Adelaide Plains Prescribed Wells Areas

2018–19 groundwater status overview

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

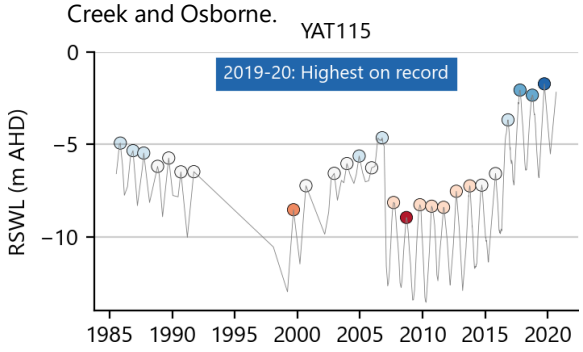
LEGEND

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

Groundwater level

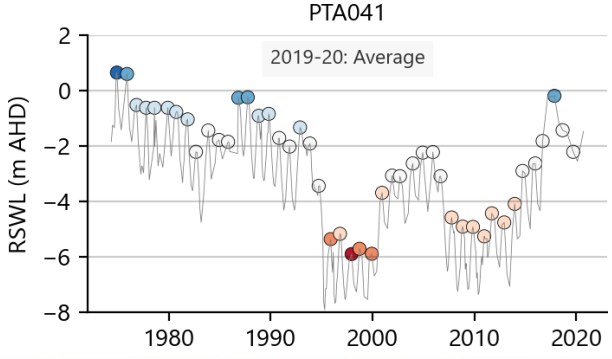
Water levels in T1 aquifer monitoring wells are mainly at above-average levels in 2019

- In the CA Prescribed Wells Area (PWA), 59% of T1 wells have water levels which are 'above average' to 'highest on record'. 62% of wells in the NAP PWA have the same status
- From 2015–19, in the CA PWA 85% of wells show a rising trend in water levels, whereas in the NAP PWA 50% of wells are rising and 45% are declining
- The figure below shows the effect of reduced extraction in recent years from industry around Dry Creek and Osborne.



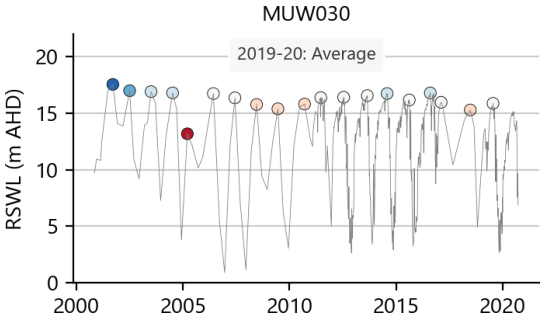
Water levels in T2 aquifer monitoring wells are mainly at average levels in 2019, with levels declining since 2015

- In the NAP PWA, 53% of T2 wells are at 'average' levels compared to their long-term record, while 31% are at 'below average' levels
- From 2015–19, the majority of T2 wells (79%) show declining trends in water level, although the median change in water levels over the last 20 years is a rise of 1.04 m
- The figure below shows long-term changes in groundwater level in a well north of St Kilda Beach, outside the primary area of extraction.



Water levels in T2 aquifer monitoring wells in the Kangaroo Flat area are at either 'average' or 'lowest on record' levels in 2019

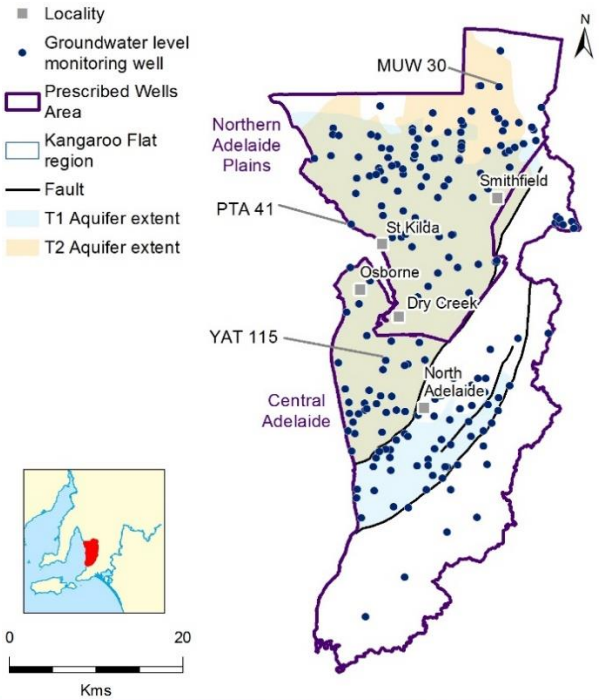
- The figure below shows water levels since 2000, with large seasonal drawdowns due to pumping near the monitoring wells.



Regional context

The groundwater resources of the Central Adelaide (CA) PWA and Northern Adelaide Plains (NAP) PWA are managed under water allocation plans (WAPs). The NAP WAP was adopted in 2000, with a draft WAP covering both the NAP and CA PWAs currently in preparation.

There are several groundwater resources within the Adelaide Plains: the sedimentary Quaternary aquifers, the first and second Tertiary aquifers (T1 and T2), the Tertiary Maslin Sand aquifer, and fractured rock aquifers. The majority of water extraction occurs from the T1 and T2 aquifers.

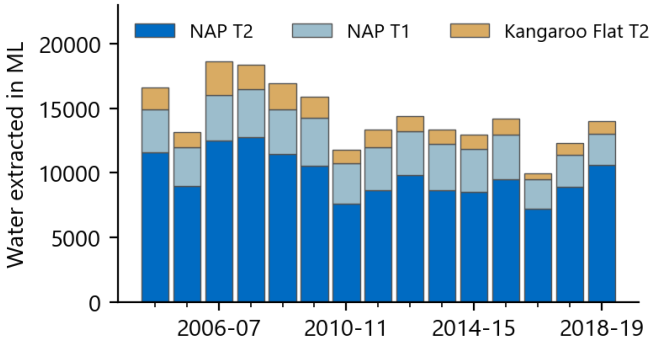


Adelaide Plains PWAs 2018–19 groundwater status overview

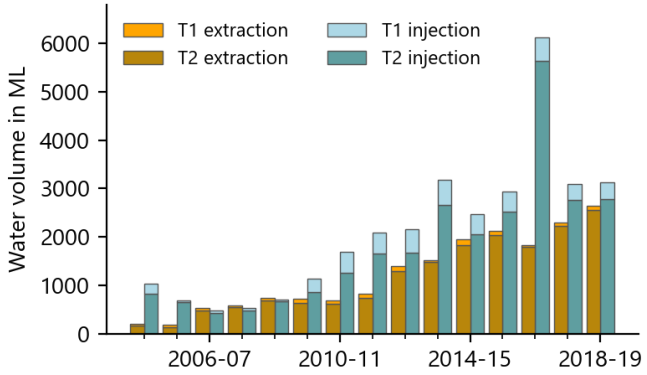
Water extraction

Licensed groundwater extracted from the T1 and T2 aquifers in 2018–19 was similar to the maximum extracted since 2010, but remains below that extracted during the Millennium Drought (2006–07 to 2009–10)

- Water use for irrigation, industry, commercial and stock and domestic purposes comes from a variety of sources in the Adelaide Plains
- Licensed groundwater extraction from the NAP PWA in 2018–19 was 14 025 ML in total, including 10 589 ML from the T2 aquifer, 2406 ML from the T1 aquifer and 1030 ML from the T2 aquifer in the Kangaroo Flat area (see figure below).



- Managed aquifer recharge (MAR) schemes injected a total of 987 ML into the T1 aquifer in 2018–19 and 3564 ML into the T2 aquifer, with most of the total volume (78%) injected in the NAP PWA (see below for historical changes in NAP MAR volumes).



Salinity

The majority of wells (78%) within the T1 and T2 aquifers showed a stable groundwater salinity trend from 2015–19

- Water samples were provided to DEW from irrigation wells in the NAP by licence-holders
- For T1 and T2 irrigation wells sampled in both the CAP and NAP PWAs, 10% or fewer show increasing trends in salinity
- The median salinity in 2019 in the T1 aquifer was 1289 mg/L in the CA PWA and 843 mg/L in the NAP PWA. The median salinity in 2019 in the T2 aquifer was 994 mg/L in the NAP PWA and 1681 mg/L in the Kangaroo Flat area.

Climate-driven trends in water resources

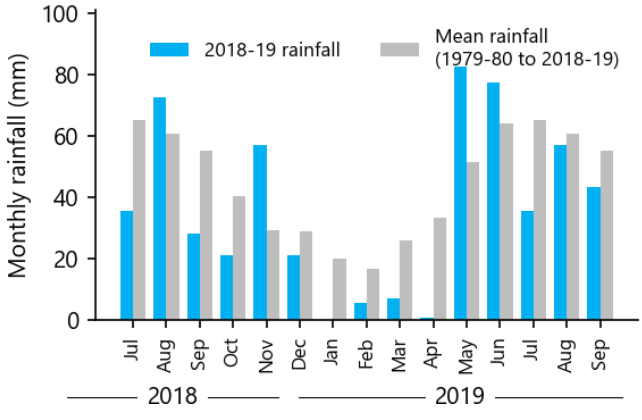
Climate is one of the primary drivers of trends in the local water resources. Surface water and groundwater resources in the EMLR PWRA are highly dependent on rainfall.

Below-average summer rainfall can increase the need for irrigation and therefore lead to higher water extraction. This can in turn lead to an increase in salinity. Conversely, increased rainfall results in decreased irrigation extractions, with potential decline or stabilisation of salinity.

Below-average rainfall also results in reduced recharge to the unconfined aquifer. This coupled with increased water extractions can cause groundwater levels to decline even in deeper confined aquifers. Conversely, higher than average rainfall can cause increased recharge (both natural and through managed aquifer recharge schemes) and lower irrigation extraction, resulting in potential groundwater level increase.

Rainfall was lower than average for 2018–19

- Rainfall typically varies from 420 mm in the NAP to between 450 mm and 600 mm across much of the CA PWA
- Rainfall at Smithfield measured 408 mm, which was lower than the average of 491 mm (shown below)
- Rainfall at North Adelaide measured 409 mm, which was also lower than the average of 497 mm
- Predominantly drier than average conditions were observed with the exception of August and November in 2018 and May and June in 2019
- Long-term data trends are variable, between slightly increasing and stable to declining.



More Information

This fact sheet is a high level summary of information provided in the 2018-19 Water Resources Assessment for the Adelaide Plains PWAs. Full details of the assessment can be found at: https://www.waterconnect.sa.gov.au/

Government of South Australia
Department for Environment and Water