

National Environmental Science Program

The role of dugong and turtle grazing in Torres Strait seagrass declines Project 1.14

Project Summary

Dramatic declines in seagrass meadows in the Torres Strait Western Cluster were recorded in 2019 and 2020. These meadows are culturally important and represent significant foraging grounds for green turtles and dugongs. This project will use a short-term field study to investigate the role of megaherbivore grazing in two key locations where seagrass declines have been most dramatic. This project has been co-developed with the Torres Strait Regional Authority (TSRA), Sea Rangers and Goemulgaw PBC in response to community concerns about seagrass declines and the implications for the totemic megaherbivores they support. The results will inform Traditional Owner led dugong and turtle management plans and help direct actions for remediation as required.

Problem

The TSRA, Rangers and Traditional Owners have identified the widespread declines in seagrass meadows in the Torres Strait Western Cluster as a critical concern. Seagrass meadow condition around Mabuyag Island, Orman Reefs and the Dugong Sanctuary has decreased dramatically from very good condition to poor and very poor condition in the latest Torres Strait Seagrass report cards. These meadows are a critical food source for green turtles and dugong in Torres Strait and are culturally important to the local communities.

How Research Addresses the Problem

This project will identify the extent that grazing by green turtles and dugong is driving the recorded seagrass declines, to inform management measures and any interventions that may be required. This project will use a short-term field study adapting recent methods applied in the Great Barrier Reef (GBR) to investigate the role of megaherbivore grazing in two key locations where seagrass decline has been most dramatic: the Orman Reefs and Mabuyag Island.

General Project Information

Megaherbivore exclusion cages will be deployed in seagrass meadows and maintained by Rangers and the community. Seagrass metrics (biomass, species composition, shoot height) inside cages and adjacent control plots will be measured at the beginning, during and at the end of the experiment to understand the grazing pressure on seagrass meadows in both locations. Differences in seagrass inside and outside of exclusion cages will be analysed to establish the role of dugong and green turtle grazing in structuring



seagrass meadows in two locations where declines have been observed. These results will form the starting point to establish potential causes of decline in this area.

The genesis of this project has come from a long-term relationship between JCU researchers, the Mabuyag community and the TSRA through the Land & Sea Management Unit. Over the past year the Traditional Owners, JCU and TSRA have been working together to understand seagrass declines. The results of this project will be combined with data from JCU and Ranger monitoring surveys to understand how changes in seagrass meadow condition may be driven by megaherbivore gazing. These findings will inform local management measures by the TSRA and Traditional Owners and will also inform Torres Strait management more widely.



LEFT: Exclusion cages around Mabuyag Island Photo credit: TropWATER

ABOVE: Exclusion cages on Orman Reef Photo credit: TropWATER

OPPOSITE PAGE: Green turtles on Orman Reef Photo credit: TropWATER

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