
BAROSSA PWRA

LOWER AQUIFER

Groundwater Level and Salinity Status Report

2013



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Department of Environment,
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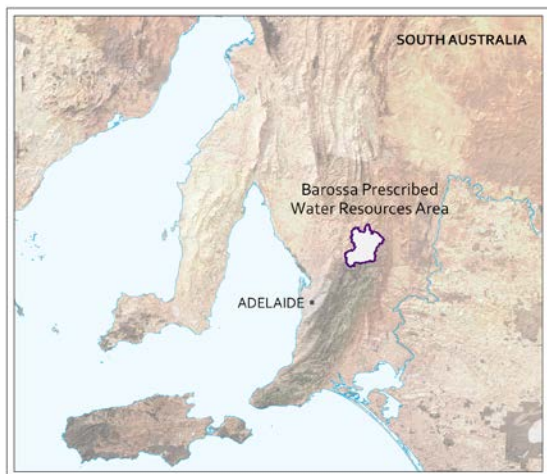
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2013 SUMMARY



The Barossa Prescribed Water Resources Area (PWRA) encompasses both the highland areas of the Mount Lofty Ranges and the Barossa Valley, approximately 60 km north-east of Adelaide. It is a regional scale resource for which surface water and groundwater have been prescribed under South Australia's *Natural Resources Management Act 2004*. A Water Allocation Plan provides for sustainable management of the groundwater resources.

Barossa PWRA consists of three major aquifers; two sedimentary aquifers (Upper and Lower), which are located within the valley and a Fractured Rock aquifer which outcrops in the ranges to the east and west of the valley and underlies the sedimentary aquifers. This report focuses on the Lower aquifer of the Barossa PWRA.

Groundwater flow within the Lower aquifer is in a south-westerly direction in the valley. Although the aquifer experiences large seasonal fluctuations in water levels, the direction of groundwater flow does not change. Groundwater salinities are variable and range from 460 to 3000 mg/L. The more saline groundwater is observed in wells located in the northern extent of the aquifer.

Metered extractions from the Lower aquifer totalled 943 ML* for 2012–13, representing 28% of the total extraction from the Barossa PWRA and a 92% increase in extraction from this aquifer compared to the previous water-use year (Fig. 1). This volume of extraction equates to 13% of the total allocation limit of 7147 ML for the Barossa PWRA.

The climate of the Barossa PWRA is characterised as Mediterranean with hot, dry summers and cool, wet winters. Data from the Angaston rainfall station (number 23300) were chosen for analysis of rainfall in 2013 (Fig. 2). The long-term monthly average rainfall is graphed in orange against the total monthly rainfall recorded. In 2013, the monthly rainfall data indicates that significantly below average rainfall was evident in January, March, October and November, however well above average rainfall occurred in May and July. The total annual rainfall was 499 mm, slightly below the long-term (1889-2013) annual average of 535 mm.

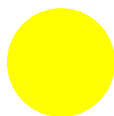
Due to the slightly below average rainfall and almost double (92%) the volume of extractions in groundwater from the previous year, water levels in the Lower aquifer have declined in 92% of observation wells when compared with the maximum recovered water level observed in 2012 (Fig. 3). While decreases were generally less than 1 m, a number of wells in a localised area west of Angaston recorded a drop in water levels of between 3 and 5 m. There were no wells observed that had an increase in water level, and one well showed no change in the maximum recovered water level when compared with 2012. The general regional decline is likely due to the gradual increase in extraction from 2010-11 to 2011-12 and below average rainfall.

Groundwater salinity of the Lower aquifer was not monitored in 2013 and as such salinity was not used in the assessment of status for the Lower aquifer.

* The licensed groundwater use for the 2012–13 water-use year is based on the best data available as of February 2014 and may be subject to change, as some extraction volumes are in the process of being verified.

The Lower aquifer of the Barossa PWRA has been assigned a yellow status for 2013:

2013 STATUS



“Gradual adverse trends, indicating a low risk to the resource in the medium term”

This means that gradual adverse trends in resource status have been observed over the reporting period. Continuation of these trends is unlikely to negatively impact the beneficial use (may include drinking water, irrigation or stock watering) of the resource for at least 15 years. The 2013 status for Lower aquifer is supported by:

- an overall decrease in the maximum recovered water level in 2013 when compared to 2012 water level data.

To view the *Barossa PWRA Groundwater Level and Salinity Status Report 2011* which includes background information on hydrogeology, location of rainfall stations and relevant groundwater dependent ecosystems, visit www.waterconnect.sa.gov.au

To view descriptions of all status symbols, [click here](#).

For further details about the Barossa PWRA please see the [Water Allocation Plan for the Barossa Prescribed Water Resources Area](#)

Barossa PWRA: Lower aquifer annual groundwater extraction

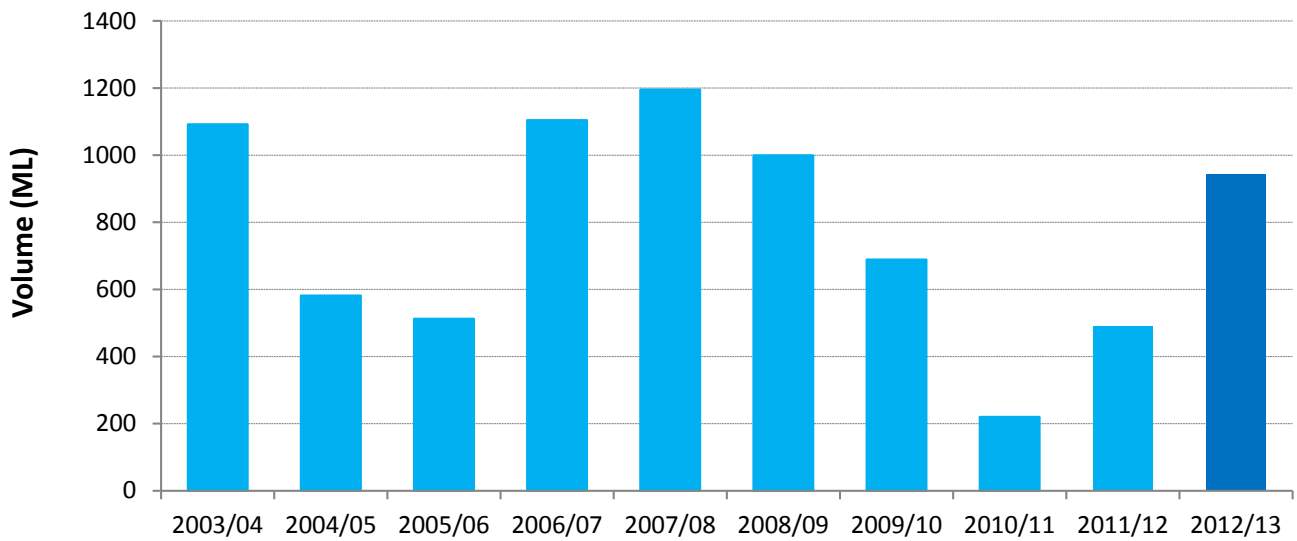


Figure 1. Historical licensed groundwater use for the Lower aquifer in the Barossa Prescribed Water Resources Area

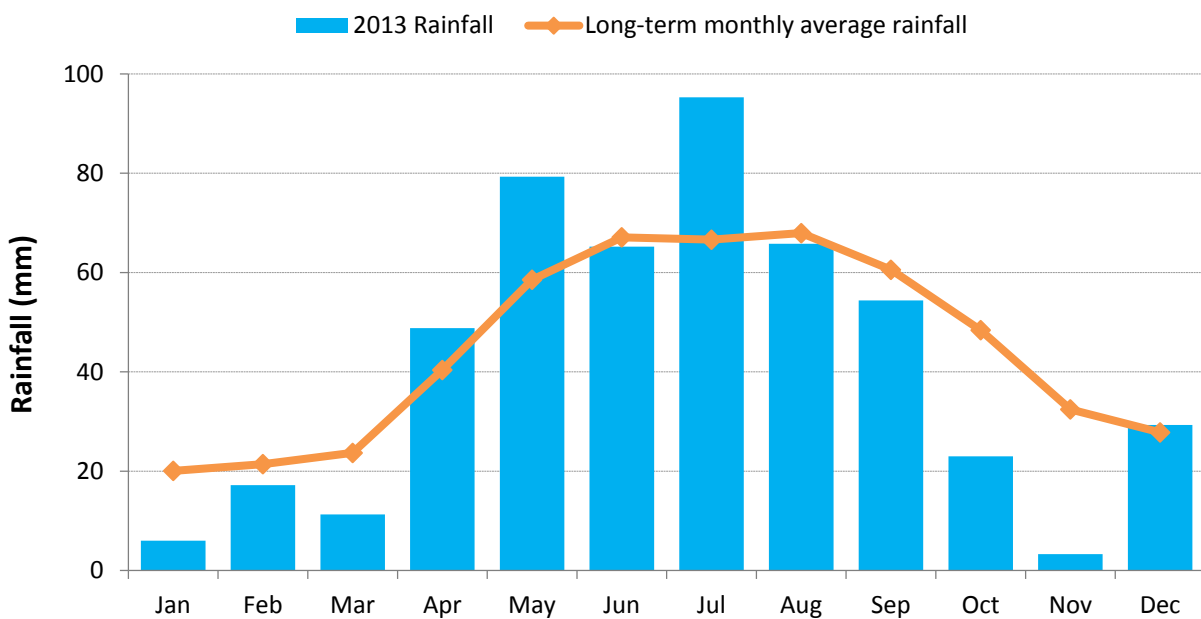


Figure 2. Monthly rainfall (mm) for 2013 and the long-term average monthly rainfall (mm) at the Angaston rainfall station (number 23300) in the Barossa Prescribed Water Resources Area

Rainfall data used in this report is sourced from the SILO Patched Point Dataset, which uses original Bureau of Meteorology daily rainfall measurements and is available online as www.longpaddock.qld.gov.au/silo.

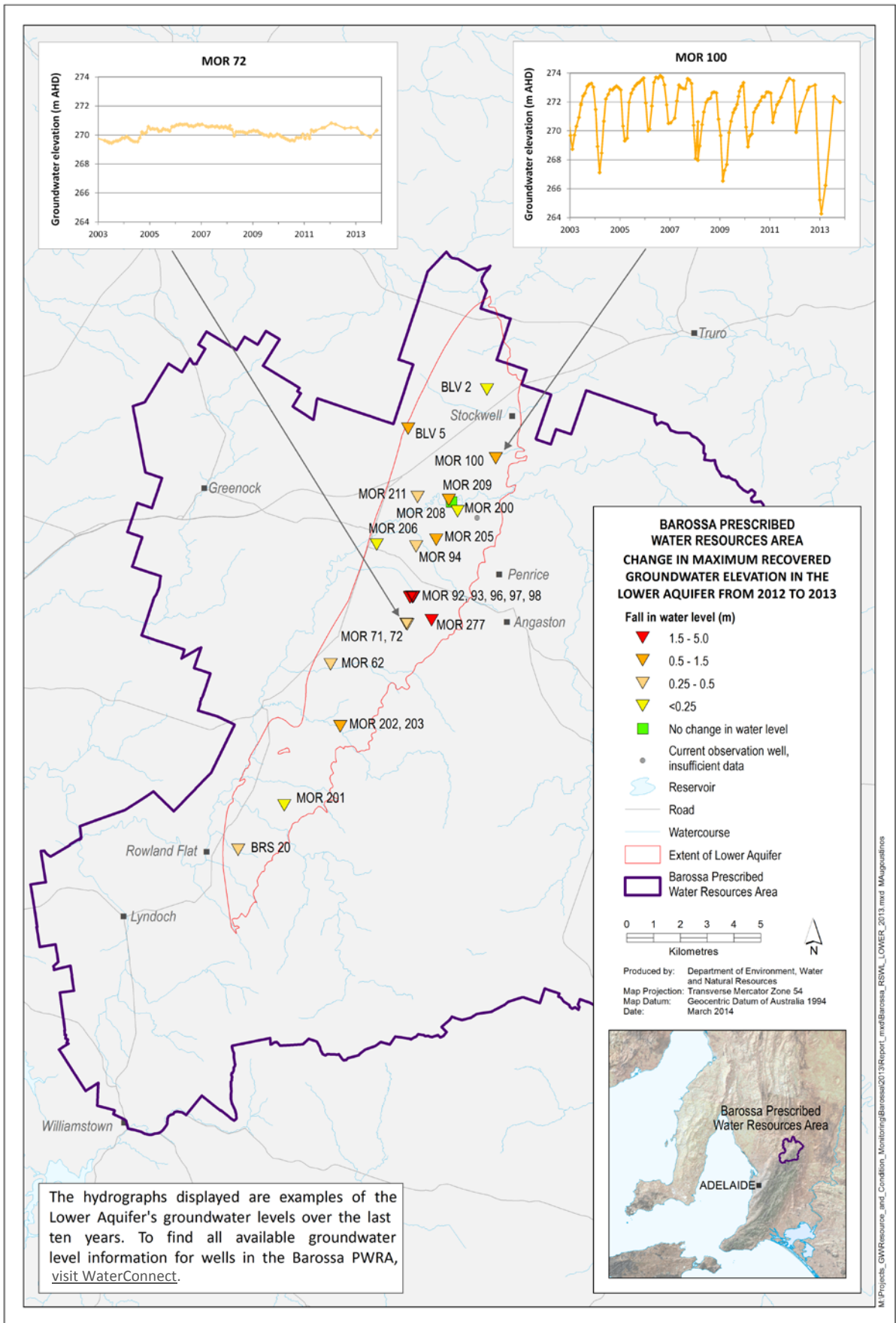


Figure 3. Overall changes in maximum groundwater levels in the Lower aquifer of the Barossa Prescribed Water Resources Area from 2012 to 2013

Barossa PWRA

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