

# Barossa PWRA Lower Aquifer

2017 Groundwater level and salinity status report



Government  
of South Australia

Department for  
Environment and Water

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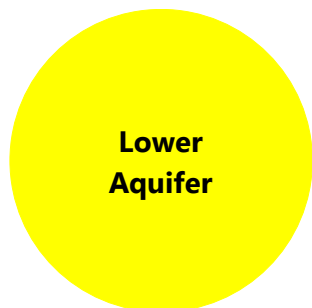
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# 2017 Status summary

## Barossa PWRA

### Lower Aquifer



The Lower Aquifer of the Barossa Prescribed Water Resources Area (PWRA) has been assigned a **yellow** status for 2017 because minor adverse trends have been observed over the past five years.

The status is based on five-year trends: over the period 2013–17, 61% of wells show rising or stable groundwater pressure levels.

This status report does not seek to evaluate the sustainable limits of the resource, nor does it make any recommendations on management or monitoring of the resource. These actions are important, but occur through separate processes such as prescription and water allocation planning.

#### Rainfall

See Figures 1 and 2

Rainfall station	Tanunda Bureau of Meteorology (BoM) rainfall station 23318, located in the central-west of the Barossa PWRA
Annual total <sup>1</sup>	650 mm 130 mm (25%) greater than the five-year average of 520 mm 102 mm (19%) greater than the long-term average of 548 mm
Monthly summary	Well-above average rainfall recorded in September, December, January and February Well-below average rainfall recorded in March, May and June
Spatial distribution	Rainfall in 2016–17 was well above average across the entire PWRA

#### Water use

See Figure 3

Total allocated volume: 2016–17	7867 ML across all three aquifers (Upper, Lower and Fractured Rock)
Licensed groundwater extractions*	822 ML <sup>2</sup> from the Lower Aquifer (10% of total allocation)
Extraction volume comparison	27% less than the previous year 9% less than the five-year average

\*Stock and domestic use is not included in licensed extractions

<sup>1</sup> For the water-use year 1 July 2016 to 30 June 2017

<sup>2</sup> Total licensed extractions are subject to change as extraction data have not yet been verified in full – see [More information](#)

## Groundwater pressure level

See Figure 4

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Five year trend: 2013–17	11 out of 23 wells (48%) show rising trends, at rates of 0.10–1.15 m/y (median of 0.69 m/y) 3 wells (13%) are stable 9 wells (39%) show declining trends, at rates of 0.02–0.39 m/y (median of 0.18 m/y)
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## Groundwater salinity

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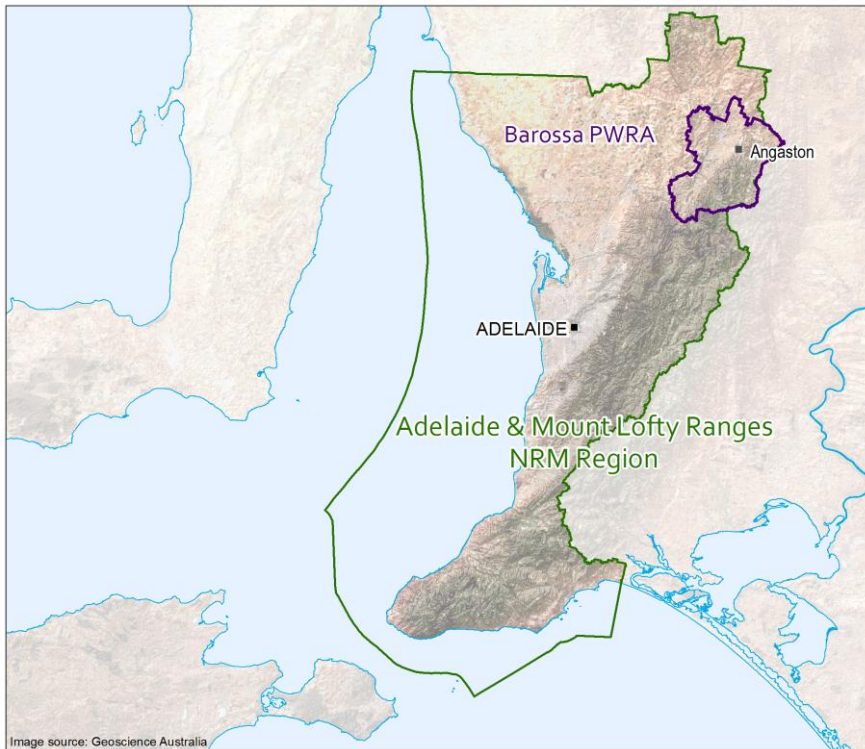
2017 salinity	Data not available
Citizen science	Since 2018, irrigators in the Barossa PWRA have submitted salinity samples and once validated, these will augment the existing DEW monitoring network <sup>3</sup>

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<sup>3</sup> The salinity data collected from irrigation wells can be viewed at [Groundwater Data](#) or via [WaterConnect](#)

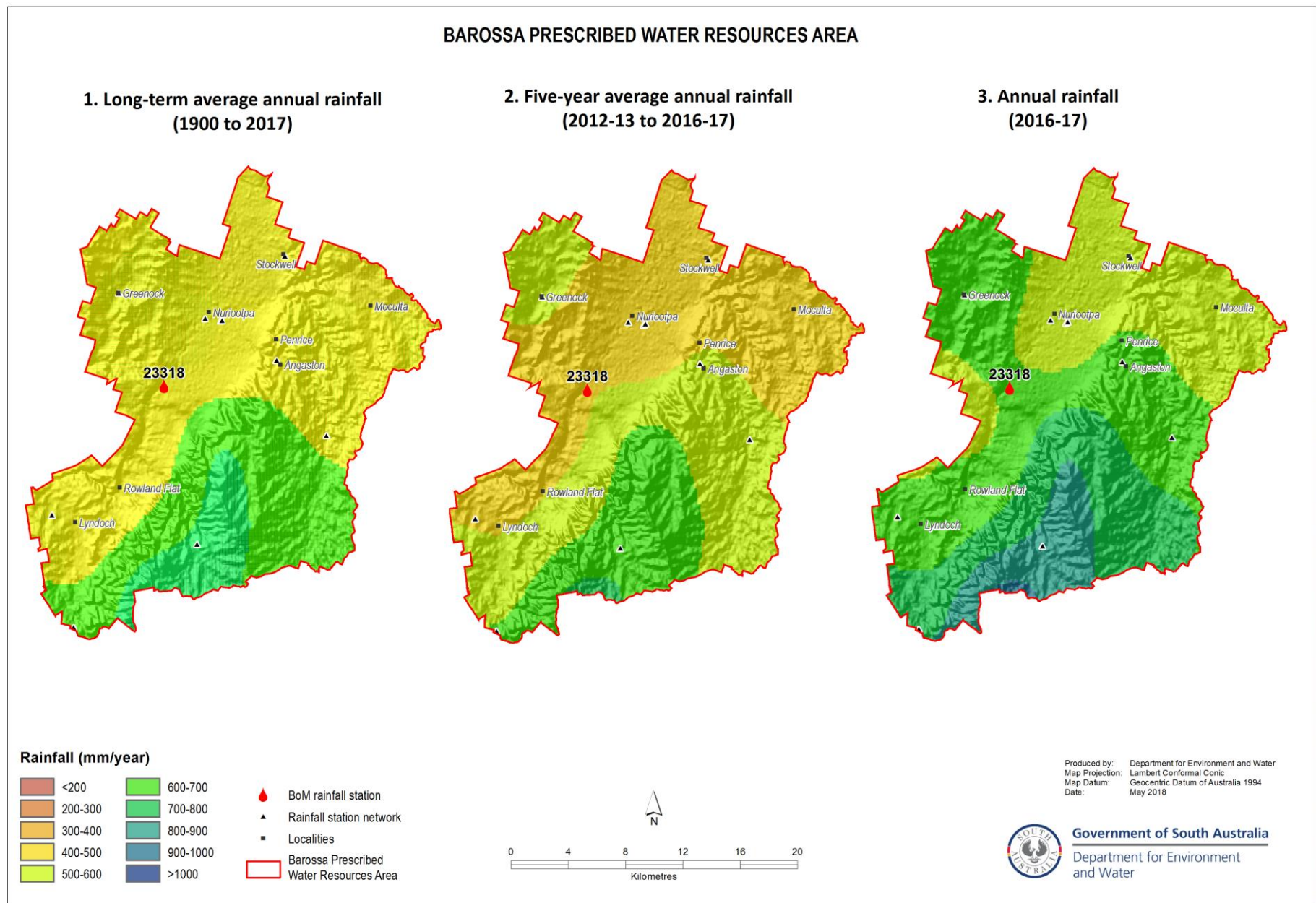
# Regional setting



The Barossa Prescribed Water Resources Area (PWRA) encompasses both the highland areas of the Mount Lofty Ranges (MLR) and the Barossa Valley. It is located approximately 60 km north-east of Adelaide and lies within the Adelaide and Mount Lofty Ranges Natural Resources Management Region. It is a regional-scale resource for which groundwater, surface water and watercourse water are prescribed under South Australia's *Natural Resources Management Act 2004*. A water allocation plan (WAP) provides for the sustainable management of these regional-scale water resources.

The Barossa PWRA consists of three major groundwater systems: two sedimentary aquifers (Upper and Lower) that are located within the region's largest valley, and fractured rock aquifers that underlie the sedimentary aquifers and also crop out in the MLR towards the eastern and western margins of the valley. The sedimentary Lower Aquifer of the Barossa PWRA is the focus of this report.

Although the aquifer shows large seasonal fluctuations in groundwater pressure levels due to extraction, groundwater flow generally persists in a south-west direction. Despite being a confined aquifer that does not receive direct recharge from incident rainfall, the intensity and timing of rainfall, and variations in rates of groundwater extraction, can have an effect on groundwater pressure levels and salinities in the Lower Aquifer. Below-average summer rainfall can result in increases in irrigation extractions, which can cause groundwater pressure levels to decline and salinities to increase. Conversely, increases in rainfall may result in decreases in irrigation extractions, and groundwater pressure levels may rise and salinities stabilise or decrease.



**Figure 1. Spatial distribution of (1) Long-term and (2) five-year average annual rainfall, and (3) annual rainfall<sup>4</sup>**

<sup>4</sup> Data sources: SILO Patched Point Dataset <https://silo.longpaddock.qld.gov.au/> and BoM Australian Water Availability Project (<http://www.bom.gov.au/jsp/awap/>) – see [More information](#)

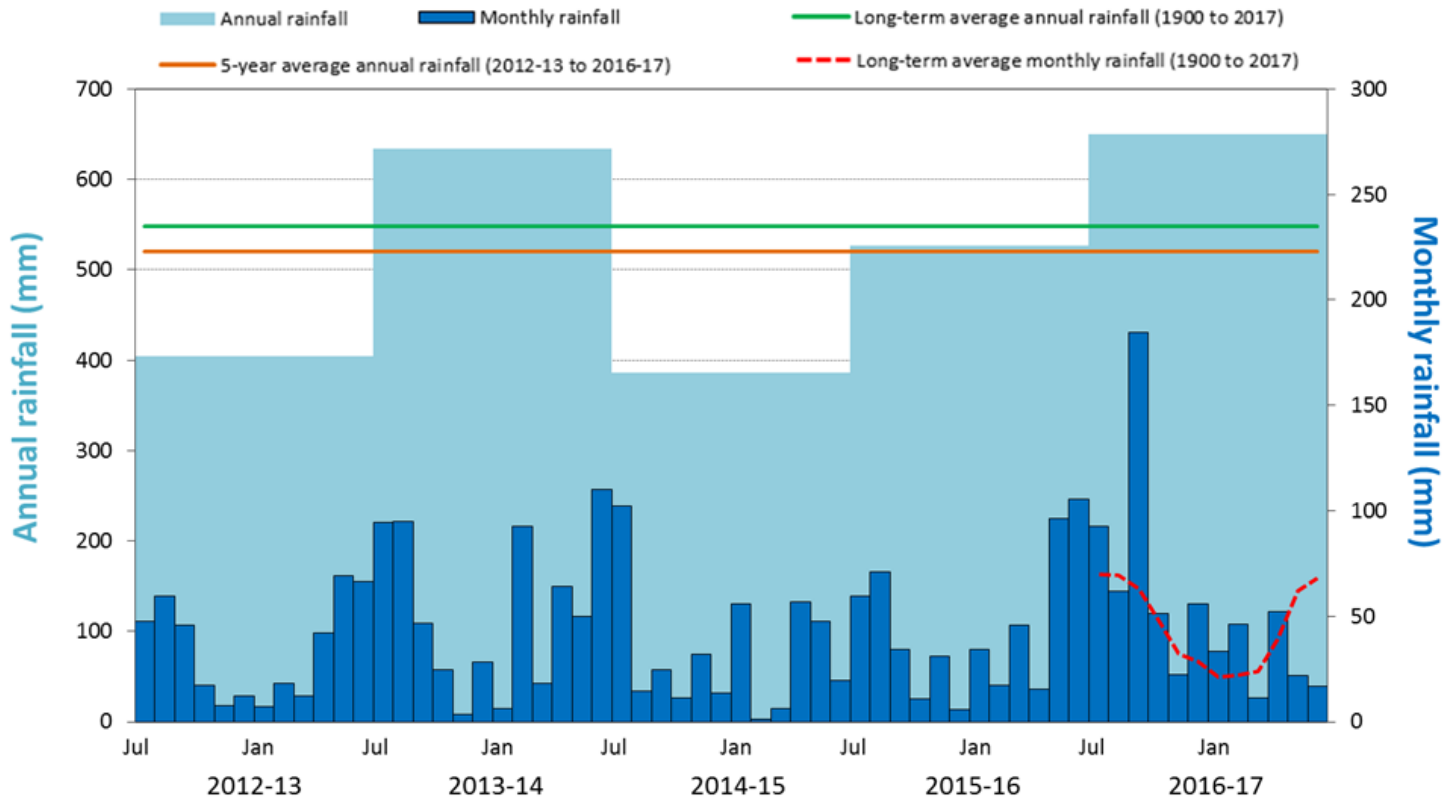


Figure 2. Annual and monthly rainfall for the past five water-use years recorded at Tanunda (BoM Station 23318)<sup>5</sup>

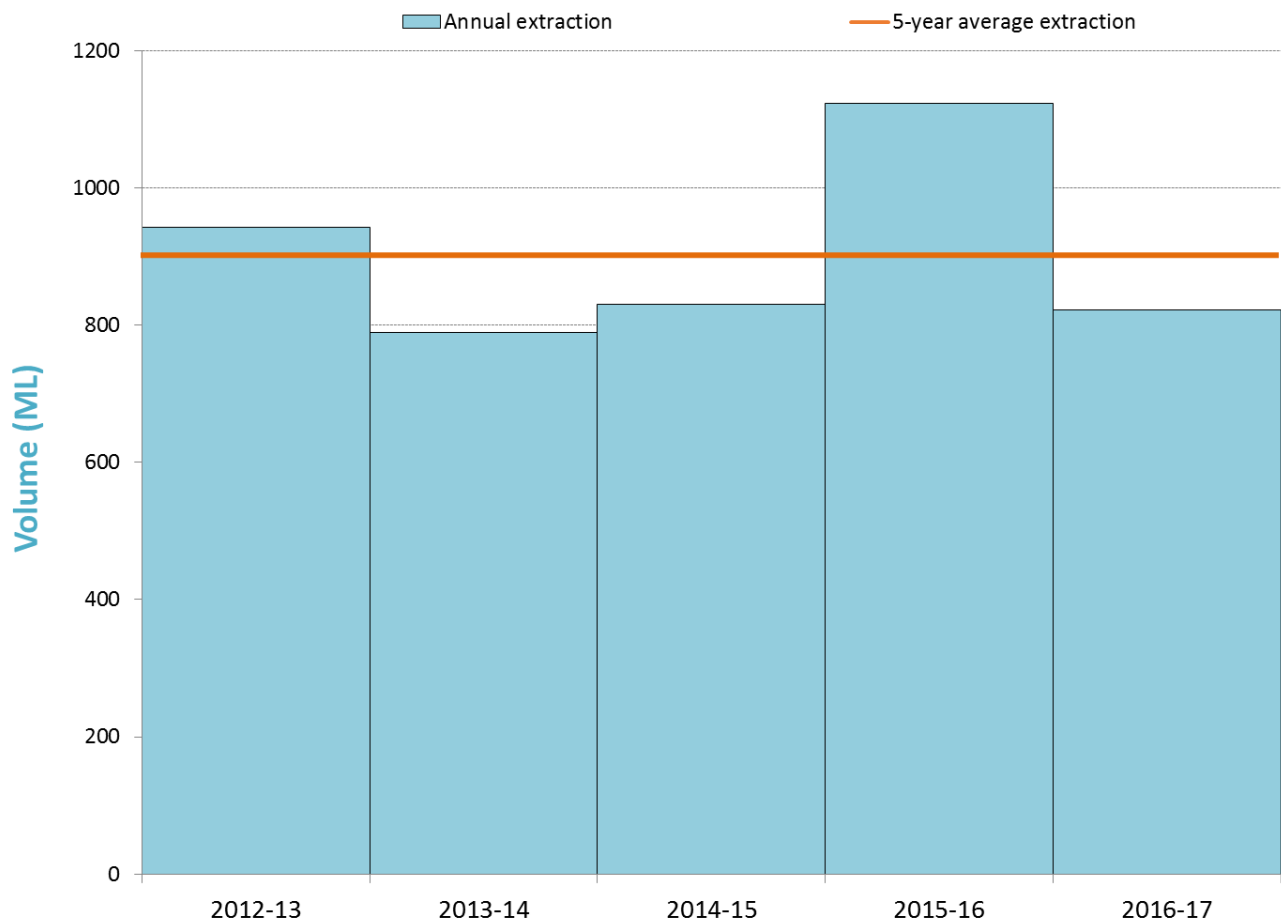


Figure 3. Licensed groundwater extraction volumes<sup>6</sup> for the past five water-use years

<sup>5</sup> Data source: SILO Patched Point Dataset, available <https://silo.longpaddock.qld.gov.au/> – see [More information](#)

<sup>6</sup> Total licensed extractions are subject to change as extraction data have not yet been verified in full – see [More information](#)

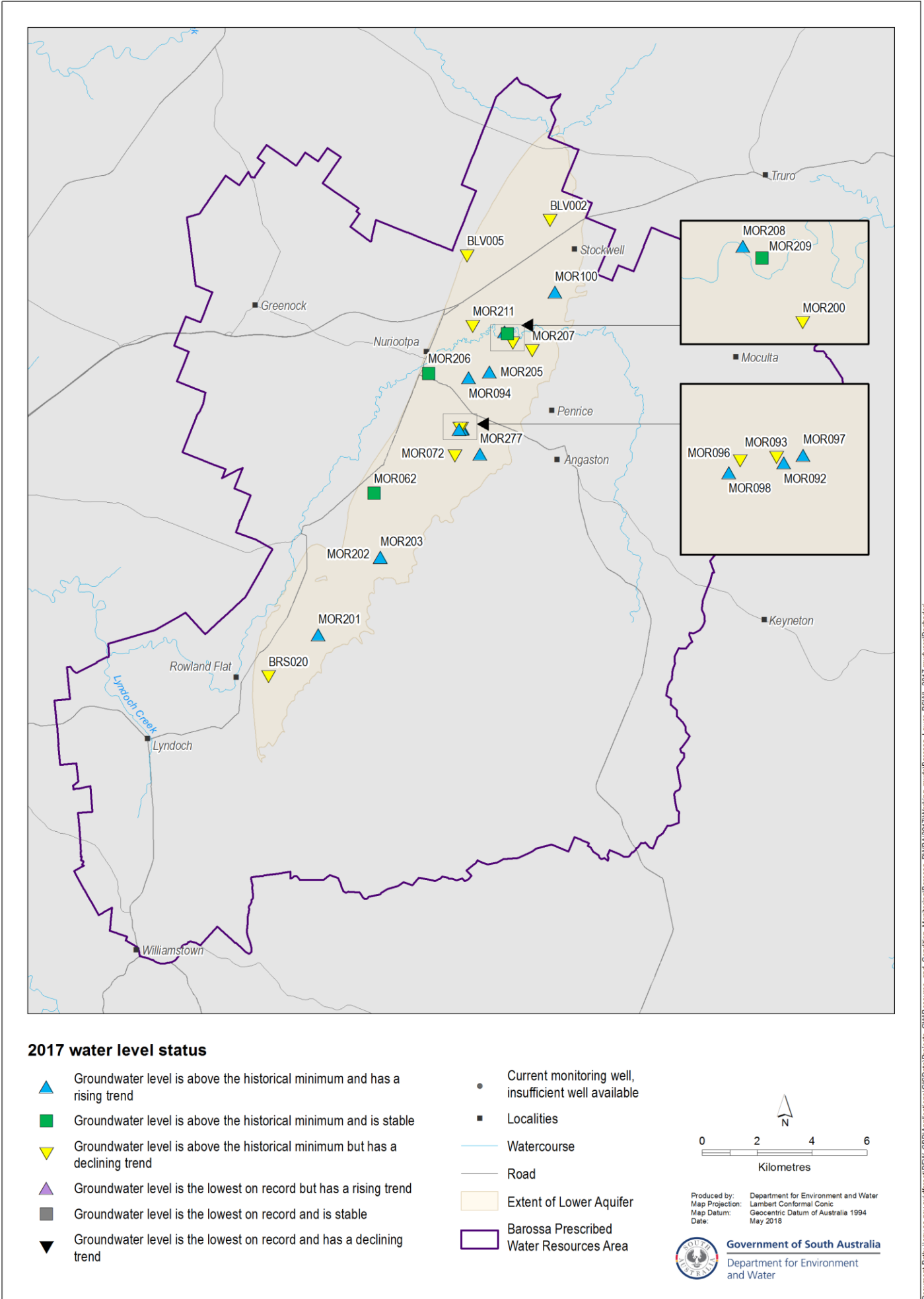


Figure 4. Five-year trends (2013–17) in groundwater pressure levels: Lower Aquifer



# More information

To determine the status of the Lower Aquifer for 2017, the trends in groundwater levels and salinities over the past five years (2013 to 2017, inclusive) were analysed, in contrast to the year-to-year assessments that have been used in *Groundwater level and salinity status reports* published prior to 2015. Please visit the [Frequently Asked Questions](#) on the Water Resource Assessments page on WaterConnect for more detail on the current method of evaluating the status of groundwater resources.

To view descriptions for all status symbols, and to review the full historical record of the monitoring wells, please visit the *Water Resource Assessments* page on [WaterConnect](#).

For additional information related to monitoring wells nomenclature, please refer to the Well Details page on [WaterConnect](#).

The licensed groundwater use for the 2016–17 water-use year is based on the best data available as of January 2018 and may be subject to change, as some extraction volumes may be in the process of being verified.

For information completeness and consistency across all the groundwater and salinity status reports, the legend on each map herein shows the full range of water level and salinity status that could possibly be reported. However, the measured data that appear on each map may not span this full range.

Rainfall data used in this report is sourced from the SILO Patched Point Dataset, which uses original BoM daily rainfall measurements and is available online at <https://silo.longpaddock.qld.gov.au/>. Rainfall maps have been compiled using daily gridded data produced by the BoM Australian Water Availability Project ([www.bom.gov.au/jsp/awap/](http://www.bom.gov.au/jsp/awap/)).

To view the *Barossa PWRA Groundwater Level and Salinity Status Report 2011*, which includes background information on hydrogeology, rainfall and relevant groundwater-dependent ecosystems, please visit [WaterConnect](#). To view all past published *Groundwater level and salinity status reports*, please visit the [Water Resource Assessments](#) page on WaterConnect.

To download groundwater level and salinity data from monitoring wells within the Barossa PWRA, please visit the *Groundwater Data* page under the Data Systems tab on [WaterConnect](#).

For further details about the Barossa PWRA, please see the *Water Allocation Plan for the Barossa Prescribed Water Resources Area* on the Natural Resources Adelaide and Mount Lofty Ranges [website](#).

## Units of Measurement

mm	millimetre
ML	megalitre
m/y	metres per year
mg/L	milligrams per litre
mg/L/y	milligrams per litre per year
mm/y	millimetres per year



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