Mallee and Peake-Roby-Sherlock Prescribed Wells Areas

2019–20 groundwater status overview

Mallee PWA	Murray Group Limestone	
Peake, Roby and Sherlock PWA	Confined aquifer	

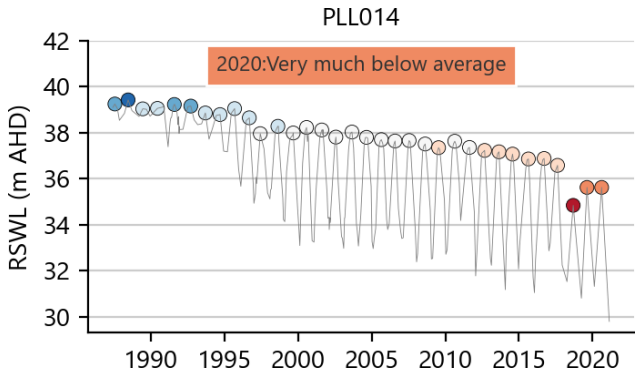
LEGEND

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

Groundwater levels in 2020

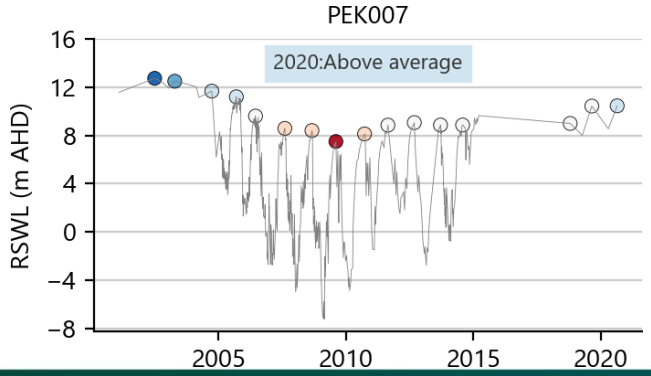
Water levels in the Mallee Prescribed Wells Area (PWA) (Murray Group Limestone aquifer (MGL)) monitoring wells are classified 'Average' or lower

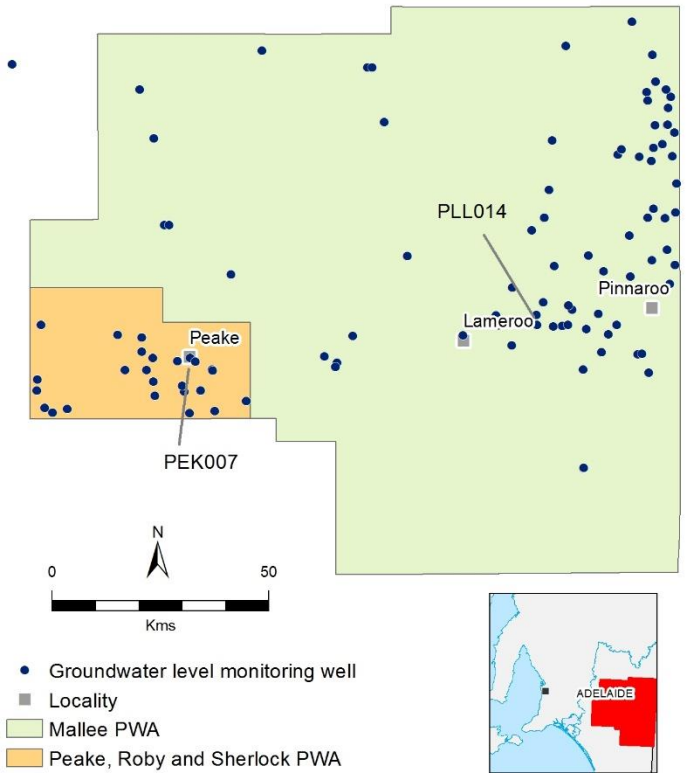
- 55% of wells are classified 'Below average' to 'Lowest on record'.
- Between 2016–20, 72% of wells show a trend of declining water levels, while the remaining wells are stable (8%) or rising (20%).
- The figure below shows gradually declining water levels in an area of intensive irrigation.



Water levels in the Peake, Roby and Sherlock PWA (Buccleuch and Renmark Groups, herein the confined aquifer) have shown recovery since 2009; consequently, the majority of monitoring wells are classified 'Above average'.

- 60% of confined wells are classified 'Above average', while 40% are classified 'Average'.
- Between 2016–20, 84% of wells in the confined aquifer show a trend of declining water levels, while the remaining wells (16%) show trends of rising or stable levels.
- The figure below shows variations in groundwater level in a well located around 3 km from intensive irrigation.





Regional context

The Mallee PWA and Peake, Roby and Sherlock PWA are located in the Murraylands and Riverland Landscape Region. The regional-scale groundwater resources that are located with the PWAs are prescribed under the *Landscape South Australia Act 2019*. Water allocation plans adopted between 2011–12 provide for the sustainable management of the water resources. Furthermore, a 'Designated Area' exists within 20 km of the state border between South Australia and Victoria, between the coast and River Murray. The two state governments co-manage groundwater under the *Groundwater (Border Agreement) Act 1985*.

Groundwater occurs in three main aquifers in the Mallee PWA, namely the confined Renmark Group, the semi-confined MGL and the unconfined Pliocene sands aquifers. All licensed groundwater extractions in the Mallee PWA are from the MGL aquifer, with most extraction occurring towards the north-east of the PWA where the aquifer is confined.

The main resources in the Peake, Roby and Sherlock PWA are the unconfined Murray Group Limestone and the confined aquifer. Almost all licensed extraction occurs from the confined aquifer which comprises of the Buccleuch Group and Renmark Group formations.

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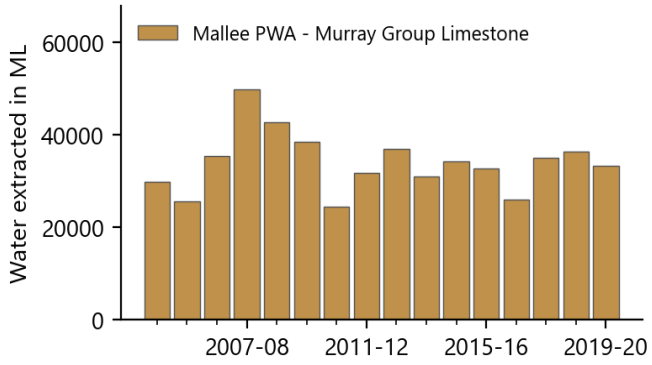
Mallee and Peake, Roby and Sherlock PWAs 2019–20 groundwater status overview

Water extraction in 2019–20

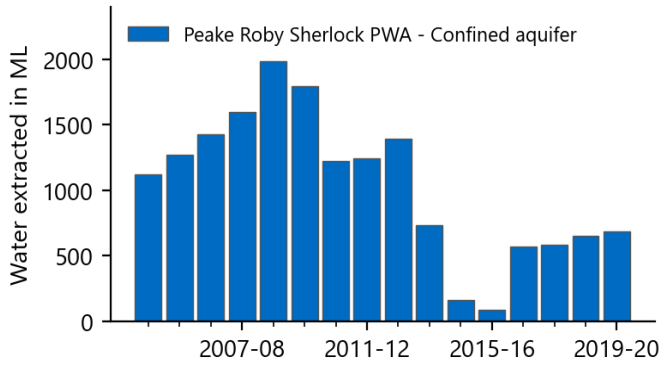
In the Mallee PWA, licensed groundwater extracted from the MGL aquifer was similar to the average annual (2003–20) volume of groundwater extraction

- Predominant water use is irrigation (>90%); but also used for town water supply, and industrial and recreational purposes.
- Licensed groundwater extraction is 33 378 ML, which is a decrease in extraction of 3002 ML from the preceding water-use year (see figure below).



In the Peake, Roby and Sherlock PWA, licensed groundwater extracted from the confined aquifer was 30% below the average annual (2003-20) volume of groundwater extraction

- Predominant water use is irrigation (>98%), but also used for town water supply and intensive farming.
- Licensed groundwater extraction is 687 ML, an increase in extraction of 37 ML from the preceding water-use year (see figure below).



More Information

This fact sheet is a high level summary of information provided in the 2019–20 Water Resources Assessment for the Mallee and Peake, Roby and Sherlock PWAs. Full details of the assessment https://www.waterconnect.sa.gov.au/

Salinity in 2020

Wells within the MGL aquifer generally show trends of decreasing groundwater salinity, while all wells in the confined aquifer show stable salinity

- The median salinity in the Mallee PWA was 1172 mg/L
- The median salinity in the Peake, Roby and Sherlock PWA was 3558 mg/L
- In the Mallee PWA, ten-year trends show declining salinity in most wells (74%), with rates of change varying between a decrease of 2.03% per year to an increase of 1.36% per year (median rate of 0.46% decrease of per year)
- In the Peake, Roby and Sherlock PWA, ten-year trends show stable salinity for all wells with rates of change ranging ±5% per year over the period.

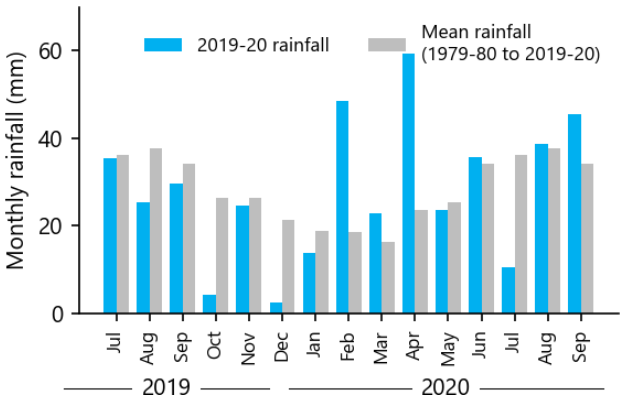
Climate

Climate is one of the main drivers of trends in the local water resources. Groundwater levels in the confined aquifers of the Mallee PWA and the Peake, Roby and Sherlock PWA can be indirectly influenced by variations in rainfall. Below-average summer rainfall can increase the need for irrigation and therefore lead to higher water extraction. Conversely, increased rainfall can result in decreased rates of irrigation.

Seasonal variations, such as a wetter than average spring, can also result in a delayed start to pumping for the irrigation season and consequently, a greater recovery in groundwater levels than is typically observed.

For 2019–20, rainfall was near average in the Mallee PWA, but below average in the Peake, Roby and Sherlock PWA.

- Annual rainfall typically ranges between 300–350 mm/y across both PWAs.
- Rainfall at Pinnaroo measured 326 mm, which is very close to the annual average rainfall of 319 mm (1979–2020).
- Rainfall at Peake measured 302 mm, which is below the annual average of 376 mm (1979–2020).
- The figure below shows monthly rainfall at Pinnaroo in blue for July 2019 to September 2020, compared to monthly averages in grey.



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