



National Environmental Science Programme

Seagrasses of the Great Barrier Reef: what is the 'desired state' of seagrass meadows, how can we achieve it, and what is their current condition?

Thursday 1st August 2019, 1-3pm

Gondwana and Wet Tropics Rainforest Rooms, Level 3, 400 George Street, Brisbane

1. What is the desired state of seagrass habitats of the Great Barrier Reef?

Dr Catherine Collier and Dr Alexandra Carter, James Cook University

2. How seagrass area and biomass changes with river discharge: a case study for the Burdekin River

Dr Vikki Lambert, University of Queensland

Break – tea/coffee

3. Update on seagrass condition in the Great Barrier Reef

Dr Alexandra Carter, Len McKenzie, and Dr Catherine Collier, James Cook University

4. Herbivory in seagrass meadows

Abbi Scott, James Cook University

Seagrasses cover 35,000km² of the Great Barrier Reef (GBR) – far exceeding the area of the more visible coral reefs. They are important nursery grounds for recreational and commercial fisheries and support key iconic species that are valuable for tourism, including dugong and turtles. But these seagrass meadows face multiple threats and are highly dynamic in response to natural and anthropogenic disturbances.

Funded by the National Environmental Science Program Tropical Water Quality (NESP TWQ) Hub, a team of researchers led by TropWATER at James Cook University, are investigating the question: What is the 'desired state' of seagrasses in the GBR? This is a complex challenge, and there are few examples of how to quantitatively set such ecological targets in complex dynamic marine ecosystems. We will talk through our approach to defining desired state and describe how we can apply the targets for prioritisation of management activities and in the implementation of regulatory frameworks. For example, seagrass meadow extent and biomass varies with river discharge and sediment loads. A comparison of these changes against desired state can be used as a step towards developing ecologically-relevant sediment load targets.

The 2018-19 wet season saw above average rainfall and river discharge throughout much of the region, with record-breaking floods in the Townsville region. We will provide an update on seagrass condition in the GBR in 2019 in the context of previous environmental conditions. Finally, we will describe ongoing research investigating how herbivory can structure seagrass meadows throughout the GBR, and how this can impact the ecosystem services they provide.



This project is supported through funding from the Australian Government's National Environmental Science Program