

# Southern Basins Prescribed Wells Areas

## 2020–21 Groundwater status overview



Southern Basins PWA	Color
Coffin Bay	Blue circle
Lincoln South	Red circle
Uley South	Orange circle
Uley Wanilla	Dark red circle

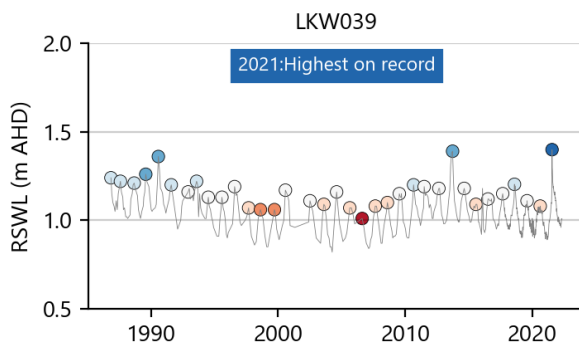
### LEGEND

Blue circle	Highest on record	Light orange circle	Below average
Light blue circle	Very much above average	Dark orange circle	Very much below average
White circle	Above average	Red circle	Lowest on record
White circle	Average	Red line	Long-term trend

## Groundwater levels

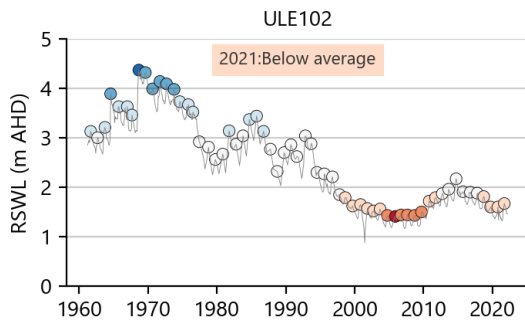
**Water levels in 5 out of 7 Quaternary Limestone (QL) aquifer wells within the Coffin Bay consumptive pool are classified 'Above average' or higher.**

- Five-year trends (2017 to 2021) show rising water levels in the majority of wells (67%).



**Water levels in the majority of QL aquifer wells (53%) within the Uley South Public Water Supply (PWS) consumptive pool are classified 'Below average' or lower.**

- Five-year trends (2017 to 2021) show declining water levels in the majority of wells (95%) (median rate of 5 cm/y).
- The long-term trend for observation well ULE102 shows levels were 'Lowest on record' during the Millennium drought (2001 to 2009).

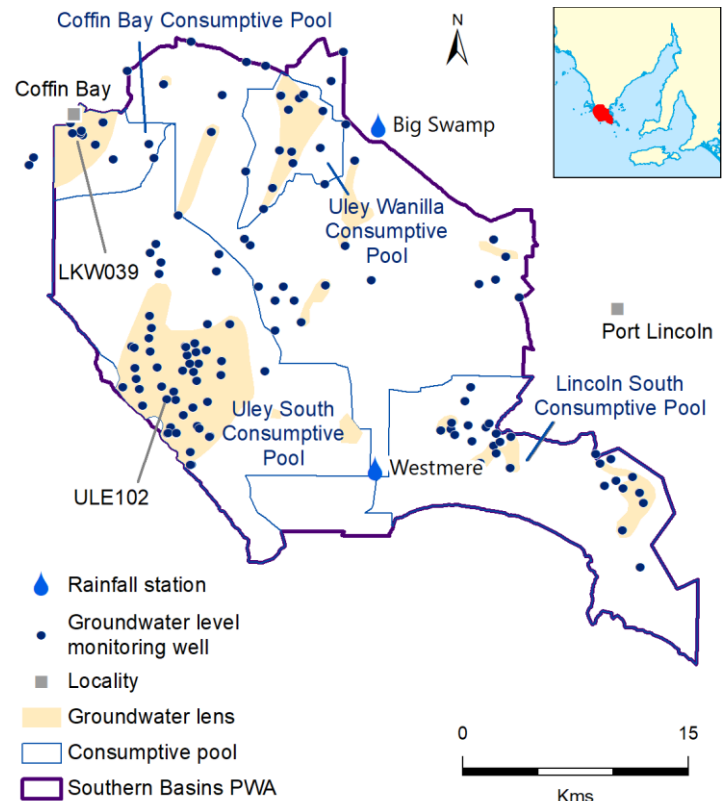


**Water levels in most QL aquifer wells (87%) within the Uley Wanilla PWS consumptive pool are classified 'Below average' or lower.**

- Five-year trends (2017 to 2021) show declining water levels in all wells (median rate of 14 cm/y).

**Water levels in all QL aquifer wells within the Lincoln South PWS consumptive pool are classified 'Below average' or lower.**

- Five-year trends (2017 to 2021) show declining water levels in all wells (median rate of 5 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 for 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 most 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.

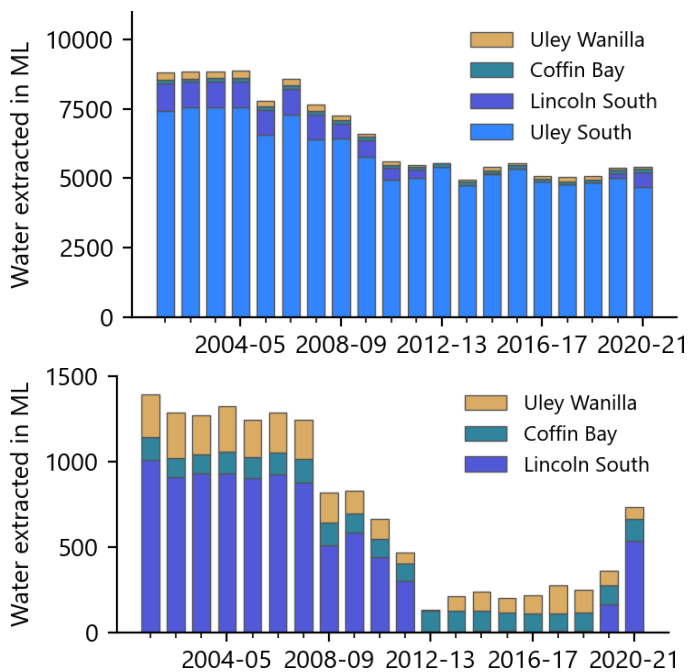


## Water use

**Licensed extractions from the Southern Basins PWA total 5,449 ML. This comprises licensed groundwater extractions from:**

- Coffin Bay consumptive pool – 128 ML, an increase of 16% from 2019-20
- Uley South PWS consumptive pool – 4,676 ML, a decrease of 7% from 2019-20
- Lincoln South PWS consumptive pool – 536 ML, compared to 163 ML in 2019-20
- Uley Wanilla PWS consumptive pool – 65 ML; a 23% reduction from 2019-20.

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



## Salinity

**Groundwater samples from QL aquifer monitoring wells and PWS production bores across the Southern Basins PWA show a median salinity of 583 mg/L.**

- Coffin Bay consumptive pool ranges between 346 and 1,116 mg/L, (median of 427 mg/L); in the past 10 years, all wells show an increasing trend in salinity.
- Uley South PWS consumptive pool ranges between 443 and 3,022 mg/L (median of 545 mg/L); in the past 10 years, the majority of wells (78%) show increasing salinity.
- Uley Wanilla PWS consumptive pool ranges between 499 and 1,075 mg/L (median of 559 mg/L); in the past 10 years, the majority of wells (67%) show increasing salinity.
- Lincoln South PWS consumptive pool ranges between 603 and 1,535 mg/L (median of 1,115 mg/L); in the past 10 years, the majority of wells (88%) 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.

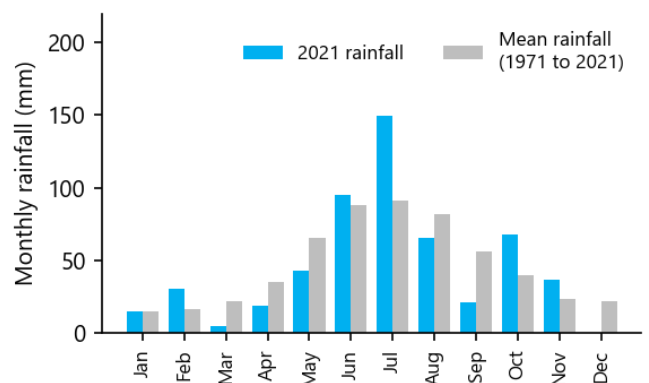
In the Southern Basins PWA, climate is the main driver of changes in groundwater levels and salinity. In particular, water levels are highly responsive to recharge from incident rainfall, due to the nature of the PWA's surface and subsurface geology.

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

**Rainfall at both Westmere and Big Swamp rainfall stations is close to the long-term average.**

- Rainfall at Big Swamp rainfall station is 547 mm, compared to the long-term average of 555 mm/y (1971 to 2021).
- Rainfall at Westmere rainfall station (BoM Station 18137) is 547 mm, compared to the long-term average of 556 mm/y (1971 to 2021).
- Long-term rainfall data (1971 to 2021) at both stations indicate that total annual rainfall is declining.
- The figure below shows monthly rainfall (blue) during 2021 at Big Swamp compared to monthly averages (grey).



## More Information

This fact sheet is a high level summary of information provided in the 2020–21 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>