Barossa Prescribed Water Resources Area

2018–19 surface water and groundwater status overview

Barossa PWRA	Fractured rock aquifers	
	Lower aquifer	
	Upper aquifer	
	Surface water	

LEGEND

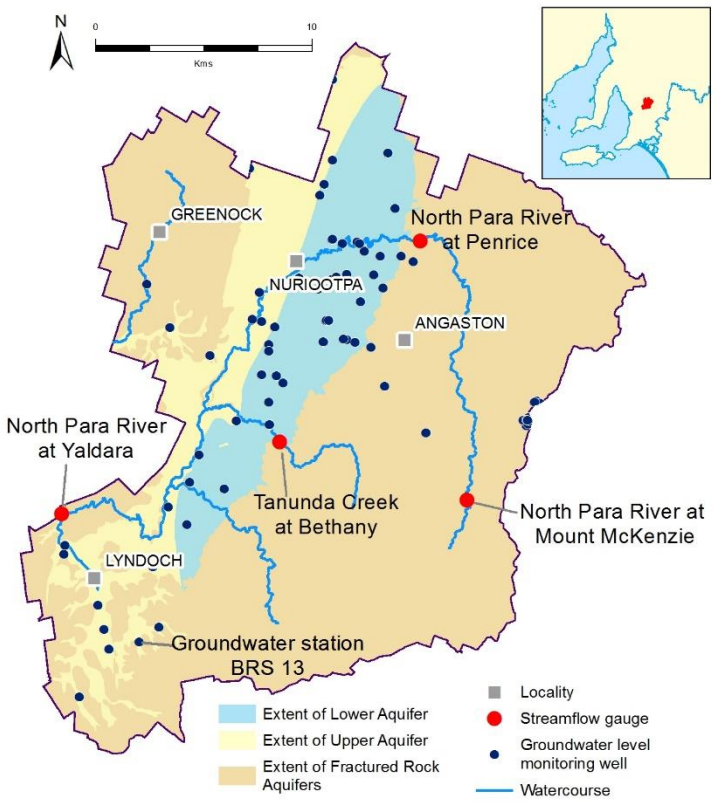
- Highest on record
- Very much above average
- Above average
- Average
- Below average
- Very much below average
- Lowest on record
- Long-term trend

Regional context

The Barossa PWRA relies on both surface water and groundwater resources which are managed under a Water Allocation Plan adopted in 2009.

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

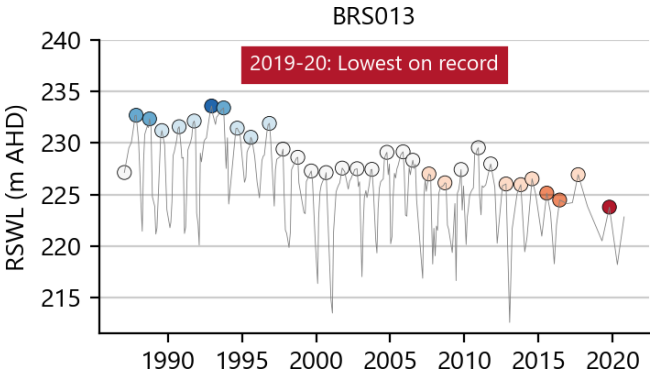
The North Para River is the main watercourse in the PWRA. All streams are ephemeral and feature seasonally disconnected permanent pools sustained predominantly by groundwater.



Groundwater level

93% of monitoring wells recorded 'lower-than-average' recovered water levels

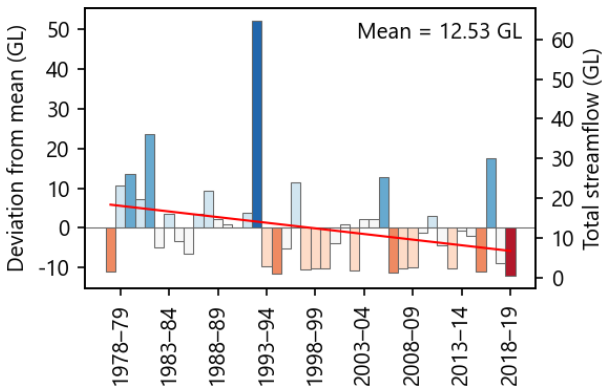
- Most wells with long-term records reached their lowest recovered water level on record in 2019: 61% of wells in the Upper Aquifer, 63% in the Lower Aquifer and 52% of wells in fractured rock aquifers
- Five-year trends in water level show that the majority of wells have declining water levels
- The figure below shows long-term water levels at a monitoring site within the fractured rock aquifer near Angaston where there are high levels of extraction.



Streamflow

Streamflow was lowest on record at 3 out of 4 gauging stations

- There are four principal streamflow gauging stations operational in the Barossa Prescribed Water Resources Area (PWRA), three of which recorded the lowest streamflow on record for 2018–19
- Long-term data trends show a decline in streamflow (Yaldara data presented below).

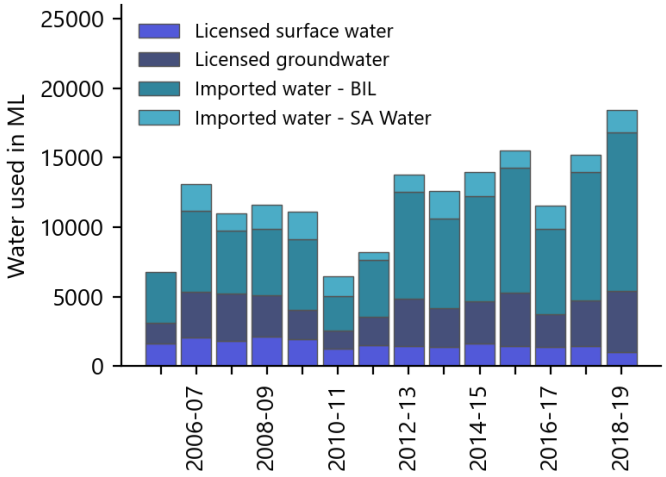


Barossa PWRA 2018–19 surface water and groundwater status overview

Water use

Approximately 67% of water use was from imported sources

- Water use in the Barossa PWRA for irrigation, commercial, stock and domestic purposes 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 2018–19 was the highest in the last 15 years, with a total of 19 500 ML used
- Water use was high due to irrigation demand; this is likely to be due to the lower than average summer rainfall.



Salinity

Surface water salinity in 2018–19 was high but values remained within historical ranges

- Surface water salinity levels in 2018–19 were higher than average across the whole year, with peak levels at Yaldara reaching almost 4500 mg/L
- The higher salinity is likely to be the result of lower than average rainfall and therefore reduced streamflow. However, values for 2018–19 remained within the historical ranges experienced at each site
- Groundwater salinity is highly variable within the Upper Aquifer and in 2019 ranged between 960 mg/L and 2693 mg/L, with a median of 1472 mg/L
- In 2019, the salinity of the Lower Aquifer ranged between 278 mg/L and 1915 mg/L, with a median of 1205 mg/L
- Groundwater salinity is also highly variable in the fractured rock aquifers. In 2019, salinity ranged between 492 mg/L and 3200 mg/L, with a median of 1393 mg/L.

Climate-driven trends in water resources

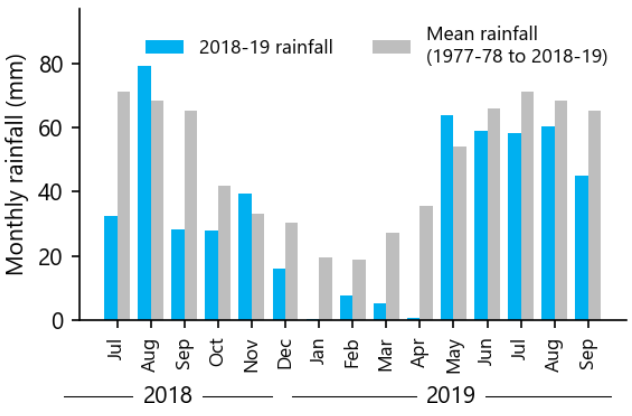
Climate is one of the primary drivers of trends in the local water resources. Surface water and groundwater resources in the Barossa PWRA are highly dependent on rainfall.

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, decreased irrigation extractions, with potential decline or stabilisation of salinity.

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

Rainfall was lower than average for 2018–19

- Rainfall is typically higher over Tanunda and Jacob Creek sub-catchments, decreasing to the north-east and south-west
- Rainfall at Tanunda measured 360 mm, which was lower than the average of 532 mm
- Reduced winter (June to September) rainfall was observed across the PWRA, consistent with observations across other areas in South Australia
- Long-term data trends indicate a decline in rainfall.



More Information

This fact sheet is a high level summary of information provided in the 2018-19 Water Resources Assessment for the Barossa PWRA. Full details of the assessment can be found at: https://www.waterconnect.sa.gov.au

Government of South Australia
Department for Environment and Water