

GREEN ISLAND REEF REHABILITATION PROJECT

MARCH 2021



Image: © Commonwealth of Australia GBRMPA.

Background

Green Island is a popular tourist destination, situated 27km north east of Cairns. The island and its reef have a long history of human use extending back thousands of years, even before sea level rise transformed the area from coastal plains to a coral reef. The Gunggandji are the Traditional Owners of this land and sea country and call Green Island 'Wunyami'.

Like many reefs, Green Island is showing signs of impact from accumulating environmental stressors such as crown-of-thorns starfish, cyclones and most recently coral bleaching.

In recent years, concerns have been raised about the ability of coral reefs, including the Great Barrier Reef, to fully recover from the impacts of ongoing environmental stressors, in particular rapid climate change. This has led to a shift in management responses.

The Great Barrier Reef Marine Park Authority and Queensland Department of Environment and Science have developed a new policy on Great Barrier Reef Interventions.

In November 2020, a multi-stakeholder team came together to work on this reef rehabilitation project designed to improve live coral cover at Green Island.

Objective

The Green Island reef rehabilitation project is an innovative, multi-stakeholder reef restoration project using loose coral fragments, MARRS reef stars and Coralclips® to build new stable areas of live coral reef habitat.



Image: © Commonwealth of Australia GBRMPA.

PROJECT PARTNERS





Image: © Commonwealth of Australia GBRMPA.

Project key points

- The project site was chosen due to its relatively low coral cover and presence of loose rubble making it unsuitable for new larval corals to settle and grow safely.
- Adjacent hard coral cover (on coral rock) was also lower because of past impacts of crown-of-thorns starfish, coral bleaching and cyclones.
- Two rehabilitation tools were used:
 - **Reef stars** – Mars Assisted Reef Restoration System (MARRS) reef stars work in areas of loose coral rubble by providing a stable platform to attach coral fragments to, where they can continue to grow and eventually completely cover the reef star structure. They were originally developed by Mars Incorporated for use in Indonesia to rehabilitate reefs impacted by blast-fishing.
 - **Coralclips®** – These are spring-loaded wires made of stainless steel attached to hard coral rock via masonry nails. A suitable fragment of live coral can then be held in place under the clip where it continues to grow. The Coralclip® was developed by the Coral Nurture Program.
- A total of 165 reef stars and 200 Coralclips® were installed with the goal of improving coral cover through a 200 square metre area.
- The project used 2675 coral fragments found lying loose on the sea-bed, likely broken off by rough weather, large fish or other physical impacts.
- This project is also trialling the use of biodegradable cable ties, made of potato starch.
- This project will run over five years and involve regular site management and detailed monitoring.
- Local operators, private companies, Gunggandji Traditional Owners and marine park management agencies are working together in a way that is encouraged through the [Great Barrier Reef Blueprint for Resilience](#), which encourages new ideas and partnerships to improve reef health.
- The site is in 4-6 metres of water and available for both confident snorkelers and scuba divers to visit.

Key considerations

Reef stewardship and intervention projects like this one are:

- Not a replacement for major global action to address greenhouse gas emissions and the [impacts of climate change on coral reefs](#) globally.
- Not a replacement for continued efforts to address other impacts on the Great Barrier Reef.
- Designed to assist natural recovery processes in small areas of reef that have been impacted by environmental stressors.
- Potentially very useful to improve the condition of 'high-value' areas of reef (e.g. popular tourist sites or an area with identified specific high ecological value) or repair areas of reef damaged by vessel collisions.
- Examples of partnerships and stewardship actions that may become more broadly used across the Great Barrier Reef.
- Designed to include technical and field-based training for stakeholders and ongoing monitoring and reporting to help improve scientific understanding and measure levels of success.