

# Adelaide Plains Prescribed Wells Areas

## 2022–23 Groundwater status overview



Central Adelaide PWA	T1 aquifer	●
Kangaroo Flat region	T2 aquifer	○
Northern Adelaide Plains PWA	T1 aquifer	●
Plains PWA	T2 aquifer	●

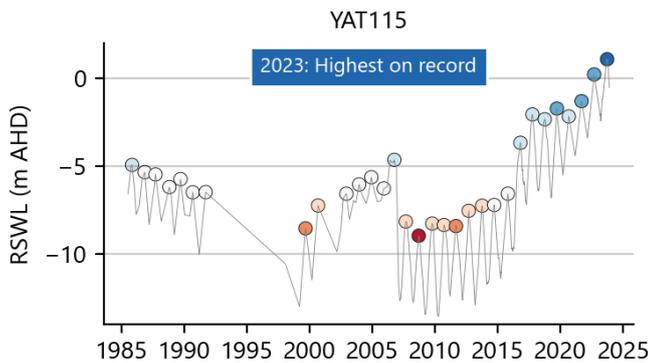
### LEGEND

● Highest on record	○ Below average
● Very much above average	○ Very much below average
○ Above average	● Lowest on record
○ Average	— Long-term trend

## Groundwater levels

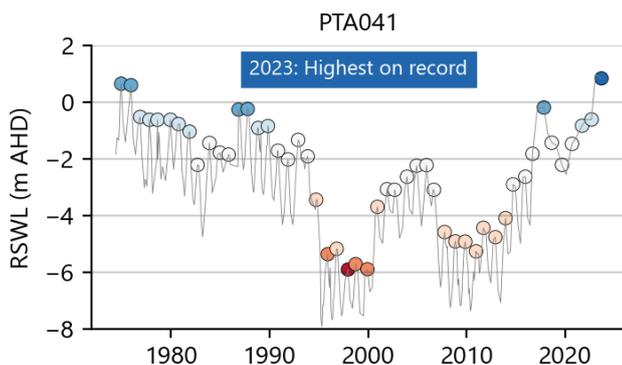
**In 2023, groundwater levels in the T1 aquifer are classified 'Very much above average'.**

- 88% of wells in the Central Adelaide (CA) Prescribed Wells Area (PWA) and 71% of wells in the Northern Adelaide Plains (NAP) PWA are classified 'Above average' or higher.
- Five-year trends (2019 to 2023) are rising or stable for the majority of wells in the CA PWA (95%) and all wells in NAP PWA).
- YAT115 (below) shows rising groundwater levels since 2012, in part due to reduced extraction around Dry Creek and Osborne.



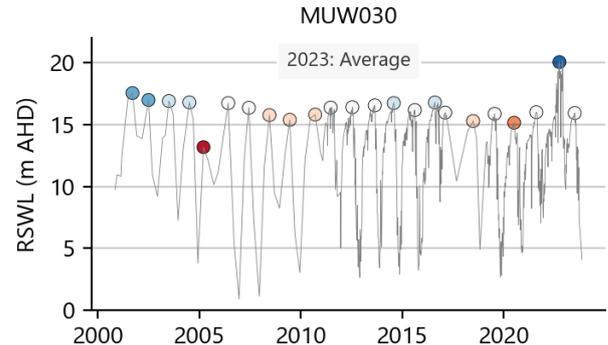
**In 2023, groundwater levels in the NAP T2 aquifer are mainly classified 'Above average'.**

- 59% of T2 wells are classified 'Above average' or higher.
- Five-year trends (2019 to 2023) show that groundwater levels are rising in all T2 monitoring wells.
- PTA041 (shown below) is near St Kilda Beach, which is away from the areas of intensive extraction.



**In 2023, groundwater levels in the T2 aquifer in the Kangaroo Flat region are classified 'Average' or lower.**

- MUW030 below shows seasonal drawdowns in the confined T2 aquifer due to pumping near the monitoring wells. However, the overall trend is downwards.

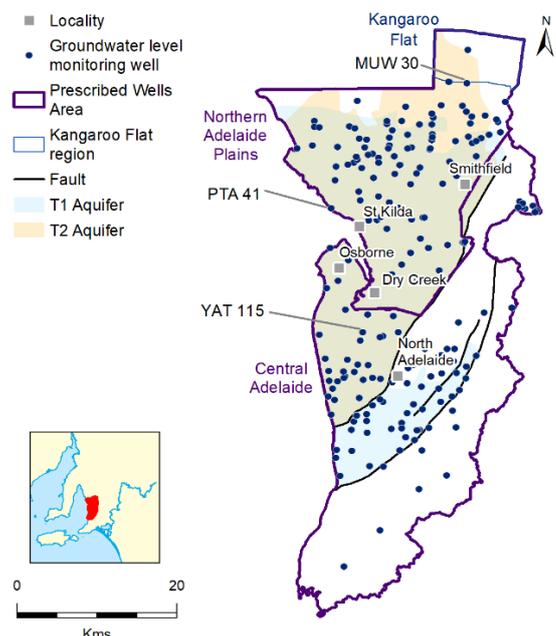


## Regional context

The Adelaide Plains Water Allocation Plan was adopted on 1 July 2022 and provides the rules for management of groundwater resources in the NAP and CA PWAs.

The main groundwater resources of the Adelaide Plains are the sedimentary Quaternary aquifers, the first and second Tertiary (T1 and T2) aquifers and fractured rock aquifers. The majority of groundwater extraction occurs from the T1 and T2 aquifers.

Managed aquifer recharge (MAR) involves injection and storage of surplus (winter) water for future (summer) use. MAR has been widely adopted across the Adelaide Plains over the past few decades which has contributed to recent rises in groundwater levels in some areas.

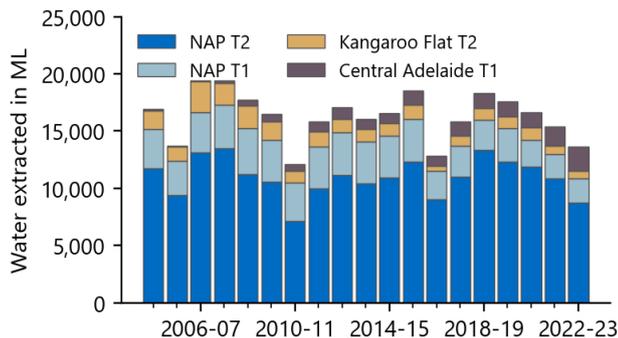


# Adelaide Plains PWAs 2022-23 Groundwater status overview

## Groundwater use

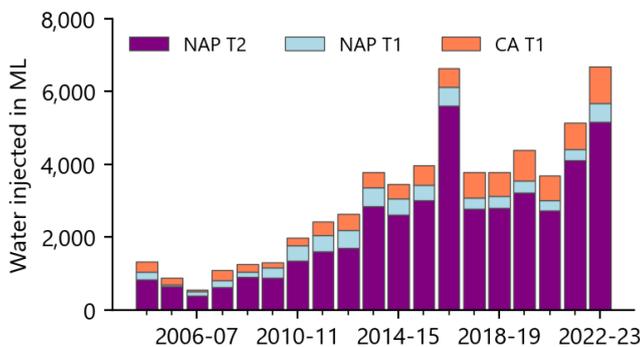
**In 2022-23, total licenced groundwater extraction is slightly lower than the previous few years.**

- Overall licenced groundwater extraction is 13,639 ML, comprising 8,754 ML from NAP T2, 2,112 ML from NAP T1, 686 ML from Kangaroo Flat and 2,087 ML from CA T1.
- Extraction from NAP T2 aquifer has decreased each year for the previous 4 years.
- Groundwater is used mostly for irrigation, industrial, commercial, stock and domestic purposes.



**MAR schemes operate in multiple aquifers within the NAP and CA PWAs**

- In 2022-23, a total of 6,679 ML is injected, comprising 5,156 ML to the NAP T2, 525 ML to NAP T1 and 998 ML to CA T1.
- By volume, the majority of MAR schemes use the T2 aquifer in the NAP PWA (shown below).



## Salinity

**Salinity samples from 291 wells across the Adelaide Plains range between 500 to 4,083 mg/L with a median of 1,006 mg/L.**

- Median salinity is 1,125 mg/L for CA (T1), 863 mg/L for NAP T1, 1,011 mg/L for NAP T2 and 1,732 mg/L for Kangaroo Flat.
- Ten-year salinity trends are stable ( $\pm 10\%$ ) in most wells.
- Increasing 10-year salinity trends (by more than 10% per year) are observed in 11% of wells, located within the NAP, where seasonal drawdown creates potential for downward leakage from overlying high-salinity shallow aquifers.

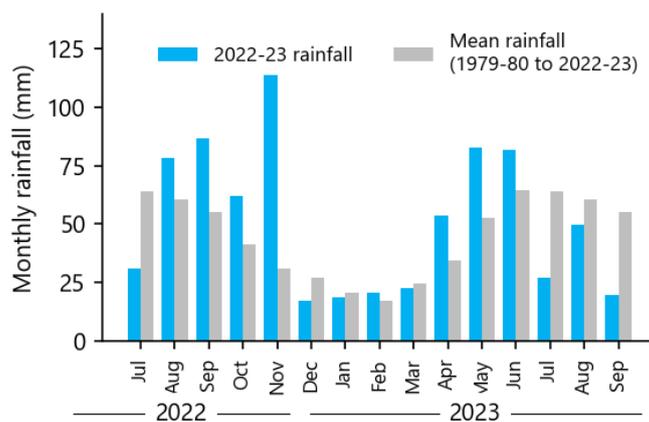
## Rainfall

Rainfall is one of the main drivers of trends in the local groundwater resources. Groundwater levels in the confined aquifers of the Adelaide Plains PWA can be indirectly influenced by variations in rainfall. Below-average rainfall can increase the demand for irrigation and; therefore, lead to higher rates of groundwater extraction, and vice-versa.

Above-average rainfall can also result in higher rates of aquifer injection by MAR schemes which can compound rising groundwater levels due to lower rates of extraction for irrigation. Climate variability, such as a wetter than average spring, can result in a delayed start to pumping for the irrigation season and; therefore, a greater recovery in groundwater levels during winter.

**In 2022-23, total rainfall is above average.**

- Rainfall at Smithfield, Gawler and North Adelaide is above the long-term (1979 to 2023) average by 36%, 32% and 21% respectively.
- Long-term trends show that annual rainfall is stable at Smithfield and Gawler and declining at North Adelaide.
- In 2022-23, monthly rainfall is above the long-term average during most months at most stations.
- Monthly rainfall is presented below for the Smithfield station.



### More Information

This fact sheet is a high level summary. More information (including metadata) is available in the suite of Water Resources Assessments for the Adelaide Plains PWAs, available at: <https://www.waterconnect.sa.gov.au/Systems/GSR/Pages/Default.aspx>

