WALLOWAY BASIN

GROUNDWATER LEVEL AND SALINITY STATUS REPORT

2011

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Department of Environment,
Water and Natural Resources

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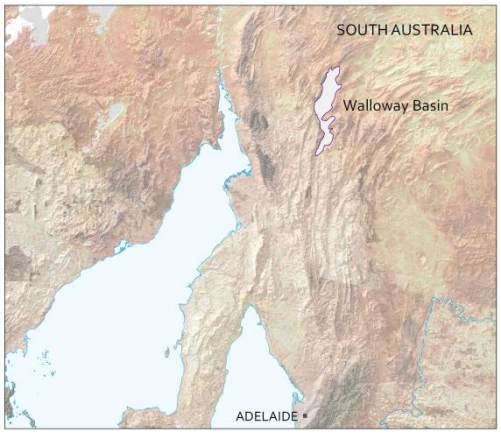
2011 SUMMARY



The Walloway Basin is located in the southern Flinders Ranges in the Mid-North of South Australia, approximately 85 km east of Port Augusta and 350 km north of Adelaide. It is a local-scale groundwater resource which is not prescribed under South Australia's *Natural Resources Management Act 2004*.

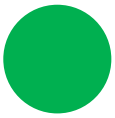
The Walloway Basin consists of an inter-montane valley about 70 km long orientated in a north-south direction, flanked by Adelaidean fractured rocks. The valley is filled with fluvial and lacustrine Tertiary sediments (T) overlain by alluvial outwash sediments of Quaternary to Recent age (Q). The maximum thickness of sediments is about 330 m. Groundwater is the primary source of water in the basin and it is used for town water supplies, stock supplies and domestic use. As the Walloway Basin is not prescribed under the *Natural Resources Management Act 2004*, there is no licensing of groundwater extractions and metering of extraction volumes (apart from town water supplies). The only significant extractions occur from the deep Tertiary confined aquifer for the Orroroo town water supply, which totalled 91.88 ML for 2010–11, representing an increase of 53% when compared to previous year.

The climate of the Walloway Basin is characterised by hot, dry summers and cool to cold, wet winters. The long-term average annual rainfall at Orroroo station (19005) is 308 mm for the period 1925–2011. There have been very wet periods in 1973–74 and 1992–93, but since 2002, generally below average rainfall conditions have prevailed. Over the last decade above–average rainfall was recorded in 2001, 2007, 2010 and 2011 (with 377.2 mm in 2011). Interestingly in 2011 summer rainfall, specifically February, March and December, was well above the long-term average monthly rainfall whilst winter rainfall was slightly below the long-term average (Fig. 1).

In 2011 the maximum water level attained in five out of seven observation wells shows a slight decline (<0.61 m) with respect to the maximum water level observed in 2010 (Fig.2). Despite this declining water level, it is not thought to be a risk to the resource as the relatively thick aquifer is able to accommodate this level of reduction. Additionally rises of up to 0.43 m have been observed in two of the Tertiary wells.

The groundwater salinity observation network for Walloway Basin is shown in Figure 3. There are only three observation wells in the Walloway Basin that are monitored for salinity. Whilst the Quaternary observation well (WAW007) shows an increase in salinity in 2011 from that previously recorded (2005), the two Tertiary wells utilised for town water supply display show very similar salinities to those recorded in 2010.

The groundwater resource has been assigned a green status for 2011:

2011 STATUS  "No adverse trends, indicating a stable or improving situation"

This means that the observed groundwater level and salinity trends are either stable (no significant change) or improving (i.e. decreasing salinity or rising water levels). The 2011 status for the Walloway Basin is supported by following:

- Five out of seven wells showed a slight decline in groundwater level, however the thickness of the aquifer is able to accommodate this decline, and two of the four Tertiary wells showed a rise in water level
- Salinity in the Tertiary aquifer utilised for town water supply is similar to that recorded in 2010
- Monthly rainfalls for February, March and December were considerably above the long-term average monthly rainfall.

Despite the observed decline in water level in five wells, the aquifer is relatively thick and is able to accommodate this level of reduction. Furthermore the Tertiary aquifer which is utilised for Town Water Supply observed a rise in water level in two out of four observation wells.

To view the *Walloway Basin 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.

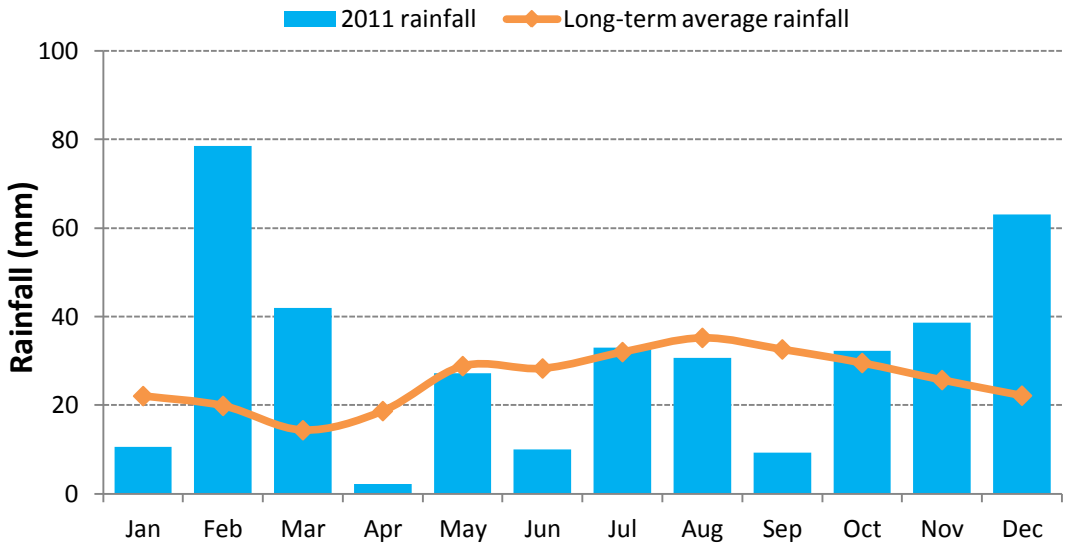


Figure 1. **Monthly rainfalls (mm) for 2011 and the long-term average monthly rainfall (mm) at the Orroroo rainfall station (19005) in the Walloway Basin**

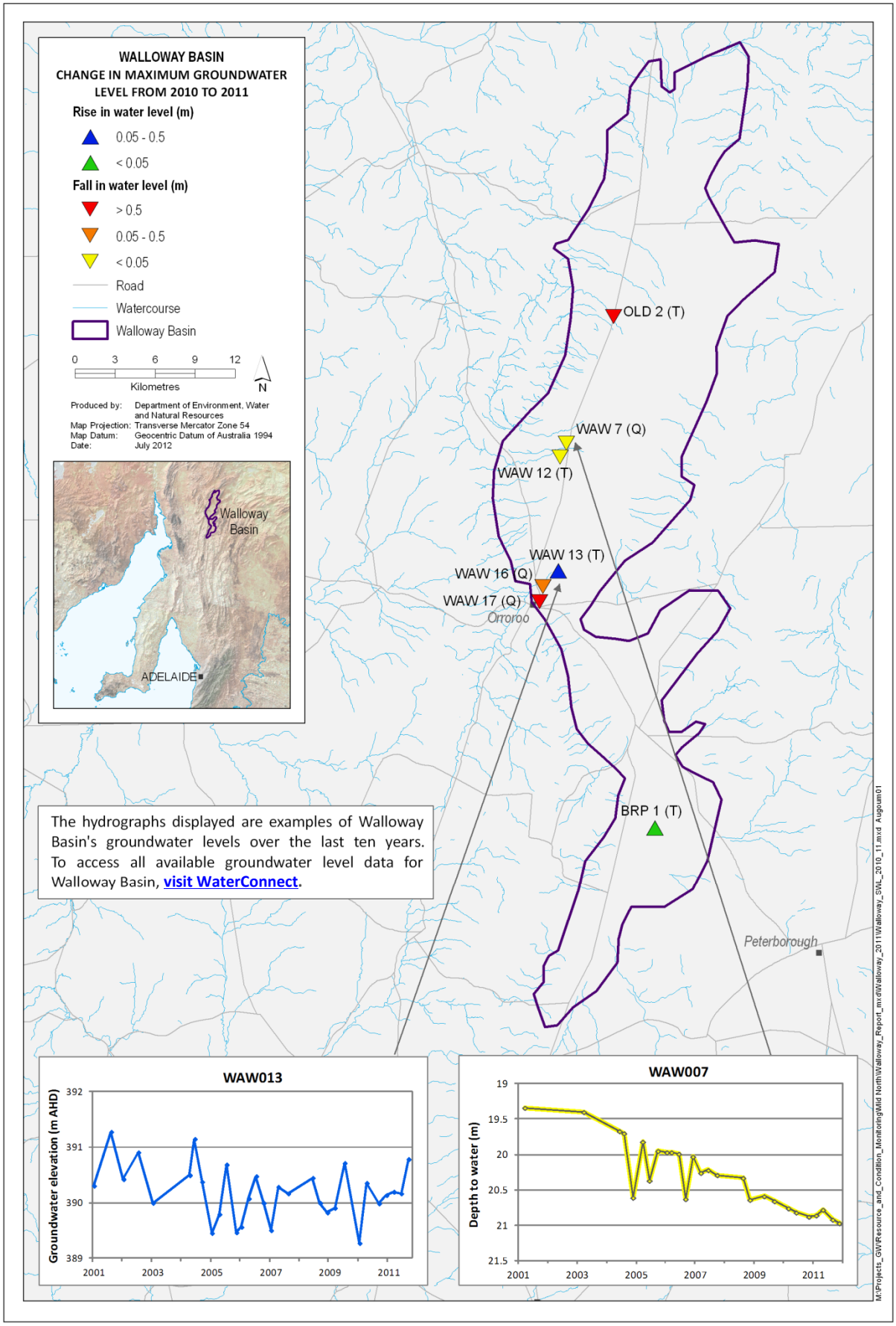


Figure 2. Overall changes in maximum groundwater levels in Walloway Basin from 2010 to 2011

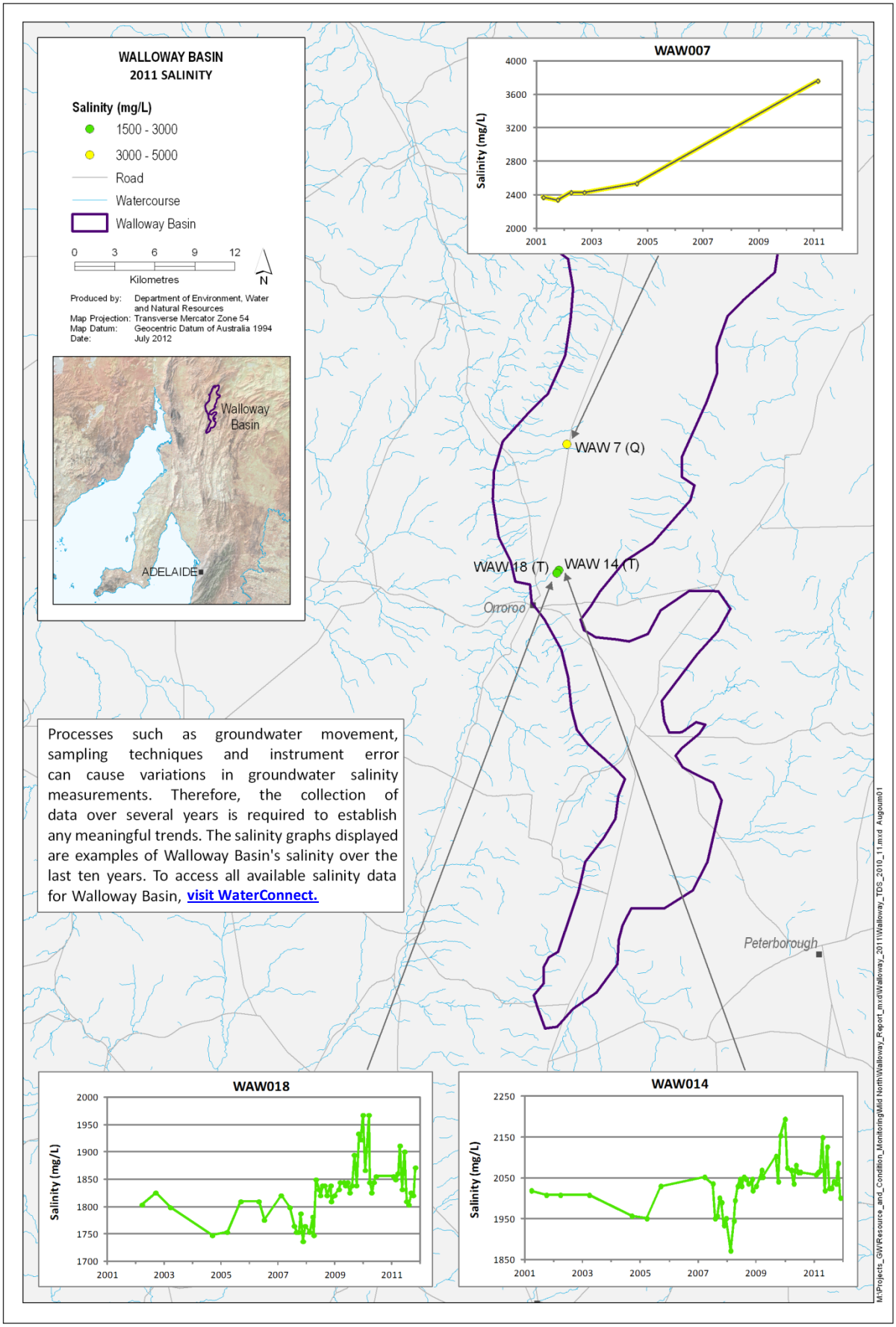


Figure 3. Groundwater salinity of the Walloway Basin for 2011