Photo credit: TropWATER, JCU

Marine and Coastal

National Environmental Science Program

Mapping critical habitat in Yanyuwa Sea Country

Project 1.12

Project Summary

li-Anthawirriyarra rangers seek to build on existing partnerships with CDU and JCU to map the intertidal habitats of the Yanyuwa Indigenous Protected Area (IPA) and coastal areas connected to it (Sir Edward Pellew Islands region). This area and the marine ecosystem of the southern NT Gulf of Carpentaria (GoC) is of profound importance to the Yanyuwa and Marra (Limmen region) people. Significant co-funding has been provided by the Mabunji Aboriginal Corporation (MAC) and DAWE Migratory Species Section. Co-funding from NESP II is being used to conduct mapping at a scale that can comprehensively inform Yanyuwa community decisions that underpin sustainable management and facilitate continued connection with Sea Country. This project leverages existing funding allocated to training, capacity building, community consultation and communication products committed to by the rangers, CDU, JCU, the Australian and the NT Governments.

Problem

The Yanyuwa and Marra people in the GoC are custodians of some of the most significant seagrass habitat in the NT. The area is culturally rich and has high biodiversity values, including the highest dugong abundance in the NT and extensive habitat for green turtles. Understanding the distribution and composition of these habitats is necessary to support the aspirations of the Yanyuwa people to sustainably manage Sea Country. However, there are no recent benthic habitat maps of the Yanyuwa IPA to support key management decisions.

How Research Addresses the Problem

The li-Anthawirriyarra rangers have sought to partner with CDU and JCU to map the intertidal waters of the IPA. The scale and complexity of the islands (and benthic habitats) means that funding from DAWE will fund the operational side of a survey to identify priority areas in the Yanyuwa IPA and some of the adjacent Marra area. Co-funding from NESP II will support data processing, spatial analysis (mapping), technical reporting and engagement with the Traditional Owners of Yanyuwa and Marra Sea Country.

This project is supported with funding from the Australian Government under the National Environmental Science Program.

General Project Information

The survey will be undertaken in the Yanyuwa IPA, which encompasses the Sir Edward Pellew Islands in the southern GoC (Figure 1). As leaders in seagrass mapping and monitoring, JCU have applied their expertise to refine methods needed to overcome challenges encountered when surveying remote benthic habitats under logistically difficult conditions. For these surveys, sampling will be co-designed in collaboration with the li-Anthawirriyarra rangers by considering:

- areas of greatest cultural significance and concern,
- budgetary and logistical constraints (i.e., surveys can only be conducted during a window of very low tides over 7 days),
- the need for reconnaissance for any future surveys of subtidal habitats.

Intertidal meadows will be sampled at low tide using a helicopter. Seagrass presence/absence, biomass and species composition will be determined from three replicate 0.25 m2 quadrats placed randomly within each site (10 m2 circular area). Other benthic habitat will also be recorded.

This project will use the same method as previous large-scale intertidal benthic mapping funded by NESP 3.5 and the TSRA in north-west Torres Strait (Carter and Rasheed 2016). Spatial data will be formatted using the same approach as that developed for NESP Project 3.1 and 5.4 mapping synthesis for GBR seagrass (Carter et al. 2021). Existing data on turtles, dugongs, and other significant species; culturally important information (provided by the community); and spatial information on threats to the IPA will be discussed in our reporting to provide context.

LEFT: *Seagrass* Halodule uninervis *in a protected inlet on the western side of West Island in Yanyuwa Sea Country. Photo Credit: TropWATER, JCU* ***CENTRE:*** Halophila ovalis *lifted from the mud for species identification at South West Island in Yanyuwa Sea Country. Photo Credit: TropWATER, JCU* ***RIGHT****: Tidal channels on the western side of South West Island in Yanyuwa Sea Country with seagrass habitats forming in the channels visible here as dark submerged areas. Photo Credit: TropWATER, JCU* ***OPPOSITE PAGE:*** *Extensive, dense and patchy seagrass meadows viewed from near West Island towards the mainland coast and inlets in Yanyuwa Sea Country.*

Project Leads

Dr Rachel Groom
E: rachel.groom@cdu.edu.au
P: 08 8946 7136

JAMES COOK UNIVERSITY AUSTRALIA

TropWATER

Marine and Coastal
National Environmental Science Program

CHARLES DARWIN UNIVERSITY AUSTRALIA

MARUNJI ABORIGINAL RESOURCE CENTRE