A common ‘live’ habitat map

The Great Barrier Reef Foundation’s science investments are focussed on the vision of “A resilient Reef”.

Great Barrier Reef Foundation

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The coral reef habitats of the Great Barrier Reef are extensive and diverse, however no single map exists that can provide details of the location and depth of the different coral communities and substrate types for the entire Great Barrier Reef.

Habitat maps are critical for Reef management and protection

Creating baseline mapping is typically a priority in terrestrial environments, where they are applied extensively for advanced mapping, monitoring, modelling and management. To date this has not been done for the Great Barrier Reef due to the challenges of dealing with such an extensive area - one that is mostly submerged. Existing habitat maps only cover part of the Reef, with gaps and unresolved inconsistencies. These maps were created opportunistically for a range purposes and are characterised by variations in spatial and temporal scales, and extent.

Creating a “Common ‘live’ habitat map” for the Great Barrier Reef is a critical step in the protection of the Reefs resilience.

This map will provide the baseline data needed to assess the effect of climate change, disturbances (e.g storms, crown-of-thorns starfish, pollution), management interventions and conservation policies and to identify where we can optimally focus management resources.

Developing a single map for the whole Great Barrier Reef

The ultimate vision of this project is to develop a contiguous baseline map for the Great Barrier Reef, extending from the high tide limit offshore to the coastal edge of the continental shelf, including all of the coral reefs in the Great Barrier Reef Lagoon.

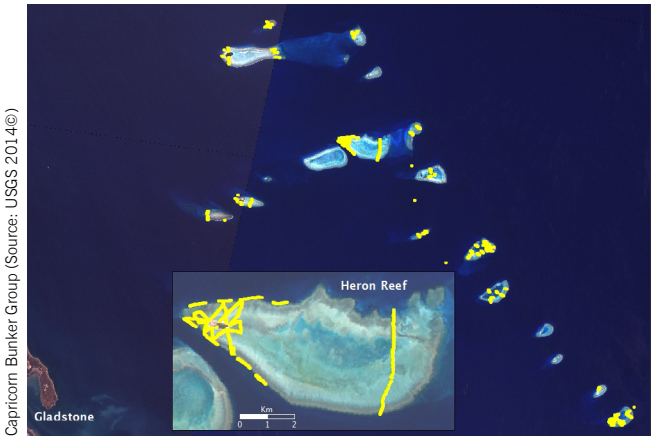
The goal is to map the following characteristics over this critical area: bathymetry (water depth of ocean floor), geomorphological zones (reef slope, reef crest, reef flat, lagoon and island) and benthic habitat type (describes dominant coral type such as: plate, branching, or massive/encrusting). These maps will be created using a novel approach that combines existing mapping techniques, bathymetry and long-term satellite image data with predictive models of coral

As the first baseline map for state and national agencies working in the Reef, it will become an integral resource to support conservation policy and decision making.

Mapping technique trialled in the Capricorn Bunker Group — the pilot study

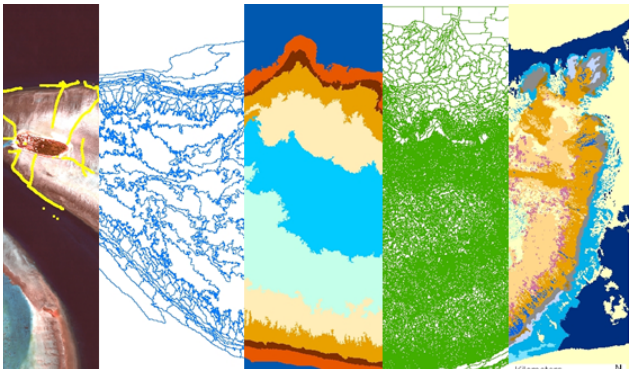
The first phase of this project is a pilot study that will develop and apply the proposed new mapping and modelling technique to the Capricorn Bunker Group and deliver a map that represents shallow offshore reefs. The Capricorn Bunker Group is an ideal test region as it has been extensively studied and the existing knowledge, data and images can be used to optimise and validate the mapping approach (for example Google Street View for Oceans Imagery; citizen science data; and other field monitoring programs).

Shallow reefs of the Capricorn Bunker Group, Southern Great Barrier Reef showing the location of existing information on local coral communities.



Capricorn Bunker Group (Source: USGS 2014©)

To be trialled is a novel mapping technique that combines multiple layers of satellite images, field data and spatial modelling data to create a single map of coral reef communities.



Heron Island (Source: UQ BRG)

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Great Barrier Reef Foundation

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