Intertidal and Subtidal Habitat Mapping and Conservation Values Assessment for Central Queensland State Waters

Knowing the extent and nature of intertidal and subtidal habitats is essential for understanding how these ecosystems provide beneficial human uses, including maintaining fish habitats and supporting the fishing and tourism industries. This project will classify and map intertidal and subtidal benthic (sea floor) habitats within the southern Great Barrier Reef lagoon (Baffle Creek to the mouth of the Fitzroy River within the 3 NM limit), describe how they function and assess their conservation significance, to inform future management and planning.

Background

Understanding the nature, extent and values of habitats is integral to their effective management. Terrestrial and freshwater ecosystem classification, mapping and conservation assessments already provide a basis for management and planning in Queensland. This project addresses the lack of mapping and values assessment for Central Queensland intertidal /subtidal ecosystems between Baffle Creek and the mouth of the Fitzroy River and to the 3NM limit.

Intertidal habitat (e.g. mangroves, saltmarsh) is exposed at low tides. Subtidal habitat on the sea floor remains continuously submerged. Tidal inundation and other biophysical attributes of benthic habitats can be used to classify and map benthic habitats.

Classifications and typologies based on biophysical attributes will be applied using the Interim Queensland Intertidal and Subtidal Classification Scheme (classification scheme), to produce ecosystem mapping. The classification scheme was produced by the Queensland Wetland Program (QWP) during a previous project involving input from more than 70 scientists, managers and consultants over eleven expert workshops.

This classification scheme is compatible with and extends on the Australian National Aquatic Ecosystem Classification (ANAE) scheme and provides a common language and understanding to align spatial habitat datasets.

An aquatic conservation assessment (ACA) using AquaBAMM[1] will be applied to the mapped and classified habitats. AquaBAMM is a decision support tool that utilises existing information and expert input to assess conservation values in aquatic ecosystems. It uses a robust analysis of ecological or conservation values and can be used for many purposes including regional planning, marine park planning and other management processes.

[1] https://wetlandinfo.ehp.qld.gov.au/wetlands/resources/tools/assessment-search-tool/3/

Objectives

The objectives of this project are to:

- **Map intertidal and subtidal benthic habitats** of Central Queensland based on biophysical attributes applied to available data and integrate this with Great Sandy / Wide Bay benthic habitat mapping
- Create a **higher resolution** (30m) **bathymetry model** of the sea floor in the study area
- Apply an **Aquatic Conservation Assessment** to Central Queensland benthic habitats to determine values to support management and planning
- Deliver **the Interim Queensland Classification Scheme** for Benthic & Water Column habitats
- **Release** the intertidal and subtidal habitat mapping, habitat descriptions, and a Central Queensland ACA through Wetland*Info*, Wetland*Maps*, Queensland Globe, Open Data and environmental reports online.

Project activities

1. Assemble best available data for central Queensland benthic habitats in a geodatabase
2. Map, classify and describe benthic habitats by applying the classification scheme using an expert-driven process involving several workshops
3. Establish a point of truth for updates to the intertidal and subtidal classification and mapping for the project area
4. Using the habitat map base units, conduct an Aquatic Conservation Assessment informed by flora, fauna and ecology panels

Case study

The Great Sandy / Wide Bay habitat mapping project was a joint Queensland Parks and Wildlife Service / QWP project, which created a rich information source for planning and management. Steps included:

- Expert panels identified attributes from the classification scheme that influenced benthic habitats
- Rule-sets were developed combining these attributes to describe and map habitat types.
- Mapped habitat types were developed which link to eight core biophysical attribute datasets, based on a synthesis of 80 existing source datasets.
- Products included: hardcopy maps at a seascape scale; a geodatabase and map layers; and 30 biophysical habitat types together with their descriptions.

Project participants and Links

This project is being led by the Department of Environment and Heritage Protection in collaboration with the Department of Agriculture and Fisheries (DAF), Department of Science, Information Technology and Innovation (DSITI), Department of National Parks, Sport and Racing (NPSR) and the Gladstone Ports Corporation (GPC). The bathymetry data is being developed by researchers from James Cook University. Contributions are also being provided from other Queensland universities, Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Great Barrier Reef Marine Park Authority (GBRMPA) and natural resource management (NRM) bodies.

DAF has provided financial assistance to this project as a fish habitat initiative, meeting approved development related fish habitat offset requirements for Gladstone Port.

This project is working, where possible, with allied DAF-funded projects to value add knowledge and enhance fish habitat outcomes.

The project is undertaken through the intergovernmental Queensland Wetlands Program (QWP), QWP's governance group provides project governance; an Advisory Group will provide strategic advice; and an interdisciplinary team will produce the mapping and products.

Get involved

Email wetlands@ehp.qld.gov.au to find out more. If you have data, know of relevant datasets, or are doing research on a relevant or related project, we would like to hear from you. Please email us to join the mailing list and to find out about future workshops and project outcomes.

The Queensland Wetlands Program supports projects and activities that result in long-term benefits to the sustainable management, wise use and protection of wetlands in Queensland. The tools developed by the Program help wetlands landholders, managers and decision makers in government and industry. The Queensland Wetlands Program is currently funded by the Queensland Government.

Contact wetlands@ehp.qld.gov.au
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