Western Mount Lofty Ranges Prescribed Water Resources Area

2019–20 surface water and groundwater status overview

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

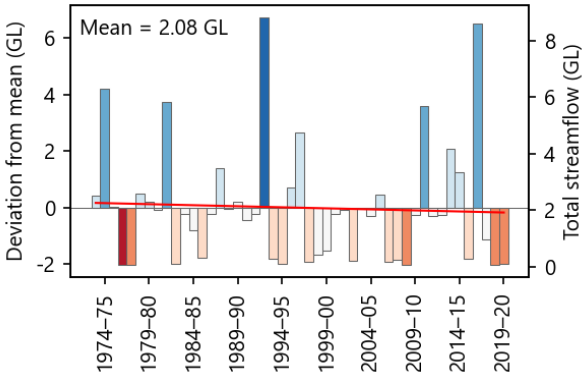
LEGEND

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

Streamflow

Streamflow was below-average for four out of eight gauging stations in 2019–20, with one recording 'Very much below average'

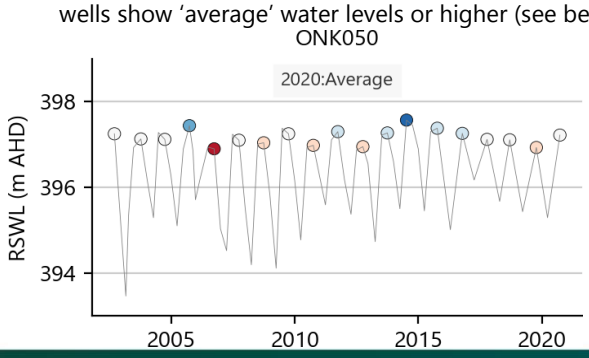
- Eight streamflow gauging stations are used as representative of the central (River Torrens and Onkaparinga River) and southern areas (Fleurieu Peninsula). of the Western Mount Lofty Ranges (WMLR) Prescribed Water Resources Area (PWRA) (Onkaparinga River data presented below).
- Long-term data trends across the representative gauging stations show stable, or increases in streamflow.

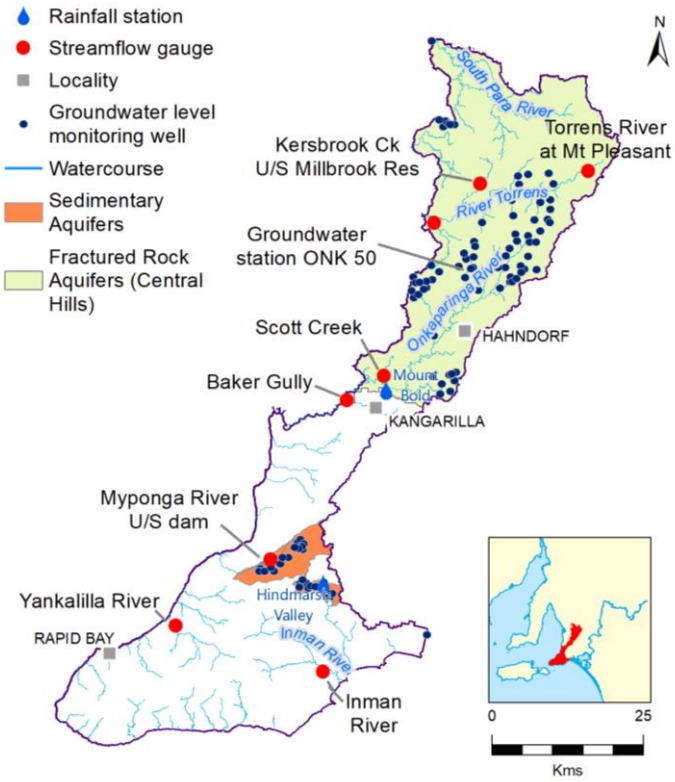


Groundwater level

Winter (recovered) water levels in 54% of fractured rock aquifer monitoring wells show levels that are 'Below average' or 'Lowest on record'

- The Permian Sand and Tertiary limestone aquifers show generally 'average' water levels compared with the historical record.
- Water levels in 46% of fractured rock aquifer monitoring wells show 'average' water levels or higher (see 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).

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.

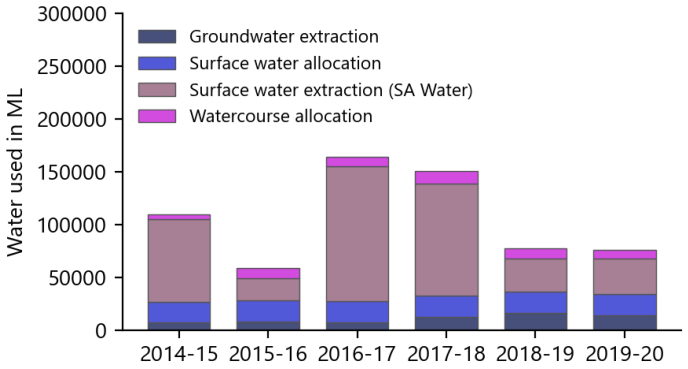
Government of South Australia
Department for Environment and Water

WMLR PWRA 2019–20 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 imported water via SA Water's reticulated distribution network.
- Water consumption in 2019–20 totalled 98 173 ML, comprising licensed surface water take (19 853 ML), licensed watercourse take (8037 ML), non-licensed surface water demand (4956 ML), forestry (17 413 ML), SA Water extraction from reservoirs (33 745 ML) and groundwater extraction (14 169 ML).
- SA Water's extraction from reservoirs is related to rainfall. In high rainfall years, SA Water extracts the majority 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 2019–20, 80% of groundwater is extracted from fractured rock aquifers and, in the Myponga and Hindmarsh Tiers basins, 2% from the Permian Sand aquifer and 18% from the Tertiary limestone aquifer.



Salinity

Surface water salinity in 2019–20 remained within historical ranges. Groundwater samples from 30 wells in fractured rock aquifers had a median salinity of 805 mg/L

- The majority of surface water salinity levels in both the Onkaparinga River and Torrens (Sixth Creek) River were below 1000 mg/L in 2019–20.
- Salinity levels were variable on the Onkaparinga River but remained within the historical ranges, with peak levels reaching 819 mg/L.
- Ten-year salinity trends in the fractured rock aquifers are decreasing in 52% of wells. Rates of change vary from a decrease of 2.56% per annum to an increase of 4.48%/y, with a median rate 0.04% decrease per annum.

Climate-driven trends in water resources

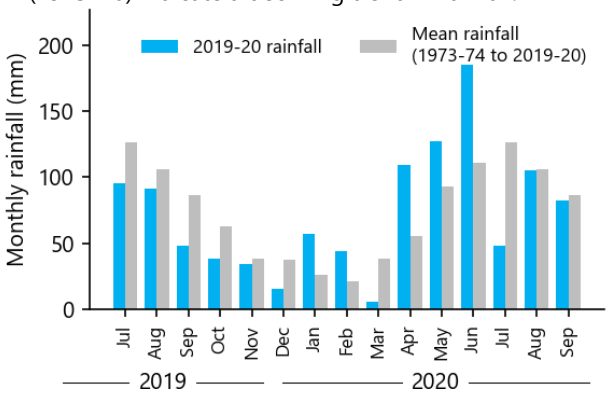
Climate is one of the main drivers of trends in the local water resources. Surface water and groundwater resources in the WMLR PWRA are highly dependent on rainfall.

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, 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 was above-average for 2019–20

- Total annual rainfall typically varies between 400 mm at lower elevations and greater than 1000 mm at higher elevations.
- Rainfall recorded at Mount Bold was 851 mm, which was 6% higher than the average of 801 mm. Rainfall at Hindmarsh Valley measured 907 mm and was 4% above-average.
- Predominantly below-average conditions were observed at Mount Bold during spring and early summer 2019. Similar to the Hindmarsh Valley station, the remainder of 2019–20 recorded above-average conditions (data for Mount Bold presented below).
- Long-term data at Mount Bold and Hindmarsh Valley (1973–20) indicate a declining trend in rainfall.



More Information

This fact sheet is a high level summary of information provided in the 2019–20 Water Resources Assessment for the WMLR PWRA. Full details of all assessments can be found at: https://www.waterconnect.sa.gov.au/

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