Trophic dynamics in NSW wetlands

As part of the NSW Rivers Environmental Restoration Program (RERP) objective to improve the use of environmental water, this project has examined the trophic dynamics of the wetlands of the lower Murrumbidgee (Lowbidgee) and Lake Ita in the Lachlan catchment.

The ‘trophic’ level is the position that an organism occupies in a food chain: what it eats and what eats it. ‘Trophic dynamics’ refers to how the interaction of food, habitat and organisms affects food webs. The way an ecosystem functions depends on these trophic interactions. Floods mobilise nutrients and carbon on floodplains and these are used by various organisms through food chains.

The project used various techniques to investigate trophic dynamics, including stable isotopes to determine the origin of food eaten by wetland animals, analysis of the gut contents of fish and invertebrates (yabbies and prawns), and experiments on the inundation of floodplain soil.

These investigations provide information on:
- relationships between flow conditions, food and habitat (resource) availability and biological communities
- the interactive effects of these factors on the structure of food webs.

Helping to rehabilitate wetlands

The project has contributed to the rehabilitation of significant inland floodplain wetlands of NSW by improving our knowledge about:
- the ecological responses of wetland plants and animals to water flows
- drought refuges for wetland plants and animals
- the impact of past land uses on the quality of the soil seed bank and the availability of nutrients
Increasing understanding and aiding restoration

The trophic dynamics and ecosystem function project has provided fundamental knowledge on nutrient and carbon dynamics, and the patterns and processes of the ecological responses of aquatic communities. This knowledge has informed Adaptive Environmental Management Plans and Ecological Character Descriptions by providing insight into the likely ecological responses of aquatic communities and the transport and dispersal of nutrients and carbon following inundation. The project is also helping in the development of decision support tools and ecosystem response models for significant inland wetlands in NSW.

Reports and papers


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Published by:
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Banner photo front page: Yanga NP wetland/R Thomas DECCW
ISBN 978 1 74232 909 3
DECCW 2010/733
September 2010