BAROSSA PWRA

LOWER AQUIFER

Groundwater Level and Salinity Status Report

2012

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Department of Environment,
Water and Natural Resources

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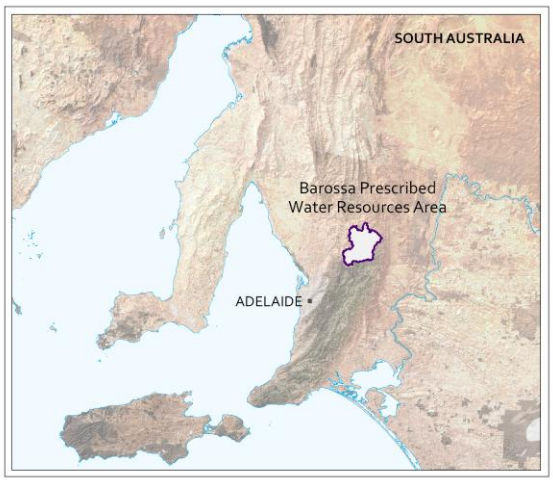
2012 SUMMARY



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. Althought 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 wells are located in the northern extent of the aquifer.

Metered extractions from the Lower aquifer totalled 491 ML* for 2011–12, representing 24% of the total extraction from the Barossa PWRA and a 55% increase in extraction from this aquifer compared to the previous water-use year (Fig. 1). This volume of extraction equates to 6.9% 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, dry summers and cool, wet winters. Data from the Angaston rainfall station (number 23300) were chosen for analysis of rainfall in 2012 (Fig. 2). The long-term monthly average rainfall is graphed in orange against the total monthly rainfall recorded. In 2012, the monthly rainfall data indicates that significantly above average rainfall occurred in January and March, however well below average rainfall was evident from July through December. The total annual rainfall was 370 mm, significantly below the long-term (1889-2012) annual average of 535 mm.

Due to the significantly below average rainfall and increased groundwater extractions, water levels in the Lower aquifer have declined in 70% of observation wells by up to 3.73 m when compared with the maximum water level observed in 2011 (Fig. 3). Despite the general regional decline in water level, six wells observed an increase in water level of up to 0.32 m and one well showed no change in the maximum recovered water level when compared with 2011.

Groundwater salinity of the Lower aquifer was not monitored in 2012 and as such salinity was not used in the assessment of status for the Lower aquifer.

** The licensed groundwater use for the 2011–12 water-use year is based on the best data available as of March 2013 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 2012:

2012 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 2012 status for Lower aquifer is supported by:

- an overall decrease in the maximum recovered water level in 70% of observation wells when compared to 2011 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 WaterConnect.

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

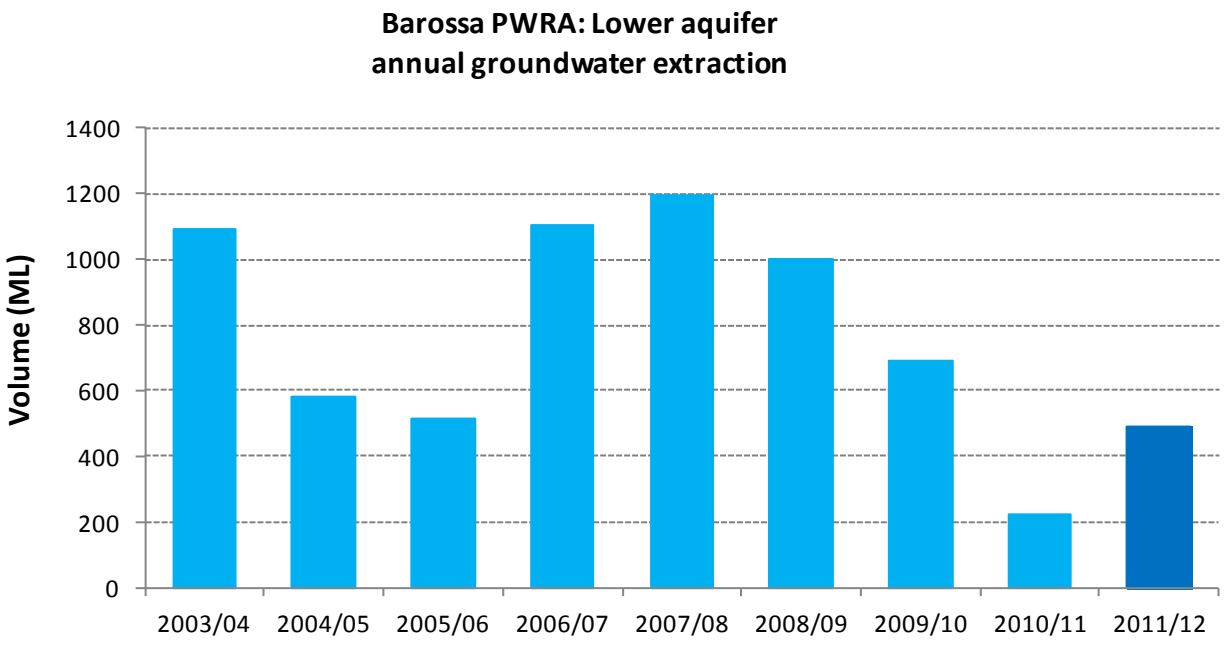


Figure 1. Historical licensed groundwater use for the Lower aquifer in the Barossa Prescribed Water Resources Area

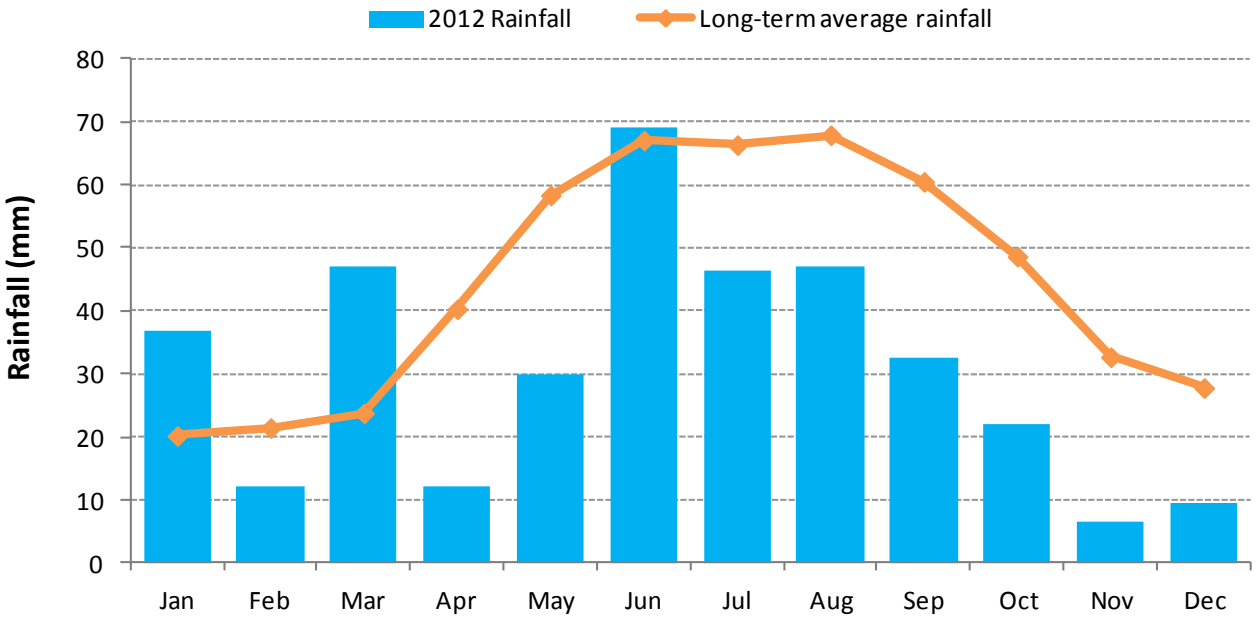


Figure 2. Monthly rainfall (mm) for 2012 and the long-term average monthly rainfall (mm) at the Angaston rainfall station (number 23300) in the Barossa Prescribed Water Resources Area

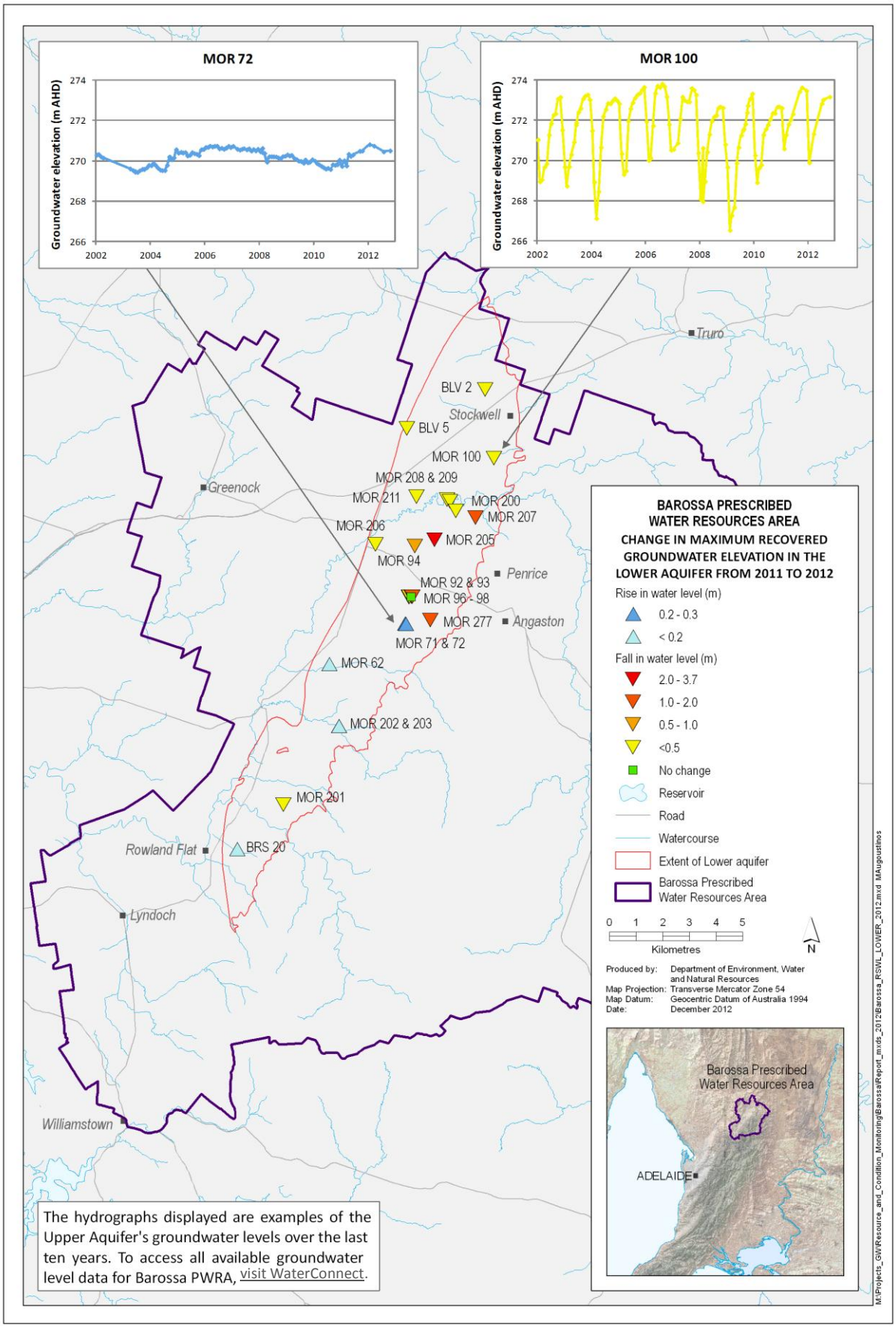


Figure 3. Overall changes in maximum groundwater levels in the Lower aquifer of the Barossa Prescribed Water Resources Area from 2011 to 2012