

# Adelaide Plains Prescribed Wells Areas

## 2020–21 Groundwater status overview



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

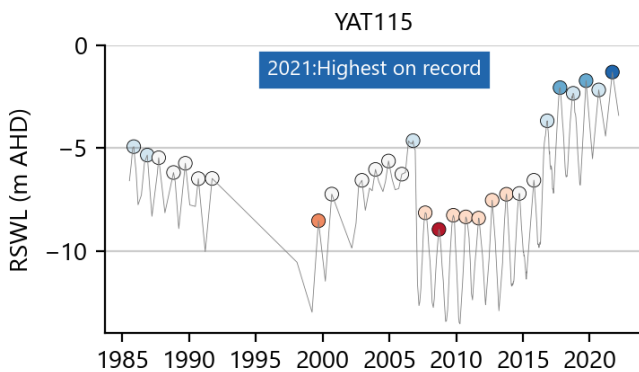
### LEGEND

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

## Groundwater levels

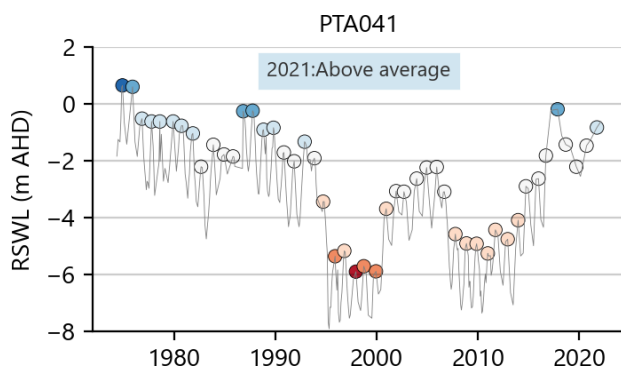
**In 2021, water levels in the T1 aquifer are classified 'Very much above average'.**

- 94% of wells in the Central Adelaide Prescribed Wells Area (PWA) and 90% of wells in the Northern Adelaide Plains (NAP) PWA are classified 'Average' or higher.
- Five-year trends (2017 to 2021) are rising or stable for the majority of wells (64%) in the Central Adelaide PWA and declining for the majority of wells (85%) in the NAP PWA.
- YAT115 below shows rising water levels since around 2010, in part due to reduced extraction around Dry Creek and Osborne.



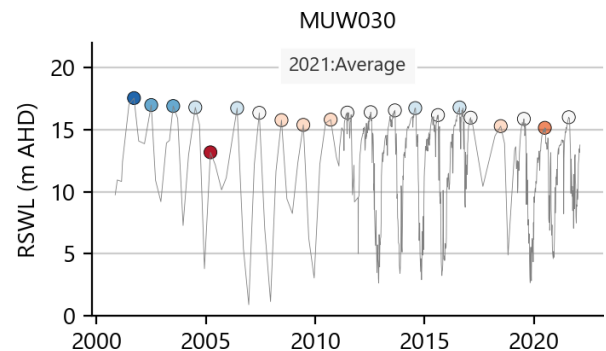
**In 2021, water levels in the T2 aquifer are mainly classified 'Average'.**

- In the NAP PWA, 73% of T2 wells are classified 'Average' or higher.
- Five-year trends (2017 to 2021) show that water levels in 88% of T2 wells are declining.
- PTA041 (shown below) is near St Kilda Beach, which is away from the areas of intensive extraction.



**In 2021, water levels in the T2 aquifer in the Kangaroo Flat region are classified between 'Average' and 'Very much below Average'.**

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

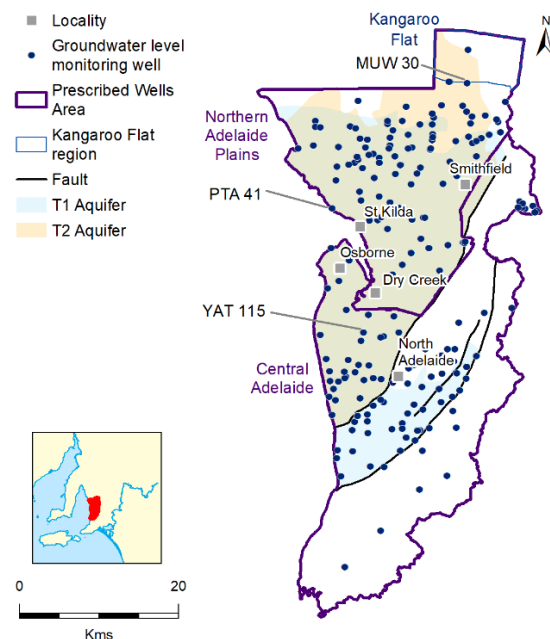


## Regional context

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, and has been widely adopted across the Adelaide Plains over the past few decades.

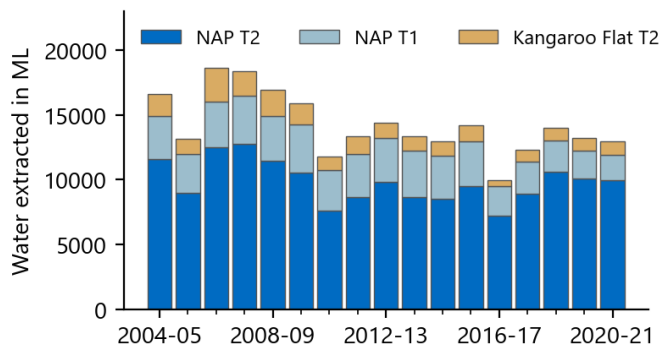


# Adelaide Plains PWAs 2020-21 Groundwater status overview

## Water use

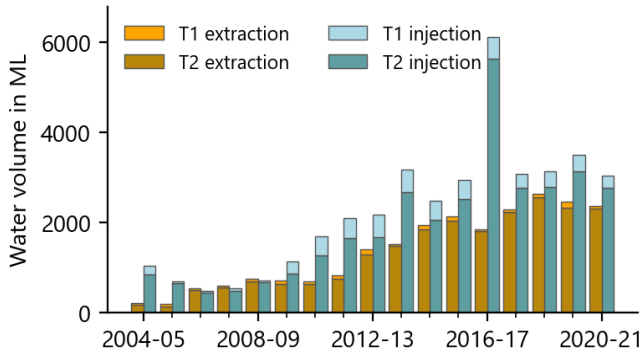
**In 2020–21, licensed groundwater extraction from the T1 and T2 aquifers (NAP PWA) is similar to the previous few years.**

- Total licensed groundwater extraction from the NAP PWA is 12,964 ML (excluding MAR extraction). This includes 9,940 ML from the T2 aquifer, 1,950 ML from the T1 aquifer and 1,074 ML from the T2 aquifer in the Kangaroo Flat region.
- Extracted groundwater is mostly used for irrigation, industrial, commercial, stock and domestic purposes.



**MAR schemes operate in the T1 and T2 aquifers of the Adelaide Plains and NAP PWAs.**

- In 2020–21, MAR schemes in the T1 and T2 aquifers injected a total of 4,286 ML and extracted a total of 3,685 ML.
- By volume, the majority of MAR schemes use the T2 aquifer of the NAP PWA (shown below).



## Salinity

**Salinity samples from 384 wells across the Adelaide Plains range between 558 to 3,780 mg/L with a median of 1,013 mg/L.**

- Median salinity is 1,284 mg/L for Central Adelaide (T1), 866 mg/L for NAP T1, 1,010 mg/L for NAP T2 and 1,950 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 10% of wells, located within the NAP where seasonal drawdown (from irrigation extraction) creates potential for downward leakage from overlying shallow saline aquifers, particularly where corroded casing is present.

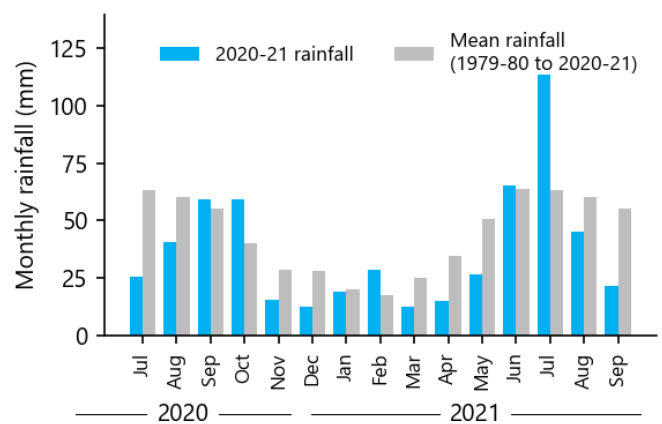
## Climate

Climate is one of the main drivers of trends in the local water 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 need 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 2020–21, total rainfall is below average by about 25%.**

- Rainfall at Smithfield is 380 mm, which is lower than the long-term average of 487 mm (1979 to 2021).
- Rainfall at North Adelaide is 375 mm, which is also lower than the long-term average of 492 mm.
- Long-term trends show that annual rainfall is stable at Smithfield and Gawler and declining at North Adelaide.
- In 2020–21, monthly rainfall is below the long-term average for most months, with the exception of above-average months observed in October 2020 and June and July 2021 at most stations.
- Monthly rainfall is presented below for the Smithfield station.



## More Information

This fact sheet is a high level summary of information provided in the 2020–21 Water Resources Assessment for the Adelaide Plains PWAs. Full details of the assessment can be found at: <https://www.waterconnect.sa.gov.au/>

