
BAROOTA PWRA

GROUNDWATER LEVEL AND SALINITY STATUS REPORT

2011



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Water and Natural Resources

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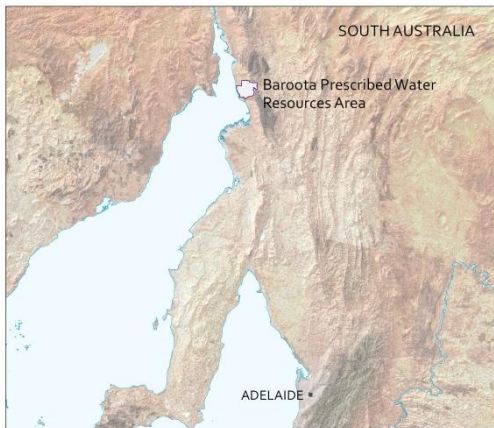
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SUMMARY 2011



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.

For 2011, metered extraction totalled 837 ML and is the lowest recorded annual volume since metering began in the 2002–03 water-use year (Fig. 1).

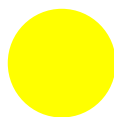
The long-term average annual rainfall recorded at Port Germein rainfall station (station number 19037) for the period of 1889 to 2011 is 327.4 mm. At 382.8 mm, rainfall for 2011 was slightly above the long-term average (Fig. 2).

Despite slightly above-average rainfall and reduced groundwater extractions, water levels continue to decline. Groundwater levels 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. Many wells are also displaying their lowest ever recorded water level, falling below that previously experienced in 2009–10. In 2011, the majority of water level observation wells (12 out of 19) observed a slight decline (<0.61) in the maximum water level attained when compared with to the maximum water level observed in 2010. 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.

Of the 16 salinity observation wells, 9 showed increasing salinity trends for the period 2001 to 2011 which typically ranged between 4.89–395.25 mg/L/y. However, in 2011 four of the 12 observation wells were monitored for salinity. Of these four wells two displayed a decrease in salinity from that previously recorded.

The Baroota PWRA has been assigned a yellow status for 2011:

2011 STATUS



“Adverse trends indicating low risk to the resource in the medium term”

This means that observed adverse groundwater level and salinity trends are gradual and if continued, will not lead to a change in the current beneficial uses of the groundwater resource e.g. drinking water, irrigation or stock watering, for at least 15 years.

The 2011 status for the Baroota PWRA is supported by following:

- 12 out of the 19 water level observation wells displayed a slight water level decline, however the thickness of the aquifer is able to accommodate this decline
- Four out of 12 wells were monitored during 2011 and two recorded a slight decrease in salinity. Salinity in the region ranged from 816 to 2522mg/L.

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 information on the Baroota PWRA please see the [Water Allocation Plan for the Baroota Prescribed Water Resources Area](#).

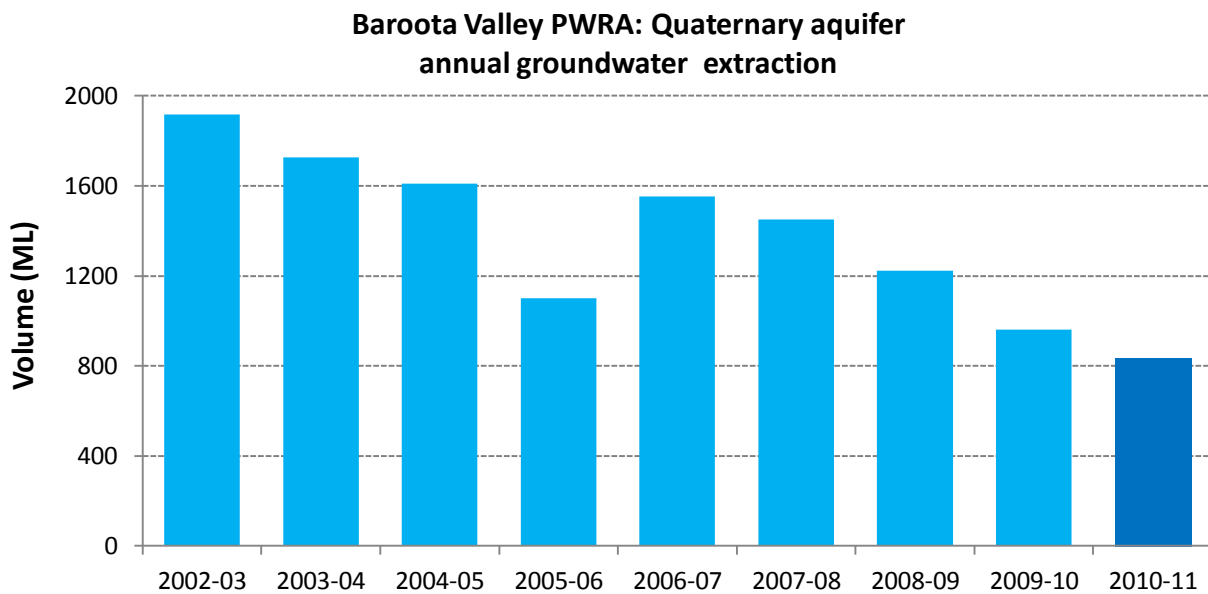


Figure 1. Historical licensed groundwater use for Baroota PWRA

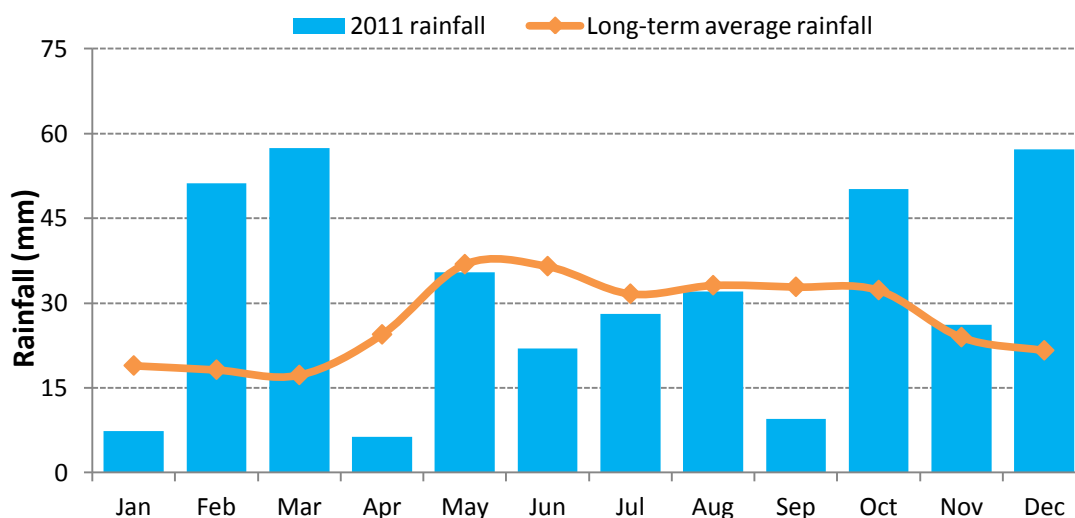


Figure 2. Monthly rainfall totals (mm) for 2011 and the long-term average monthly rainfall (mm) at the Pt. Germein rainfall station (19037) in the Baroota PWRA

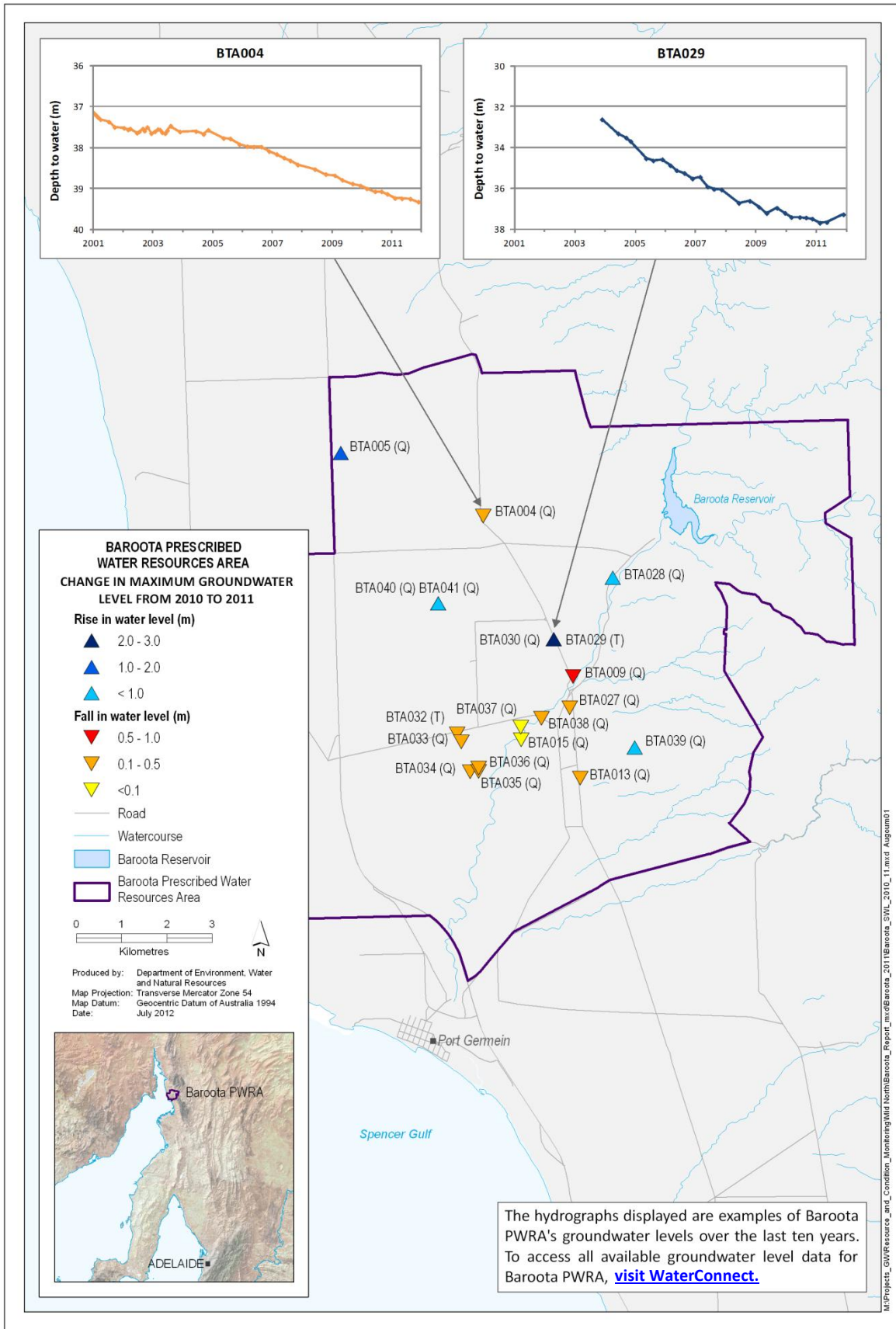


Figure 3. Overall changes in maximum groundwater level in the Quaternary and Tertiary aquifers of the Baroota PWRA from 2010 to 2011

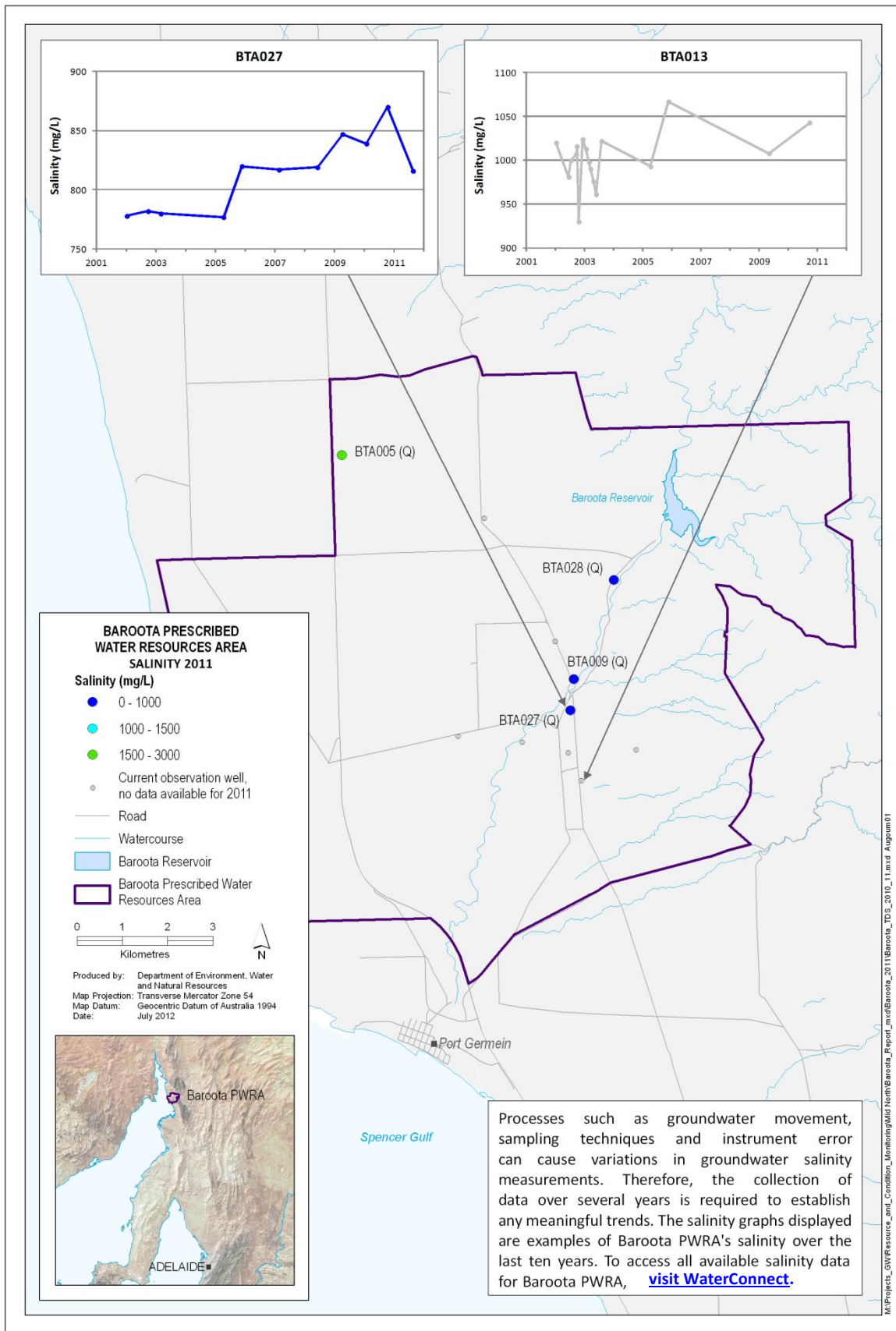


Figure 4. Groundwater salinity for Baroota PWRA for 2011