

# Barossa Prescribed Water Resources Area

## 2021–22 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.

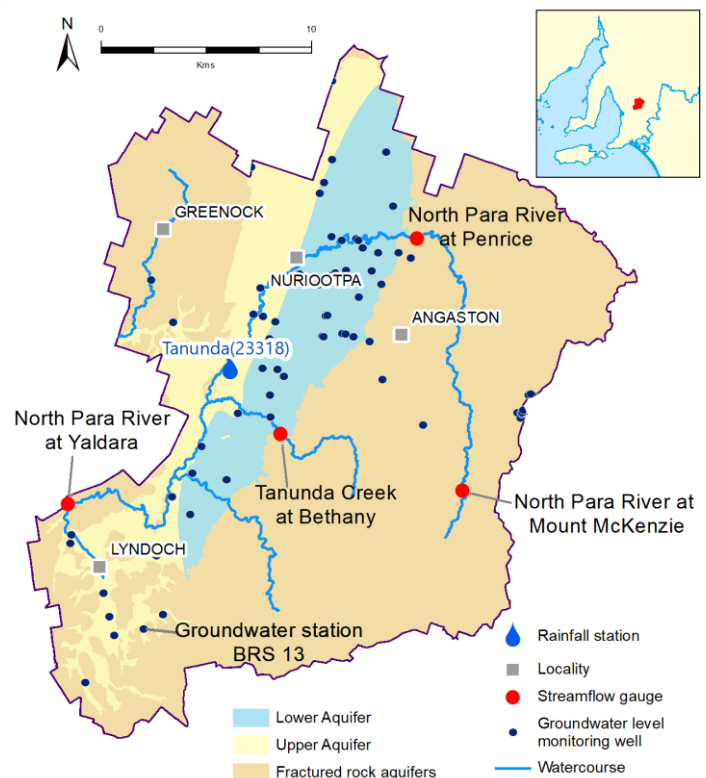
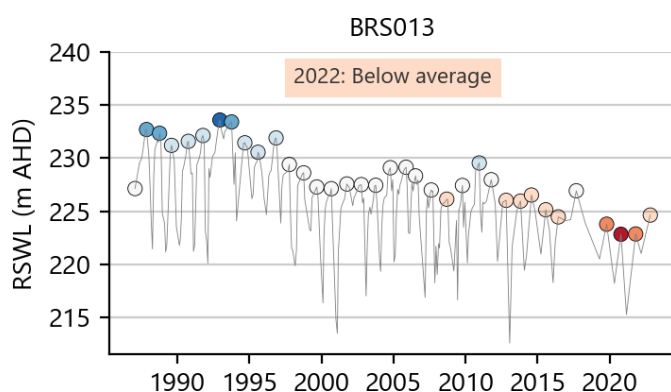
The Barossa PWRA consists of three major aquifers: two sedimentary aquifers (Upper and Lower) and fractured rock aquifers.

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

## Groundwater levels

**Groundwater levels in 62% of monitoring wells are classified 'Below average' or lower.**

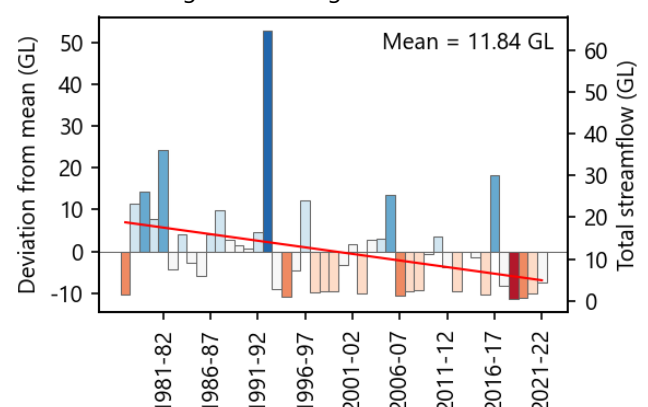
- In 2022, 30% of wells are classified 'Very much below average' or lower.
- Five-year trends indicate that a majority (52%) of wells show rising groundwater levels; however, long-term trends provide important context.
- The figure below shows long-term groundwater levels at a monitoring site near Lyndoch which is representative of the fractured rock aquifer.



## Streamflow

**Streamflow is classified 'Average' at 3 out of 4 gauging stations.**

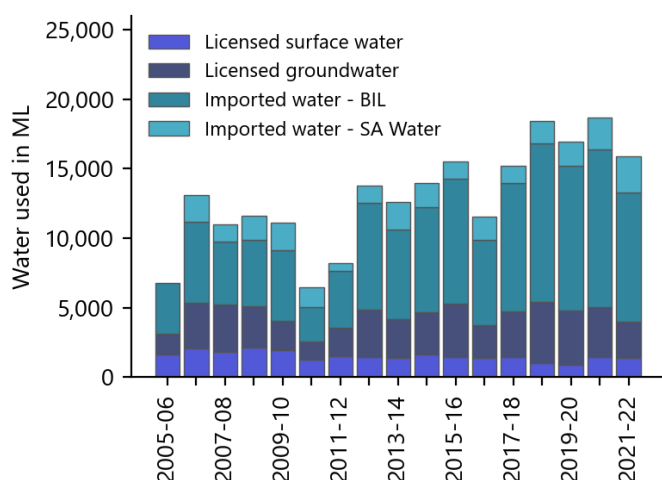
- There are four principal streamflow gauging stations operational in the Barossa PWRA; Penrice station streamflow is classified 'Very much below average' in 2021-22.
- Long-term data trends show a decline in annual streamflow (Yaldara data presented below).
- Long-term trends also show decline in number 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 70% 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 2021–22 totals 17,019 ML which is slightly lower than in the previous few years.
- Water use is correlated with irrigation demand, which varies in response to rainfall.



## Salinity

**Surface water salinity in 2021-22 remains within historical ranges with peak monthly levels at Yaldara reaching 2,767 mg/L in May 2021.**

- Groundwater salinity is variable within the Upper Aquifer and in 2022, sampling results ranged between 1127 mg/L and 2881 mg/L with a median of 1,575 mg/L.
- In 2022, Lower Aquifer salinity ranges between 643 mg/L and 2,160 mg/L with a median of 1,387 mg/L.
- Groundwater salinity is also variable in the fractured rock aquifers. In 2022, sampling results range between 317 mg/L and 2,631 mg/L with a median of 1,062 mg/L.

## Rainfall

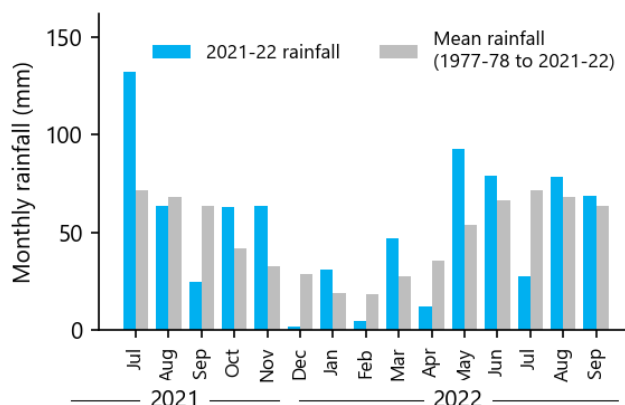
Rainfall is one of the main drivers of trends in the local water resources. Surface water and groundwater resources in the Barossa PWRA are highly dependent on rainfall.

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 below-average for 2021-22.**

- Rainfall is typically higher over the Tanunda and Jacobs Creek sub-catchments, decreasing to the north-east and south-west.
- Rainfall at Tanunda measures 617 mm which is 17% higher than the average of 529 mm.
- Long-term data at Tanunda indicate that stable trend in rainfall (1977 to 2021), but 4 of the last 5 years have seen 'Below-average' rainfall.
- Wetter than average conditions are observed across the PWRA (monthly data for Tanunda presented below).



## 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>