

Katherine-Daly-Roper Regional Water Update

December 2022

This climate update provides information on predicted and actual water use in 2022, and provides an outlook for 2023, for the Katherine, Daly and Roper water resource systems.

Looking back

2022-23 water allocation outcomes

On 1 May 2022 the Controller of Water Resources announced 100 per cent allocation for water extraction licences in the Top End for 2022. This announcement was informed using modelling to predict river flows, to ensure environmental flow thresholds were met.

- ✓ With the exception of Dorisvale, the measured river flows were more than the modelled predicted flows at all locations.
- ✓ Minimum environmental flow thresholds, which correspond to the ecological functioning of the water resource, have been set for Wilden (1.6 m³/s), Dorisvale (6 m³/s), Theyona (12 m³/s) and Mount Nancar (12 m³/s).
- ✓ Measured and modelled minimum flows exceeded the environmental thresholds at all sites during the 2022 dry season. (Figure 1).

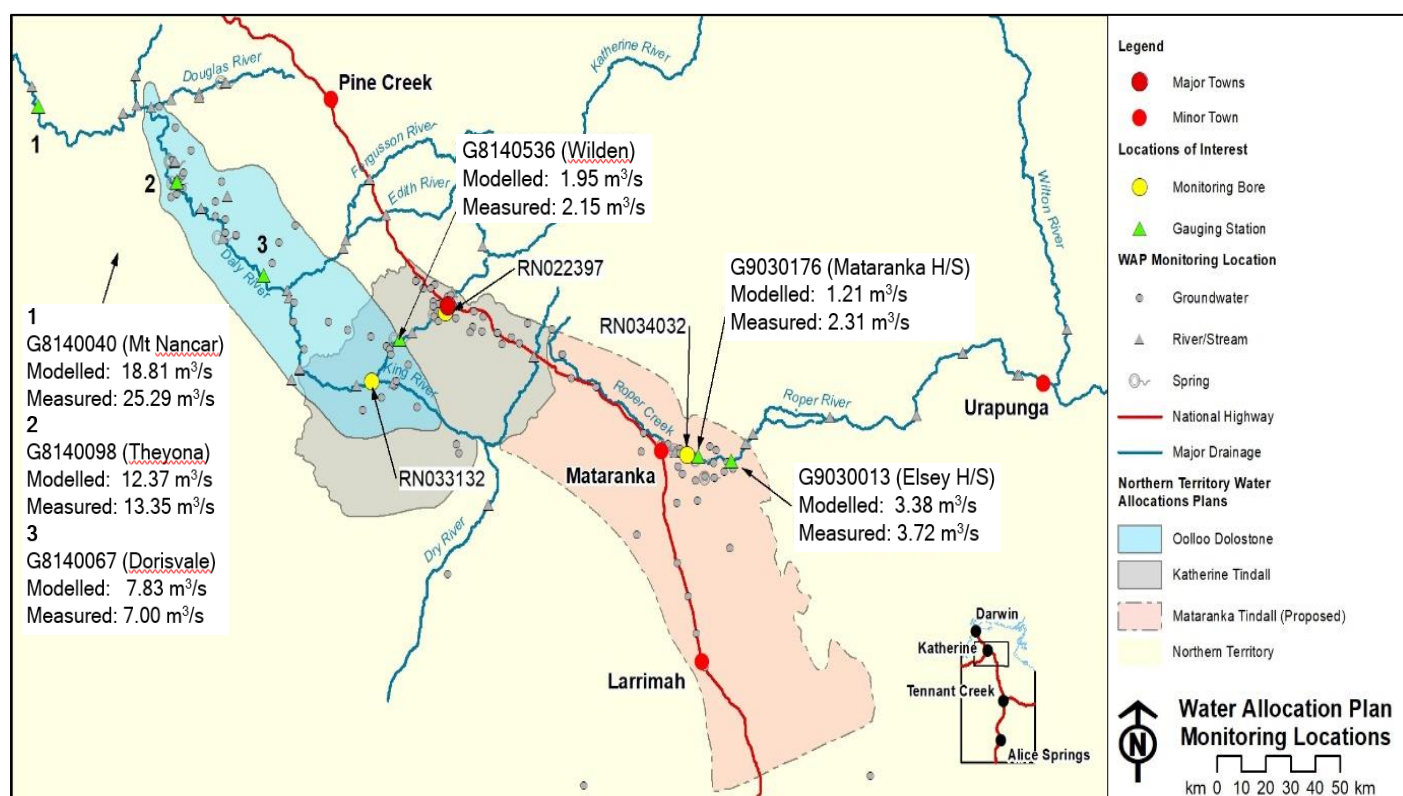


Figure 1: Comparison of predicted river flow and measured river flow for 1 November 2022

2022-23 water use

Licensed water extraction reported across the regions for the period 1 May to 30 November 2022 is shown in Figure 2.

Water use in the Katherine Tindall Limestone has remained relatively steady. The reported licensed water extraction in the aquifer is currently at 25 per cent of the total maximum volume that may be taken under licences. This is a slight decrease from the 30 per cent reported for the same time in the previous year.

Water extraction in the Ooloo Dolostone has also remained relatively steady at 33 per cent of the total maximum licensed volume, up from 28 per cent and 23 per cent for the 2021 and 2020 years. This increase is likely a reflection of increasing investment in water infrastructure across the region, aligned with water extraction licence development plans.

Water use in the Mataranka Tindall Limestone is reported at 46 per cent of the total maximum volume that may be taken under licences, up from 26 per cent during the 2020 and 2021 years. Again, this increase is likely a reflection of the increasing investment in water infrastructure and regional development and an early start to the dry season.

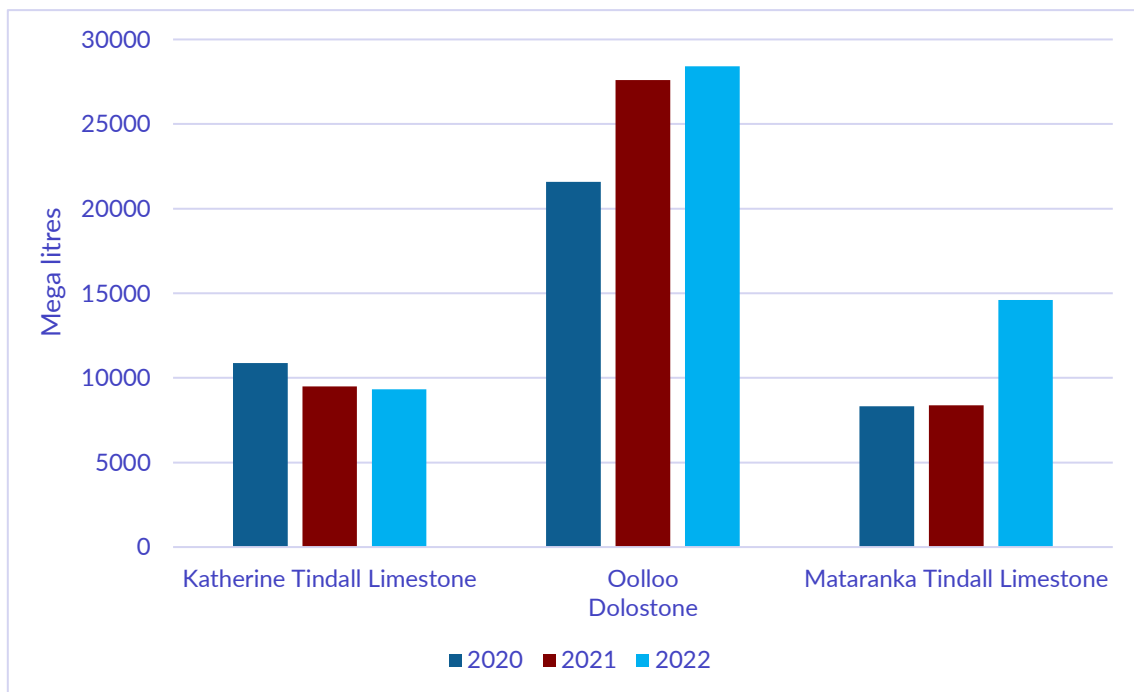


Figure 2: Comparison of water use, 2020-2022

The total maximum licensed volume for each region against reported water use for 2022 is shown in Figure 3.

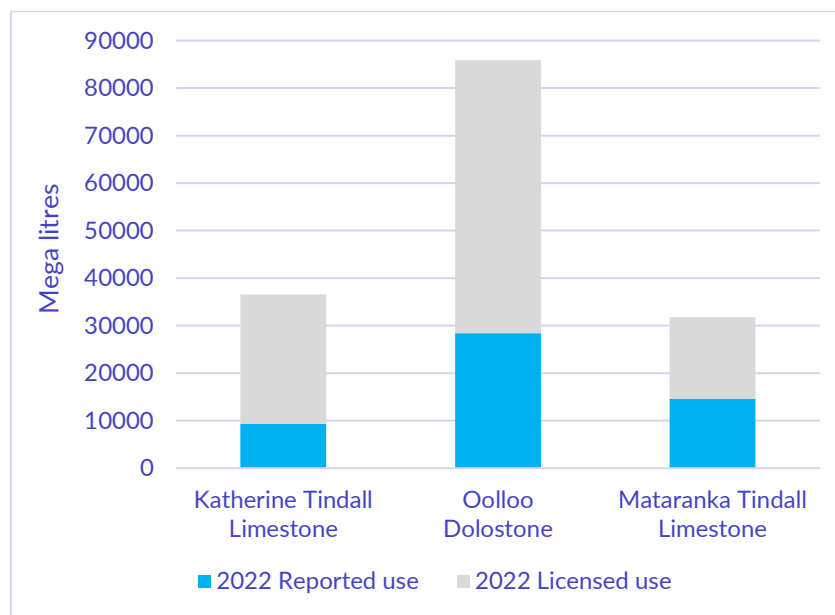


Figure 3: Total maximum licensed volume and reported use from 1 May 2022 to 30 November 2022

Looking forward

2023 water licence allocations

The Controller of Water Resources will announce the 2023 water extraction licence allocations before 1 May 2023.

Based on the status of water use in the region, the climate and rainfall outlook, and the measured groundwater levels presented in this update, it is **likely** that allocations for the 2023 year will be **100 per cent** for the following water resources:

- ✓ Tindall Limestone Aquifer (Flora)
- ✓ Jinduckin Formation
- ✓ Edith River
- ✓ Adelaide River
- ✓ Katherine River - upstream of Tindall Limestone Aquifer, Donkey Camp weir

It is **possible** that water extraction licence allocations may not be 100 per cent in the following water resources:

- Katherine Tindall Limestone
- Ooloo Dolostone
- Mataranka Tindall Limestone

Water Resources will continue to monitor rainfall and the status of all water resources, and an Early Notice to licence holders will be provided in March 2023.

Climate drivers

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>

During the past month, a **La Nina** event has become established in the tropical Pacific and is expected to remain until early 2023. A La Nina event typically leads to wetter than median conditions for eastern Australia, however has limited impact on Northern Australia.

The Indian Ocean Dipole (IOD) is now neutral; and a **neutral IOD** has little influence on Australia's climate.

Sea surface temperatures around tropical Australia are currently **warmer than average** and are expected to remain warmer than average throughout the summer months, **contributing to increased rainfall and temperatures** across northern Australia during this period.

The Madden-Julian Oscillation is not discussed here, as its presence is difficult to predict in the medium and long term and it is not relevant to this overview.

Rainfall outlook

The BoM climate outlook for the 2022-23 northern wet season are for **median to slightly below median rainfalls**.

During **December and January**, BoM predictions are for **slightly below median rainfall** across the NT. Between **February** and **April** rainfall is expected to be **median to slightly above median**.

The three month outlook for December to February is for median rainfall across most of the NT with higher than median rainfall expected for the northeast Top End and around Borroloola, while the three month outlook for January to March shows median to slightly above median rainfall across the Top End.

Recent Rainfall

Rainfall to 1 December 2022 saw wetter than average conditions across much of the Top End, including early flooding in the Victoria River Catchment. Darwin Airport (Figure 4) and (Katherine) Tindal RAAF (Figure 5) both show early wet season rainfall is well above average.

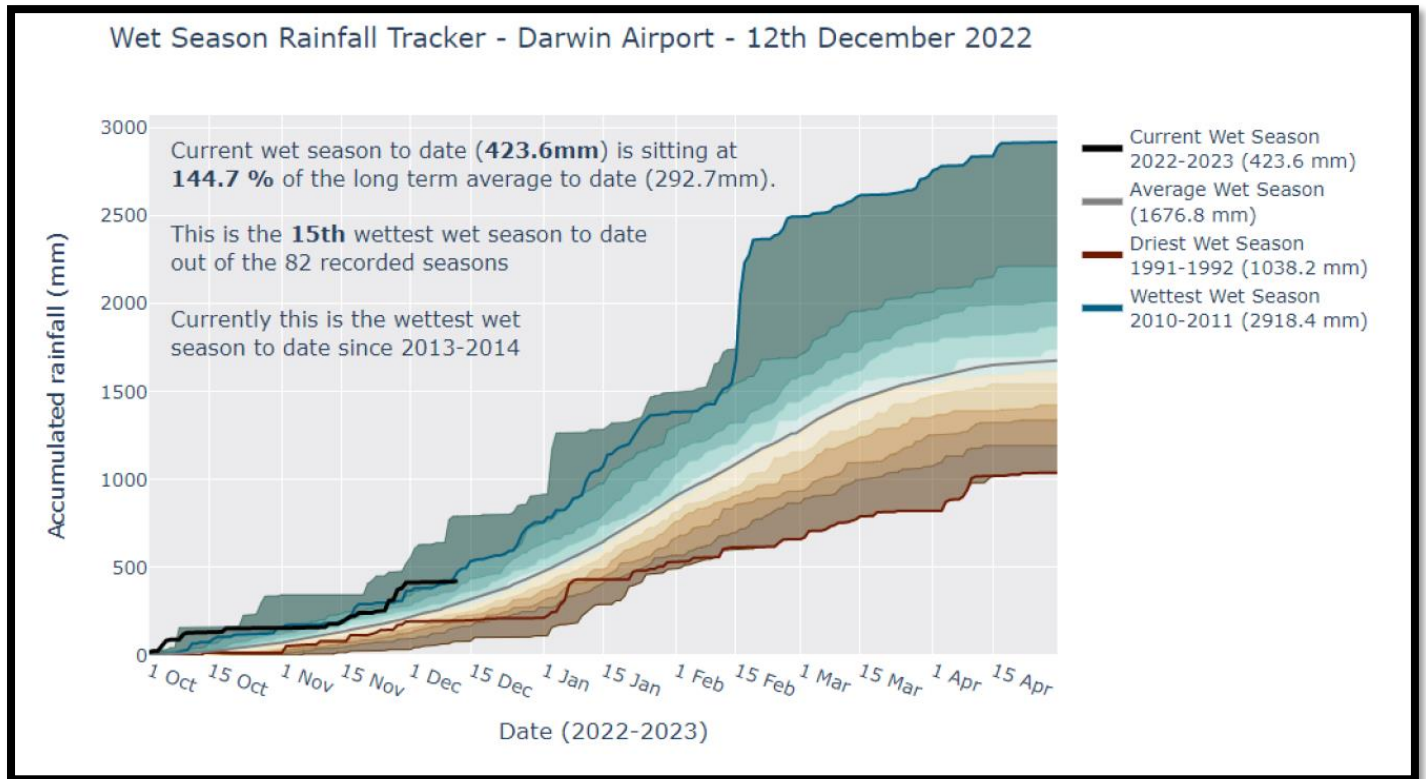


Figure 4: Wet season tracker - Darwin Airport (courtesy of Bureau of Meteorology)

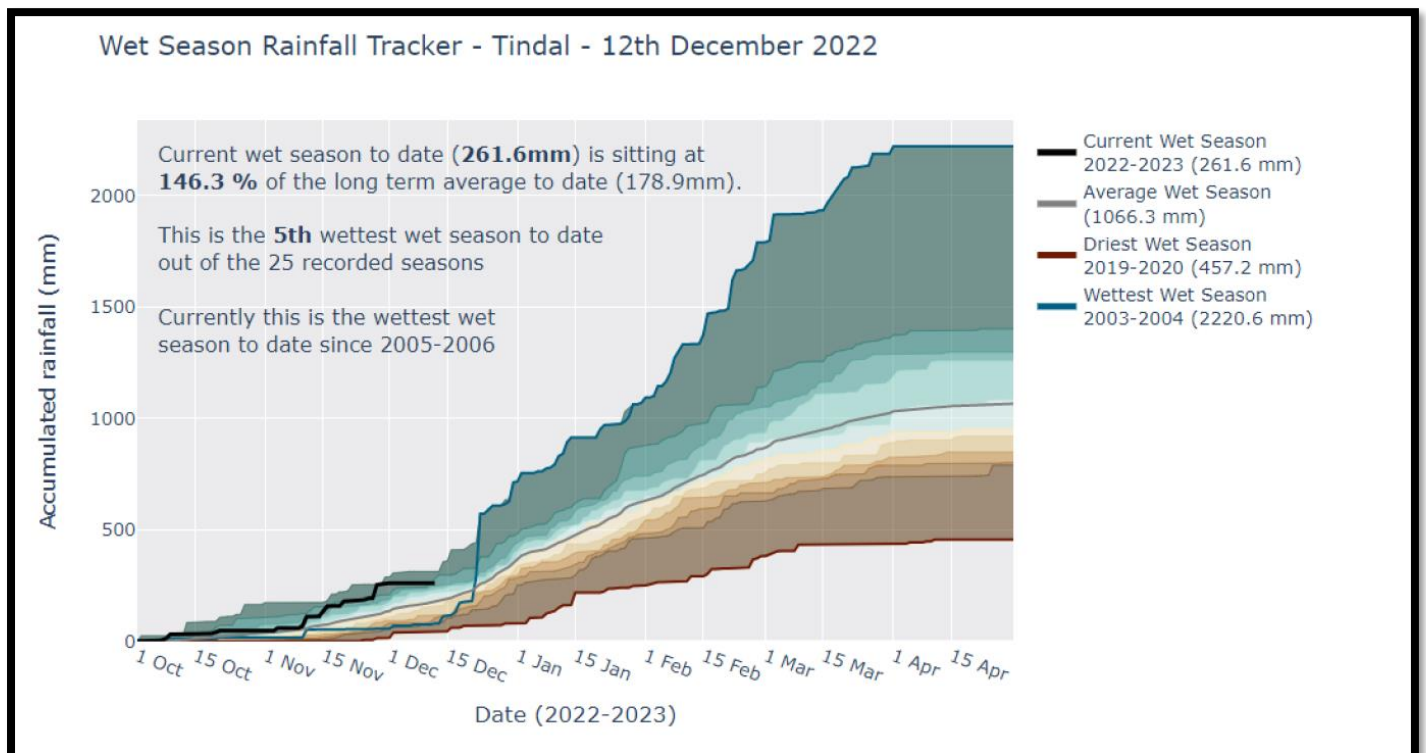


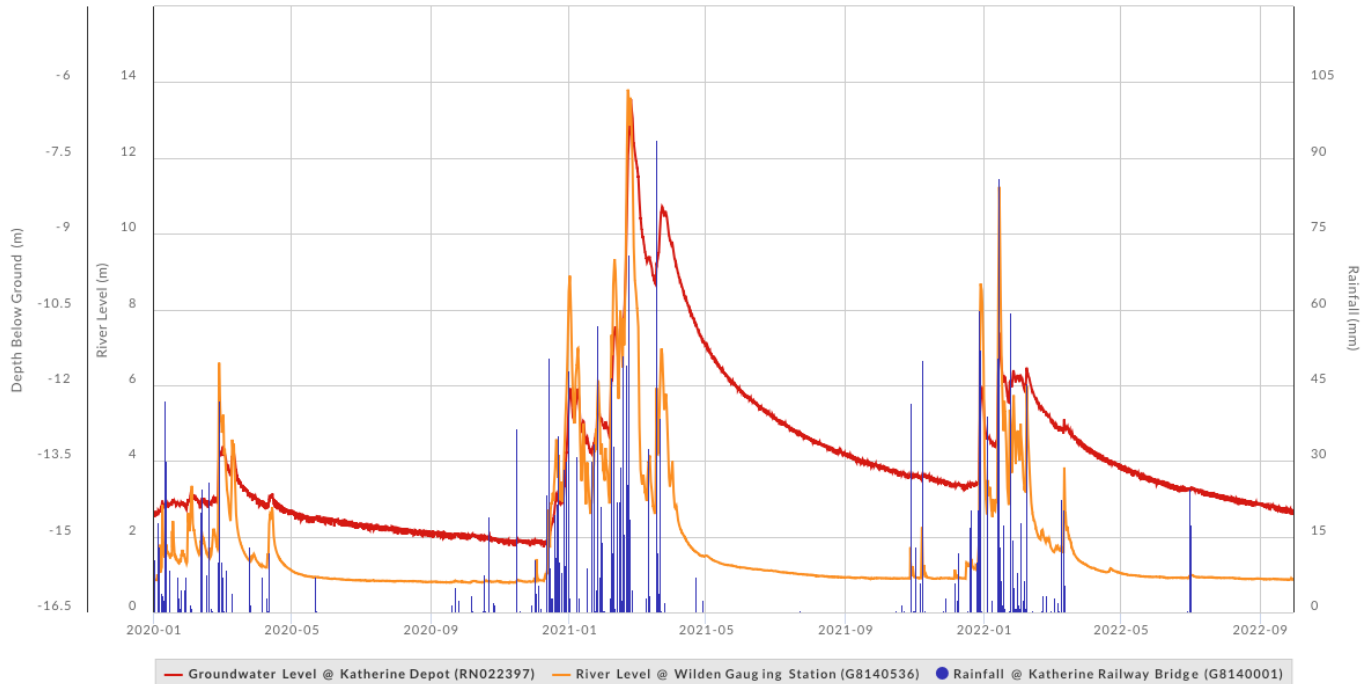
Figure 5: Wet season tracker – Tindal RAAF (courtesy of Bureau of Meteorology)

Groundwater levels

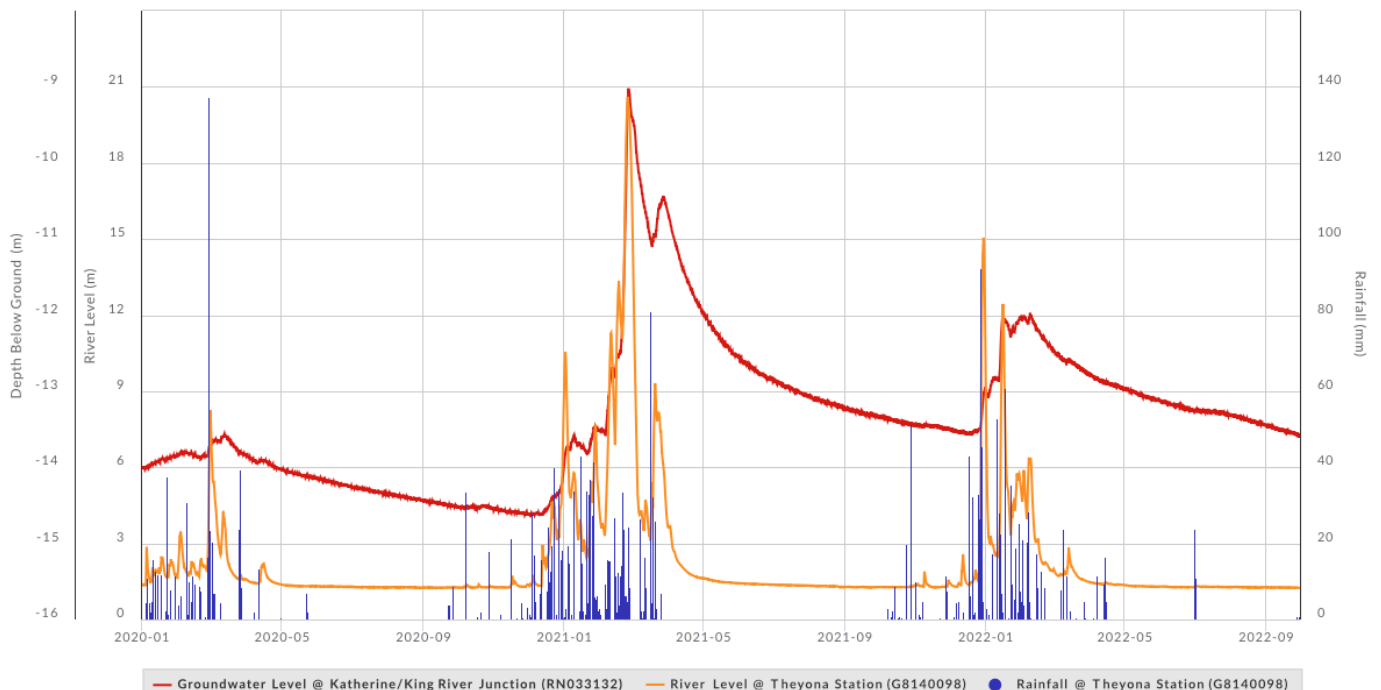
Routine monitoring of groundwater levels has been undertaken for the end of the 2022 dry season. The bores graphed below represent the Katherine Tindall Limestone, the Oolloo Dolostone and the Mataranka Tindall Limestone aquifers. In all three plots the groundwater levels in late 2022 had not yet commenced recharging.

The plots show groundwater recharge from 2021-22 wet season was less than the previous year.

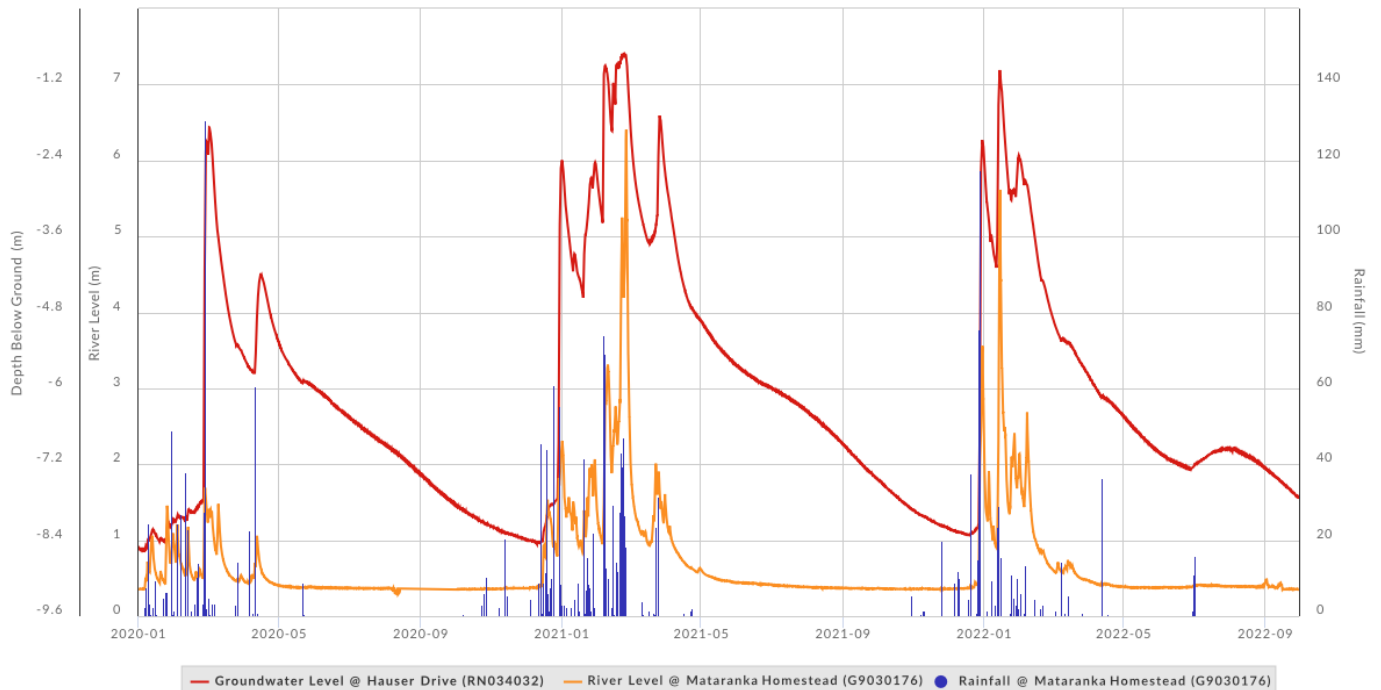
Katherine Tindall Limestone - Groundwater Levels, River Heights & Rainfall Total



Oolloo Dolostone - Groundwater Levels, River Heights & Rainfall Totals



Mataranka Tindall Limestone - Groundwater Levels, River Heights & Rainfall Totals



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.