STATE OF THE WATER RESOURCE

Oolloo

2023-24

Department of
Lands, Planning and Environment

NORTHERN TERRITORY GOVERNMENT

This report provides information about the current status of the water resource, how water is shared and used, and the activities undertaken to manage water during 2023-24.

WATER CONTROL DISTRICT

DALY ROPER BEETALOO

PLAN AREA

5,277 KM²

CLOSEST COMMUNITY

NAUIYU

LARBAUNYUN, WAGIMAN SOUTH, WAGIMAN NORTH, DAGOMAN (WUJALAWUN), WARDAMAN (WUNGAYATIAWUN) WARDAMAN (YUBULYAWUN) COUNTRY

ACKNOWLEDGEMENT

The Department of Lands, Planning and Environment proudly acknowledges the Northern Territory's Aboriginal communities and their rich culture, and pays respect to the Elders past and present.

We acknowledge Aboriginal peoples as the Traditional Owners and custodians of the lands and waters on which we all rely.

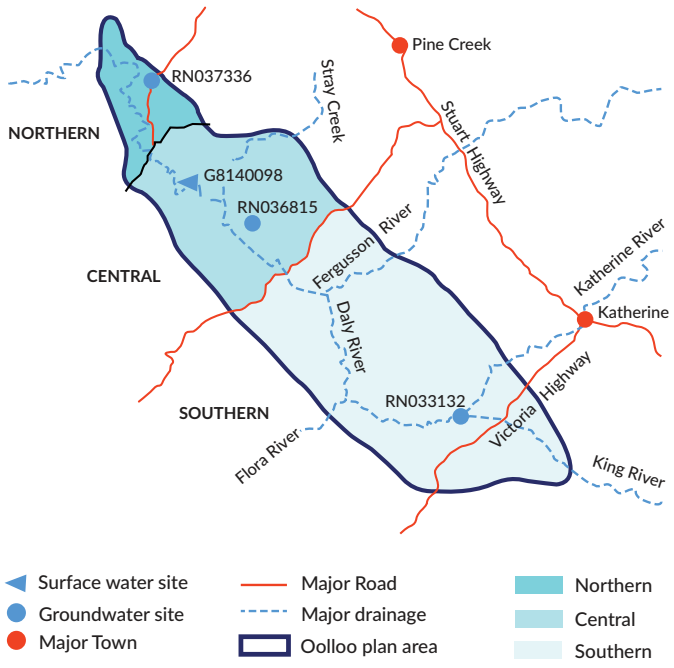
Front cover image: Daly River

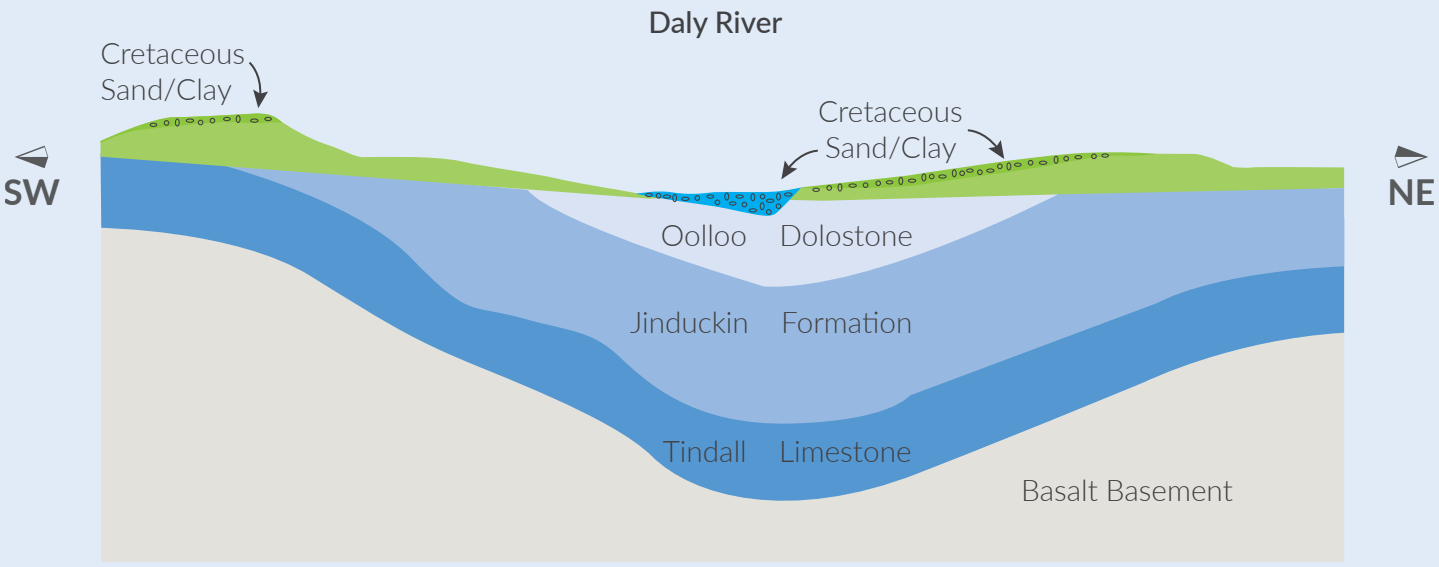
The water plan manages groundwater in the Oolloo Dolostone Aquifer within the Daly Roper Beetaloo Water Control District.

The aquifer is strongly connected to surface water flow. Groundwater in the aquifer provides reliable good quality water, and bore yields are high, meaning this is an important resource for the community and the environment.

The Oolloo Dolostone Aquifer is the youngest and uppermost formation of the Daly geological basin, which includes the Tindall Limestone Formation at the bottom, Jinduckin Formation, Oolloo Dolostone Formation and the Florina Formation at the top. The aquifer flows into the riverbed of the Daly River and at springs, such as the Oolloo Spring.

The plan tells us how water should be shared between competing uses, and sets management objectives. Water in the area is in high demand so it is important that water is managed effectively.





Impression only

OOLLOO DOLOSTONE AQUIFER

AVERAGE ANNUAL RECHARGE
400,000 ML/YR

ESTIMATED SUSTAINABLE YIELD (ESY)
97,300 ML/YR

The department has a comprehensive understanding of the aquifer and surface water connectivity. The department maintains 69 monitoring sites, including 44 bores and 25 surface water sites, in the plan area. All monitoring locations are visited bi-annually, and the collected data informs the groundwater model.

The model allows us to predict what might happen to the water resource under different climate and water extraction scenarios. To view monitoring data across the Northern Territory, visit the water data portal[1].

1 https://ntg.aquaticinformatics.net/

WATER THAT STAYS IN THE ENVIRONMENT

429,100 ML/YR

WATER FOR USE

97,300 ML/YR

1. **RURAL STOCK AND DOMESTIC**
(Unlicensed and estimated)

1,552 ML/YR

2. **PUBLIC WATER SUPPLY**
(Licensed)

0 ML/YR

3. **ABORIGINAL WATER RESERVE**

18,017 –19,314 ML/YR

4. **ECONOMIC DEVELOPMENT**
(Licensed)

95,688 ML/YR

CLIMATE AND WATER

The aquifer in the plan behaves as a Top End resource, with distinct wet and dry seasons. Rivers in the Top End are characterised by high river flows during the wet season, with groundwater recharge typically occurring every year. Find out more about how resources behave in the Top End compared to the Arid Zone[2]. The aquifer storage level dropped during 2021–22, due to a below average wet season in 2019–20. The 2023–24 wet season has produced above average rainfall and river flows, resulting in increased recharge into the aquifer.

RAINFALL AND RIVER FLOWS

Rainfall over the plan area predominantly occurs during the wet season, between November and April, and is largely influenced by monsoonal activity. The 2023–24 season recorded 1,552 mm in the central management zone. This is above the average rainfall of 1,012 mm per year recorded at the same site.

River flows are closely related to rainfall in the plan area. Flows have been measured at the Theyona monitoring site (G8140098) on the Daly River since 2008.

End of dry season flow is the most representative measurement of seasonal change in the river system. End of dry season flow at Theyona for the 2023-24 dry season was 1504 ML per day.

The 'river flows' graph shows the predicted and measured flows for the last five years. In most years the department's model prediction is less than or similar to measured flows, showing a precautionary understanding of the resource.

RAINFALL

AVERAGE

1072 mm/YR

2023–24 YEAR

1552 mm/YR

RECORDED

RIVER FLOWS

2023–24 PREDICTED

900

ML/DAY

2023–24 MEASURED

1504

ML/DAY

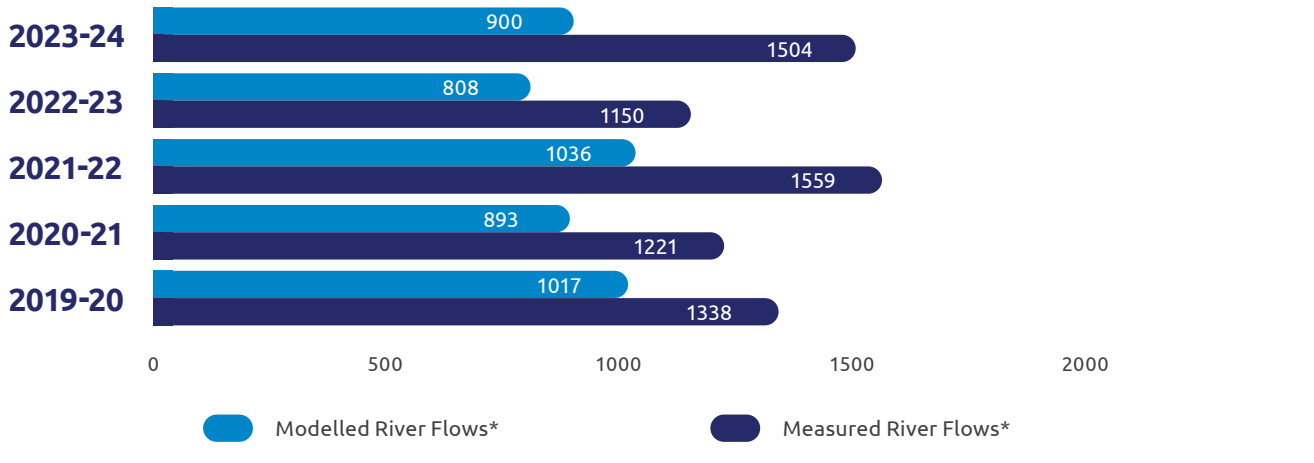
2024–25 PREDICTED

749

ML/DAY

mm = Millimetres
ML = Megalitres

DALY RIVER FLOWS



* End of dry season ML/day

2 https://nt.gov.au/environment/water/management-security/water-allocation/water-allocation-framework

GROUNDWATER LEVELS

Groundwater level is measured in depth as meters below ground level (mBGL) and is highly influenced by climate in the region. The water level rise due to rainfall and drop due to water leaving the aquifer into the river or due to extraction in the dry season.

The groundwater levels, within each of the water management zones, shows the predicted groundwater level compared to the actual measured levels. This is a quality assurance check conducted each year to ensure model calibrations accurately predict the water resource response to water extraction and climate.

In the Northern and Southern zones, modelled water extraction was more precautionary than the measured groundwater levels. In the Central zone, modelling is much closer actual levels that considered acceptable understanding.

Overall, the 2023-24 wet season resulted in an average rise in groundwater levels as indicated in the graph below, “Groundwater levels responding to rainfall”.

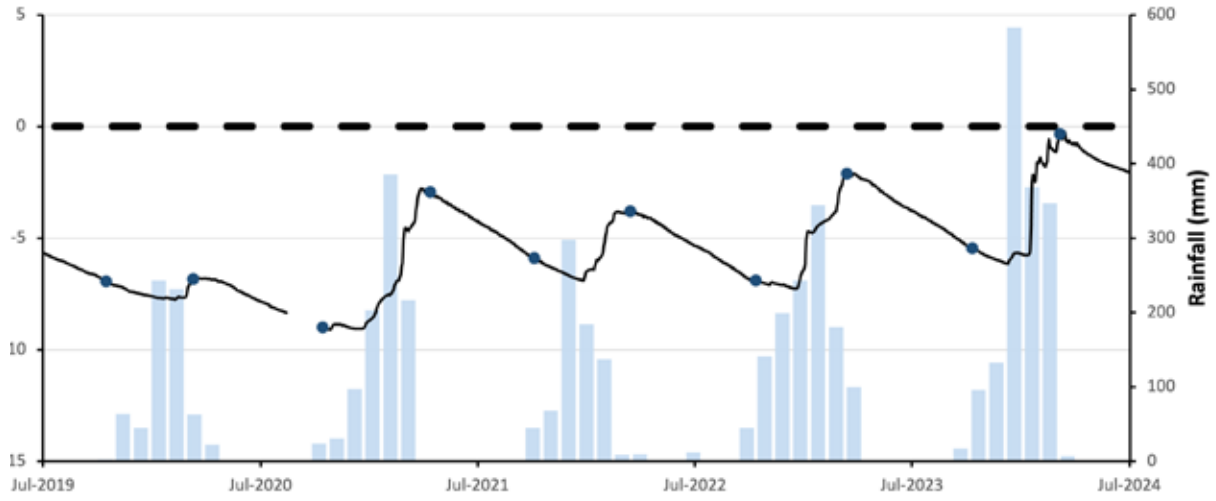
GROUNDWATER LEVELS

Northern	Central	Southern
RN037336	RN036815	RN033132
2023-24* PREDICTED	2023-24* PREDICTED	2023-24* PREDICTED
6.30 mBGL	17.22 mBGL	15.84 mBGL
2023-24* MEASURED	2023-24* MEASURED	2023-24* MEASURED
5.77 mBGL	17.31 mBGL	13.18 mBGL
2024–25 PREDICTED	2024–25 PREDICTED	2024–25 PREDICTED
8.13 mBGL	18.38 mBGL	16.57 mBGL

*Measurement taken at November 2024 due to access instead of at the end of 2023-24 financial year.

mBGL = Metres Below Ground Level

GROUNDWATER LEVELS RESPONDING TO RAINFALL



REGULATING WATER USE

To see water licences in the plan area visit the water licence portal[3].

Overall, substantially less water is being used by water licence holders than has been granted which provides opportunities for water trading in the region.

Visit the website to find out more about how to trade water[4].

The department regulates water licence holders to ensure compliance with the conditions of the licence. Regular audits and checks of licence records are undertaken to identify breaches of licences.

Visit the website to find out more about compliance and enforcement[5].

WATER LICENCE STATISTICS 2023–24

WATER EXTRACTION LICENCES	44
LICENCES APPROVED	0
LICENCES DECLINED	0
LICENCES SURRENDERED	0
VOLUME OF WATER LICENSED FOR ECONOMIC USE (ML/YR)	71,600

WATER COMPLIANCE STATISTICS 2023–24

PER CENT OF LICENSED WATER USED	45
PER CENT OF LICENCES REPORTING WATER USE	100
PER CENT OF LICENCES METERED	86
LICENCE INSPECTIONS	12
WARNING LETTERS	0
INFRINGEMENTS ISSUED	0

WATER MANAGEMENT

Water management adapts and improves over time. The water plan supports this by identifying strategies and actions to more effectively share water.

The Oolloo plan is undergoing a midterm review, to be completed in November 2024, which will track progress of the plan and its implementation actions.

A key achievement over the last 5 years has been the recovery of unused licenced water entitlements Policy, which returned 4,890 ML (2018-19) and 13,482 ML (2022-23).

As a result the Aboriginal Water Reserve has been fully provisioned in the Central management zone, and the there is approximately 9,000 ML of water available for general economic development.

The Aboriginal Water Reserve in the Northern and Southern management zones is approximately 81% provisioned, with this water to support Aboriginal economic development in the region.

KEY PRIORITIES FOR THE FUTURE

- Security levels applied to licences in the plan area are progressively being phased out.
- Undertake water science projects to improve ecological understanding of the Daly River.

3 https://nt.gov.au/environment/water/licensing/licensing-portal
4 https://nt.gov.au/environment/water/licensing/water-extraction-licence/water-trading
5 https://nt.gov.au/environment/water/management-security/water-policies-and-guidelines

NORTHERN TERRITORY GOVERNMENT

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For more information visit
depws.nt.gov.au/oolloowaterplan