



PROJECT 4.11

Improving the health of seagrass and turtles – Pulu-Keeling National Park

The challenge

Seagrass meadows around the Cocos Keeling Islands (CKI) are culturally important to the Cocos Malay community, and ecologically important for many species including green sea turtles. Between 2006 and 2018 mapping surveys detected a 19 km² seagrass die-off, representing an 80% loss. This coincided with dredging for a new port facility, hot weather and calm conditions, and subsequent grazing pressure from green turtles. In response, work began on additional assessments and small-scale restoration trials. This resulted in a realisation that the situation had actually become worse! Where seagrass remained in the lagoon it only covered 1% of the seafloor indicating that the meadow was nearing total collapse.

It was clear that intense seagrass restoration efforts were urgently needed to avert local seagrass extinction. This project is undertaking this vital work, by creating and refining large-scale turtle exclusion areas proven elsewhere to be effective in supporting seagrass recovery.

The approach

Co-developed with the CKI community, Parks Australia, Cocos Marine Care and Sea Country Solutions, this project will establish a network of 400m² seagrass protection areas where grazing is excluded and seagrass refuge infrastructure established to support the recovery of remnant seagrass meadows at CKI. These areas will provide propagules for future assisted restoration and natural seedling establishment beyond the exclusion zones. Methods and techniques will be refined over 2–3 years, and the results will form the foundation of an action plan for the future.

Light, temperature and key water quality parameters will be measured at the restoration sites to understand their influence on seagrass restoration and recovery. Propagation trials and research will also be undertaken.

Expected outcomes

- Better understanding of impacts of seagrass meadow vulnerabilities to inform planning.
- Local community seagrass research and restoration aspirations addressed.
- Marine restoration solutions researched and implemented.
- Effectiveness of marine protection approaches refined.
- Monitoring and restoration of a threatened ecological community established.

Project leader

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FRONT: Seagrass restoration trials within herbivore exclusion cages at Cocos Keeling Islands. BACK: (Top) Prof Michael Rasheed (JCU) and Mr Osman Macrae (Cocos Marine Care) inspecting early seagrass restoration trials in Cocos Keeling Islands. (Middle) Community volunteers assiting with Home Island restoration. (Bottom) Seagrass restoration trials within herbivore exclusion cages at Cocos Keeling Islands. Credit: JCU.







