

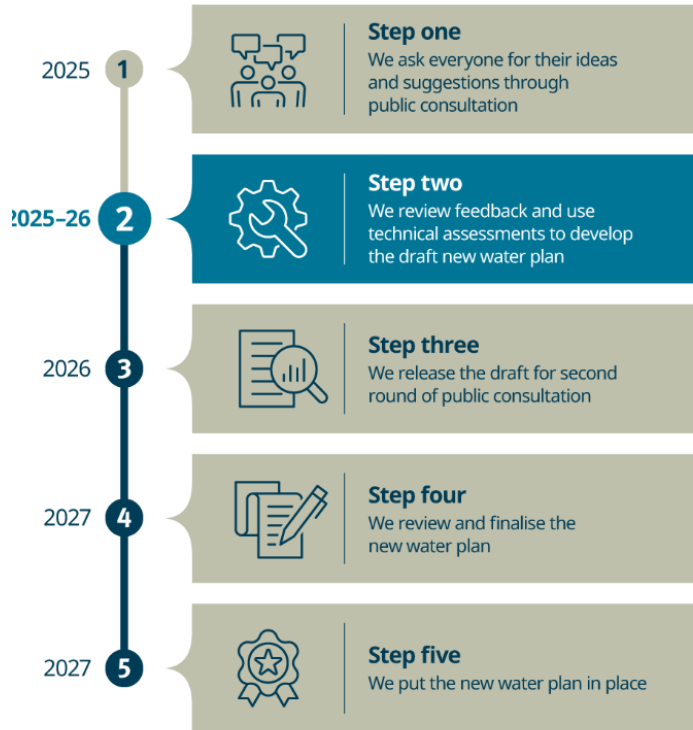
2025 Mitchell Water Forum

I acknowledge the traditional owners whose lands we meet on today. I acknowledge the strength and knowledge that Traditional Knowledge and culture brings to our community and pay my respects to elders past and present. I want to extend my respect to any Traditional Custodians in the room and across the Mitchell Catchment. CAFNEC is privileged to work with Aboriginal and Torres Strait Island people across Far North Queensland.



Consultation timeline

From when we start a review to when the new water plan is formally adopted takes several years.



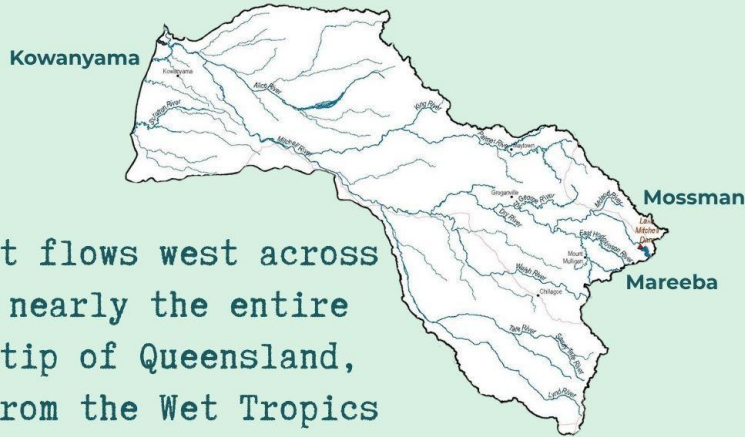
Mitchell Water Plan Review

- The Queensland government has initiated the review of the Mitchell River Water Plan
- Submissions for the first round of public consultation closed last week
- Deeper consultation is expected as the review is continued and the draft is released.





The Mitchell River
has the largest
annual stream flow
of any river in
Northern Australia.



It flows west across
nearly the entire
tip of Queensland,
from the Wet Tropics
Rainforest to the
Gulf of Carpentaria.

Mitchell Water Plan Review

1. The Mitchell is a unique catchment that should be celebrated for its cultural and ecological wonders
2. There is extensive traditional knowledge and western science that has been recorded in relation to the Mitchell Catchment.
3. New models exist for understanding the impacts of water resource development
4. Water legislations has changed since the last version of the plan, and should better consider cultural flows and traditional uses of water



The National Environmental Science Program: Environmental water needs for the Mitchell River

There are several specific implications of these findings for water planning and river management:

- The biodiversity and ecosystem function of **the Mitchell River catchment is dependent on flow-mediated connectivity**. Floodplain primary productivity, which supports aquatic food webs as well as birds and other animals, relies on overbank flows that result from upstream catchment river flow and local rainfall.
- The extent of movement of fish around the catchment, particularly from the Mitchell River mainstem to the other major sub-catchments, indicates that planning of water-resource development needs to consider the entire catchment. **The Palmer, Walsh and Mitchell rivers are not separate ecological systems but rather interconnected by flow and fish movement.**
- Floodplain inundation is a crucial process with considerable evidence showing that aquatic food webs rely on access to inundated areas including wetlands or floodplain creeks and rivers. While local rainfall is important, **catchment flows from upstream are vital for inundation. Any reductions in wet-season flows are likely to impact floodplain inundation**, particularly in years with limited cyclone activity in the Gulf of Carpentaria.

8.3 Possible threats to Mitchell River ecosystem functioning from water-resource development

- **Dams impact** lateral and longitudinal **connectivity by reducing river flow** and acting as a barrier. This reduces the potential for fish movement and access to primary productivity in floodplain wetlands as **fish can no longer access the main river channel**.
- Reduced flows under water-resource development scenarios are predicted to **affect the growth of barramundi** in the coastal fishery, with younger fish likely to be most impacted.
- Connectivity changes characteristics of the environment which, in turn, influences fish species composition and functional diversity. **Reduced connectivity will alter fish assemblages, thereby impacting the biodiversity of the catchment.**
- Impoundments created from dams and weirs are ideal habitat for invasive tilapia.
- Many locations in the catchment, including floodplains, are phosphorus-limited. **Eutrophication, harmful algal blooms, and ultimately oxygen depletion and fish kills would be a risk if agricultural run-off resulted in increased phosphorus levels.**

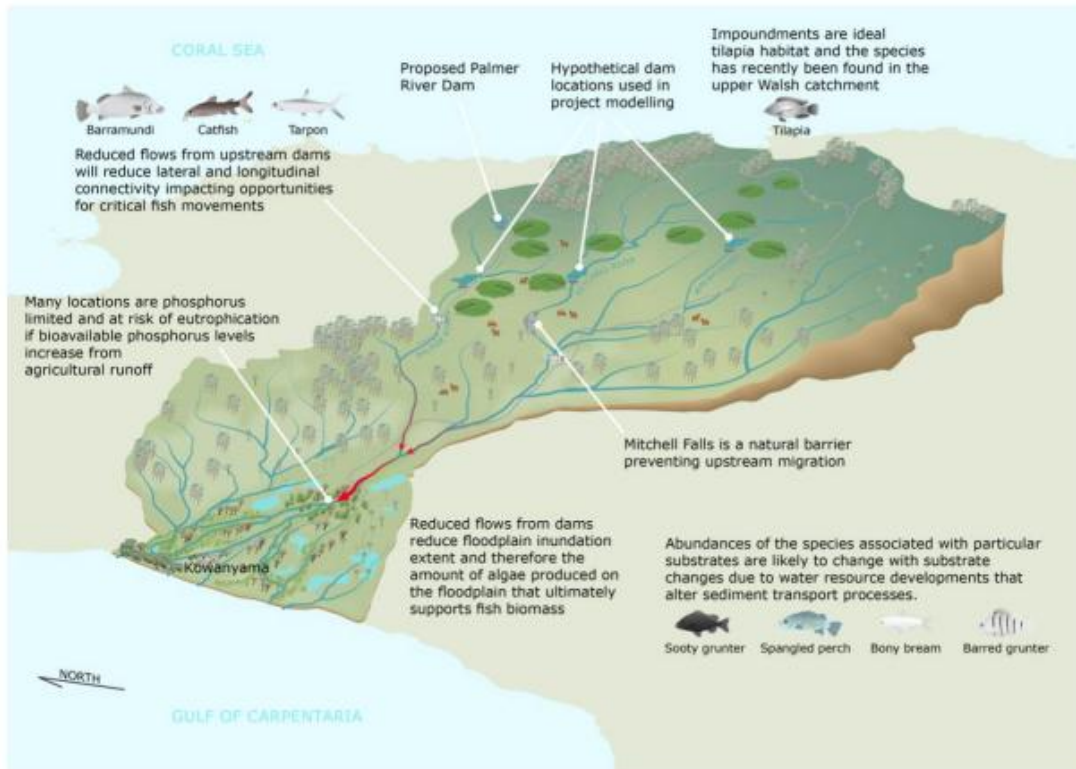


Figure 8-3. Conceptual model of possible threats to Mitchell River ecosystem function from water-resource development.

This project was led by Professor Stuart Bunn and Dr Ben Stewart-Koster from Griffith University.

They were supported by researchers from Griffith University, CSIRO, Queensland Department of Science, Information Technology & Innovation, Queensland Department of Agriculture & Fisheries, and Charles Darwin University.



Mitchell River story map

Start-up factsheet

Sharing knowledge for accessible science

Communicating research findings in a way that is useful, dynamic and accessible can be a challenge. The Mitchell River catchment in far north Queensland has been the focus of environmental research for decades because of the important environmental, cultural and economic values of the catchment, and the potential for

development of the river's water resources. However, past research is not always readily available to people who might need it for decision-making, such as Traditional Owners, land managers and other existing water users.

The Mitchell River story map will present findings from our projects Environmental water needs for the Mitchell River, Links between Gulf rivers and coastal productivity, Links between Gulf rivers and food for migratory shorebirds, and Environmental-economic accounting for the Mitchell River in a user-friendly form for everyone, including decision-makers at state and federal levels. The story map will be hosted on the Queensland Government WetlandInfo website.



This project is synthesising research across north Queensland's Mitchell River catchment.

Overview

This project will:

- synthesise a range of existing research on the Mitchell River
- produce a user-friendly, web-based story map that integrates these research results in visually appealing ways
- assist Traditional Owners and other land managers and decision-makers in accessing and understanding research findings, supporting sustainable development in the catchment.

This Story Map is a collaboration between researchers with the National Environmental Science Program (NESP) and the Mitchell River Traditional Custodian Advisory Group (MRTCAG) to tell the stories of recent scientific research and how they fit with the traditional cultural knowledge of Gugu Yalanji seasons. The Mitchell River Traditional Custodian Advisory Group represents the Country and clans of the upper and middle catchment including Western Gugu Yalanji, Mbabaram, Wokomin and Kuku Djungan. We pay our deepest respects to the Kokoberra, Yir Yoront (or Kokomnjen) and Kunjen clans who are the Traditional Custodians at the lower catchment.

The Australian Climate Service: The National Climate Risk Assessment

- Australia's **first national assessment** of climate risks, led by DCCEEW in **2024**.
- Identifies **56 key risks** and **11 national priorities**, including **water security**.
- Highlights growing threats from **extreme rainfall, droughts, and infrastructure stress**.
- Provides the **evidence base for national and regional adaptation planning**.



NCRA: Key Findings Relevant to The Mitchell

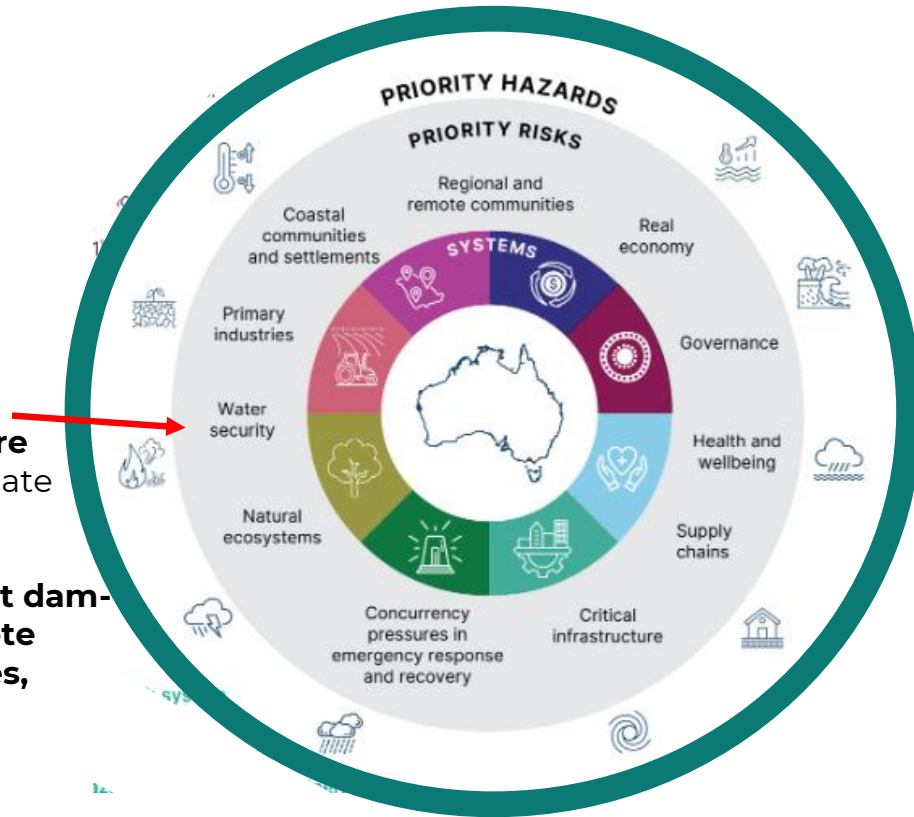
- **Aboriginal and Torres Strait Islander peoples will experience unique impacts from climate change.** The changing climate threatens the health of Country, access to Country and could challenge self-determination and have flow-on impacts on their social and physical health and wellbeing.
- **Sea level rise** and increased coastal hazards will significantly impact coastal communities and cities.
- **Northern Australia is likely to experience escalating challenges** as its proneness to hazards increases as global temperature rise. This will put pressure on health, critical infrastructure, natural species and ecosystems, and primary industries. It will also pose additional challenges to emergency responders.
- Australians will be impacted by **loss of important ecosystems and species by the middle of the century**, without implementing direct intervention and adaptation actions.



The risk to water security is **currently rated as High**. This risk is expected to increase to Very High by 2050 and to become **Very High–Severe by 2090** (Figure 77). Rainfall changes and water storage vary across regions, with the risk of a quick onset of water security issues for some communities and regions, especially in the event of an abrupt drought.

There will also be increasing impacts on freshwater ecosystems with potential loss of integrity and biodiversity, as well as compromise to the vital role that freshwater ecosystems play in water quality and security. **Improved management and incremental adaptation are required, through new infrastructure and demand management**, in order to increase climate resilience in urban water and agriculture.

Notably, there are limits to the level of support that dam-based structures can provide to regional and remote communities in the face of water scarcity pressures, and so some transformational adaptation is also required, including decentralising water systems. This will interact with transformational adaptation opportunities for regional and remote communities.



NCRA: Key Findings Relevant to The Mitchell

RISK RATING	Current	2050	2090
Severe			
Very High			
High			
Moderate			
Low			
ACS RISK CONFIDENCE RATING	High	Medium-High	Low

Figure 77: Rating for the Water security priority risk for current, 2050 and 2090, and the t required to address the risk. For definitions of risk ratings, please see Figure 9.

- **Water management is a key adaptation**, but current measures are **not adequate to handle long-term declines or severe scarcity**. Stronger focus is needed on **environmental outcomes**, not just water volumes delivered.
- **Adaptation will depend on maintaining and repairing remote water infrastructure**, especially during extreme weather and emergency events.
- **Aboriginal and Torres Strait Islander knowledge offers vital insights** to strengthen water security and ecosystem resilience under climate change.
- **Cities and agriculture are investing in climate-resilient water sources and technologies**, but **economic and regulatory barriers slow progress**.

Thank you

Lucy Graham

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