

Tintinara–Coonalpyn Prescribed Wells Area

2022–23 Groundwater status overview



Tintinara–Coonalpyn PWA	Confined aquifer	
	Mallee	
	Unconfined aquifer	
	Highlands	
	Plains	

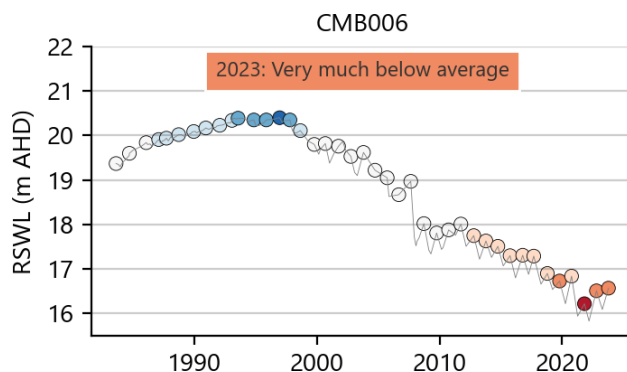
LEGEND

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

Groundwater levels

In the plains area in 2023, groundwater levels are classified 'Average'.

- Five-year trends (2019 to 2023) show groundwater levels in the majority of wells (58%) are rising.
- Despite a rise in groundwater level in 2022, a declining trend has been observed in some wells since 1996 (below), which corresponds with a prolonged period of below-average rainfall, particularly since 2004.

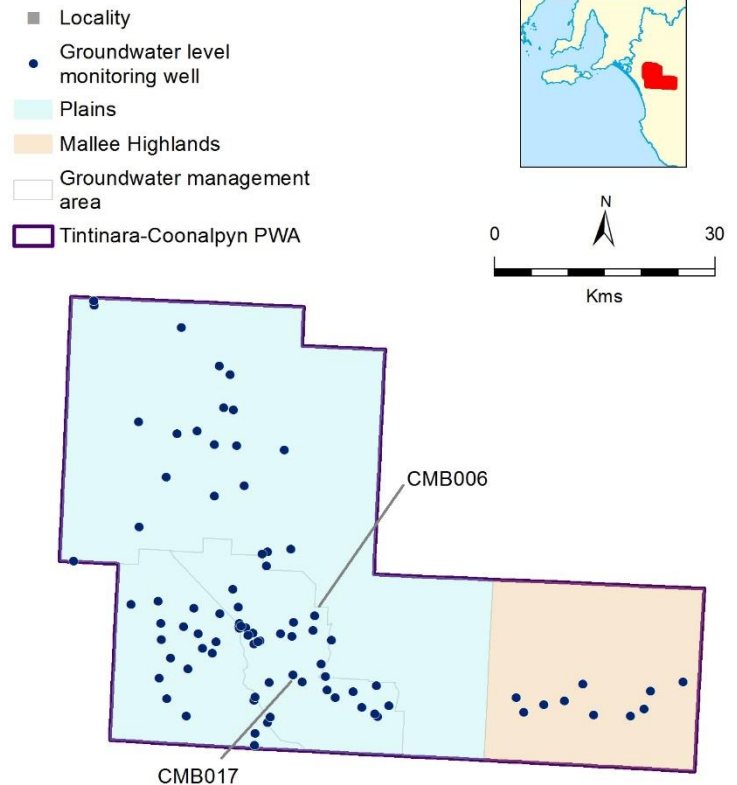
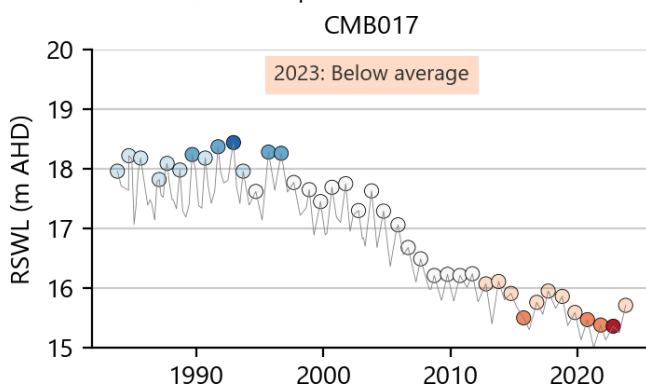


In the Mallee highlands area in 2023, groundwater levels in most wells in the unconfined aquifer are classified 'Below average' or lower.

- Five-year trends (2019 to 2023) show groundwater levels in the majority of wells in the unconfined aquifer (57%) are declining.

In the confined aquifer in 2023, groundwater levels in most wells (61%) are classified 'Below average' or lower.

- Five-year trends (2019 to 2023) show groundwater levels in the majority of wells in the confined aquifer (62%) are rising.
- Despite this, longer term trends tend to show groundwater level declines, for example CMB017 shown below.



Regional context

The Tintinara–Coonalpyn Prescribed Wells Area (PWA) is located within the Limestone Coast Landscape region, around 150 km south-east of Adelaide, and spans an area of approximately 3,400 km². The PWA contains the townships of Tintinara and Coonalpyn and intersects the southern extent of the Ngarkat Conservation Park. The Water Allocation Plan for the Tintinara–Coonalpyn PWA provides for sustainable management of the region's groundwater resources.

Groundwater resources in the region occur in the shallower unconfined Quaternary and Tertiary limestone aquifer and in the deeper Tertiary confined sand aquifer. Around 85% of groundwater extractions are sourced from the unconfined aquifer. Resource assessment areas for the unconfined aquifer are divided into the plains and Mallee highlands areas, based on differences in groundwater hydrology in each area.

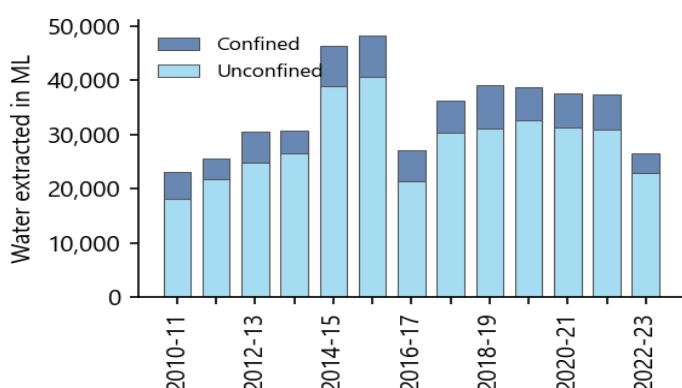


Tintinara–Coonalpyn PWA 2022–23 Groundwater status overview

Groundwater use

In 2022–23, total licensed groundwater extractions are 26,546 ML.

- Groundwater is the main source of water for irrigation, industry and stock and domestic uses.
- Licensed groundwater extraction from the unconfined aquifer is 22,850 ML, a decrease of 26% compared to 2021–22.
- Licensed groundwater extraction from the confined aquifer is 3,696 ML, a decrease of 43% compared to 2021–22.
- Reduced groundwater use during 2022–23 is likely due to reduced demand for water in response to above average rainfall.
- The figure below shows licensed extractions from the unconfined and confined aquifers.



Salinity

In 2023, the unconfined aquifer shows a median salinity of 2,233 mg/L.

- Salinity at 7 wells ranges between 655 mg/L and 4,086 mg/L.
- In the 10 years to 2023, all wells show stable salinity (within $\pm 10\%$). The 10-year salinity trends vary from a decrease of 0.3% per year to an increase of 0.2% per year.

In 2023, salinity measurements from twelve wells in the confined aquifer show a median salinity of 1,463 mg/L.

- Salinity in the confined aquifer ranges between 969 mg/L and 3,940 mg/L.
- In general, the highest salinities (around 3,000 to 4,500 mg/L) are measured towards the south-west of the Tintinara–Coonalpyn PWA.
- Ten-year trends in the confined aquifer show salinity is stable ($\pm 10\%$) in 10 out of 11 wells. Trends range from a decrease of 0.4% per year to an increase of 1.2% per year.
- These data include 3 confined aquifer wells that are located just outside of the boundary of the Tintinara–Coonalpyn PWA.

Rainfall

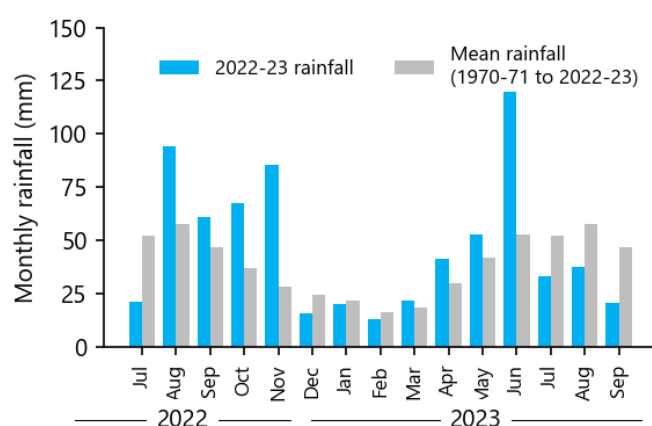
Groundwater resources in the prescribed areas of the Limestone Coast Landscape region are highly dependent on rainfall.

Below-average winter rainfall results in a reduction in annual streamflow volumes. Below-average summer rainfall can increase the need for irrigation and therefore lead to higher groundwater extraction. This can in turn lead to an increase in salinity. Conversely, increased rainfall results in increased surface water availability, and decreased irrigation extractions, with potential decrease or stabilisation of salinity.

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 groundwater extraction, resulting in potential increases in groundwater levels. These changes are often more pronounced in the plains areas where the watertable is relatively shallow. Groundwater 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 above average for 2022–23

- Rainfall at Tintinara (BoM Station 25514) is 615 mm which is 43% above the long-term average (1970 to 2023) of 430 mm/y.
- The long-term trend in annual rainfall (1970 to 2023) is declining at Tintinara.
- Rainfall at Tintinara is shown below for July 2022 to September 2023 – monthly totals are shown in blue, compared to long-term monthly averages (1970 to 2023) in grey. Monthly rainfall is above average for August, September, October and November 2022, and March, April, May and June 2023.



More Information

This fact sheet is a high-level summary. More information (including metadata) is available in the suite of Water Resource Assessments for the Limestone Coast Prescribed Area at:

<https://www.waterconnect.sa.gov.au/Systems/GSR/Pages/Default.aspx>

