
MCLAREN VALE PWA

MASLIN SANDS AQUIFER

Groundwater Level and Salinity Status Report

2013



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Water and Natural Resources

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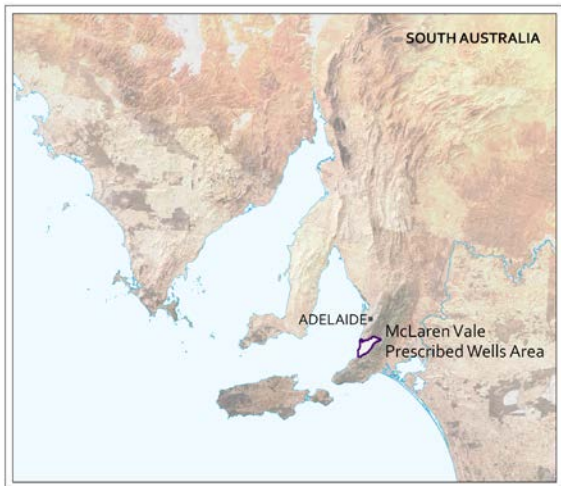
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2013 SUMMARY



The McLaren Vale Prescribed Wells Area (PWA) is located approximately 35 km south of Adelaide. It is a regional-scale resource for which groundwater has been prescribed under South Australia's *Natural Resources Management Act 2004*. A Water Allocation Plan provides for sustainable management of the water resources.

The Maslin Sands aquifer within the McLaren Vale PWA is comprised of fine to coarse tertiary sands and clays which is confined and separated from the Port Willunga Formation aquifer in some areas of the Prescribed Wells Area by the overlying Blanche Point Formation aquitard which consists of low-permeability marine mudstones and limestones. The potentiometric surface indicates that groundwater flows from recharge areas in the north-east towards the south-west.

Groundwater extractions (excluding stock and domestic use) for the Maslin Sand aquifer in the McLaren Vale Prescribed Wells Area for 2012-13 totalled 706 ML which represents an increase of 27 % from the previous year (Fig. 1) and accounts for 16 % of total groundwater use within the McLaren Vale PWA. Groundwater in this region is primarily used for viticulture which is also supplemented with treated effluent as an additional water resource. This water is sourced from the Christies Beach Wastewater Treatment Plant via the Willunga Basin Water Company reticulation scheme.

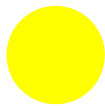
The climate of the McLaren Vale Prescribed Wells Area is characterised as Mediterranean with hot, dry summers and mild, wet winters. Rainfall is the primary source of recharge as the aquifer is replenished by infiltration through the soil or by percolation as a result of streamflow in drainage lines. Data from the Willunga rainfall station (23753) was chosen for the analysis of rainfall trends (Fig. 2). In Figure 2 the long-term monthly average rainfall is graphed in orange, while the total monthly rainfall is graphed in blue. In 2013, the total annual rainfall was 665.5 mm, slightly above the long-term (1889-2013) annual average of 643 mm. Figure 2 shows rainfall events occurring in June and July of 2013 to be as much as 60 mm greater than the average monthly rainfall.

Groundwater levels in the Maslin Sands aquifer have generally been stable or slowly declining since monitoring began in 1987. There were water level declines of up to 1.5 m following the 2006 drought; however higher rainfall in recent years has produced a recovery in groundwater levels at some sites. The Maslin Sands groundwater level response is strongly linked to the winter/spring rainfall. In 2013, 18 wells within the Maslin Sands aquifer had sufficient records to compare the maximum recovered water levels with those recorded in 2012 (Fig. 3). A fall in this water level was noted in 13 of these wells, with the greatest decrease in water level being 1.75 m. The median change in water levels between 2013 and 2012 was a decrease of 0.03 m. In light of the higher than average rainfall in the 2013 winter/spring, the overall decline in the groundwater levels can be attributed to the increased rate of extraction.

The groundwater salinity observation network for Maslin Sands aquifer in McLaren Vale Prescribed Wells Area is shown in Figure 4. During the past 10 years, many of the monitoring wells show a slightly increasing trend in groundwater salinity. Groundwater salinity is generally fresh: of the 52 wells monitored in 2013, 85% had a salinity value of less than 1500 mg/L. As only 6 wells were sampled in 2012, it is not possible to draw conclusions regarding general trends in aquifer salinity over the course of the reporting period.

The Maslin Sands aquifer in the McLaren Vale PWA 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 the resource status have been observed over the reporting period. Continuation of these trends is unlikely to negatively impact the beneficial use (i.e. drinking water, irrigation or stock watering) of the resource for at least 15 years. The 2013 status for the Maslin Sands aquifer is supported by:

- an overall decline in maximum recovered water levels when compared to 2012 levels.

There was insufficient data available to allow an assessment of salinity trends within the resource, however most wells that were monitored in 2013 continued to indicate salinity levels of less than 1500 mg/L.

To view the McLaren Vale Prescribed Wells Area Groundwater Level and Salinity Status Report 2011 which includes background information on hydrogeology, location of rainfall stations and relevant groundwater dependent ecosystems, visit [WaterConnect](#).

For further details about the relevant prescribed resource please see the Water Allocation Plan for the [McLaren Vale Prescribed Wells Area](#).

McLaren Vale PWA: Maslin Sands aquifer annual groundwater extraction

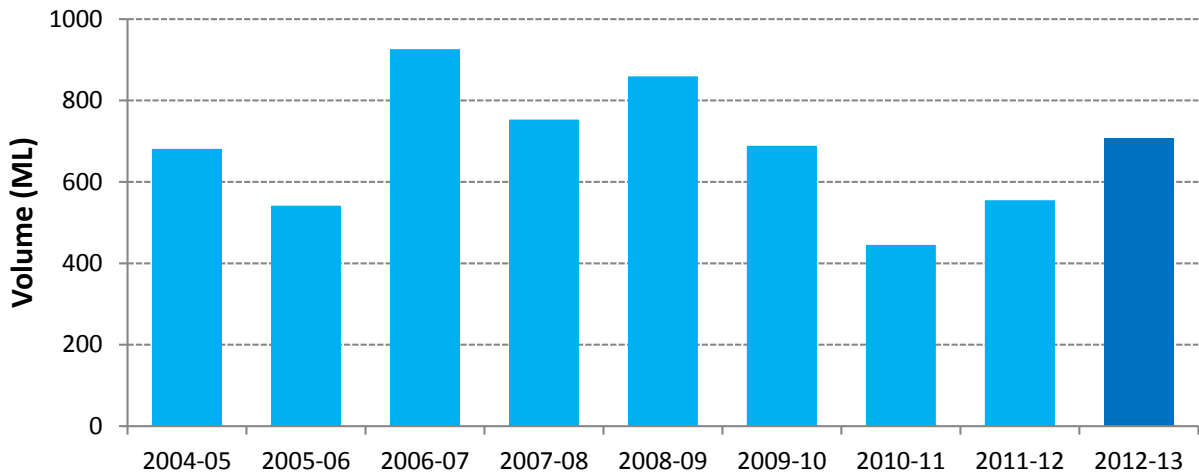


Figure 1. Historical licensed groundwater use for the Maslin Sands aquifer in the McLaren Vale Prescribed Wells Area.

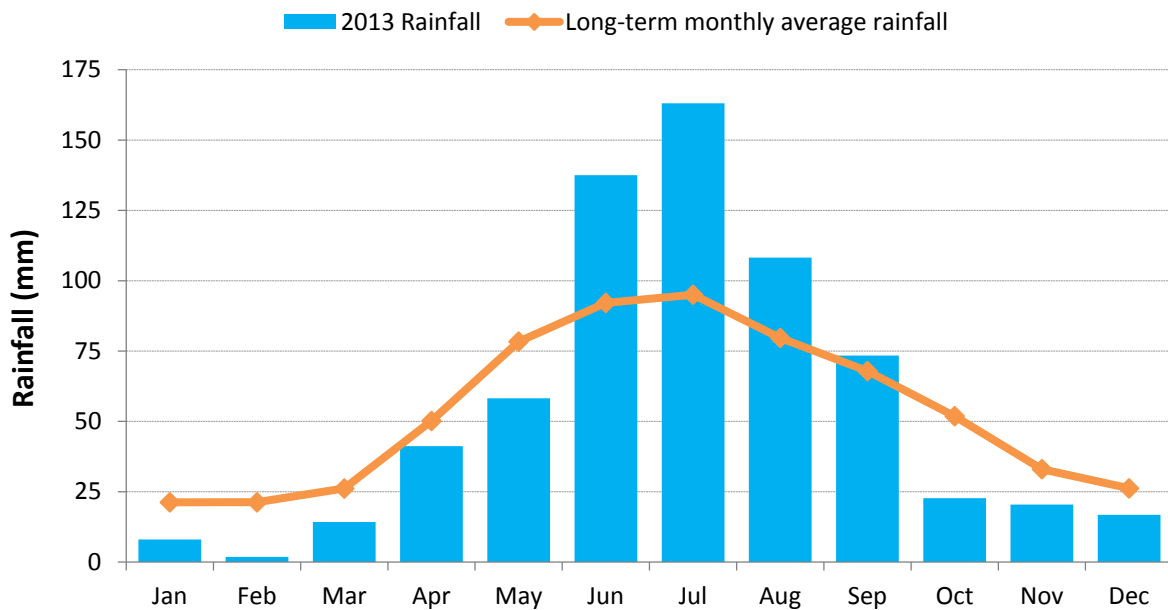


Figure 2. Monthly rainfall (mm) for 2013 and the long-term average monthly rainfall (mm) at the Willunga rainfall station (23753) in the McLaren Vale Prescribed Wells Area.

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 at www.longpaddock.qld.gov.au/silo.

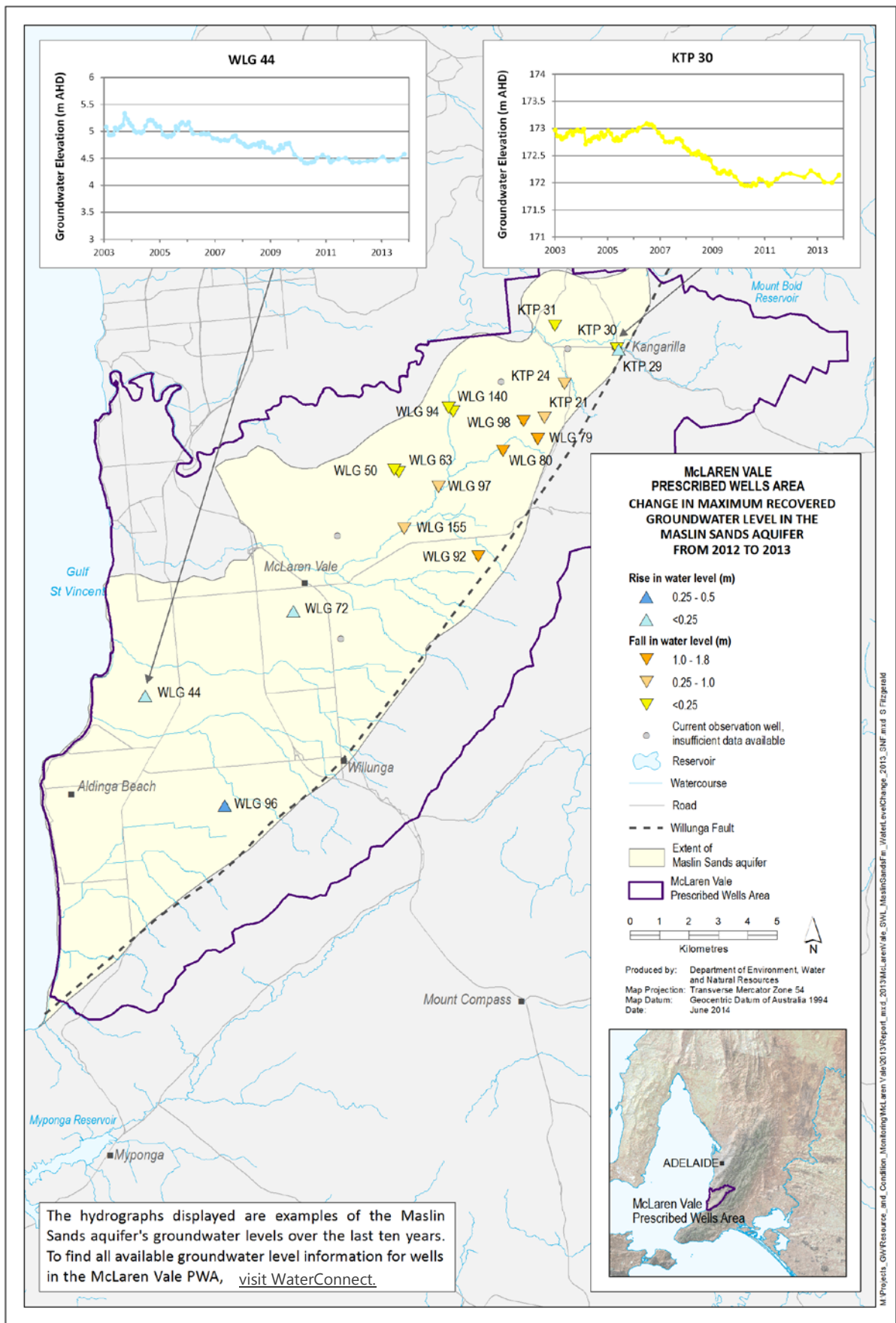


Figure 3. Overall changes in maximum groundwater levels in Maslin Sands aquifer in the McLaren Vale Prescribed Wells Area from 2012 to 2013.

McLaren Vale Prescribed Wells Area

Maslin Sands aquifer Groundwater Status Report 2013

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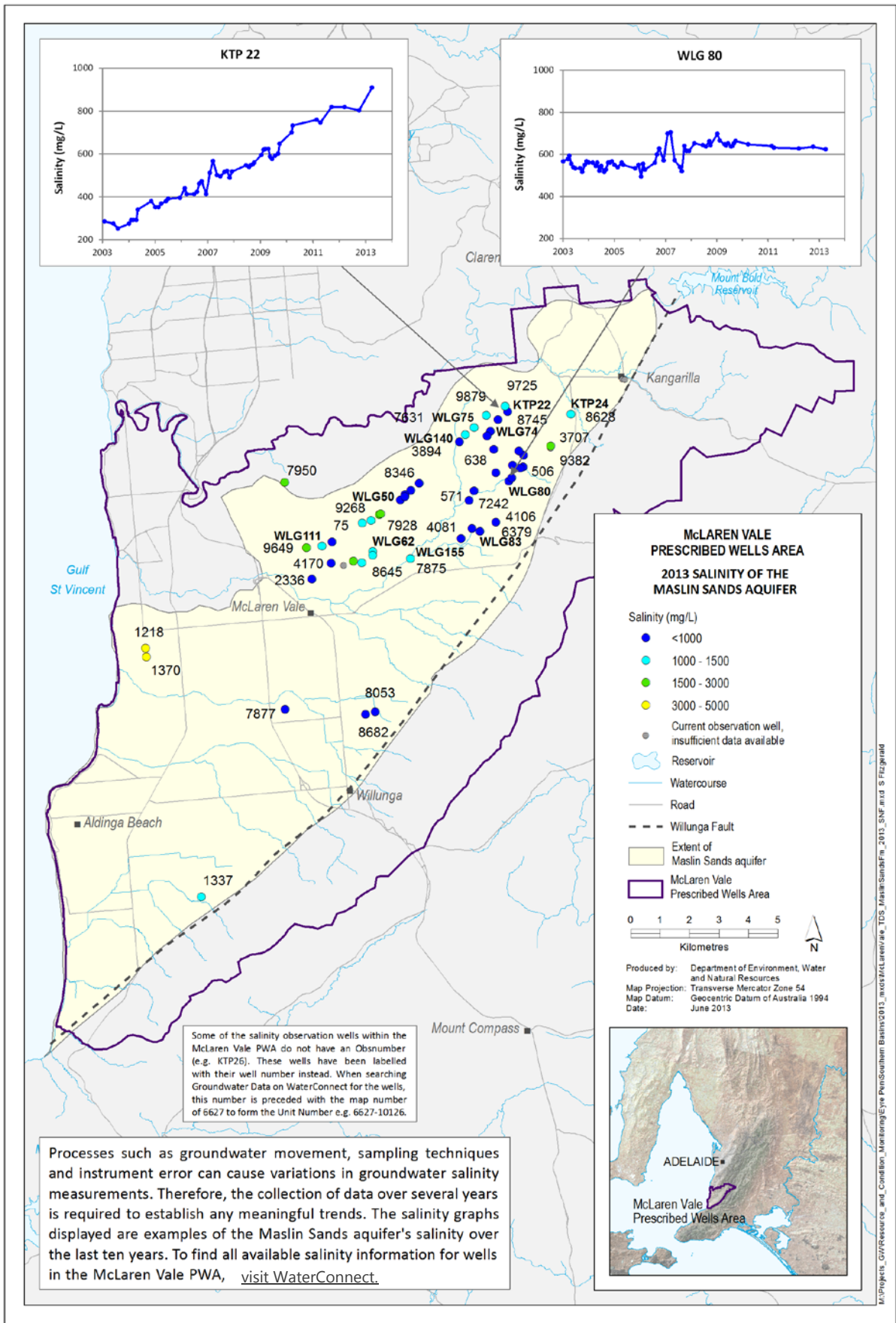


Figure 4. Groundwater salinity of the Maslin Sands aquifer in the McLaren Vale Prescribed Wells Area for 2013.