Queensland coastal marine and estuarine habitat classification for enhanced coastal planning and management outcomes

Coastal marine and estuarine ecosystems are an integral component of the broader natural ecosystems in Queensland. The ecosystem services they support depend on healthy, productive inshore marine and estuarine habitats. Increased population growth and associated impacts from development can affect marine and estuarine biodiversity, including fish stocks, turtles, dugongs, dolphins and their habitats. An enhanced understanding of these habitats is needed for effective planning and management.

Aims of the project

The aim of this project is to develop an integrated intertidal and subtidal habitat classification system for coastal marine and estuarine habitats. This will help coastal planning and management in Queensland. The project will build on the existing, attribute-based, aquatic ecosystem classification and typology work of the Interim Australian National Aquatic Ecosystem (ANAE) Classification Scheme (refer to Module 2 of the Aquatic Ecosystems Toolkit, http://www.environment.gov.au/water/publications/environmental/ecosystems/ae-toolkit-mod-2.html).

The project will also apply this classification system to the existing intertidal mapping component of the Queensland wetlands mapping (QWM).

Background

Importance of the project

Considerable resources have been invested in developing classifications and typologies that map, categorise and deliver wetland and coastal ecosystem information.

Marine and estuarine ecosystems are dynamic and influenced by a complex range of environmental variables and undergo cyclic changes at temporal and spatial scales. Both marine and estuarine systems can contain intertidal and subtidal habitats. Intertidal habitat is exposed at low tides and inundated by tides. Subtidal habitat is continuously submerged. While no two estuarine or marine habitats are entirely the same, many function in similar ways.

A comprehensive classification of habitats into ecologically relevant groups that share similar ecological and physical drivers, is essential for effective management. Current classifications already form an important component of freshwater aquatic ecosystem management and future classifications will similarly provide useful information for managing estuarine and marine ecosystems.

A variety of aquatic ecosystem classifications and typologies with different frameworks have been developed for varying purposes and scales. This has resulted in the development of different datasets.

The project will provide the Queensland Government with improved information on which to base planning and management outcomes. It will directly assist with development assessments and decision making, improved site management, and marine park and fish habitat planning and management.

Project participants

This project is a collaboration between the Department of Agriculture, Fisheries and Forestry (DAFF), Department of Science, Information Technology, Innovation and the Arts (DSITIA), Department of National Parks, Recreation, Sport and Racing (NPRSR), Gladstone Ports Corporation (GPC) and the Department of Environment and Heritage Protection (EHP), with the involvement of other organisations including Queensland universities, Commonwealth Scientific and Industrial Research Organisation(CSIRO), the Great Barrier Reef Marine Park Authority (GBRMPA) and natural resource management (NRM) bodies, as appropriate.

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

The project will be undertaken through the intergovernmental Queensland Wetlands Program (QWP), drawing on its previous contributions to mapping and typology which have been integral to the development of the Interim ANAE Classification Scheme.

A Reference Group will provide strategic direction to the project.

Methods

The project will:

1. **adapt and extend** the current attribute-based aquatic ecosystem classification for freshwater habitats to develop a coastal marine and estuarine habitat classification for Queensland coastal habitats

2. **develop** the coastal marine and estuarine habitat typology applicable to the management of these habitats, based on agreed attributes, to establish habitat types and their distributions

3. **apply** the habitat classification to selected estuarine and coastal marine habitats of the QWP wetlands mapping product

4. **deliver** the classification system and mapping products via the web-based map server and Wetland*Info* website.

Classification scheme

This project has the potential to provide a consistent approach to habitat classification. The Interim ANAE Classification Scheme draws heavily on the National Intertidal Subtidal Benthic (NISB) Habitat Classification Scheme to which all jurisdictions are aligned.

Expert panels will be established to advise on the attributes of the proposed habitat classification and how these attributes may then be combined for the typology across the intertidal and subtidal coastal marine/estuarine habitat mosaic.

Habitat mapping

The typology will be applied to the intertidal mapping component of the Queensland Wetland Mapping.

Existing marine and estuarine habitat information will be reviewed and collated.

Aerial view of estuarine and marine habitat types.

Products

A statewide classification scheme (and methodology) for intertidal and subtidal marine and estuarine habitats will be available for application across the state of Queensland through Wetland*Info*.

The final product will also include classified intertidal marine and estuarine habitat mapping across Queensland. The map will be made available through existing avenues including Wetland*Maps* on the Wetland*Info* website.

Get involved

Email wetlands@ehp.qld.gov.au to find out more about getting involved in this project. If you have data or know of relevant datasets, if you are doing research on a relevant or related project, we would like to hear from you. Please email us if you would like to join the mailing list 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
or visit www.wetlandinfo.ehp.qld.gov.au

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