

# Southern Basins Prescribed Wells Areas

## 2019–20 groundwater status overview



### Southern Basins PWA

Coffin Bay	
Lincoln South	
Uley South	
Uley Wanilla	

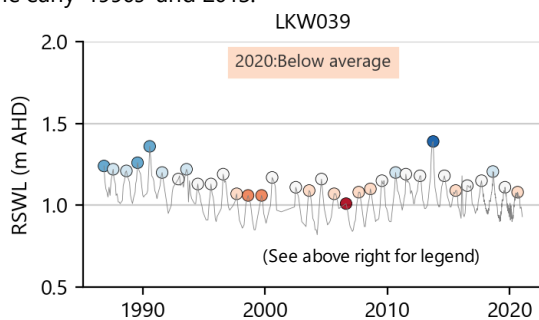
### LEGEND

	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 2020

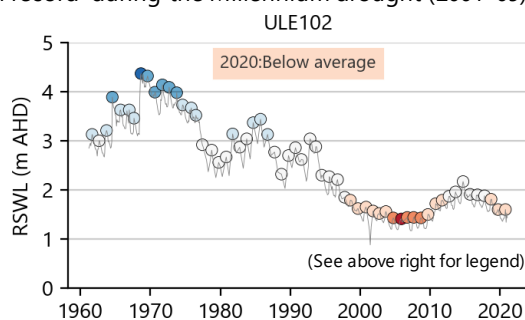
**Water levels in six out of seven Quaternary Limestone (QL) aquifer wells within the Coffin Bay consumptive pool are classified 'Below average'**

- Between 2016–20, each of eight wells show a trend of declining water level (median rate of 2 cm/y), while sharp rises in water level correspond with high rainfall around the early-1990s and 2013.



**Water levels in most QL aquifer wells (74%) within the Uley South Public Water Supply (PWS) consumptive pool are classified 'Below average' or lower**

- Between 2016–20, all wells show a trend of declining water level (median rate of 7 cm/y)
- The long-term trend for ULE102 shows levels were 'Lowest on record' during the Millennium drought (2001–09).

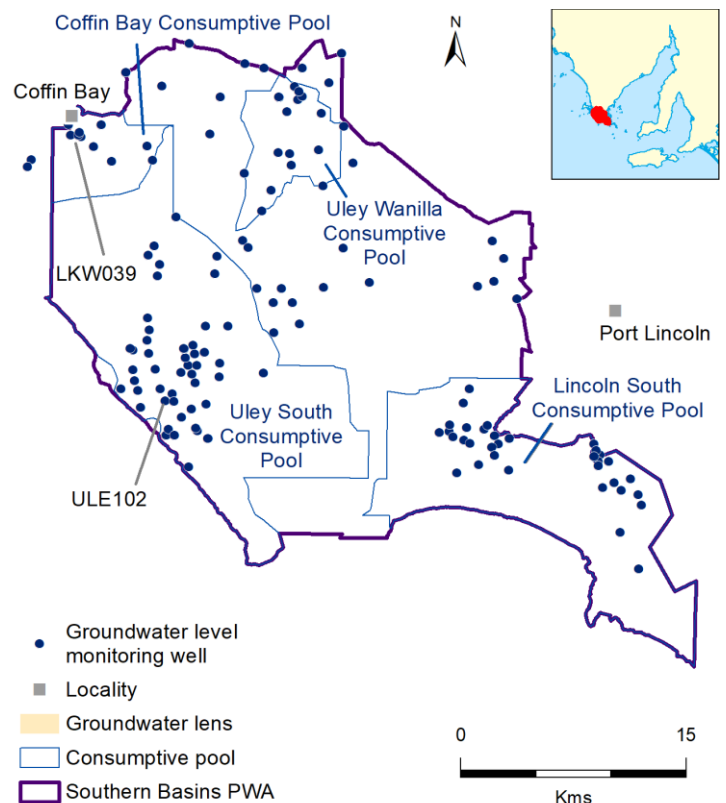


**Water levels in most QL aquifer wells (74%) within the Uley Wanilla PWS consumptive pool are classified 'Lowest on record'**

- Between 2016–20, all wells show a trend of declining water level (median rate of 16 cm/y).

**Water levels in most QL aquifer wells (96%) within the Lincoln South PWS consumptive pool are classified 'Below average' or lower**

- Between 2016–20, most wells (96%) show a trend of declining water level (median rate of 4 cm/y).



## Regional context

The Southern Basins Prescribed Wells Area (PWA) is located within the Eyre Peninsula Landscape region. Groundwater is the major water resource in the area and is used mainly for public water supply, stock and domestic use and industrial purposes.

There are three main groundwater systems located in the region: the uppermost unconfined Quaternary Limestone aquifer, an unconfined to confined aquifer in underlying Tertiary sediments and a fractured rock aquifer occurring in basement rocks. The main supplies of potable groundwater are found in the Quaternary Limestone aquifer, and these are known as fresh groundwater lenses

The resources are divided into management zones – the zone with the highest use is the Uley South PWS consumptive pool, which supplies the majority of the reticulated supply for Eyre Peninsula. The River Murray augments reticulated supply via the Iron Knob–Kimba pipeline, while the township of Coffin Bay relies mainly on a localised fresh groundwater lens.



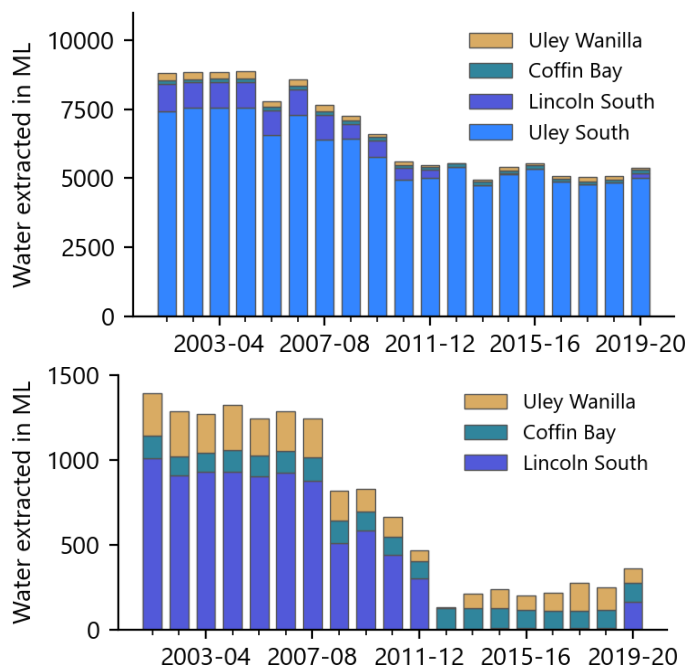
# Southern Basins PWA 2019–20 groundwater status overview

## Water extraction in 2019-20

### **Licensed extractions from the Southern Basins PWA is 5442 ML. Licensed groundwater extractions from**

- Coffin Bay consumptive pool are 110 ML, an increase of 2% from 2018-19
- Uley South PWS consumptive pool are 5024 ML, an increase of 4% from 2018-19
- Lincoln South PWS consumptive pool are 163 ML, an increase of 157 ML from 2018-19
- Uley Wanilla PWS consumptive pool are 85 ML; a 36% reduction from 2018-19.

Annual extraction volumes are shown below (the second figure excludes the Uley South PWS consumptive pool).



## Salinity in 2020

### **Groundwater samples from QL aquifer monitoring wells and PWS production bores across the Southern Basins PWA show a median salinity of 544 mg/L. Salinity samples from**

- Coffin Bay consumptive pool ranges between 348–1076 mg/L (median of 422 mg/L); in the past 10 years, the majority of wells (88%) show a trend of increasing salinity
- Uley South PWS consumptive pool ranges between 444–702 mg/L (median of 520 mg/L); in the past 10 years, the majority of wells (67%) show increasing salinity
- Uley Wanilla PWS consumptive pool ranges between 490–1110 mg/L (median of 563 mg/L); in the past 10 years, the majority of wells (67%) show increasing salinity
- Lincoln South PWS consumptive pool ranges between 620–1552 mg/L (median of 1112 mg/L); in the past 10 years, the majority of wells (75%) show increasing salinity.

## Climate

In general, below-average rainfall results in a reduction in groundwater recharge. Furthermore, below-average rainfall can result in increasing extractions and together, both elements can cause groundwater levels to decline and salinities to increase. Conversely, above-average rainfall can result in increases in recharge, decreases in extractions and groundwater levels may rise and salinities may stabilise or decrease.

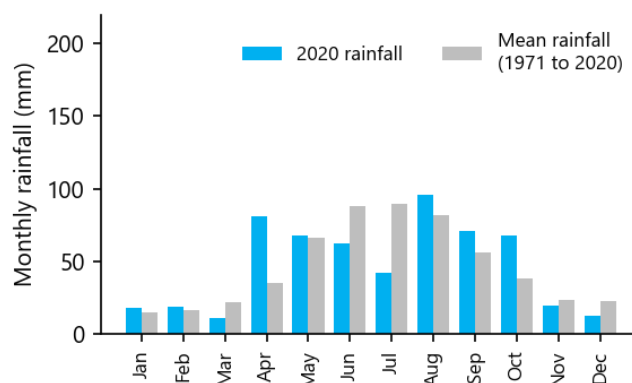
In the Southern Basins PWA, climate is the main driver of changes in groundwater levels and salinity. In particular, water levels are highly responsive to recharge from incident rainfall, due to the nature of the PWA's surface and subsurface geology.

Historical rainfall data indicate that trends of above or below-average rainfall can last for up to 25 years and suggest that, when matched with groundwater level data, high-intensity rainfall events can result in rapid groundwater level responses (i.e. groundwater recharge).

## Rainfall in 2020

### **Rainfall at Westmere and Big Swamp rainfall stations was commensurate with each station's average annual rainfall**

- Rainfall at Big Swamp rainfall station, located near Uley Wanilla, is 567 mm, compared to the long-term average of 555 mm/y (1971–2020)
- Rainfall at Westmere rainfall station (BoM Station 18137), located between Uley South PWS and Lincoln South PWS consumptive pools, is 564 mm, compared to the long-term average of 556 mm/y (1971–2020)
- Long-term rainfall data (1971–2020) at both stations indicate that total annual rainfall is declining
- The figure below shows monthly rainfall (blue) during 2020 at Big Swamp compared to monthly averages (grey).



## More Information

This fact sheet is a high level summary of information provided in the 2019–20 Water Resources Assessment for the Musgrave and Southern Basins PWAs. Full details of the assessment can be found at: <https://www.waterconnect.sa.gov.au>

