



Electrofishing in the Mitchell River, photo Doug Ward.



Northern Australia  
Environmental  
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Hub

National Environmental Science Programme

# Environmental water needs for the Mitchell River

Start-up factsheet

## The challenge

River catchments of the Gulf of Carpentaria, including the Mitchell River catchment, are home to many important freshwater assets such as significant commercial and recreational fisheries, threatened species, and wetlands of national significance. With considerable interest in agricultural expansion in the Gulf, there's a risk these assets may be impacted by intensive development.

The assets depend greatly on the linkages between rivers, floodplains and estuaries. However, our current ability to predict the consequences of future development on these linkages is limited. There are also significant gaps in our understanding of environmental flow requirements, such as the quantity and timing of water flows needed to trigger the migration of key aquatic species.

## How will this research help?

**This research will improve our understanding of the critical flow needs to sustain freshwater ecosystems in the Mitchell River catchment.** In particular, the project aims to predict the impacts of future development on important ecosystem linkages between the river and its floodplain wetlands, and to better understand other potential risks associated with changes to flow regimes. This information is vital to help inform decision makers

about water allocation that both enables agricultural development and protects environmental assets.



The Mitchell River catchment in north Queensland.



Electrofishing in the Mitchell River, photo Doug Ward.



Mitchell River, photo Doug Ward.

## Project aims

- Identify and map 'hotspots' of freshwater primary production within the Mitchell River floodplain associated with river flow-driven flooding
- Improve our understanding of the importance of these high priority areas for sustaining fish populations and other aquatic species.
- Identify other flow-dependent ecological assets in the Mitchell River and determine how they are likely to be impacted by water resource development.
- Increase confidence in water planning for river catchments in the Gulf thanks to an improved understanding of ecological assets and their critical links to flow.

## Anticipated outputs

- Map of hotspots of aquatic production in the Mitchell River.
- An assessment of threats to the Mitchell's ecological assets, their critical links to flow and the likely impacts of future development on them.
- Report on the links between patterns of floodplain inundation and productivity, and fish catches and growth in the Mitchell River.
- An assessment of development scenarios in the Mitchell River, and implications for floodplain ecosystems and other (in-stream) ecological assets.
- Research publications.



Researcher surveying fish, photo Michael Douglas.

## Who is involved?

This project will be led by [Professor Stuart Bunn](#) and [Dr Ben Stewart-Koster](#) at [Griffith University](#).

Professor Bunn and Dr Stewart-Koster will be supported by researchers from [Griffith University](#), [CSIRO](#), [Queensland Department of Science, Information Technology & Innovation](#), [Queensland Department of Agriculture & Fisheries](#) and [Charles Darwin University](#).

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For further information and project updates, visit the project webpage at [www.nespnorthern.edu.au/projects/nesp/environmental-water-needs-mitchell-river](http://www.nespnorthern.edu.au/projects/nesp/environmental-water-needs-mitchell-river)



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