

Wetlands and catchment management and rehabilitation in SEQ

Knowing how water moves in the catchment is critical to implementing any resilience and water quality improvement framework. The 'Wetlands and catchment management and rehabilitation in South East Queensland (SEQ)' project will deliver a number of products that will assist future planning, management and rehabilitation activities in South East Queensland (SEQ).

Groundwater Dependant Ecosystems (GDEs) and hydrological processes will be identified and Aquatic Conservation Assessments (ACAs) will be completed for all catchments in SEQ.

The project will collate existing datasets and models, and validate and enhance them with current expert and local knowledge. The landscape mapping and conceptual modelling products generated will be accessible, user-friendly and delivered online. Through this process, knowledge gaps can be identified, and priorities set for the management and rehabilitation of wetlands and catchments in SEQ.

Background

The value of wetlands

Wetlands are more than just wet lands—they include all types of aquatic systems from rivers and creeks to bogs, swamps, mangroves, estuaries, marine areas, canals, dams, aquifers and much more. Wetlands provide essential ecosystem services at both the local and landscape scale. They assist in water purification and storage, flood and climate regulation, protection from coastal hazards, and comprise habitat for many plant and animal species.

Whole of landscape processes

It is extremely important to understand, and take into account, upstream context and conditions when making management decisions for the downstream environment. By understanding how the whole catchment works, for example, water movement above and below ground, the dependency relationships within the ecosystem, the landscape connectivity and inter-connectedness of the ecosystem and cumulative impacts, better management decisions can be made, for example, prioritisation of areas for rehabilitation.

SEQ region

This project covers all catchments within the SEQ region, which includes Gold Coast, Redland, Logan, Brisbane, Moreton Bay, Sunshine Coast, Somerset, Ipswich, Scenic Rim and Lockyer Valley local government areas. This covers an area of approximately 22,000km².

Objectives

The project aims to achieve the following:

- develop key datasets to support wetlands management, rehabilitation and planning decisions
- incorporate knowledge from a wide range of clients e.g. local government, Healthy Waterways, SEQ catchments and landholders into key datasets
- fill key knowledge gaps relating to GDEs and water movement in the SEQ catchments
- identify the biodiversity values of the riverine and non-riverine wetlands of SEQ
- engage the community and improve understanding of how water moves within catchments
- present information to managers, planners and the community via online servers, such as *WetlandMaps* and *WetlandInfo*, to promote better management, understanding and rehabilitation of wetlands in the SEQ catchments
- develop tools and products that can support the long-term sustainable use and management of wetlands in the SEQ catchments.

Strategic approach

This project aims to continue the use of previously developed methods, and add value to existing knowledge and practice. The project is aligned with the needs of local government councils, the national GDE Atlas and long-term Queensland Government programs. Key steps include GDE and hydrological process identification, mapping and modelling as well as completing ACAs.

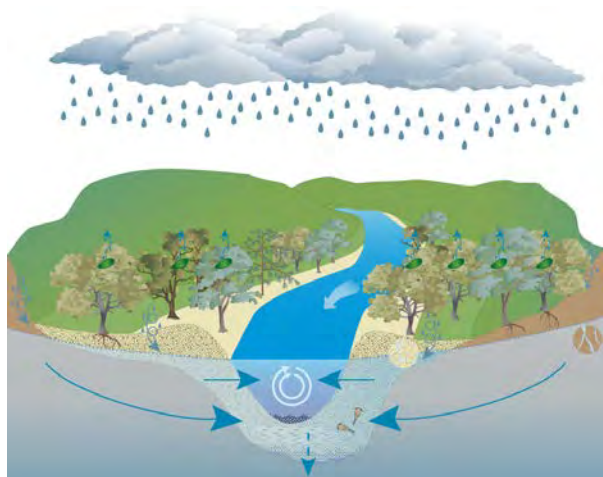
GDE and hydrological processes

Technical workshops will be held to capture local and expert knowledge to inform mapping development for GDEs and hydrological processes. This method will involve the demarcation of regions with similar ecology, geology, climate, and groundwater-surface water interactions that produce an expected GDE type/behaviour or hydrological process. This will inform the development of rules that may be applied to spatial datasets through GIS analysis to identify the presence or potential presence of GDEs and hydrological processes in the catchment.

Draft maps will be reviewed by a number of stakeholders, to ensure local and expert knowledge has been appropriately incorporated.

The final maps will be made available through the *WetlandInfo* website.

Conceptual models will also be developed. The models will use local and expert knowledge combined with previous research to describe how ecosystems and groundwater-hydrological processes are likely to interact over defined areas within the catchment.



An example concept model of a groundwater dependant ecosystem in an upper catchment. Graphic: © Queensland Government

Aquatic conservation assessments

Conservation value assessments of wetlands can be used in a wide range of applications including, but not limited to:

- identifying aquatic values
- determining priorities for protection or rehabilitation of wetlands
- providing input to economic development opportunities
- assisting with local and regional resource planning
- contributing to impact assessment of development.

Outputs

The project outputs will include:

- mapping and modelling of GDEs contributing to wetland ecosystem function within SEQ
- mapping and modelling of water movement within SEQ
- aquatic conservation assessments within SEQ.

Project governance

The project is an initiative of the Queensland Government's Healthy Waterways Program, and is conducted by the Department of Environment and Heritage Protection (EHP), Department of Science, Innovation, Information Technology and the Arts (DSITIA), Department of Agriculture, Forestries and Fisheries (DAFF) and a number of local government councils (Brisbane, Gold Coast, Ipswich, Scenic Rim, Sunshine Coast, Lockyer Valley, Logan, Moreton Bay, Somerset and Redland). The project will be managed under the banner of the Queensland Wetlands Program.

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.

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QWP/2013/14