WATER SECURITY FOR NORTHERN AUSTRALIA PROGRAM (WSNA)

ORD RIVER IRRIGATION AREA

East Kimberley, Western Australia

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WSNA program locations

The Ord River Irrigation Area (ORIA) is one of the four nodes in the Water Security for Northern Australia program. The ORIA supports a broad array of agriculture including melons, mangos and broad acre cropping. The ORIA is presently in Stage 2 of development, with farms to the east of Kununurra, towards the NT border, with Stage 3 farms proposed for the NT. Much of the project focuses on the Keep River catchment, which is habitat to EPBC listed species, including sawfish. Two projects seek to ensure that surface water quality is maintained to protect these important species and a third seeks to understand stakeholder views on how water is valued in the system, and how water could be managed during dry years.

research topics

- Review catchment management strategies in other tropical agricultural catchments to inform water quality management approaches.
- Investigate approaches to measure variables that can inform whether runoff events impact upon important species in the river.
- Gain insights into the importance of water to stakeholders in the region, and inform potential approaches to water management in dry years.

what's happening

Collation of water quality management and monitoring plans from other catchments in tropical Australia.

Review of various management approaches used in tropical catchments to assist future planning to maintain water quality standards and balance sustainable development needs.

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did you know?

Tropical agriculture on the Ord River began in 1941, and Lake Argyle, the largest freshwater storage on mainland Australia, was created in 1971.





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research topics the detail..

3.1 Review of water/catchment management in tropical environments

Identify the climatic, hydrological, ecological and agricultural factors relevant to the Keep River catchment to inform management plan options.

Identify catchment management strategies and their efficacy in tropical catchments with intensive agriculture.

Review of the international peer-reviewed literature on management approaches to maintain and improve surface water quality.

Despite its much lower flow compared to the Ord River, the Keep River plays a crucial role in the region's ecology. It's an important habitat for several rare and significant species, such as the Northern River Shark and the Largetooth Sawfish.

3.2 Agricultural runoff and impacts to the Keep River

Review of the crops grown in the Ord River Irrigation Area, and the chemicals used to inform a risk analysis of chemicals in the area.

Deploy nutrient loggers to compare nutrient loss with flow data to inform potential risk periods from runoff events.

Maintaining water quality standards to safeguard the diverse and significant species residing within the Keep River ecosystem, including the Largetooth Sawfish.

Enhance informed decision-making processes to manage agricultural runoff and other impacts on the Keep River's water quality.

The project will ultimately inform runoff management in the area, providing insights into how to improve surface water quality.

3.3 Understanding the values of water in the ORIA

Co-development of Social-Science Research Design: with local stakeholders design mixed-method research to capture diverse perspectives and experiences.

Water Value Perception: Understanding how different stakeholders, including agriculture, government, and local communities, perceive the value of water in the ORIA.

Dry-Year Water Management Strategies: Exploring potential strategies for water allocation and management during lean, dry years, with a focus on maintaining the sustainability and prosperity of the region.

Emerging Industries and Future Water Demand: Assessing the potential water demand from emerging industries like green hydrogen and impact on the current water allocation system and how this may change under future climate scenarios.

WATER SECURITY FOR NORTHERN AUSTRALIA (WSNA) PROGRAM

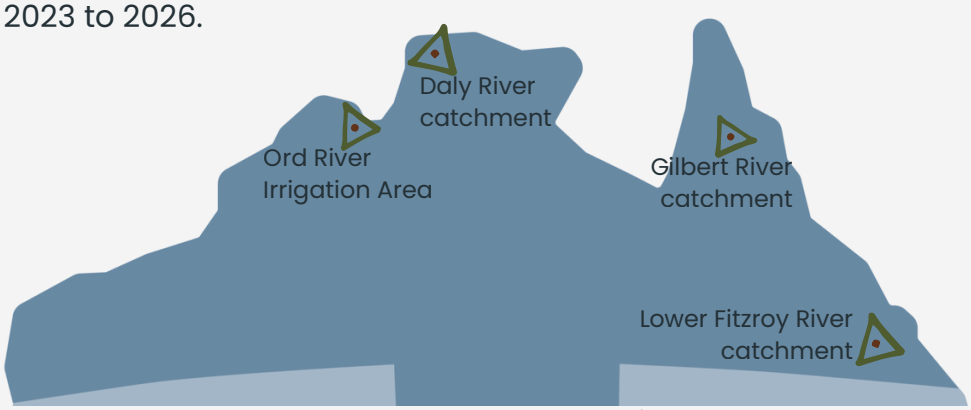


The WSNA program is being delivered through a partnership between the Cooperative Research Centre for Developing Northern Australia (CRCNA) and the Northern Australia Universities Alliance (NAUA) from 2023 to 2026.

WSNA is a research-focused approach to demonstrating that economic growth and environmentally healthy and sustainable eco-systems can co-exist.

The program consists of 15 projects (research topics) co-designed with stakeholders in each focal node that look into issues that prevent or restrict development of water resources, effective use, equitable access and environmental outcomes of water use.

The four focal nodes were developed through a 5-month engagement phase and now report to regional stakeholder advisory groups.



WSNA program locations

WSNA work packages

- Research across Northern Australia
- Water quality and the environment
- Water availability and the environment
- Cropping systems and new crops
- Supply chain and alternative economies

Research focus

- Water resource availability and allocation
- Environmental impacts and management
- Improved economic returns from the use of water resources
- Greater Indigenous benefit from water resources

Topics for other WSNA program nodes

Lower Fitzroy catchment (Qld)

- Prospects for new agricultural technology across the north.
- Optimising environmental water quality monitoring.
- Prospects for specialty crops.
- Modelling the upstream and downstream supply chain needs for efficiencies.

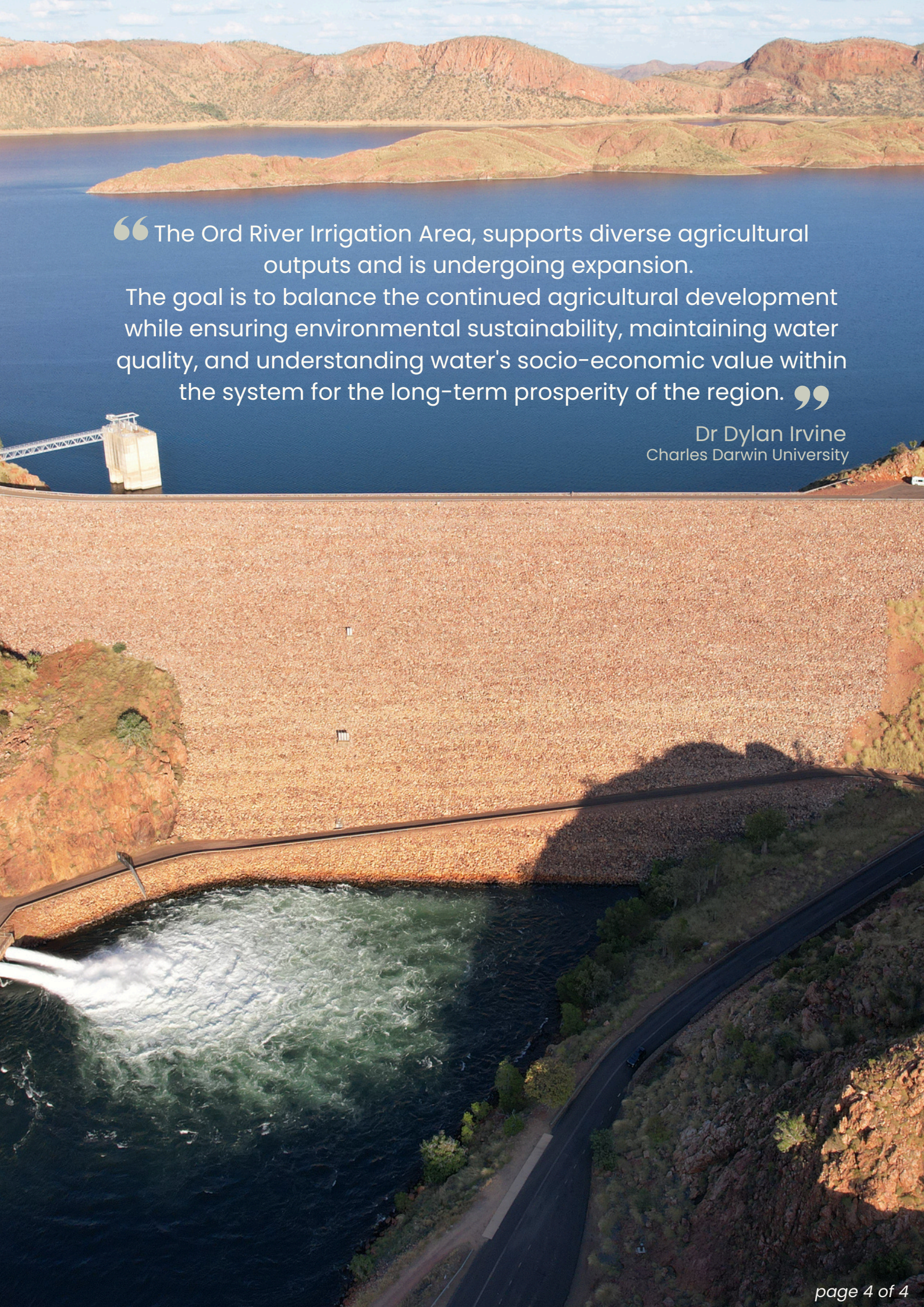
Gilbert River catchment (Qld)

- Conservation value of aquatic species.
- Contribution of groundwater to waterhole persistence.
- Drought vulnerability
- Ecosystem services (e.g. carbon storage) for proposed development.
- Indigenous values and potential of water enterprise products.

Daly River catchment (NT)

- Investigation of multi-catchment climate change models.
- Improved understanding of the sources of springs that feed into the Daly River to assist water management.
- Wet season floodplains and water requirements of ecosystems.
- Cropping systems in the catchment, present and future.

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> “The Ord River Irrigation Area, supports diverse agricultural outputs and is undergoing expansion.
> The goal is to balance the continued agricultural development while ensuring environmental sustainability, maintaining water quality, and understanding water's socio-economic value within the system for the long-term prosperity of the region.”

Dr Dylan Irvine
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