

Top End Regional Climate Update: December 2024

This update provides information on water use in the 2024-25 water year to date, and an outlook for the forthcoming water year for the Top End water resources, including the Katherine, Daly and Roper regions.

Looking back

2024 Announced allocation outcomes

In April 2024 the Controller of Water Resources announced 100% allocations for all water resources in the Top End. This announcement was informed using modelling to predict river flows at specified locations at the end of the 2024 Dry season. Modelling considered reported water use provided by licence holders, water resource storage levels, and climate data up to 31 March 2024. Modelling assumed 100% of licence entitlements and allocations to stock and domestic users would be taken during the 2024-25 water accounting year.

- ✓ Environmental flow thresholds were exceeded at all sites during the 2024 dry season.
- ✓ At all locations measured river flows were more than the flows predicted in modelling.
- ✓ For the Katherine River and Daly River systems measured river flows at specified locations were more than the environmental flow criteria specified in the relevant water allocation plans.

These results indicate that predictive modelling is protective of environmental flows and is relatively conservative. The difference between the measured and modelled environmental flows is likely due to actual extractions during the water accounting year being significantly less than the maximum licensed entitlements used for the modelling scenarios, combined with rainfall that occurred after the modelling runs which was not accounted for in the forecasted flows.

A comparison of modelled predicted river flows and measured flows is shown in Figure 1 below. Note that some sites experienced increased flows on 1 November 2024 due to early rains. At these sites, the most recent prior low flow measurement has been selected for comparison with predicted flows.

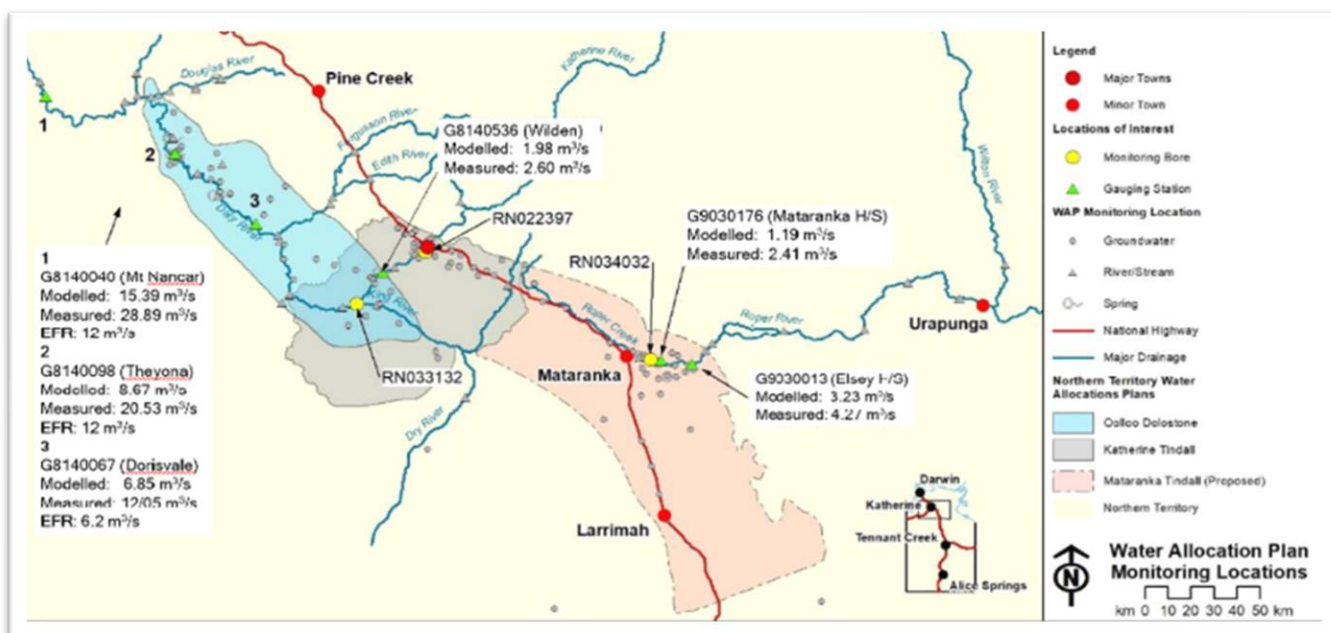


Figure 1 comparison of modelled predicted river flows and measured flows

2024 Reported water use

Compared to the same period in 2023, licensed water extraction increased in the Katherine Water Plan area and Mataranka area. Water use reduced in the Oolloo Water Plan area as shown in Figure 2.

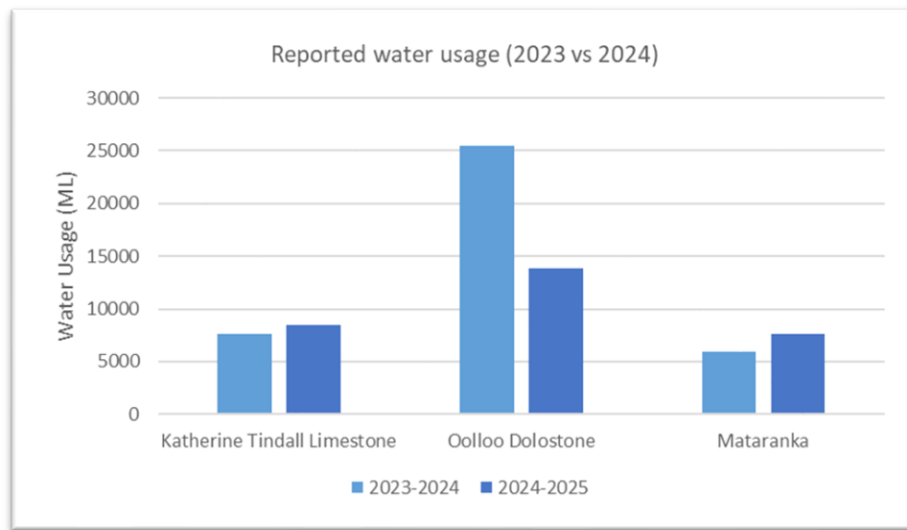


Figure 2 Comparison of 2023 reported water use to 2024 reported water use.

Looking forward

Climate drivers and rainfall outlook information is sourced from the Bureau of Meteorology (BoM) website. You can keep up to date with climate information by subscribing to the BoM website at:

<http://www.bom.gov.au/climate/outlooks/#/overview/influences>

Climate drivers

Over the past several months, global Sea Surface Temperatures (SSTs) have been at near record highs. The sustained nature of increased global sea temperatures may disrupt the development and behaviour of climate indicators including the ENSO and the Indian Ocean Dipole (IOD).

Current ENSO forecasts are for a continuation of neutral conditions through to February 2025, meaning no increased probability of above or below median rainfall over the forecast period.

The IOD had been negative leading into December, increasing the probability of rainfall, however since the start of December has returned to neutral conditions meaning no increased probability of above or below median rainfall has come to an end and is now neutral. The **neutral IOD** has little influence on Australia's climate.

The Madden-Julian Oscillation is not discussed here as it is periodic influence that acts as a climate booster, leading to enhanced rainfall under favourable conditions. As its presence in difficult to predict in the medium and long term it is not considered in this overview.

Rainfall outlook

The Bureau of Meteorology climate outlook for the 2024-25 northern Wet season is for **above average rainfalls** across the Top End between December and March, particularly during December with January

returning to median or below median rainfall, then increasing to median and above median rainfall in February and March.

Recent Rainfall

November and early December saw wetter than average conditions across most of the NT, with some inland areas around Katherine and south of Katherine receiving very much above average rainfall.

BoM predictions are for **above median rainfall** across the Top End during **December**, with **January** returning to **median or slightly below median rainfall**.

The three month outlook for **January – March** (Figure 3) is for **median to slightly above median rainfall** across the Top End, while the three month outlook **February – April** (Figure 4) shows **above median rainfall** across the Top End.

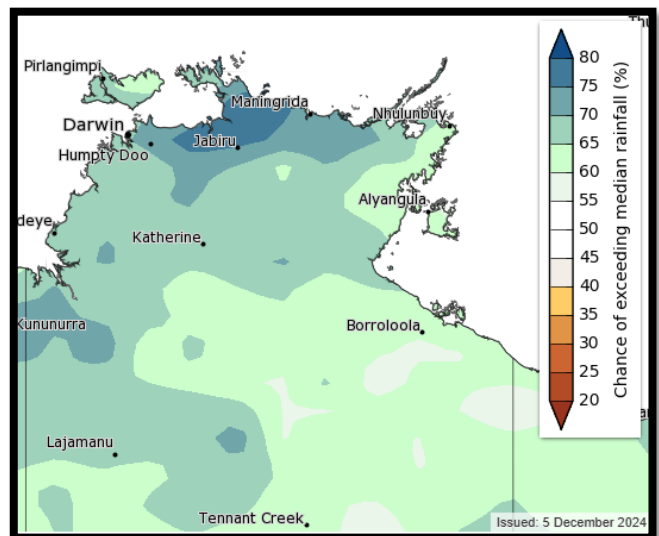
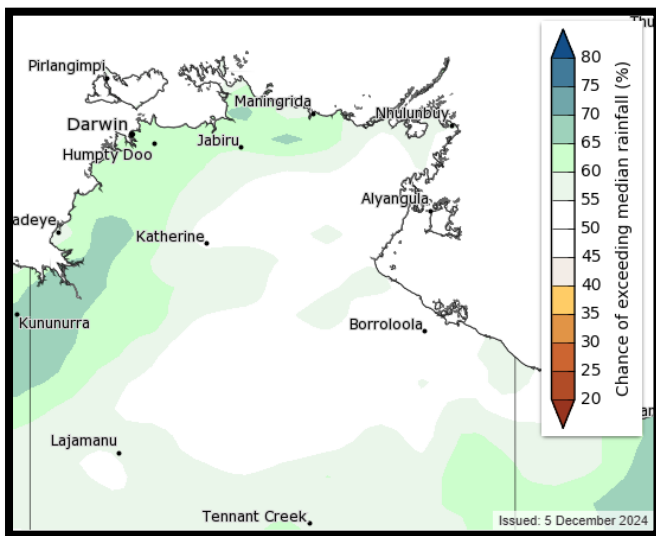


Figure 3 Chance of above median rainfall Jan – March

Figure 4 Chance of above median rainfall March – April

(Source: <http://www.bom.gov.au/climate/outlooks/#/rainfall/median/seasonal/0>)

Figures 5 and 6 show the 75% and 50% probabilities of exceeding the displayed rainfall totals over the January to March 2025 period.

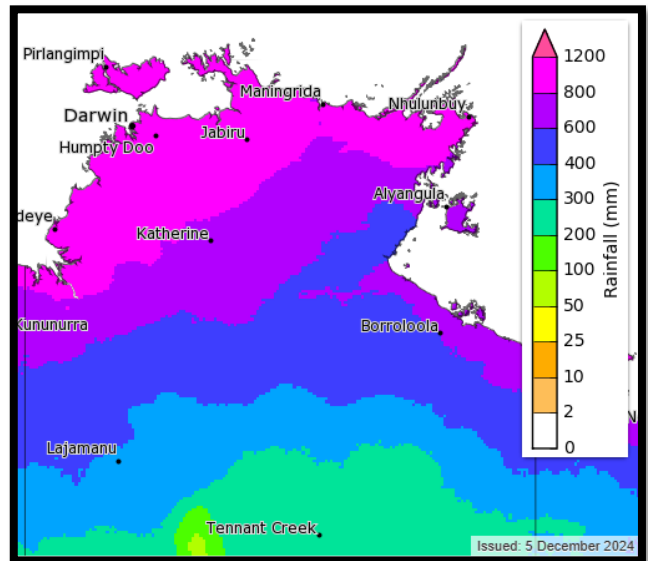
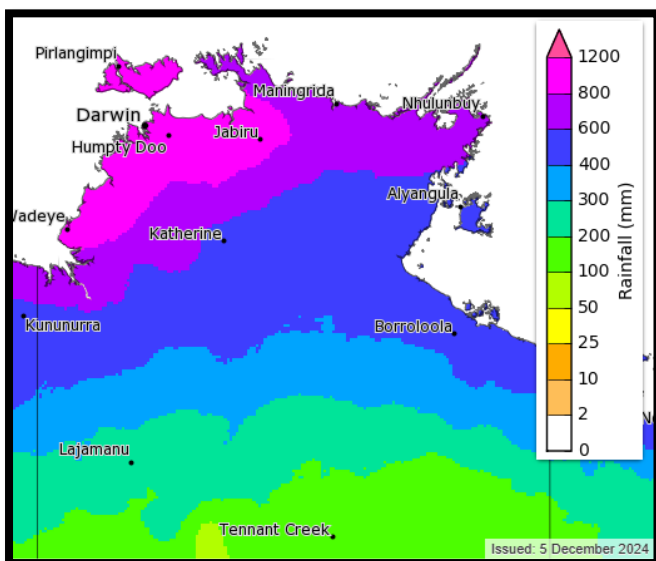


Figure 5 75% rainfall exceeds (January – March)

Figure 6 50% chance rainfall exceeds (January – March)

(Source: <http://www.bom.gov.au/climate/outlooks/#/rainfall/total/75/seasonal/0>)

Groundwater levels

Routine monitoring of groundwater levels for the water allocation plan areas have been completed for the end of 2024 Dry season. Groundwater levels across the region are at the same level as the previous year if not higher (meaning more water is now stored in the aquifer) in some areas.

The 2023-24 Wet season provided a greater groundwater recharge opportunity compared to the previous two Wet season periods, with water levels 0.3 to 0.9 m higher than last year.

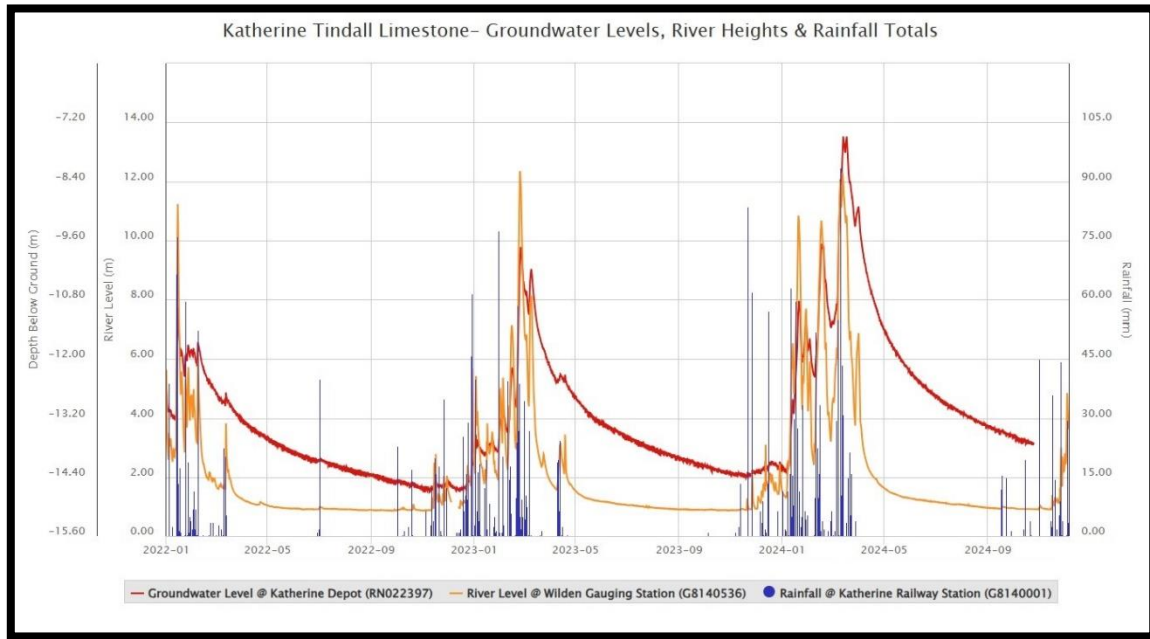


Figure 7 Groundwater level, river level and rainfall in Katherine water plan area

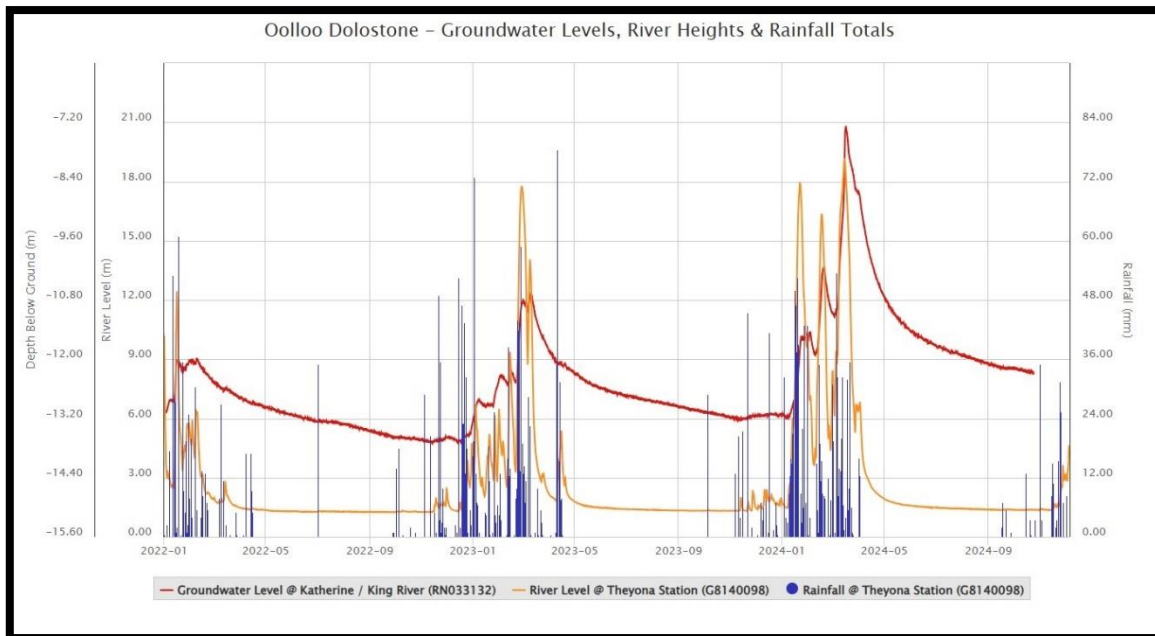


Figure 8 Groundwater level, river level and rainfall in the Oolloo water plan area.

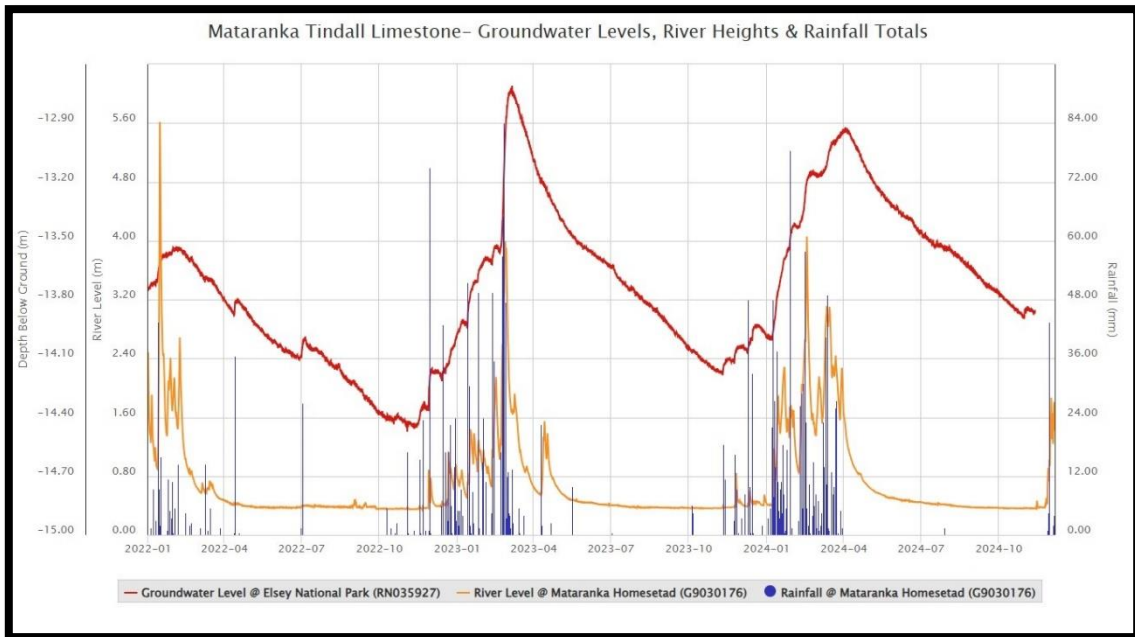


Figure 9 Groundwater level, river level and rainfall in the Mataranka area.

2025 Announced allocation outlook

Based on the reported water use in the region, the climate and rainfall outlook, and the measured groundwater levels presented in this update, it is **likely** allocations for the 2025-26 water accounting year will be **100 per cent** for all water resources in the Top End, specifically including:

- ✓ Katherine Tindall Limestone
- ✓ Oolloo Dolostone
- ✓ Mataranka Tindall Limestone
- ✓ Tindall Limestone Aquifer (Flora)
- ✓ Jinduckin Formation
- ✓ Edith River
- ✓ Adelaide River
- ✓ Katherine River upstream of Tindall Limestone Aquifer Donkey camp weir

Modelling will be undertaken in February 2025 to inform an Early Notice to licence holders. Further modelling using updated climate information, if required, will be undertaken in late March/April 2025 to inform an allocation announcement.

The Controller of Water Resources will provide advice to relevant licence holders of their 2025-26 annual announced allocation before 1 May 2025.

More information

Water allocation plans: <https://depws.nt.gov.au/water/water-management/water-allocation-plans>

Water Licensing Portal: <https://denr.nt.gov.au/water/permits-and-licences/water-licensing-portal>

Water Data Portal: <https://denr.nt.gov.au/water/water-information-systems/water-data-portal>

BOM rainfall outlook: <http://www.bom.gov.au/climate/outlooks/#/rainfall/median/weekly/0>

BOM Climate drivers: <http://www.bom.gov.au/climate/enso/>

Contact us

If you have any enquiries about this update, please contact Water Resources on 08 8999 4455 or by emailing waterresources.DEPWS@nt.gov.au.