BAROOTA PWRA

Groundwater Level and Salinity Status Report

2012

Government of South Australia
Department of Environment,
Water and Natural Resources

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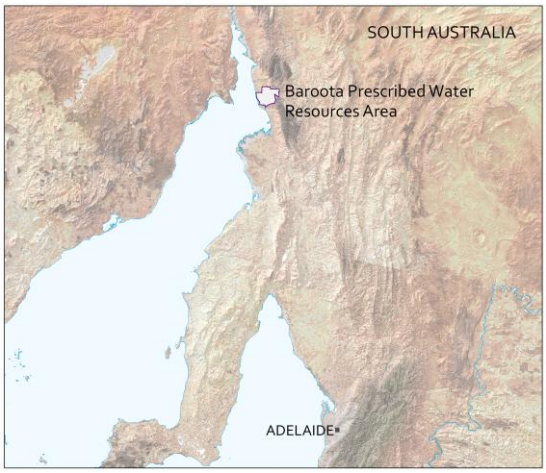
2012 SUMMARY



The Baroota Prescribed Water Resources Area (PWRA) lies on the western side of the Flinders Ranges in the Mid-North of South Australia, approximately 25 km north of Port Pirie. It is a local scale resource for which surface water and groundwater is prescribed under South Australia's *Natural Resources Management Act 2004*. Groundwater extractions are limited under a Notice of Prohibition, pending development and adoption of a Water Allocation Plan that will provide for sustainable management of the resource.

Groundwater extractions in the Baroota PWRA occur from Quaternary clay and gravel sediments (Q), which can be up to 100 m thick, deposited as outwash from the Flinders Ranges. This is underlain by a deeper Tertiary sand aquifer (T). Stream flow and leakage from the Baroota Reservoir has contributed recharge to the groundwater system, but due to several years of below average rainfall since 2002 and lower inflows into the reservoir, the contribution to the aquifer has been reduced.

Metered extractions from the Baroota PWRA totalled 878 ML* in 2011-12, a 5% increase from the previous water use year (Fig.1)

The climate of the Baroota PWRA is characterised as Mediterranean with hot dry, dry summers and cool, wet winters. Data from the Port Germein rainfall station (number 19037) 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, March and May, however well below average rainfall was evident in February, April and September. The total annual rainfall was 353 mm, slightly above the long-term (1889-2012) annual average of 324 mm.

Despite slightly above-average rainfall and only slightly increased groundwater extractions, water levels continue to decline (Fig. 3). Groundwater levels in the Quaternary aquifer have declined by up to 10 m across the area since 2002. The majority of wells display declining long-term trends over the past 30 years. In 2012, out of the nine water level observation wells monitored seven recorded a slight decline (<0.33 m) in the maximum water level attained when compared with to the maximum water level observed in 2011. Despite the declining water levels the relatively thick aquifer can accommodate this level of reduction. It is not anticipated that this level reduction will affect the ability to access water over the next 15 years. Water levels in observation well BTA 9 have increased by 3 m since 2011, due to the wells close proximity to a watercourse, this rise could be possibly due to recharge from a brief period of streamflow. There was insufficient data available to report on the trends in the Tertiary aquifer for 2012.

Groundwater of the Baroota PWRA is relatively fresh with an average salinity of about 1400 mg/L. In 2012, a range of salinities from 785 to 3673 mg/L was recorded, with 67% of monitored wells recording salinity of less than 1500 mg/L (Fig. 4).

** 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 Baroota 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 of the resource for at least 15 years. The 2012 status for Baroota PWRA is supported by:

- an overall decrease in the maximum recovered water level when compared to 2011 water level data
- salinity exceeding 1500 mg/L recorded in nearly 30% of monitored wells.

To view the *Baroota PWRA groundwater level and salinity status report 2009-10* , 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 Baroota PWRA resource please see the Northern and Yorke NRM board website.

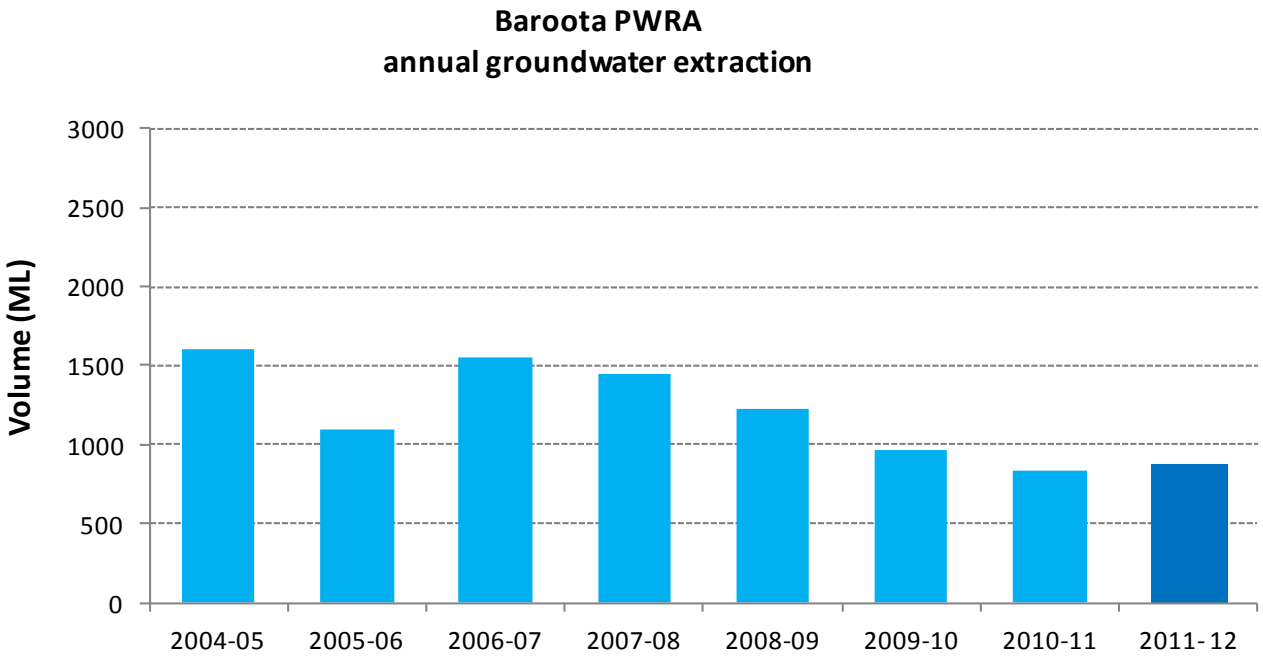


Figure 1. Historical licensed groundwater use in the Baroota Prescribed Water Resources Area

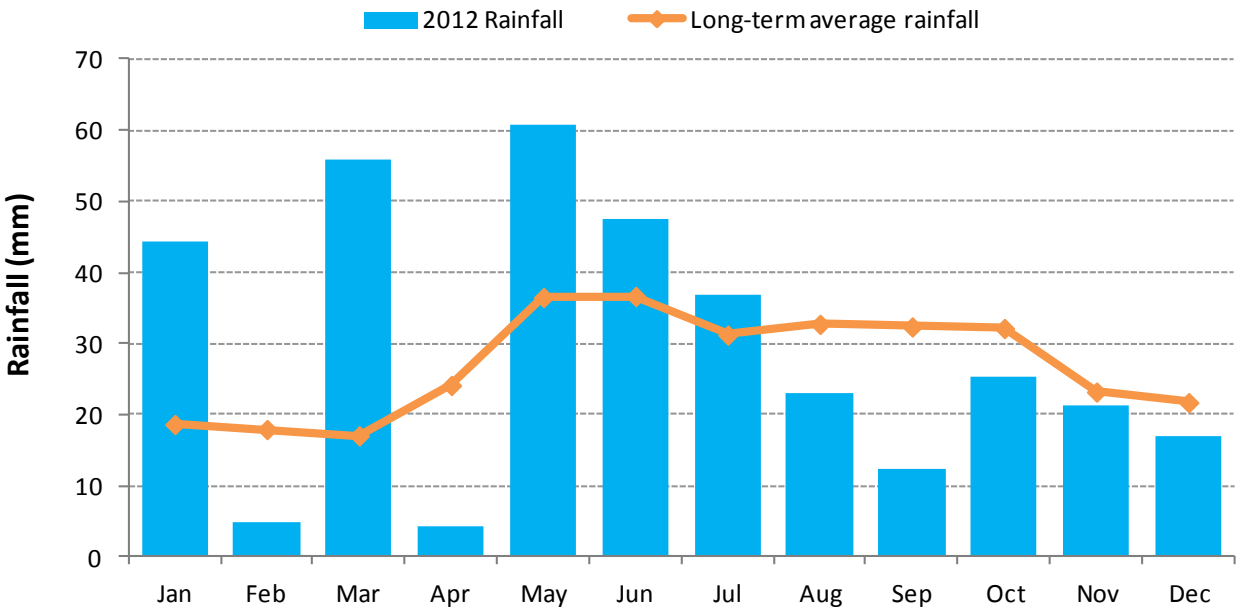


Figure 2. Monthly rainfall (mm) for 2012 and the long-term average monthly rainfall (mm) at the Port Germein rainfall station (number 19037) in the Baroota Prescribed Water Resources Area

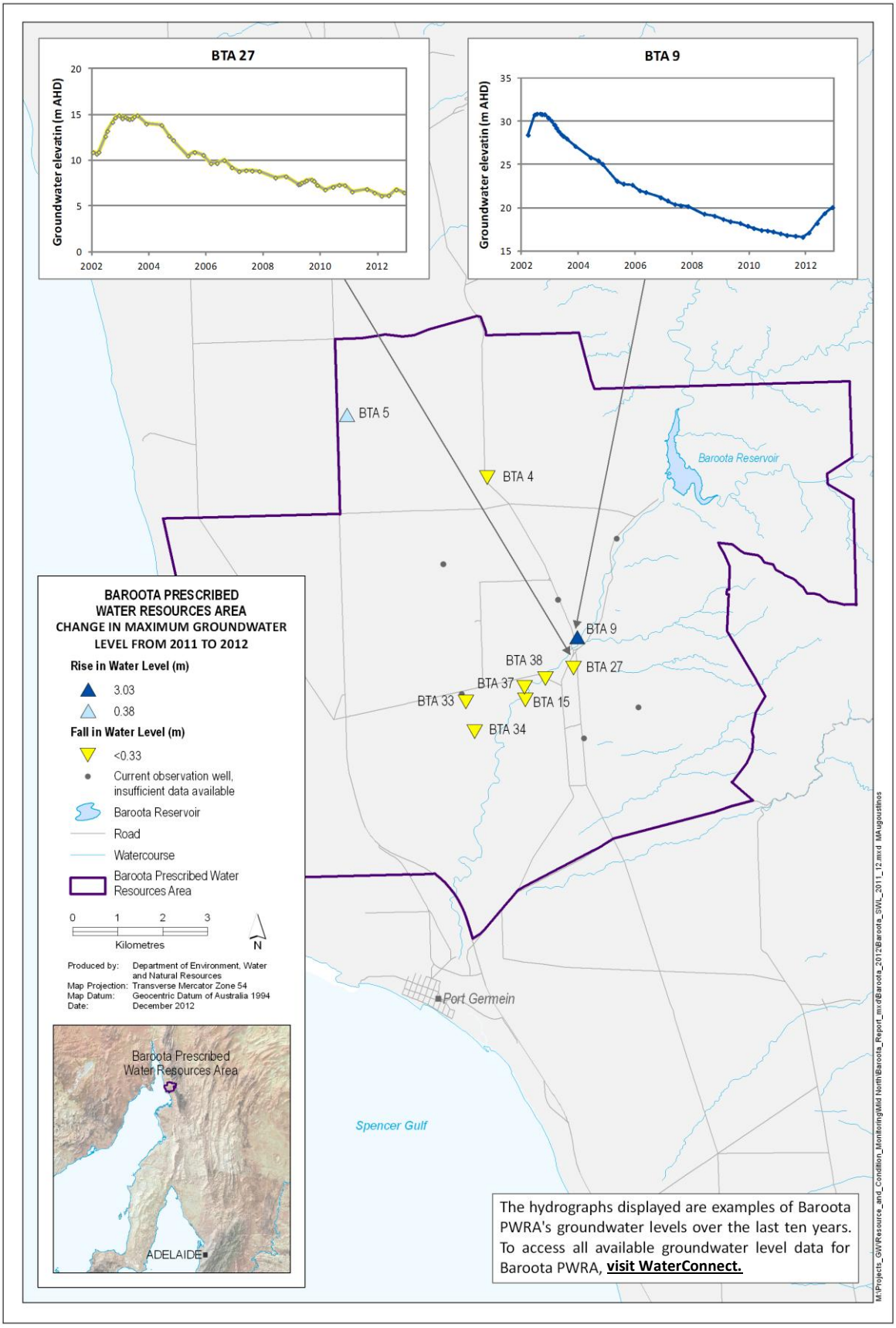


Figure 3. Overall changes in maximum groundwater levels of the Quaternary aquifer in the Baroota Prescribed Water Resources Area from 2011 to 2012

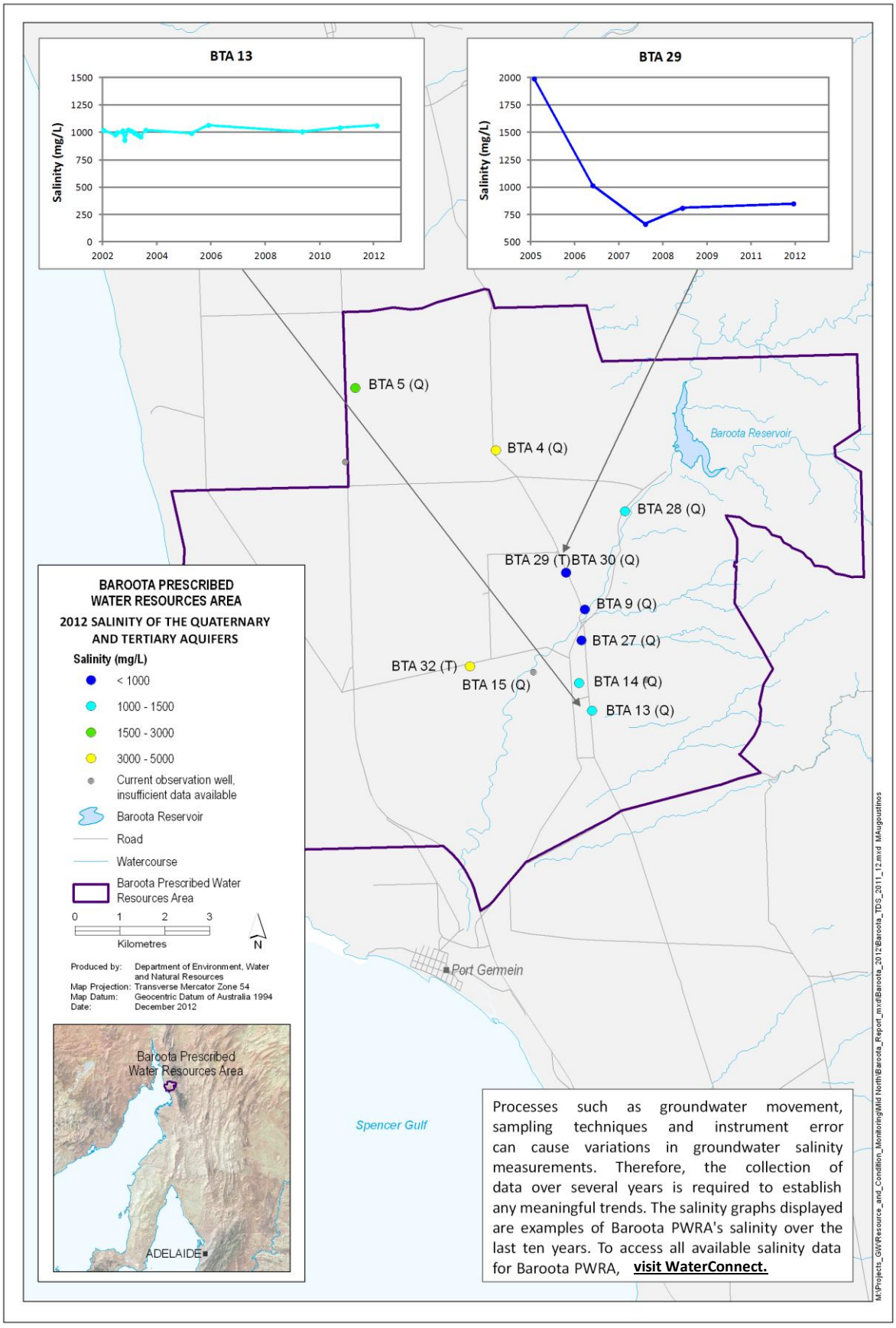


Figure 4. Groundwater salinity in the Baroota Prescribed Water Resources Area for February 2012