

Barossa Prescribed Water Resources Area

2022–23 Surface water and groundwater status overview



Barossa PWRA	Fractured rock aquifers	○
	Lower aquifer	○
	Upper aquifer	○
	Surface water	○
		○

LEGEND

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

Regional context

The Barossa Prescribed Water Resources Area (PWRA) relies on both surface water and groundwater resources that are managed under the Water Allocation Plan for the Barossa PWRA which was adopted in 2009.

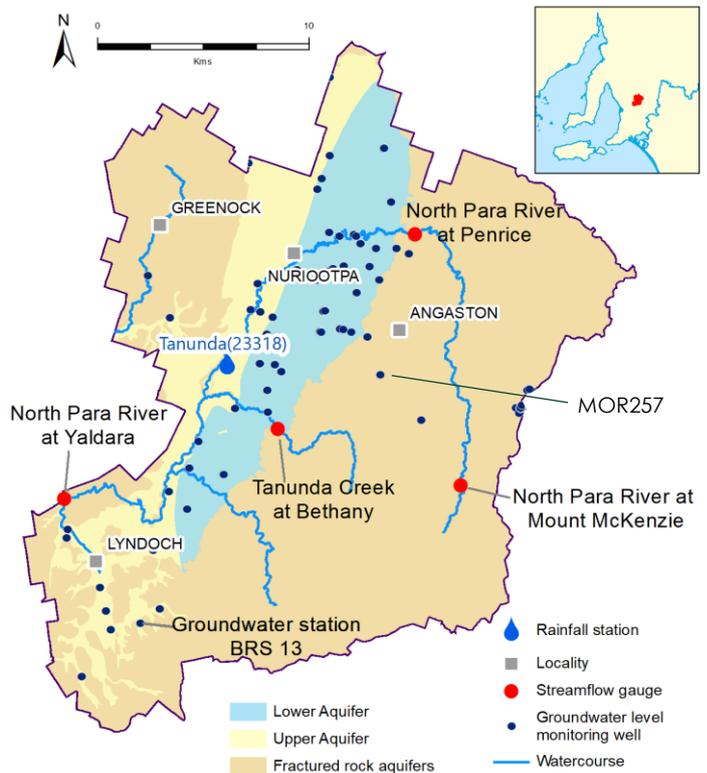
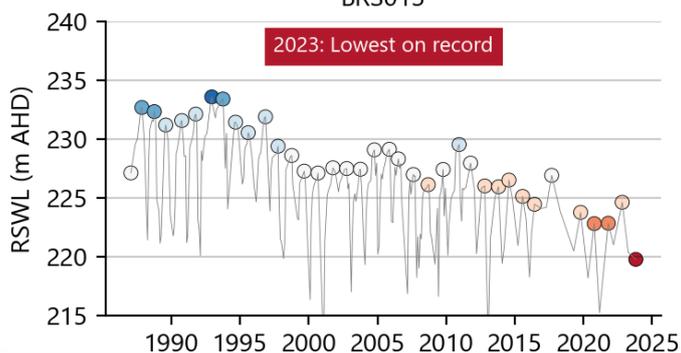
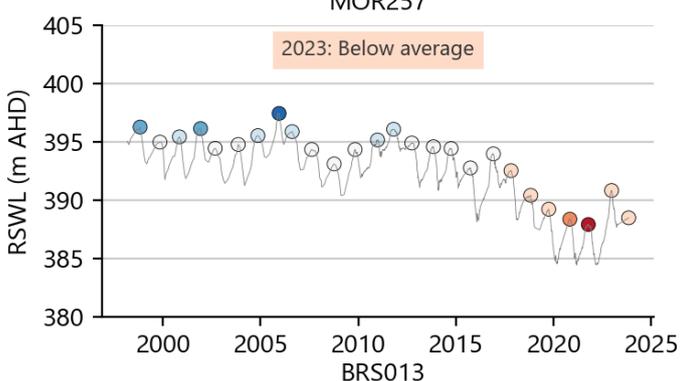
The Barossa PWRA consists of three major aquifers: two sedimentary aquifers (Upper and Lower) and fractured rock aquifers.

The North Para River is the main watercourse in the PWRA. All streams are ephemeral and feature seasonally isolated permanent pools that are sustained by groundwater.

Groundwater levels

Groundwater levels in 75% of monitoring wells are classified 'Below average' or lower.

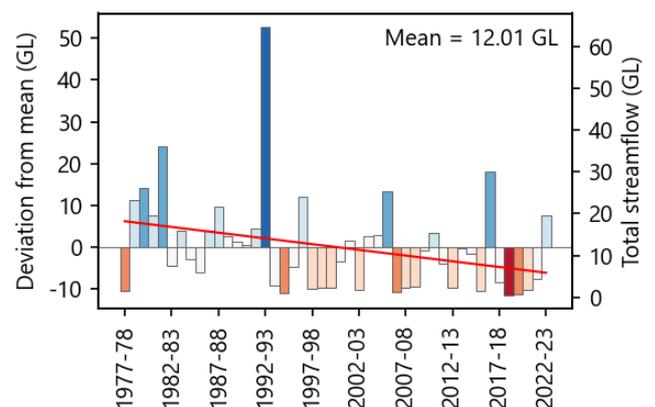
- In 2023, 16% of wells are classified 'Very much below average' or lower.
- Five-year trends indicate that a majority (77%) of wells show rising groundwater levels; however, long-term trends provide important context.
- The figures below show long-term groundwater levels at monitoring sites that are representative of the fractured rock aquifers, near Angaston (top) and Lyndoch (bottom).



Streamflow

Streamflow was above the long-term annual mean in 2022-23 for the first time since 2016-17.

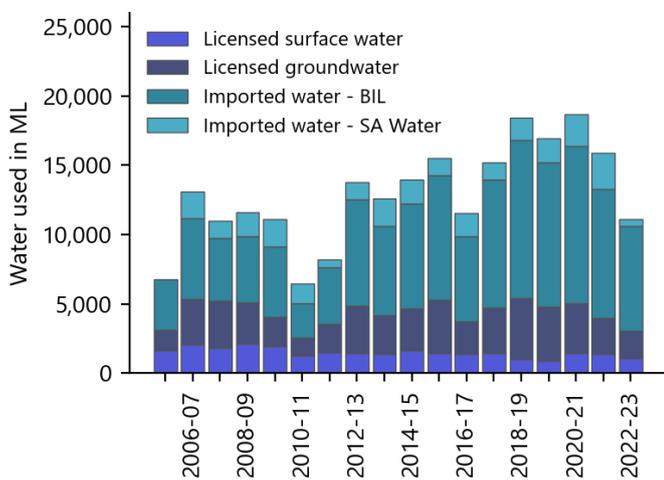
- Flow at Mt McKenzie, Penrice and Yaldara (presented below) was 'Above average', and flow at Tanunda was 'Very much above average'. 2022 spring streamflow being the significant component of the annual totals.
- Long-term trends show a decline in number of flowing days per year at each monitoring station showing a shift to a more seasonal flow regime with longer cease to flow events.



Water use

Approximately 66% of water use is from imported sources.

- Water use for irrigation, commercial, stock and domestic purposes in the Barossa PWRA comes from a variety of sources. These include pumping and diversions from watercourses and aquifers, interception and storage by farm dams, imported water from the SA Water mains network and water supply from Barossa Infrastructure Ltd (BIL) via SA Water infrastructure.
- Water use in 2022–23 totals 12,196 ML, which is the lowest for the past 10 years. Imported water is the lowest on record, likely to be a result of above-average spring rainfall.
- Water use is correlated with irrigation demand which varies in response to rainfall.



Salinity

Surface water salinity in 2022–23 remains within historical ranges.

- Surface water salinity in 2022–23 observed peak levels at Yaldara reaching 3,285 mg/L in March 2023.
- Groundwater salinity is variable within the Upper Aquifer and in 2023, sampling results ranged between 1,127 mg/L and 2,664 mg/L with a median of 1,692 mg/L.
- In 2023, Lower Aquifer salinity ranges between 963 mg/L and 4,518 mg/L with a median of 1,387 mg/L.
- Groundwater salinity is also variable in the fractured rock aquifers. In 2023, sampling results range between 459 mg/L and 3,448 mg/L with a median of 1,102 mg/L.

Rainfall

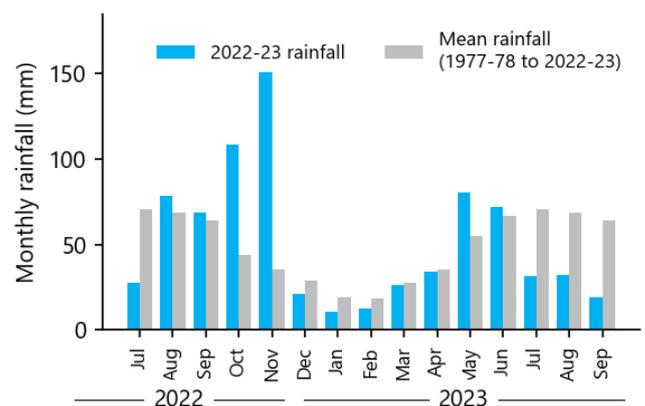
Rainfall is one of the main drivers of trends in the local water resources. Surface water and groundwater resources in the Barossa PWRA are highly dependent on rainfall.

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 water 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 decline or stabilisation of salinity.

Below-average rainfall also results in reduced recharge to shallow aquifers. Together with increased groundwater extractions, this can cause groundwater levels to decline even in the deeper confined aquifers. Conversely, above-average rainfall can cause increased recharge and lower irrigation extraction which can cause groundwater levels to rise.

Rainfall is above-average for 2022–23.

- Above-average rainfall was recorded across the PWRA (monthly data for Tanunda presented below).
- Rainfall is typically higher over the Tanunda and Jacob Creek sub-catchments, decreasing to the north-east and south-west.
- Rainfall at Tanunda measures 691 mm which is 30% higher than the long-term average of 532 mm.
- Long-term data at Tanunda indicate a stable trend in annual rainfall (1978 to 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 Barossa Prescribed Area at: <https://www.waterconnect.sa.gov.au/Systems/GSR/Pages/Default.aspx>