

Padthaway Prescribed Wells Area

2020–21 Groundwater status overview



Padthaway PWA	Unconfined aquifer	Flats	
		Range	

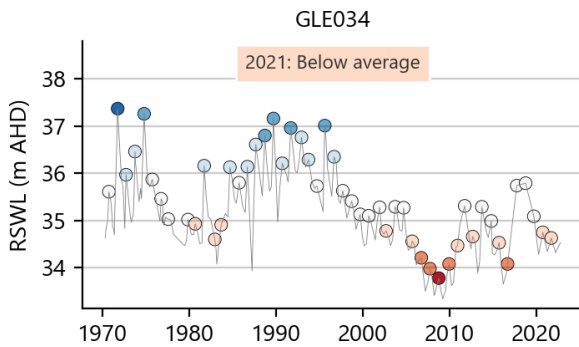
LEGEND

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

Groundwater levels

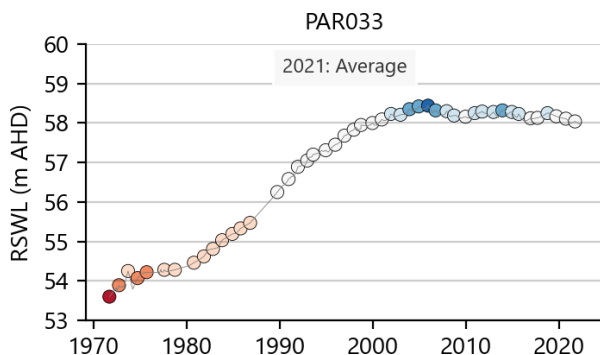
In the Padthaway Flats management area in 2021, water levels in the majority of wells in the unconfined aquifer (60%) are classified 'Below average', compared to their respective historical record.

- Over the past 30 years, water levels in the unconfined aquifer of the Padthaway Flats management area have been declining (median decline of 1.47 m).
- Five-year trends (2017 to 2021) show water levels in 96% of wells are declining (see example below).

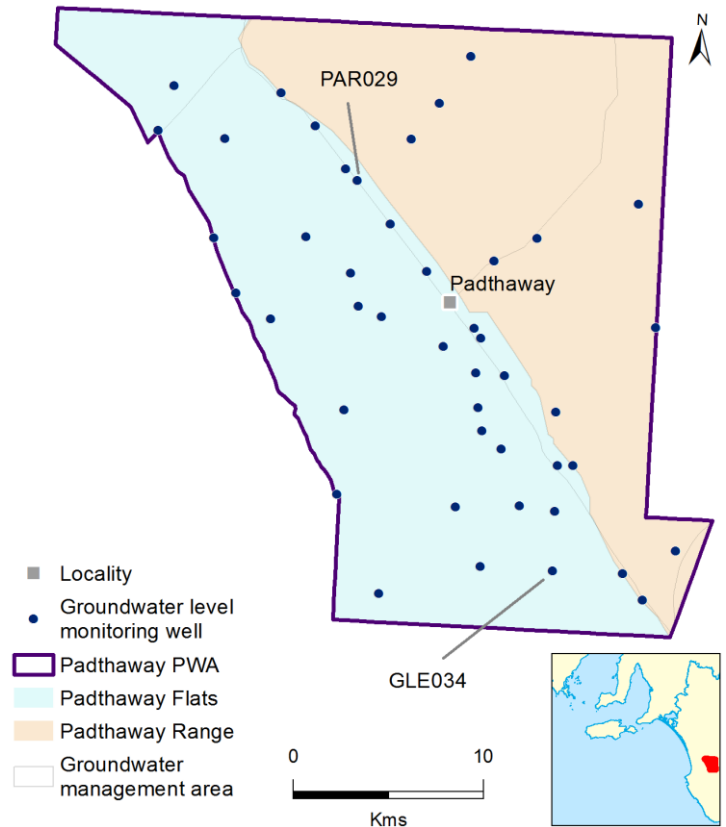


In the Padthaway Range management area in 2021, water levels in 64% of wells in the unconfined aquifer are classified 'Average' or higher.

- Five-year trends (2017 to 2021) show water levels in wells in the Padthaway Range area are declining in the majority of wells (64%), with rates of decline ranging between 0.03 and 0.30 m/y (see example hydrograph below).



There was no licenced extraction from the confined aquifer of the Padthaway Prescribed Wells Area in 2020–21.



Regional context

The Padthaway Prescribed Wells Area (PWA) is located within the Limestone Coast Landscape region, around 250 km south-east of Adelaide, and spans an area of approximately 750 km². The Water Allocation Plan for the Padthaway PWA provides for the sustainable management of the region's groundwater resources.

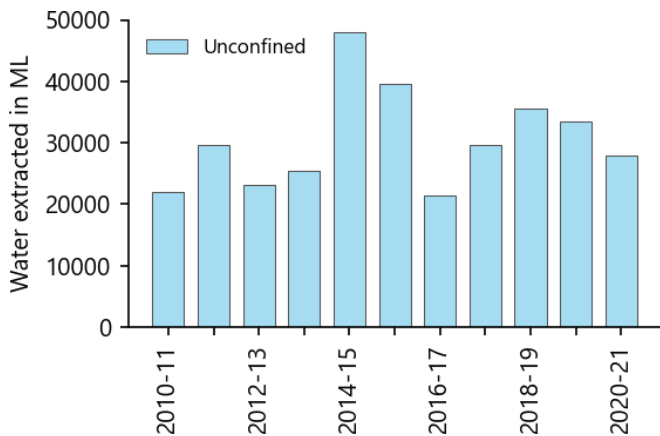
Groundwater resources in the region occur in the shallower unconfined Quaternary limestone and sandstone aquifers, and in a deeper confined sand aquifer that is generally thin or absent in this PWA. There are two unconfined aquifer management areas: the Padthaway Flats area in the west and the Padthaway Range area in the east. Depth to groundwater is generally less than 5 m in the Padthaway Flats management area and up to 30 m in the Padthaway Range management area. Groundwater is sourced mainly from the unconfined aquifer in the Padthaway Flats management area.



Water use

In 2020–21, licensed groundwater extractions from the Padthaway PWA totals 27,913 ML.

- Groundwater is the main source of consumptive water in the Limestone Coast region and used for irrigation, industry, stock and domestic uses, and town water supply.
- Rates of extraction are strongly influenced by the amount of rainfall and its seasonality (see Climate section).
- Groundwater extraction from the unconfined aquifer is 27,913 ML, which is a 17% decrease compared to 2019–20.
- There are no licensed extractions from the confined aquifer in 2020–21 in the Padthaway PWA. The figure below shows licensed extractions from the unconfined aquifer.



Salinity

In 2021, salinity measurements in the unconfined aquifer show a median salinity of 1668 mg/L in the Padthaway Flats and 1,354 mg/L in the Padthaway Range management areas.

- Salinity in the Padthaway Flats management area ranges between 975 mg/L and 9,046 mg/L.
- Salinity in the Padthaway Range management area ranges between 984 mg/L and 1,912 mg/L.
- In the Padthaway Flats management area, 15 of 19 wells (79%) show an increasing trend in salinity. The 10-year salinity trends vary from a decrease of 2.2% per year to an increase of 3.0% per year, with a median rate of 0.8% increase per year.
- In the Padthaway Range management area, 5 of 8 wells (63%) show an increasing trend in salinity. The 10-year salinity trends vary from a decrease of 0.7% per year to an increase of 1.6% per year, with a median rate of 0.2% increase per year.

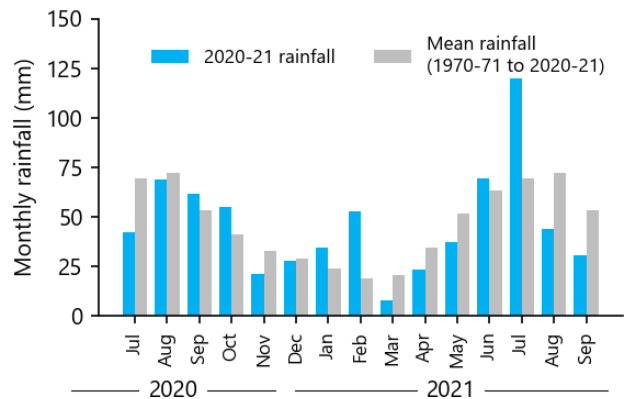
Climate

Unconfined groundwater resources in the Padthaway PWA are highly dependent on rainfall.

Below-average rainfall results in reduced recharge to the unconfined aquifer that, coupled with increased water extractions, can cause groundwater levels to decline. Conversely, above-average rainfall can cause increased recharge and lower water extraction, resulting in potential increases in water levels. These changes are often more pronounced in the Flats areas where the watertable is relatively shallow. Water levels in deeper confined aquifers are not directly governed by rainfall but can show similar trends to unconfined aquifers during drier or wetter periods through variations in rates of extraction.

Rainfall is below average for 2020–21.

- Rainfall at Marcollat (BoM Station 206017) is 499 mm, which is commensurate with the long-term average (1970 to 2021) of 508 mm.
- Above-average monthly rainfall occurred in January, February, June and July 2021.
- The long-term trend in annual rainfall (1970 to 2021) is declining at the Marcollat rainfall station.
- Rainfall at Marcollat is shown below for July 2020 to September 2021 – monthly totals are shown in blue, compared to long-term monthly averages (1970 to 2021) in grey.



More Information

This fact sheet is a high level summary of information provided in the 2020–21 Water Resources Assessment for the prescribed areas of the Limestone Coast. Full details of the assessment can be found at:

<https://www.waterconnect.sa.gov.au/>