

# Clare Valley Prescribed Water Resources Area

## 2018–19 surface water and groundwater status overview



Clare Valley PWRA	Fractured rock aquifers	
	Surface water	

### LEGEND

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

## Regional context

The Clare Valley PWRA relies on both surface water and groundwater resources which are managed under a Water Allocation Plan (WAP) adopted in 2009.

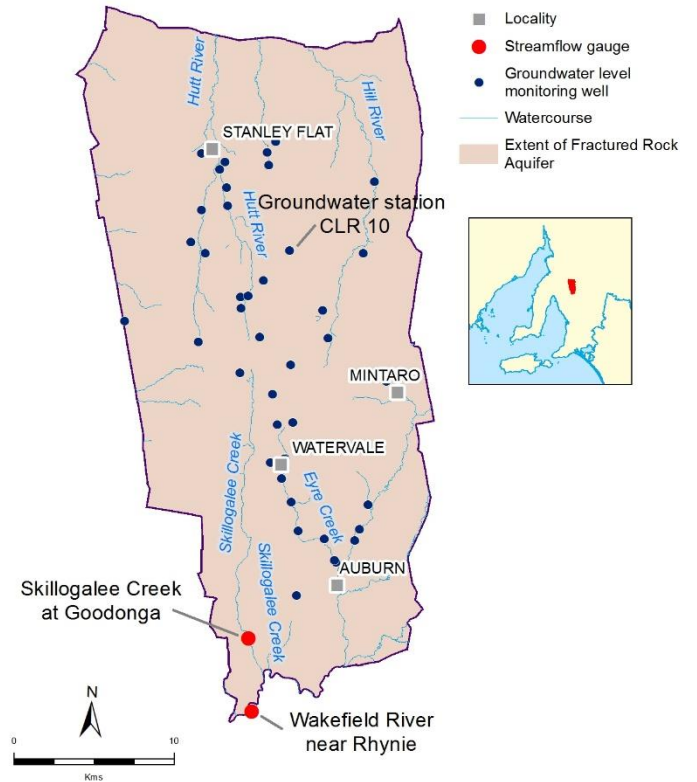
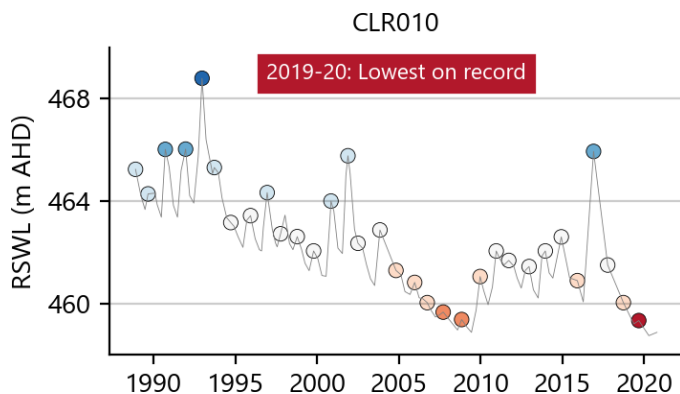
The Clare Valley PWRA consists of two main groundwater systems; a Quaternary alluvial aquifer in the valley floors and extensive fractured rock aquifers throughout the area. The fractured rock aquifers are the main groundwater resource in the Clare Valley. The Quaternary alluvial aquifer provides only a small portion of the groundwater resource, mainly in the vicinity of Stanley Flat.

The Broughton River, Hill and Hutt River catchments are located in the north and the Wakefield River drains to the south of the PWRA. The main watercourses are ephemeral with permanent pools primarily sustained by groundwater occurring in many places.

## Groundwater level

**Recovered water levels in 2019 were 'lower-than-average' in 73% of monitoring wells, compared to their historic record**

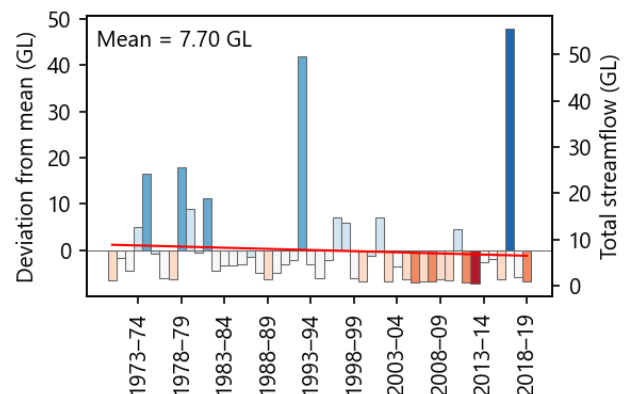
- In 2019, groundwater levels observed in 38% of monitoring wells in the fractured rock aquifer were at their lowest levels on record
- Five-year trends in water level from 2015–19 are declining for 79% of monitoring wells
- The figure below shows long-term water levels at a monitoring well near Clare.



## Streamflow

**Streamflow was 'lowest on record' at 1 out of 3 gauging stations and 2 were 'very much below average'**

- 2 of the 3 streamflow gauging stations in the Clare Valley PWRA recorded 'very much below average' streamflow and the third recorded the 'lowest on record' during 2018–19
- There is an overall declining trend with 17 of the past 20 years recording a below-average annual streamflow (Wakefield River data presented below).



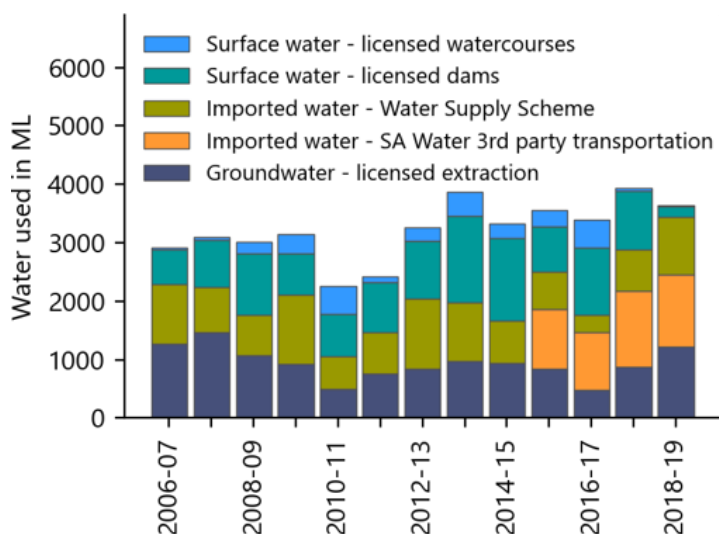
## Water use

### Approximately 52% of water use was from imported sources

- Water sources include watercourses, farm dams, groundwater and imported water from SA Water's Clare Valley Water Supply Scheme (including third party transportation), which brings River Murray water into the PWRA for municipal water supply and irrigation.

### Water use for consumptive purposes was 4320 ML in 2018–19. 1217 ML of this total was extracted from groundwater, the highest since 2007–08

- There was greater reliance on imported water sources and groundwater in 2018–19 due to lower than average rainfall.



## Salinity

### Surface water salinity in 2018–19 remained within historical ranges. The majority of monitored wells showed stable five-year trends in groundwater salinity.

- Salinity levels were variable in the Wakefield River but remained within the historical ranges, with peak levels reaching 5683 mg/L
- Peak surface water salinity in the Skillogee Creek reached 2146 mg/L in 2018–19
- In the fractured rock aquifers, groundwater salinity varies widely (622 mg/L to 3058 mg/L), with 60% of wells showing stable five-year trends.

## Climate-driven trends in water resources

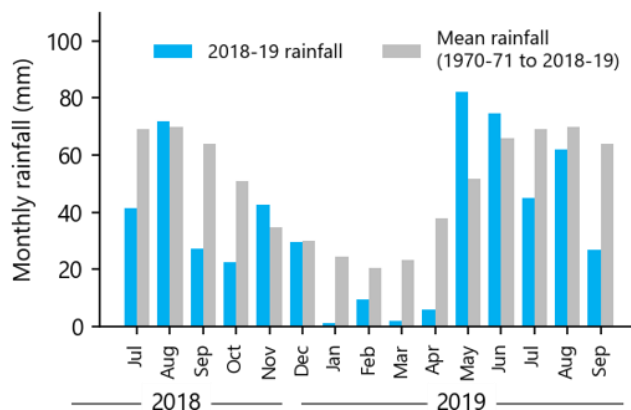
Climate is one of the primary drivers of trends in the local water resources. Surface water and groundwater resources in the Clare Valley PWRA are highly dependent on rainfall.

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 typically ranges from 500 to 620 mm in the PWRA, with the higher rainfall in the central and elevated areas
- Rainfall at Calcannia measured 410 mm, which was lower than the average of 541 mm (see below). This pattern was consistently observed across the PWRA
- Rainfall in early winter and spring 2018 was below average and very dry conditions in summer 2018–19 occurred
- 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 Clare Valley PWRA. Full details of the assessment can be found at: <https://www.waterconnect.sa.gov.au/>