of organisms. There is however a paucity of information on processes that drive distribution and structure of tropical macroalgal meadows, particularly how they respond to large-scale natural disturbances. To assess the effects of environmental disturbance on tropical macroalgae, this study will explore temporal and spatial patterns in community composition and physical structure of macroalgal assemblages at Ningaloo Marine Park. The project will analyse macroalgal data collected annually from the Ningaloo lagoon between February 2013 and February 2018, incorporating periods before and after tropical cyclone Olwyn (March 2015) and a major flood event (April 2014).

The study found the cover and height of canopy forming macroalgal fields was greater at sites in the southern part of Ningaloo Reef. Macroalgal diversity was also lower at southern sites compared to those in the north and central regions. Whilst there are temporal differences in macroalgal assemblages, these cannot be definitively linked to floods and cyclones. Further assessment of sites near Coral Bay in the southern region found canopy height and cover was greatest where density of urchins was low and sediment depth was high. Algae from the genera *Sargassopsis*, *Caulerpa*, *Hormophysa*, and *Sirophysalis* were more common at sites with more sediment.