

# Mallee and Peake, Roby and Sherlock Prescribed Wells Areas

## 2018–19 groundwater status overview

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

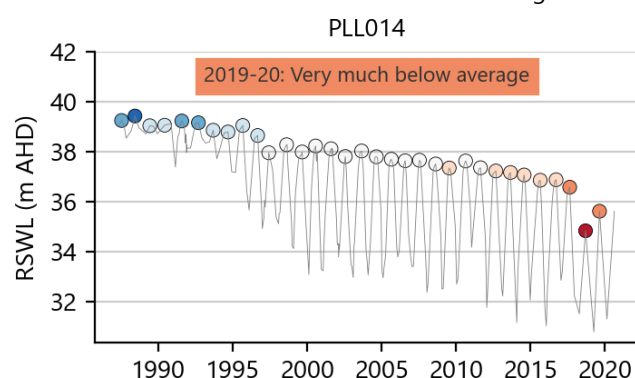
### LEGEND

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

## Groundwater level

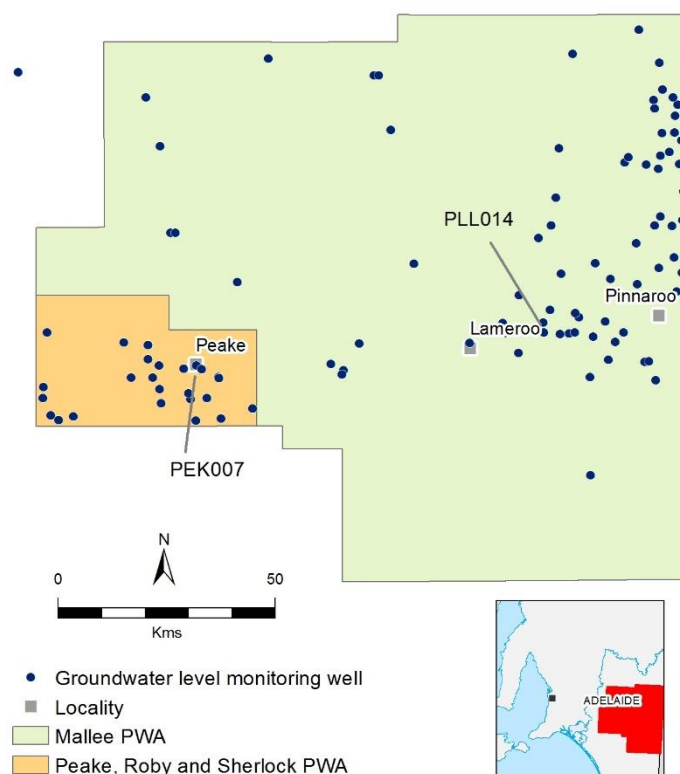
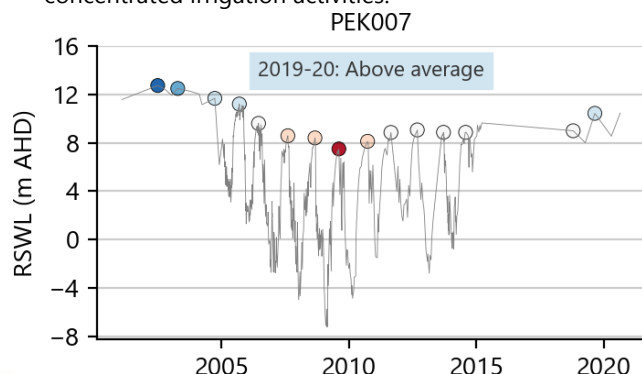
### Water levels in Murray Group Limestone aquifer monitoring wells are at 'below-average' levels in 2019

- In the Mallee Prescribed Wells Area (PWA), 74% of wells have water levels which range from 'below average' to 'lowest on record'
- From 2015–19, in the Mallee PWA, 75% of wells show a declining trend in water levels, while the remaining wells are stable (11%) or rising (14%)
- The figure below shows the effect of continued extraction on the water levels in areas around intensive irrigation.



### Water levels in the confined aquifer monitoring wells are at 'above-average' levels in 2019, with levels rising since 2009.

- In the Peake, Roby and Sherlock PWA, 53% of confined wells have 'above average' water levels, while 47% have 'average' levels
- From 2015–19, 58% of wells in the confined aquifer are showing stable (42%) or rising (16%) trends in water levels. The remaining wells (42%) show declining trends
- The figure below shows long-term changes in groundwater level in the Peake town water supply well located 3 km from concentrated irrigation activities.



## Regional context

The Mallee PWA and Peake, Roby and Sherlock PWA are located in the Murraylands and Riverland Landscape Region. They are regional-scale resources for which groundwater resources are prescribed under Landscape SA Act 2019. Water allocation plans adopted between 2011 and 2012 provide for the sustainable management of the water resources. Additionally, the area within 20 km of the State border is jointly managed with Victoria through the South Australian-Victorian Border Groundwater Agreement.

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

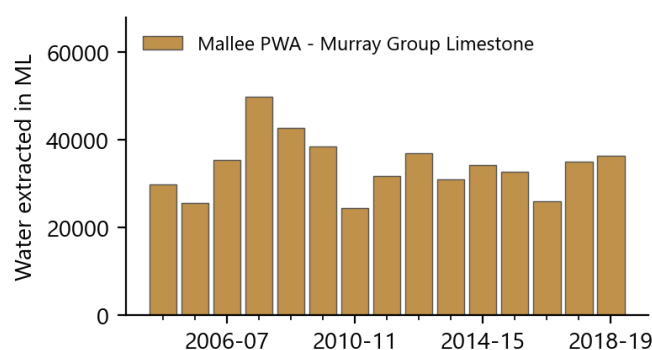
The major resources in the Peake, Roby and Sherlock PWA are the unconfined Murray Group Limestone and the confined Renmark Group. Almost all licensed extraction occurs from the confined aquifer.



## Water extraction

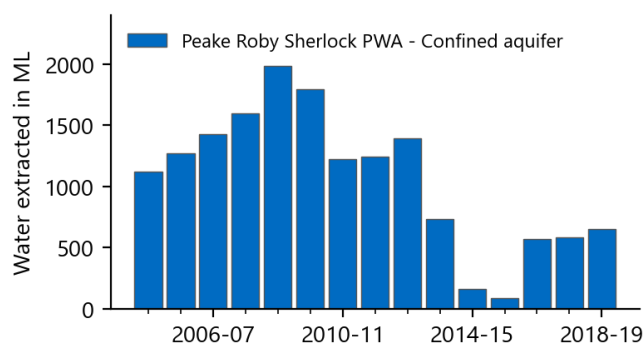
**Licensed groundwater extracted from the MGL aquifer in the Mallee PWA in 2018-19 was similar to the maximum extracted since 2010, but remains below that extracted during the Millennium Drought (2007-8 to 2009-10)**

- Predominant water use in the Mallee PWA is for irrigation, followed by industrial, recreation and town water supply
- Licensed groundwater extraction from the Mallee PWA in 2018-19 was 36,380 ML which is an increase in extraction of 1430 ML from the preceding water-use year (see figure below).



**Licensed groundwater extracted from the confined aquifer in the Peake, Roby and Sherlock PWA in 2018-19 was well below the maximum extracted since 2010 and remains below that extracted during the Millennium Drought (2006-7 to 2009-10)**

- Predominant water use in the Peake, Roby and Sherlock PWA is for irrigation, followed by intensive farming and town water supply
- Licensed groundwater extraction from the Peake, Roby and Sherlock PWA in 2018-19 was 650 ML, an increase in extraction of 70 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 2018-19 Water Resources Assessment for the Mallee and Peake, Roby and Sherlock PWAs. Full details of the assessment can be found at:

## Salinity

**Wells within the MGL aquifer showed a stable or decreasing groundwater salinity trend, while all wells in the confined aquifer showed stable groundwater salinity trends, during 2015-19**

- The majority of water samples were provided to DEW from irrigation wells in the Mallee and Peake, Roby and Sherlock PWAs by licence-holders
- The median salinity in 2019 in the MGL aquifer was 1143 mg/L in the Mallee PWA
- The median salinity in 2019 in the confined aquifer was 3448 mg/L in the Peake, Roby and Sherlock PWA.

## Climate-driven trends in water resources

Climate is one of the primary drivers of trends in the local water resources. Groundwater resources in the Mallee and Peake, Roby and Sherlock PWAs are influenced by rainfall and seasonal variations.

Below-average summer rainfall can increase the need for irrigation and therefore lead to higher water extraction. Conversely, increased rainfall results in decreased irrigation.

Seasonal variation, such as a wetter than average spring can result in a delayed start to pumping for the irrigation season and therefore a higher than normal recovery in groundwater levels.

**Rainfall was lower than average for 2018-19 for the Mallee and Peake, Roby and Sherlock PWAs.**

- Rainfall typically ranges from 300 mm to 350 mm across both PWAs
- Rainfall at Pinnaroo measured 206 mm, which was lowest on record since 1979 and less than the average of 318 mm
- Rainfall at Peake measured 277 mm, which was also lower than the average of 375 mm
- The figure below shows monthly rainfall at Pinnaroo in blue for July 2018 to September 2019 compared to monthly averages in grey.

