

Tatiara Prescribed Wells Area

2020–21 Groundwater status overview



Tatiara PWA	Confined aquifer	Highlands	●
	Unconfined aquifer	Plains	●

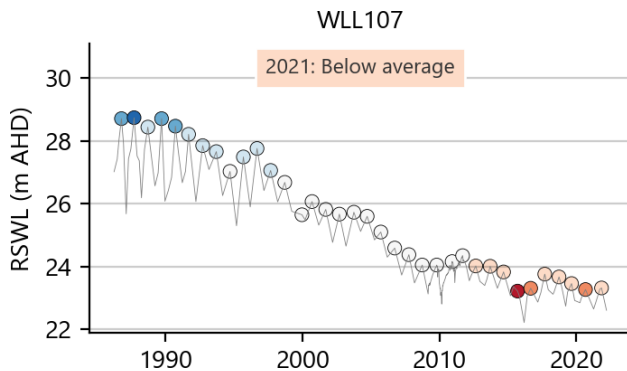
LEGEND

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

Groundwater levels

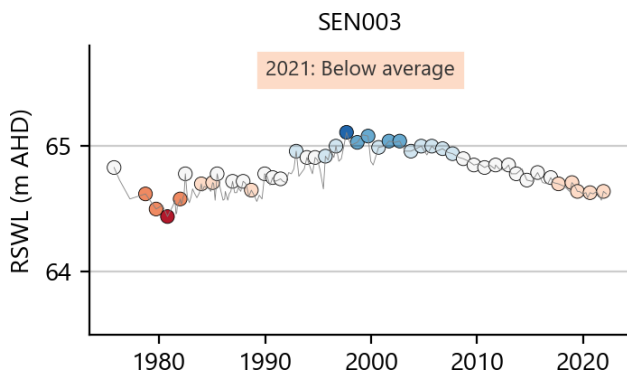
In the coastal plains area in 2021, water levels in the majority of wells in the unconfined aquifer (93%) are classified 'Below average' or lower.

- Water levels in nearly half of the wells (48%) in the unconfined aquifer are classified 'Lowest on record'.
- Five-year trends (2017 to 2021) show water levels are declining in all wells (see example below).

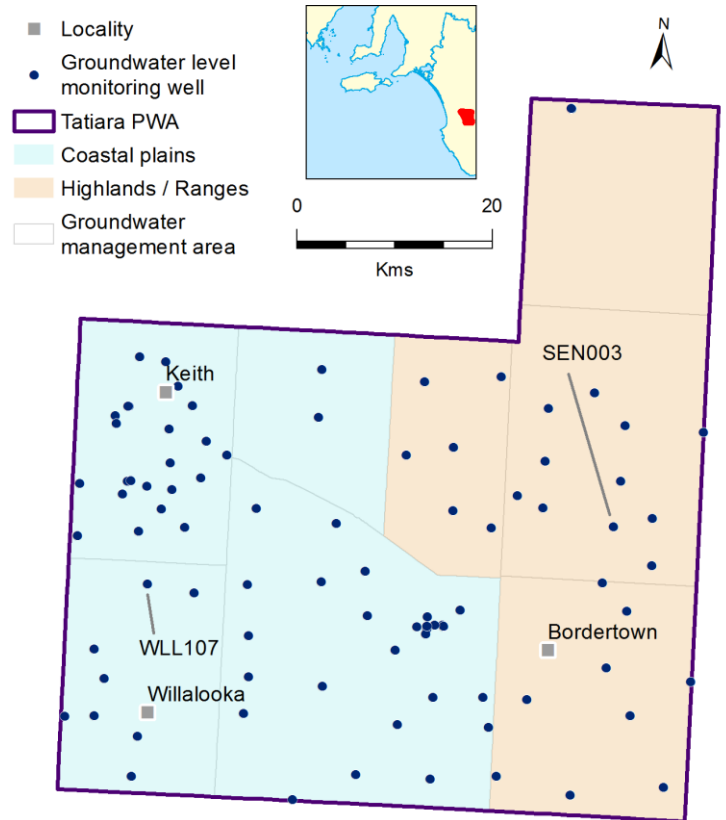


In the highlands area in 2021, water levels in the majority of wells (92%) in the unconfined aquifer are classified 'Below average' or lower.

- Five-year trends (2017 to 2021) show water levels in the majority of wells in the unconfined aquifer (83%) are declining.
- Rising groundwater levels up to the late 1990s (see example below) may be the result of clearance of native vegetation, while declines after the late 1990s may be due to below-average rainfall.



In the confined aquifer in 2021, water levels in 4 out of 5 monitoring wells are classified 'Lowest 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 3,500 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.

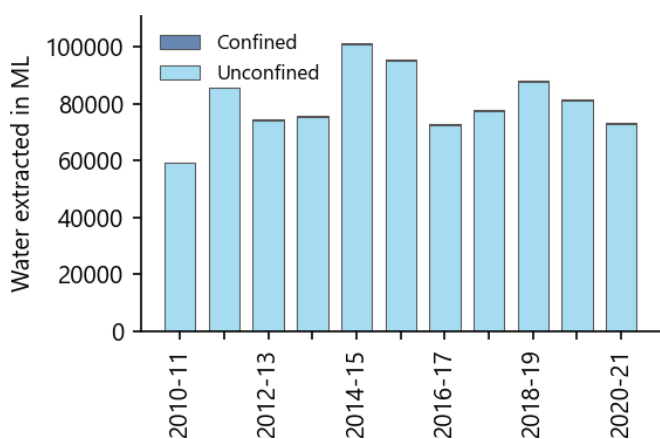
Groundwater resources occur in the shallower unconfined Quaternary and Tertiary limestone aquifer and in the deeper Tertiary confined sand aquifer. Almost all groundwater extraction in the Tatiara PWA is sourced from the unconfined aquifer. Water resource assessments for the unconfined aquifer are divided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



Water use

In 2020–21, licensed groundwater extractions from the Tatiara PWA are 73,298 ML.

- Groundwater in the Limestone Coast region is used almost exclusively for irrigation, industry, stock and domestic uses and town water supply.
- Rates of extraction are strongly influenced by the amount of rainfall and its seasonality (see Climate section).
- Groundwater extraction from the unconfined aquifer is 72,898 ML, which is a 10% decrease compared to 2019–20.
- In 2020–21, licensed groundwater extractions from the confined aquifer total 400 ML.
- The figure below shows licensed extractions from unconfined and confined aquifers.



Salinity

In 2021, salinity measurements from 44 wells in the unconfined aquifer range between 267 and 8,641 mg/L, with a median of 2,529 mg/L.

- The median salinity measurements in the plains and highlands assessment areas are 2,529 mg/L and 1,443 mg/L, respectively.
- In general, the highest salinities (greater than 4,500 mg/L) are found towards the north-west of the Tatiara PWA, where intensive flood irrigation is commonly practiced.
- In the plains area, 22 of 36 wells (61%) show a decreasing trend in salinity. The 10-year salinity trends vary from a decrease of 11% per year to an increase of 2.3% per year, with a median rate of 0.2% decrease per year.
- In the highlands area, all 9 wells show stable trends in salinity ($\pm 10\%$) in the 10 years to 2021. The 10-year salinity trends vary from a decrease of 0.5% per year to an increase of 0.4% per year, with a median rate of 0.1% decrease per year.

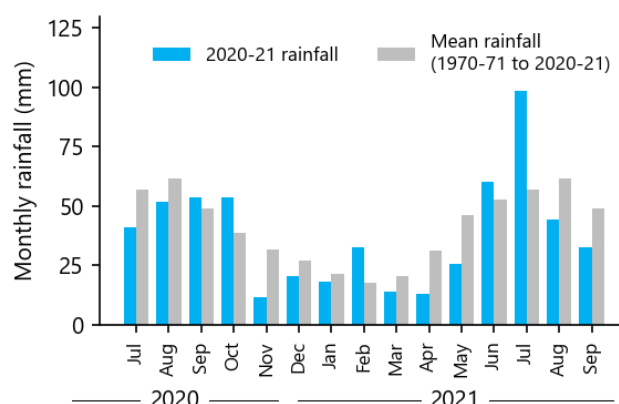
Climate

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 is below the long-term average in 2020–21.

- Rainfall at Keith (BoM Station 25507) is 394 mm, which is 13% below the long-term average (1970 to 2021).
- Monthly rainfall is above-average in September and October 2020, and also in February, June and July 2021.
- The long-term trend in annual rainfall (1970 to 2021) is declining at the Keith station.
- Rainfall at Keith is shown below for July 2020 to September 2021 – monthly totals are shown in blue, compared to long-term monthly averages (1970 to 2021) in grey.



More Information

This fact sheet is a high level summary of information provided in the 2020–21 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/>