Western Mount Lofty Ranges Prescribed Water Resources Area

2020–21 Surface water and groundwater status overview

WMLR PWRA	
	Fractured rock aquifers ○
	Permian sand ○
	Tertiary limestone ○
	Surface water (Torrens and Onkaparinga) ●
	Surface water (Fleurieu) ○

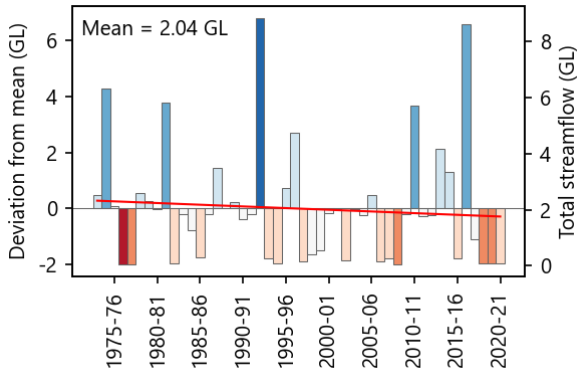
LEGEND

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

Streamflow

Streamflow is classified 'Average' and 'Below average' for 6 of the 8 gauging stations and the overall flow regime across the PWRA shows worsening conditions for 2020–21.

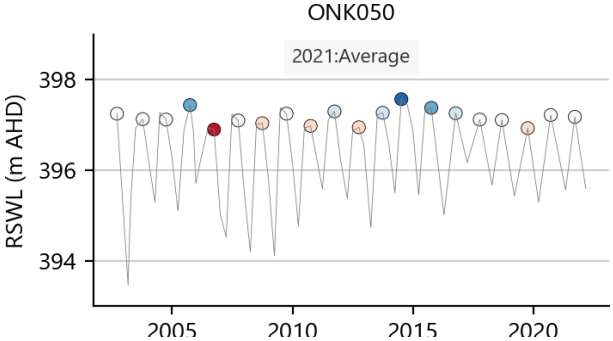
- Eight streamflow stations are used to represent the central (Torrens and Onkaparinga Rivers) and southern areas (Fleurieu Peninsula) of the Western Mount Lofty Ranges (WMLR) Prescribed Water Resources Area (PWRA).
- The flow regime is likely to have impacted current ecological conditions due to observed reduced flow volumes.
- Data across 1973 to 2021 for representative gauging stations show a stable or decreasing trends in annual streamflow. Mount Pleasant data is presented below.

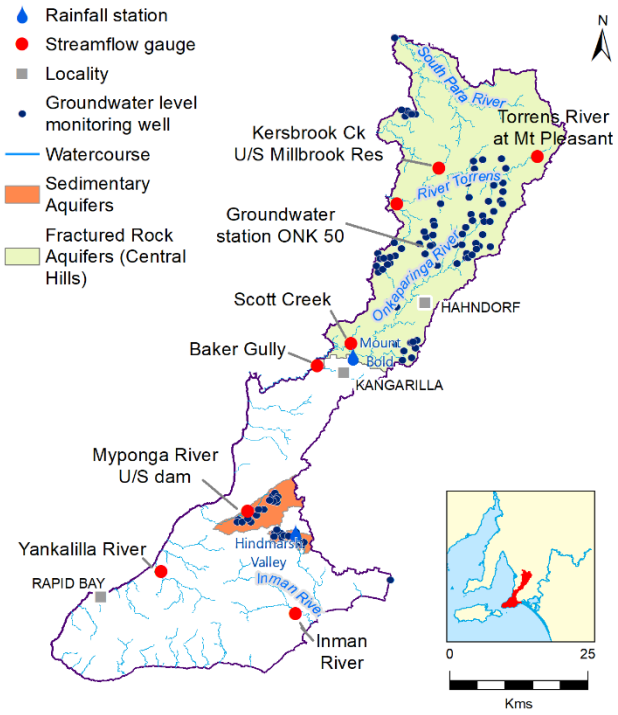


Groundwater levels

Winter (recovered) water levels in 61% of fractured rock aquifer monitoring wells are classified 'Average' or higher.

- The Permian Sand and Tertiary limestone aquifers are generally classified 'Average' or higher.
- A typical fractured rock aquifer hydrograph is shown below.





Regional context

The WMLR PWRA relies on both surface water and groundwater resources which are managed under the Water Allocation Plan for the WMLR PWRA, which was adopted in 2013. The PWRA includes the McLaren Vale Prescribed Wells Area, which is reported on separately and not included in this overview (see More Information).

In addition to the predominant fractured rock aquifers, there are three main sedimentary groundwater systems within the PWRA: the Permian Sand, Tertiary limestone and Quaternary aquifers.

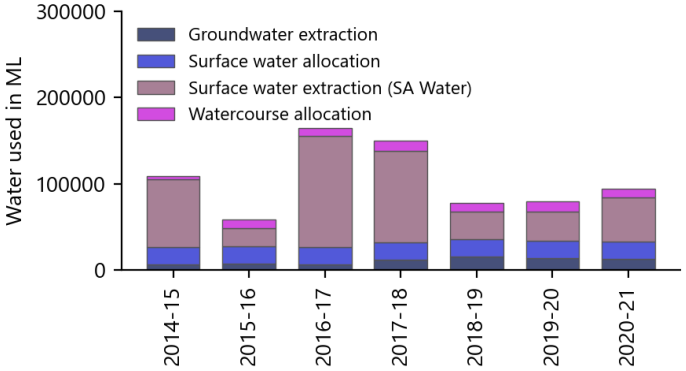
Several important watercourses drain the northern and central parts of the PWRA, including South Para River, Little Para River and the River Torrens. The Onkaparinga River and Myponga River drain the southern parts of the PWRA. The south-western extent of the PWRA includes the Fleurieu Peninsula, which is characterised by smaller coastal catchments and numerous wetlands. The south-easterly extent of the PWRA comprises the Hindmarsh River and Inman River catchments.

WMLR PWRA 2020–21 Surface water and groundwater status overview

Water use

SA Water's extraction from the reservoirs within the WMLR PWRA is the most significant component of water use.

- Water 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 and water from SA Water's reticulated distribution network.
- Water consumption in 2020-21 totals 116,677 ML, comprising licensed surface water take (20,202 ML), licensed watercourse take (10,437 ML), non-licensed surface water demand (4,956 ML), forestry (17,413 ML), SA Water extraction from reservoirs (50,323 ML) and groundwater extraction (13,346 ML).
- SA Water's extraction from reservoirs is related to rainfall. In high rainfall years, SA Water extracts most of its public water supply from the WMLR. In dry years, the River Murray provides a larger percentage of SA Water's total extraction.
- In 2020-21, 76% of groundwater is extracted from fractured rock aquifers and, in the Myponga and Hindmarsh Tiers basins, 2% from the Permian Sand aquifer and 22% from the Tertiary limestone aquifer.



Salinity

Surface water salinity in 2020–21 remains within historical ranges. Groundwater samples from 34 wells in fractured rock aquifers have a median salinity of 741 mg/L.

- The majority of surface water salinity levels in the Onkaparinga River are below 1,000 mg/L.
- With the exception of a peak value of 1,400 mg/L in January, salinity values remain within the historical ranges.
- Most monthly salinity levels are below the 1994 to 2021 median values for the Onkaparinga River.
- In the ten years to 2021, 16 of 23 groundwater wells (64%) show a declining trend in salinity. Ten-year trends show that rates of change in salinity vary from a decrease of 6.5% per year to an increase of 2.4% per year, with a median rate of 0.5% decrease per year.

Climate

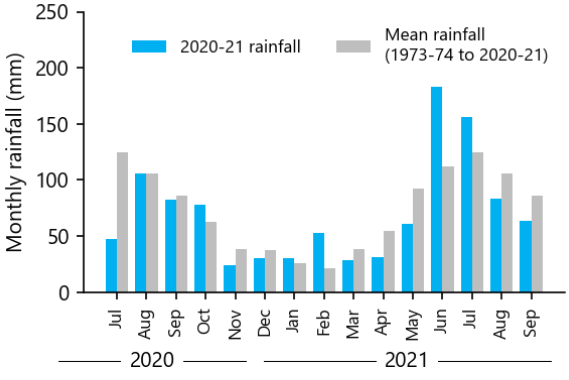
Climate is one of the main drivers of trends in the local water resources. Surface water and groundwater resources in the WMLR PWRA are highly dependent on rainfall.

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. This coupled with increased water extractions can cause groundwater levels to decline even in deeper confined aquifers. Conversely, above-average rainfall can cause increased recharge and lower irrigation extraction, resulting in potential groundwater level increase.

Rainfall is above average for 2020–21.

- Total annual rainfall typically varies between 400 mm at lower elevations and greater than 1,000 mm at higher elevations.
- Total annual rainfall recorded at Mount Bold is 755 mm, which is 6% below the average annual rainfall of 800 mm. Rainfall at Hindmarsh Valley measures 766 mm, 11% below average.
- Drier than average conditions are prevalent throughout most of the year at both stations with the exception of February, June and July 2021 in which above-average monthly rainfall is recorded (data for Mount Bold presented below).
- Long-term rainfall data (1973 to 2021) at Hindmarsh Valley indicate a declining trend in total annual rainfall, while the Mount Bold station shows relatively stable annual totals.



More Information

This fact sheet is a high level summary of information provided in the 2020–21 Water Resources Assessment for the WMLR PWRA. Full details of all assessments can be found at: https://www.waterconnect.sa.gov.au/

Government of South Australia
Department for Environment and Water