

# Padthaway Prescribed Wells Areas

## 2019–20 groundwater status overview



Padthaway PWA	Confined aquifer		
	Unconfined aquifer	Flats	
		Range	

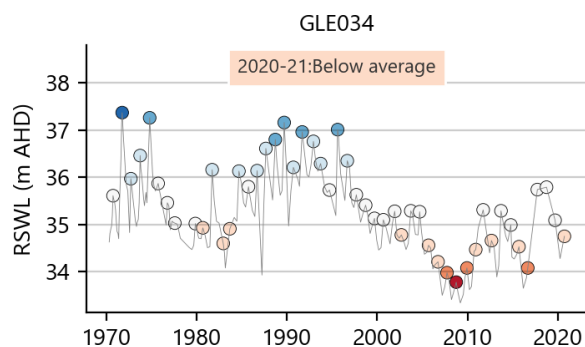
  

<b>LEGEND</b>		
● Highest on record	○ Below average	
● Very much above average	● Very much below average	
○ Above average	● Lowest on record	
○ Average	— Long-term trend	

### Groundwater level

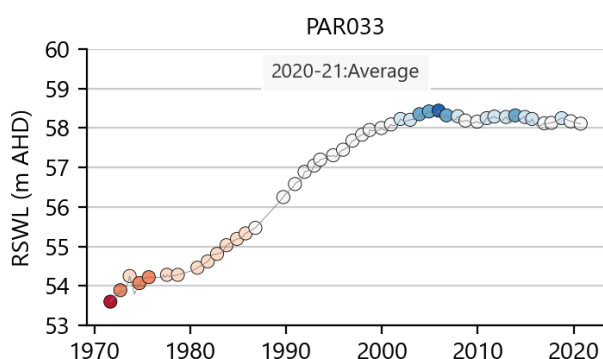
**In the Padthaway Flats management area in 2020, water levels in the majority of wells in the unconfined aquifer (80%) are classified 'Below average', compared to their respective historical record**

- Over the past 30 years, water levels in the unconfined aquifer of the Padthaway Flats management area have been declining (median decline of 1.81 m).
- However, five-year trends (2016–20) show water levels in 68% of wells are rising (see example below).

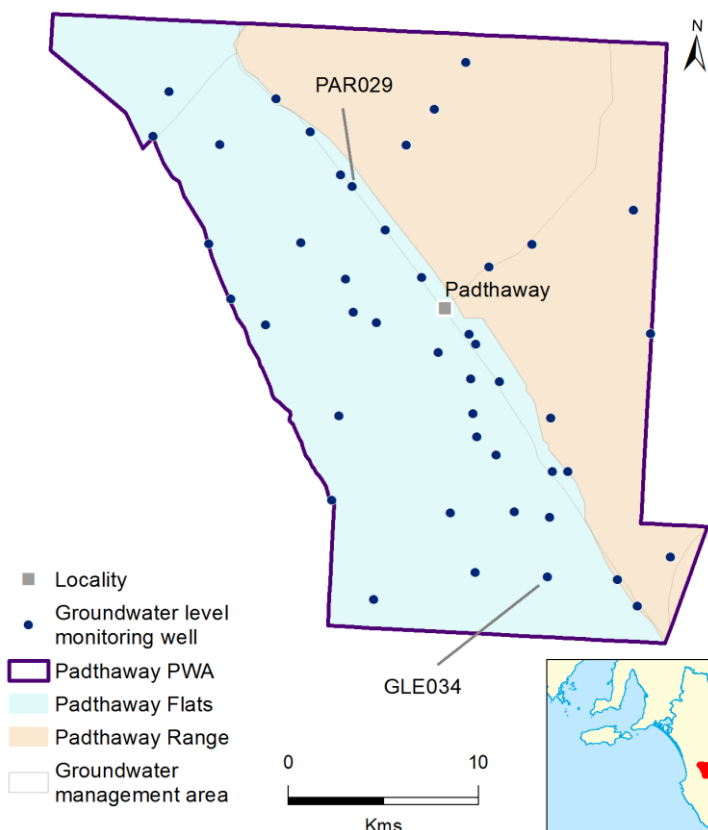


**In the Padthaway Range management area in 2020, water levels in the majority of wells in the unconfined aquifer (73%) are classified 'Average'**

- Five-year trends (2016–20) show water levels in wells in the Padthaway Range area are either stable (27%) or rising (46%), with rates of rise ranging between 0.03–0.07 m/y (see example below).



**There was no licenced extraction from the confined aquifer of the Padthaway Prescribed Wells Area in 2019–20**



### 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 km<sup>2</sup>. The Water Allocation Plan for the Padthaway PWA provides for the sustainable management of the region's groundwater resources.

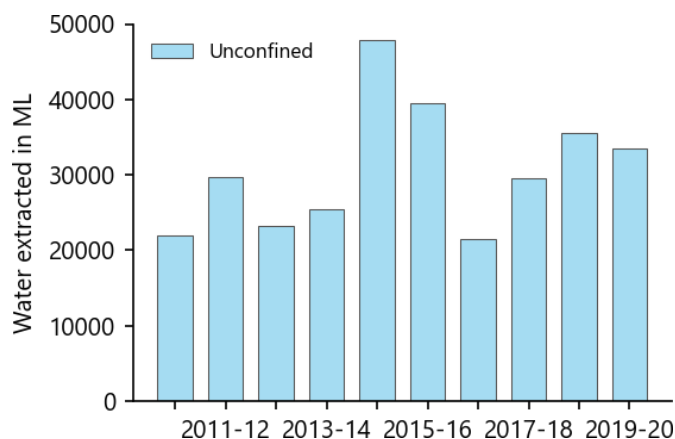
Groundwater resources in the region occur in the shallower unconfined Quaternary limestone and sandstone aquifers, and also a deeper confined sand aquifer that is generally thin or absent in this PWA. There are two unconfined aquifer management areas: the Padthaway Flats area in the west and the Padthaway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



## Water extraction

**In 2019–20, licensed groundwater extractions from the unconfined aquifer is 33 453 ML**

- Groundwater is used widely in the South East for irrigation, industry, stock and domestic uses and town water supply.
- Rates of extraction are strongly influenced by total annual rainfall (see Climate section).
- Groundwater extraction from the unconfined aquifer is 33 453 ML, which is a 6% decrease compared to 2018–19, and occurred despite a 5% reduction in annual rainfall over the same period (Marcollat BoM Station 206017).
- There were no licensed extractions from the confined aquifer in 2019–20 in the Padthaway PWA. The figure below shows licensed extractions from the unconfined aquifer over the past ten years.



## Salinity

**In 2020, salinity measurements from 29 wells in the unconfined aquifer show a median salinity of 1549 mg/L**

- Salinity in the unconfined aquifer ranges between 958 mg/L–9102 mg/L.
- The median salinity was 1550 mg/L and 1271 mg/L in the Padthaway Flats and the Padthaway Range management areas, respectively.
- In the Padthaway Flats management area, ten-year trends show increasing salinity in the majority of wells (79%); trends vary from a decrease of 2.32% per year to an increase of 2.94% per year (median rate of 0.70% increase per year).
- In the Padthaway Range management area, ten-year trends show increasing salinity in the majority of wells (67%); trends vary from a decrease of 0.63% per year to an increase of 1.46% per year (median of 0.24% increase per year).

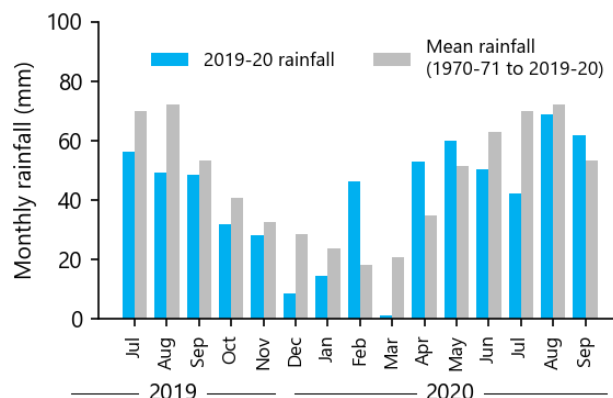
## Climate

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 plains 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 was below average for 2019–20**

- Rainfall at Marcollat (BoM Station 206017) was 446 mm, which is 12% below the long-term average (1970–2020).
- Above-average monthly rainfall occurred in February and April 2020, while December 2019 and March 2020 are below average.
- Recent rainfall at Marcollat is shown for July 2019 to September 2020 (see below) – monthly totals are shown in blue, compared to long-term monthly averages (1970–2020) in grey.



## More Information

This fact sheet is a high level summary of information provided in the 2019–20 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/>