



Fitzroy River, Michael Douglas.



Daly River, Patch Clapp.



Mitchell River, Kerry Trapnell.



Northern Australia  
Environmental  
Resources  
Hub

National Environmental Science Programme

# Applying knowledge of river flow–ecology links

Start-up factsheet

## Northern Australian rivers support valuable ecosystems and ecosystem services

River flows support healthy ecosystems that provide a wealth of economic, social and cultural goods and services such as fisheries, recreation and tourism attractions, bush tucker, clean water, fertile floodplains and more. Understanding the links between river flows and healthy ecosystems is therefore critical to determining how much water is needed to maintain these goods and services. In places where these links are unknown, water planners need to infer relationships from similar places until enough local field data is collected and analysed.



This project draws on research from the Fitzroy, Daly, and Queensland Gulf catchments.



Ecosystems respond to changes in flow, photo Michael Douglas.

## Overview

This project will support water planning in Western Australia, the Northern Territory and Queensland, and national water policy, by:

- synthesising findings from research on links between river flow and river ecology in northern Australia
- evaluating the transferability of environmental flow research from the Fitzroy River (WA), Daly River (NT) and rivers in the southern Gulf of Carpentaria (Qld) to other northern catchments and regions
- increasing transparency for water allocation decisions based on flow–ecology relationships inferred from elsewhere in the north
- presenting findings in formats suited to water planners and managers.

# We need to confidently transfer knowledge of flow–ecology links to data-poor places

Our current environmental flow research is examining the ecological responses to changes to flow in WA's Fitzroy River, NT's Daly River and rivers in Qld's southern Gulf of Carpentaria, and builds on previous work in these catchments. To maximise the usefulness of this work, we need to evaluate how transferable research findings are to other locations and scales, and identify the key considerations when applying this knowledge. Understanding the inferential strength of flow–ecology links and their transferability to other locations is key to water planning, and to assess the river flow-related impacts of development proposals and climate change in catchments with limited field data.

## Project activities

- Characterise and synthesise studies of flow–ecology responses in northern Australia in terms of factors such as the type, scope and scale of each response, and its geographic location
- Provide information to facilitate the transfer of flow–ecology responses. This will include considerations around geographical variations in river and wetland characteristics such as hydrology, floodplain inundation, geomorphology, topography and disturbance



Flood flows support important ecosystems and ecosystem services, photo NERP Northern Hub.

- Analyse this data to generate maps, conceptual models and other products that evaluate and communicate the transferability of key flow–ecology responses
- Identify challenges and opportunities for transferring knowledge of flow–ecology responses.

## Anticipated outputs

- Maps of environmental classifications and regionalisations
- Conceptual models and guiding principles
- Reports and scientific papers
- Presentations, summaries and factsheets.



Floodplain wetlands provide food and other resources, photo Glenn Campbell.

## Who is involved?

This project, also known as the e-flow synthesis project, is being led by [Associate Professor Mark Kennard](#) from [Griffith University](#).

A/Professor Kennard will be assisted by researchers from Griffith University, [Charles Darwin University](#) and [The University of Western Australia](#) as well as by scientists, planners and managers from relevant [Queensland](#), [Northern Territory](#) and [Western Australia](#) government departments.

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For further information and project updates, visit the project webpage at [www.nespnorthern.edu.au/projects/nesp/eflow-synthesis](http://www.nespnorthern.edu.au/projects/nesp/eflow-synthesis)



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This project is supported through funding from the Australian Government's National Environmental Science Program.

September 2018