

# Adelaide Plains Prescribed Wells Areas

## 2021–22 Groundwater status overview



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

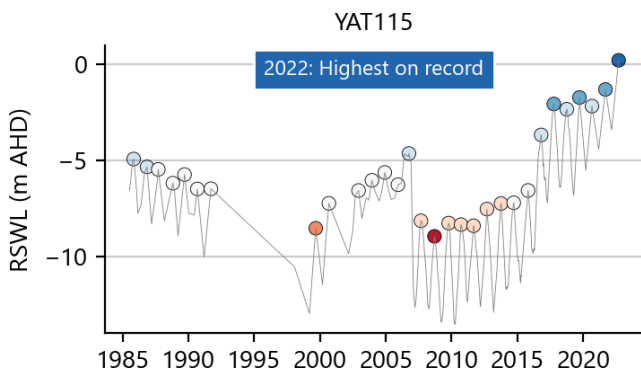
### LEGEND

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

## Groundwater levels

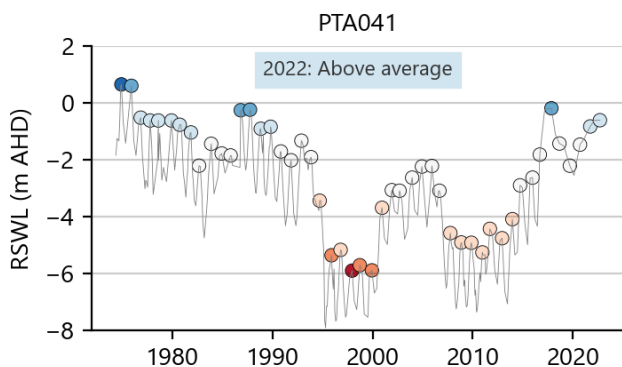
**In 2022, groundwater levels in the T1 aquifer are classified 'Very much above average'.**

- 84% of wells in the Central Adelaide Prescribed Wells Area (PWA) and 95% of wells in the Northern Adelaide Plains (NAP) PWA are classified 'Above average' or higher.
- Five-year trends (2018 to 2022) are rising or stable for the majority of wells in the Central Adelaide PWA (87%) and NAP PWA (90%).
- YAT115 below shows rising groundwater levels since around 2010, in part due to reduced extraction around Dry Creek and Osborne.



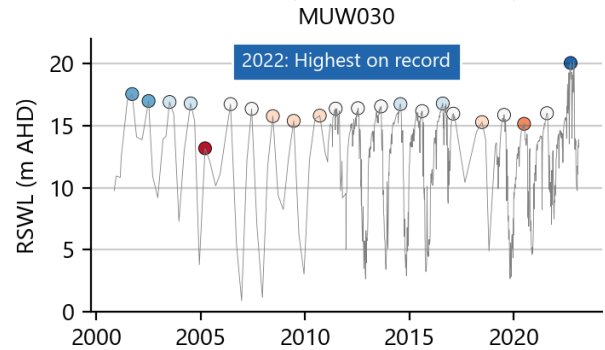
**In 2022, groundwater levels in the T2 aquifer are mainly classified 'Above average'.**

- In the NAP PWA, 83% of T2 wells are classified 'Above average' or higher.
- Five-year trends (2018 to 2022) show that groundwater levels in 88% of T2 wells are rising.
- PTA041 (shown below) is near St Kilda Beach, which is away from the areas of intensive extraction.



**In 2022, groundwater levels in the T2 aquifer in the Kangaroo Flat region are classified between 'Below average' and 'Highest on record'.**

- MUW030 below shows seasonal drawdowns in the confined T2 aquifer due to pumping near the monitoring well.

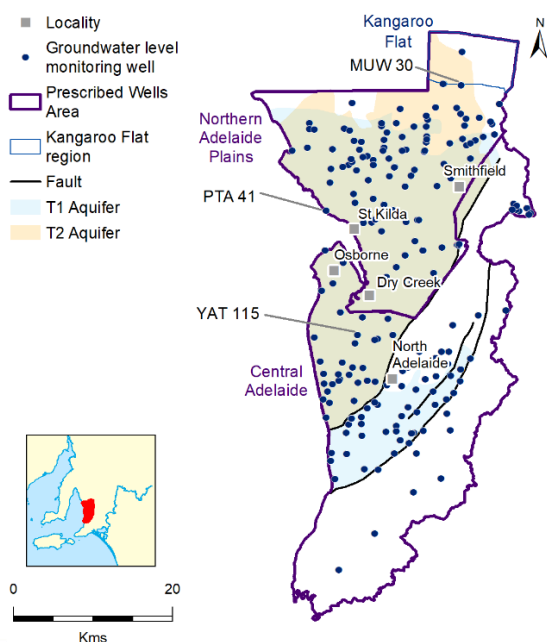


## Regional context

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 Central Adelaide 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 water 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.

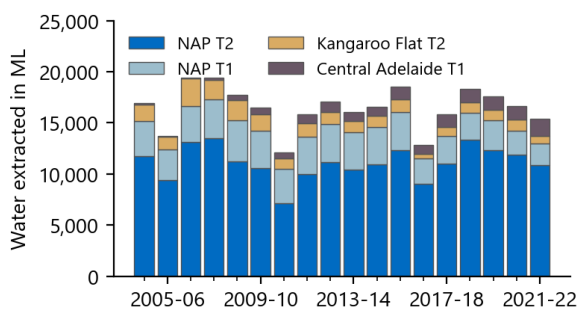


# Adelaide Plains PWAs 2021-22 Groundwater status overview

## Groundwater use

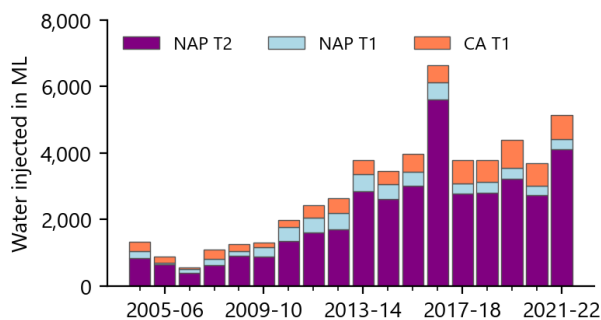
**In 2021–22, total licenced groundwater extraction is slightly lower than the previous few years.**

- Overall licenced groundwater extraction is 15,428 ML, comprising 10,870 ML from NAP T2, 2,144 ML from NAP T1, 716 ML from Kangaroo Flat and 1,697 ML from Central Adelaide T1.
- Extraction from NAP T2 aquifer has decreased each year for the previous 3 years.
- Groundwater is used mostly for irrigation, industrial, commercial, stock and domestic purposes.



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

- In 2021–22, a total of 5,141 ML was injected, comprising 4,118 ML to the NAP T2, 289 ML to NAP T1 and 734 ML to Central Adelaide T1.
- By volume, the majority of MAR schemes use the T2 aquifer in the NAP PWA (shown below).



## Salinity

**Salinity samples from 314 wells across the Adelaide Plains range between 388 to 3,695 mg/L with a median of 1,021 mg/L.**

- Median salinity is 1,220 mg/L for Central Adelaide (T1), 872 mg/L for NAP T1, 1,018 mg/L for NAP T2 and 1,368 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 (from irrigation extraction) generates potential for downward leakage from overlying high-salinity shallow aquifers.

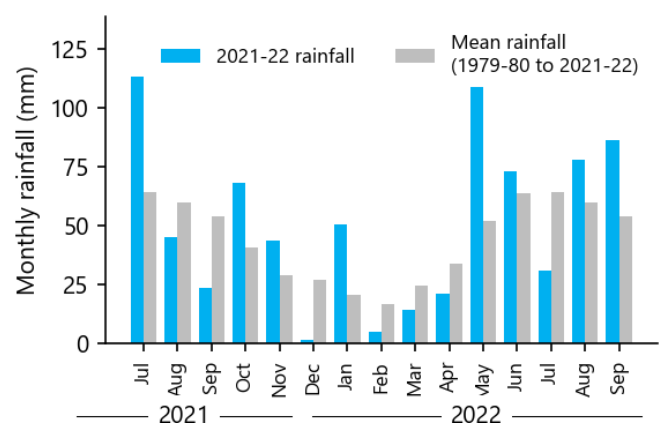
## Rainfall

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 2021–22, total rainfall is near or above average.**

- Rainfall at Smithfield and Gawler is above the long-term (1979 to 2022) average by around 16%.
- Rainfall at North Adelaide is just 4% below the long-term average of 491 mm.
- Long-term trends show that annual rainfall is stable at Smithfield and Gawler and declining at North Adelaide.
- In 2021–22, monthly rainfall is above the long-term average during July and October 2021 and January, May, August and September 2022 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>

