

Great Barrier Reef catchment wetlands risk assessment and condition monitoring

Wetlands in the Great Barrier Reef (GBR) catchment are important ecosystems that play a significant role in maintaining the health and biodiversity of Queensland's east-coast catchments and reef lagoon ecosystems. Changes in wetland extent (e.g. loss) in GBR catchments are detected through updates to mapping, but this gives little information on wetland condition. The GBR catchment wetlands risk assessment and condition monitoring project will undertake assessments of risks to freshwater wetlands. It will help set priorities for wetland management and monitoring across the entire region, improve the selection of indicators used for monitoring wetland condition, and help with reporting on the Queensland Government's Reef Plan target of no degradation of natural wetlands.

Why is this project needed?

The catchments of the Great Barrier Reef make up an area of approximately 424,000km² with approximately 283,000ha of mapped natural lacustrine and palustrine wetlands of 1ha or larger.

Wetlands in these catchments have many important values and provide a variety of significant ecosystem services. Wetlands play a role in nutrient cycling and sediment trapping. They contribute to maintaining local climate. They also support a diversity of plants and animals and promote ecological processes such as the breeding and recruitment of marine and freshwater fish species.

Human activities such as land clearing, the intensification of agriculture and urban development have resulted in increased sediment, nutrients and pesticides flowing into the GBR lagoon. They are also putting pressures on wetlands in the Great Barrier Reef catchments.

The Reef Plan 2009-2013 targets state that 'there will have been no net loss or degradation of natural wetlands' over the period 2009-2013.

To ensure that this target is met, the Queensland Government monitors the change in wetland extent through updates of the wetland mapping. While information on the extent and loss of wetlands is available, there is only very limited information available on condition of wetlands in GBR catchments.

A comprehensive understanding of risk is crucial for prioritising management and establishing a monitoring program for wetlands in Great Barrier Reef catchments.

Methods

Risk assessment

In this project, 'risk' is the product of pressures which could affect wetlands and the likelihood of degradation or loss of a wetland as a consequence of pressures. The vulnerability of wetlands to different pressures may vary across wetland types.

This project applies a comprehensive risk and condition assessment framework which was developed by the Queensland Department of Environment and Resource Management (DERM) under the Queensland Wetlands Program. The framework explicitly links risk and condition through conceptual models.



Using landscape- and local-scale information, wetland risk assessments can help in setting management and monitoring priorities. Photo: EHP



Geographic information system (GIS) based spatial information related to pressures on wetlands, and their vulnerability to these pressures, is used to determine risks to wetlands from individual and combined pressures. These pressures are weighted and scored using the Wetland Risk and Condition Assessment Tool, currently in development as product of this project, to calculate rankings for relative wetland risk. Risk rankings can be provided at any scale from single wetlands up to a catchment. This information can then be used to establish priorities for wetland management and monitoring.

Condition monitoring tools

While risk can be assessed for wetlands across broad areas, conditions can only be assessed at wetlands where site data is collected and is therefore limited by available field resources. Monitoring of wetland conditions provides important information on whether management actions are making a difference and ecological values are being maintained or enhanced.

This project will develop a wetland condition monitoring manual to support wetland monitoring by local government, natural resource management groups and others wanting to undertake wetland monitoring.



Land-use pressures and management actions in the catchment are some of the factors used to assess condition and risks to wetlands. Photo: EHP

Products

The products and tools resulting from this project will include:

- risk reports and maps showing risk levels for individual wetlands and combined pressures on wetlands in the Great Barrier Reef catchments
- a risk assessment report for the GBR wetlands interpreting the key risk issues in different parts of the GBR catchment, plus implications for management and monitoring
- a user guide for the Wetland Risk and Condition Assessment Tool
- a manual for wetland condition monitoring
- stronger stakeholder engagement in wetland monitoring.

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 Program is a joint initiative of the Australian and Queensland governments.

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QWP 2011/22 (updated 2013)