

Clare Valley Prescribed Water Resources Area

2020–21 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 Prescribed Water Resources Area (PWRA) relies on both surface water and groundwater resources which are managed under a Water Allocation Plan adopted in 2009.

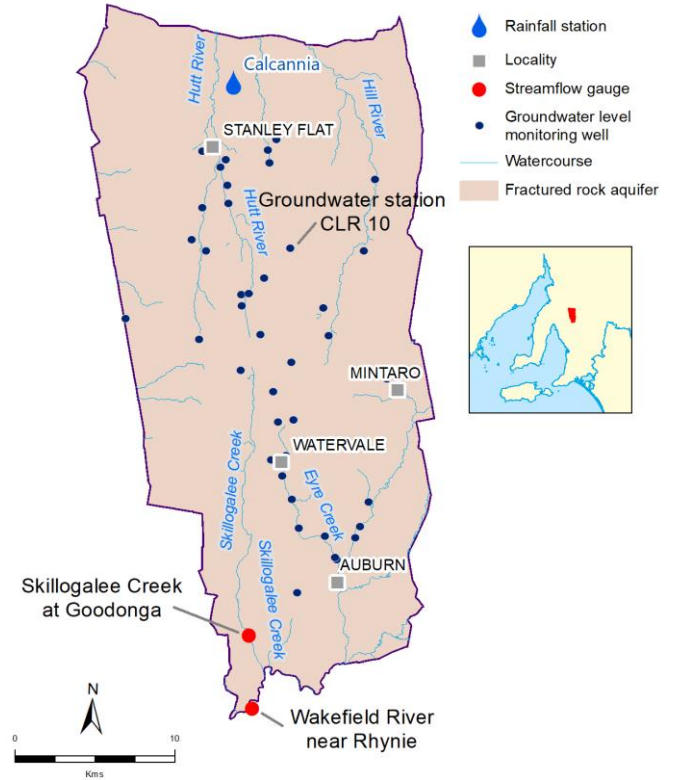
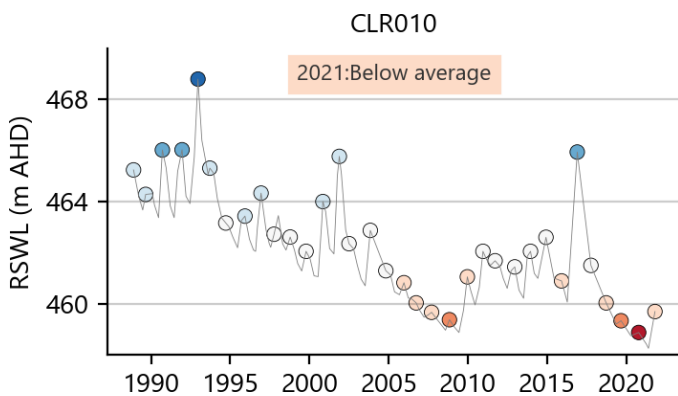
The Clare Valley PWRA consists of two main groundwater systems: a Quaternary alluvial aquifer in the valley floors and an extensive fractured rock aquifer throughout the area. The fractured rock aquifer is the main groundwater resource. The Quaternary alluvial aquifer provides only a small proportion of the PWRA's groundwater supply, mainly in the vicinity of Stanley Flat.

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

Groundwater levels

Recovered groundwater levels in 2021 are 'Below-average' or lower in 75% of monitoring wells compared to their historical record.

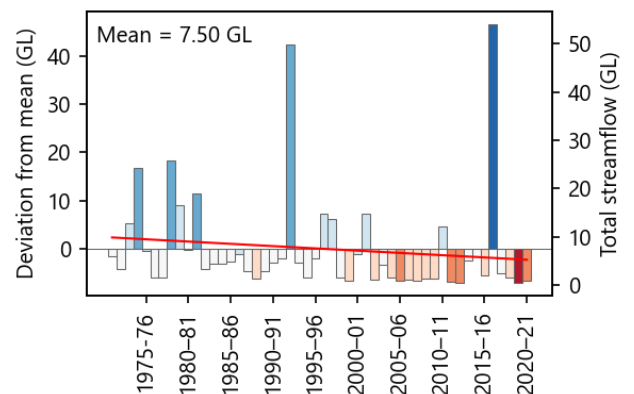
- In 2021, groundwater levels observed in 25% of fractured rock aquifer monitoring wells are at their lowest levels on record.
- Five-year trends in water level from 2017 to 2021 are declining for 97% of monitoring wells.
- The figure below shows long-term groundwater levels at a monitoring well near Clare.



Streamflow

Streamflow is below-average for the third consecutive year at all 3 representative streamflow gauging stations in 2020-21.

- Hill River shows 'Lowest on record' streamflow; Hutt River and Wakefield River show 'Very much below average' streamflow.
- There is an overall declining trend with 10 of the past 15 years showing below the average annual streamflow (Wakefield River data presented below).



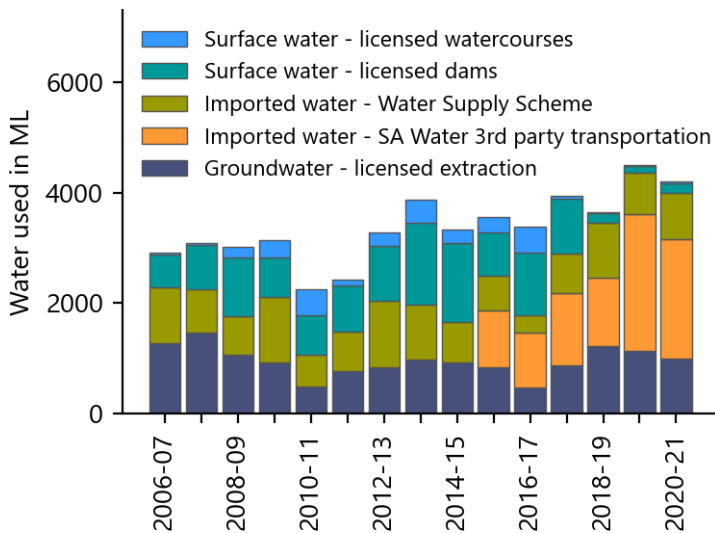
Water use

Approximately 61% of water use is 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.

Total water use is 4,876 ML in 2020–21. Approximately 21% is sourced from groundwater (1,004 ML).

- Since 2018–19, there has been a greater reliance on imported water and groundwater due to below-average rainfall and availability of surface water.



Salinity

Surface water salinity in 2020–21 remains within historical ranges.

- Surface water salinity levels in 2020–21 are variable in the Skillogalee Creek but remain within the historical range (2005 to 2021) with an annual median of 1,957 mg/L.
- Peak surface water salinity in the Skillogalee Creek reaches 2,819 mg/L.

Climate

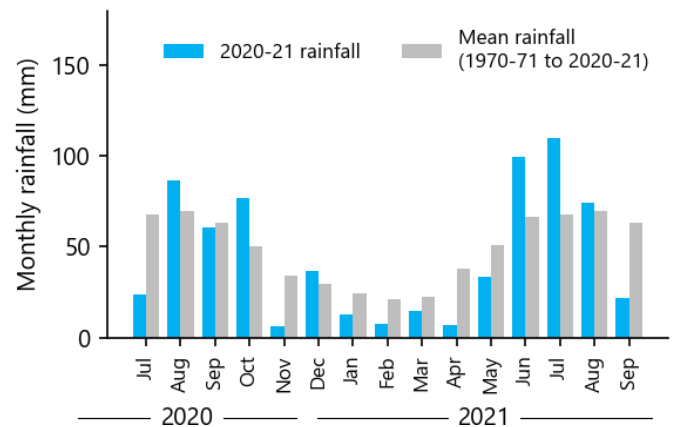
Climate is one of the main drivers of trends in the local water resources. Surface water and groundwater resources in the Clare Valley PWRA are highly dependent on rainfall.

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 in turn can 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. Conversely, above-average rainfall can cause increased recharge and lower irrigation extraction which can cause groundwater levels to increase.

Rainfall is below-average for 2020–21.

- Rainfall typically ranges from 500 to 620 mm across the PWRA with the higher rainfall in the central and elevated areas.
- Rainfall at Calcannia station measures 465 mm which is lower than the average of 538 mm. This pattern is consistently observed across the PWRA.
- The long-term trend is marginally decreasing, and below-average annual values are observed over the past four years.
- The figure below shows monthly rainfall in 2020–21 at Calcannia.



More Information

This fact sheet is a high-level summary. More information (including metadata) is available in the suite of Water Resource Assessments for the Clare Valley Prescribed Area at: <https://www.waterconnect.sa.gov.au/Systems/GSR/Pages/Default.aspx>