

Tatiara Prescribed Wells Area

2019–20 groundwater status overview



Tatiara PWA	Confined aquifer	
	Unconfined aquifer	
	Highlands	
	Plains	

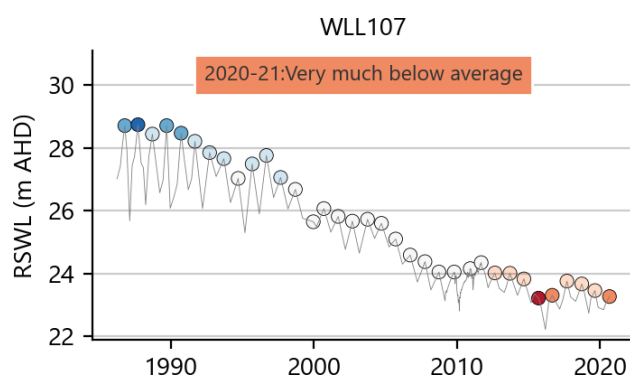
LEGEND

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

Groundwater level

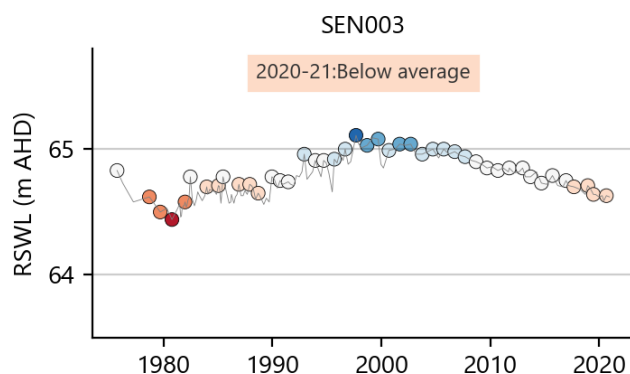
In the plains area in 2020, water levels in the majority of wells in the unconfined aquifer (95%) are classified 'Below average' or lower, compared to their respective historical record

- Water levels in half of the wells (49%) in the unconfined aquifer are classified 'Lowest on record'.
- Five-year trends (2016–20) show water levels are declining in the majority (81%) of wells (see example below).

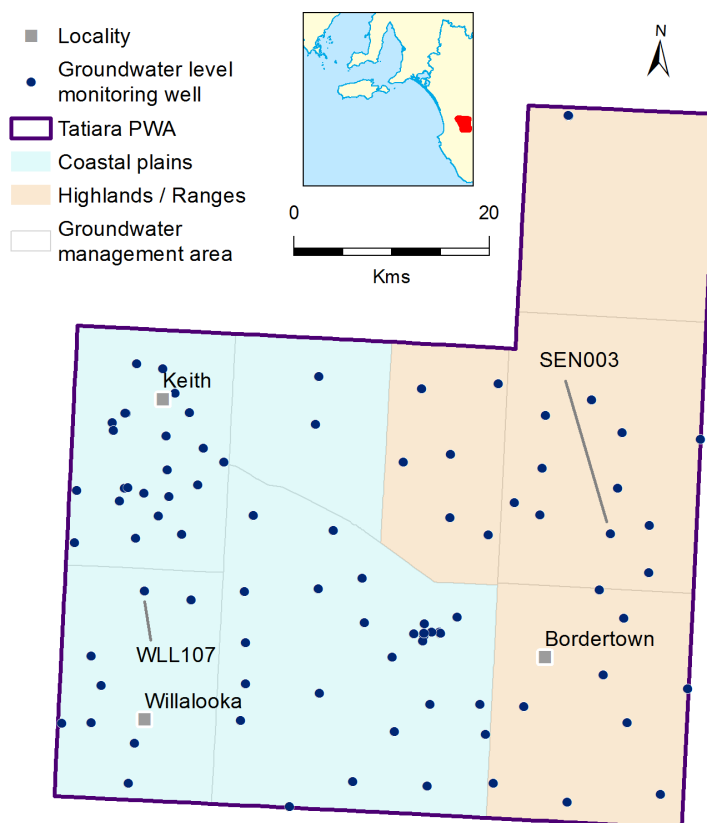


In the highlands area in 2020, water levels in the majority of wells (92%) in the unconfined aquifer are classified 'Below average' or lower, compared to their respective historical record

- Five-year trends (2016–20) show water levels in the majority of wells in the unconfined aquifer (91%) are declining.
- Rising groundwater levels up to the late-90s (below) may be the result of clearance of native vegetation, while declines after the late 1990s may be due to below-average rainfall.



Water levels in four of five confined aquifer monitoring wells across the Tatiara Prescribed Wells Area show their lowest level on record.



Regional context

The Tatiara Prescribed Wells Area (PWA) is located within the Limestone Coast Landscape region, around 200 km south-east of Adelaide, and spans an area of approximately 3500 km². The PWA contains the townships of Keith and Bordertown and is bounded to the north by the Ngarkat Conservation Park. The Water Allocation Plan for the Tatiara PWA provides for sustainable management of the region's groundwater resources.

Groundwater resources occur in the shallower unconfined Quaternary and Tertiary limestone aquifer and also in the deeper Tertiary confined sand aquifer. Almost all groundwater extraction in the Tatiara PWA is sourced from the unconfined aquifer. Resource assessment areas for the unconfined aquifer are divided into coastal plains and highlands areas, based on differences in each area's groundwater hydrology.

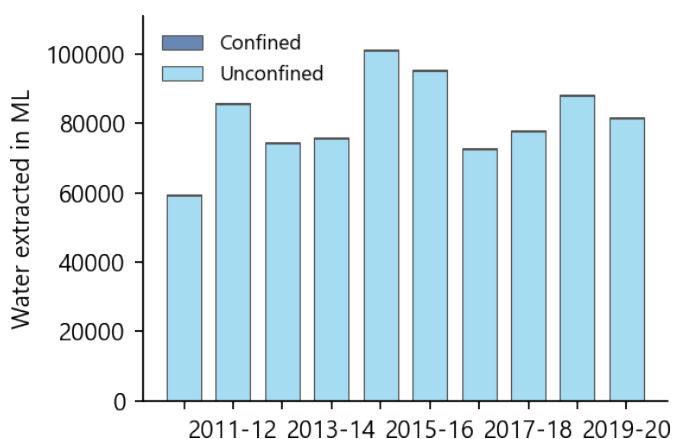


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Water extraction

In 2019–20, licensed groundwater extractions from the unconfined aquifer are 81 307 ML

- Groundwater is used widely for irrigation, industry, stock and domestic uses and town water supply.
- Rates of extraction are strongly influenced by total annual rainfall (see Climate section).
- Groundwater extraction in 2019–20 decreased by 8% compared to 2018–19, following an increase in annual rainfall of 13% over the same period (Keith BoM Station 25507).
- In 2019–20, licensed groundwater extractions from the confined aquifer total 379 ML.
- The figure below shows licensed extractions from unconfined and confined aquifers over the past nine years.



Salinity

In 2020, salinity measurements from 47 wells in the unconfined aquifer ranges between 393–8753 mg/L, with a median of 2202 mg/L

- The median salinity measurements in the plains and highlands assessment areas is 2602 mg/L and 1443 mg/L, respectively.
- In general, the highest salinities (greater than 4500 mg/L) are measured towards the north-west of the Tatiara PWA, where intensive flood irrigation is commonly practiced.
- In the plains area, ten-year trends show declining salinity in the majority of wells (59%); trends vary from a decrease of 9.99% per year to an increase of 2.50% per year (median rate of 0.16% decrease per year).
- In the highlands area, ten-year trends show declining salinity in the majority of wells (56%); trends vary from a decrease of 0.31% per year to an increase of 0.49% per year (median rate of 0.05% decrease per year).

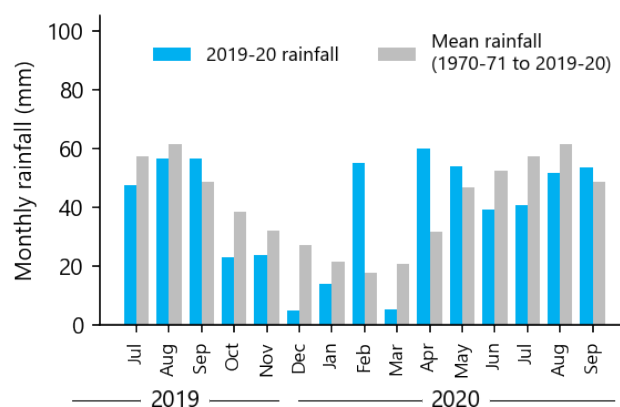
Climate

Unconfined groundwater resources in the prescribed areas of the Limestone Coast Landscape region are highly dependent on rainfall.

Below-average rainfall also results in reduced recharge to the unconfined aquifer that, coupled with increased water extractions, can cause groundwater levels to decline. Conversely, above-average rainfall can cause increased recharge and lower water extraction, resulting in potential increases in water levels. These changes are often more pronounced in the plains areas where the watertable is relatively shallow. Water levels in deeper confined aquifers are not directly governed by rainfall but can show similar trends to unconfined aquifers during drier or wetter periods purely through variations in rates of extraction.

Rainfall was below the long-term average in 2019–20

- Rainfall at Keith (BoM Station 25507) was 439 mm, which is 3% below the long-term average (1970–2020).
- Above-average rainfall was recorded in February and April 2020, although December 2019 and March 2020 were markedly below-average.
- Recent rainfall at Keith is shown for July 2019 to September 2020 (see below) – monthly totals are shown in blue, compared to long-term monthly averages (1970–2020) in grey.



More Information

This fact sheet is a high level summary of information provided in the 2019–20 Water Resources Assessment for the prescribed areas of the Limestone Coast. Full details of the assessment can be found at:

<https://www.waterconnect.sa.gov.au/>



DEW continually invests in the review, maintenance and update of the state water monitoring network to ensure that the trends documented in this report are representative of resource condition. Licensed under Creative Commons Attribution 4.0 International License. © Crown in right of the State of South Australia.



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