
WESTERN MOUNT LOFTY RANGES PWRA FRACTURED ROCK AQUIFERS

Groundwater Level and Salinity Status Report

2012



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

Department of Environment, Water and Natural Resources
25 Grenfell Street, Adelaide
GPO Box 1047, Adelaide SA 5001

Telephone National (08) 8463 6946
 International +61 8 8463 6946
Fax National(08) 8463 6999
 International +61 8 8463 6999
Website www.environment.sa.gov.au

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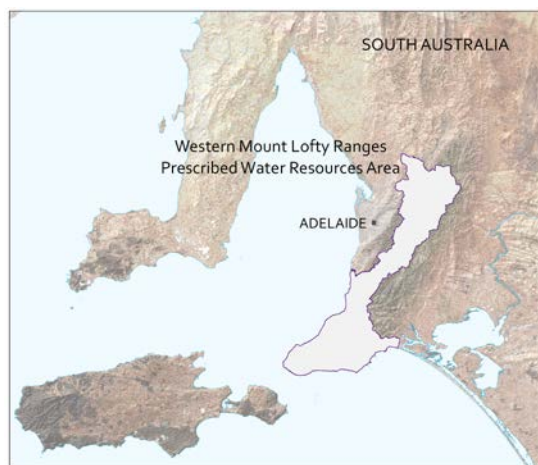
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2012 SUMMARY



The Western Mount Lofty Ranges Prescribed Water Resources Area (PWRA) covers an area of approximately 2750 km² stretching from Cape Jervis on the south coast to Gawler in the north. It is a regional-scale prescribed resource for which groundwater is prescribed under South Australia's *Natural Resources Management Act 2004*. A water allocation plan provides for the sustainable use of the water resources.

The fractured rock aquifers of the Western Mount Lofty Ranges PWRA are comprised of three geological units: the Barossa Complex, Adelaidean sediments and the Kanmantoo Group. Generally, the Adelaidean sedimentary rocks are more favourable in terms of recharge, salinity and yields, while the Barossa Complex and Kanmantoo Group rocks provide groundwater of poorer quality at low yields. Recharge to the fractured rock aquifer occurs

directly from infiltration of rainfall and groundwater flow generally follows the topography, moving from higher points towards the lowest areas where it eventually discharges into rivers and streams.

Although extensive meter data is not yet available for groundwater extractions, an estimate of 50 250 ML/y has been made for licensed purposes based on a land-use survey of irrigated properties and the theoretical irrigation requirements for various crops. This estimate is below the sustainable yield of 70 324 ML/y calculated for the whole of the Western Mount Lofty Ranges PWRA. The majority of groundwater is used for the irrigation of pasture (35%) and various fruits (33%). The remainder is used for the irrigation of wine grapes (14%), vegetables (6%), lucerne (3%) and other uses (9%).

The climate of the Western Mount Lofty Ranges PWRA is characterised as Mediterranean with hot, dry summers and mild, wet winters. In 2012, the total annual rainfall recorded at Uraidla rainfall station (number 23750) was 882mm, more than 180 mm below the long-term (1889–2012) annual average of 1066 mm. March and June recorded more than their long-term monthly average, but nearly all other months received rainfall below the long-term average (Fig. 1).

Highly variable fractured rock aquifers occur across the Western Mount Lofty Ranges PWRA. Following a widespread decline in groundwater levels due to the 2006 drought, most observation wells have shown either a stabilisation or increases in levels since 2009 in response to higher rainfall recharge.

In 2012, groundwater levels were relatively stable overall. Slightly more observation wells recorded a decline in groundwater levels as opposed to an increase (51% to 42% respectively; Fig. 2), which may be a response to the below-average rainfall. However, the degree of change was almost identical, with increases and declines in groundwater levels ranging from 0.01 to 14.2 and 14.5 m respectively; both with an average of 1.2 m and median of 0.4 m. The declines were more commonly observed in the central and northern areas of the Central Hills region, while increases were more common in the southern third of the Central Hills region where rainfall is generally higher.

The groundwater salinity distribution in the fractured rock aquifers is shown in Figure 3. During the period 2002 to 2012, several wells showed either increasing or decreasing salinity trends, although most were stable. In 2012, the results indicate that the salinity continues to be stable in the fractured rock aquifers.

The fractured rock aquifers of the Western Mount Lofty Ranges Prescribed Water Resources Area have been assigned a green status for 2012:

2012 STATUS



“No adverse trends, indicating negligible risk to the resource”

This means that the groundwater status was observed to be stable, i.e. no significant change or improving, over the reporting period. Continuation of these trends favours a very low likelihood of negative impacts on beneficial use (e.g. drinking water, irrigation or stock watering). The 2012 status for the fractured rock aquifers is supported by:

- generally stable groundwater levels when compared to 2011 groundwater level data
- stable salinity.

To view the *Western Mount Lofty Ranges Prescribed Water Resources Area Groundwater Level and Salinity Status Report 2011*, which includes background information on hydrogeology, rainfall and relevant groundwater-dependent ecosystems, [visit WaterConnect](#).

To view descriptions of all status symbols, [click here](#).

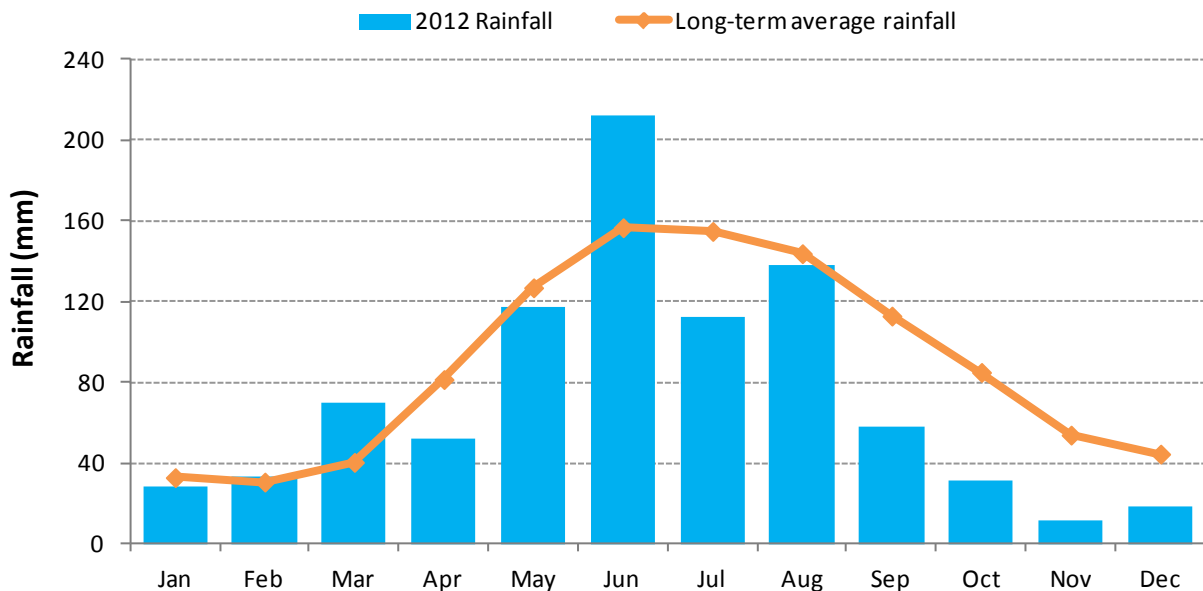


Figure 1. Monthly rainfall (mm) for 2012 and the long-term average monthly rainfall (mm) at the Uraidla rainfall station (23750) in the Western Mount Lofty Ranges Prescribed Water Resource Area

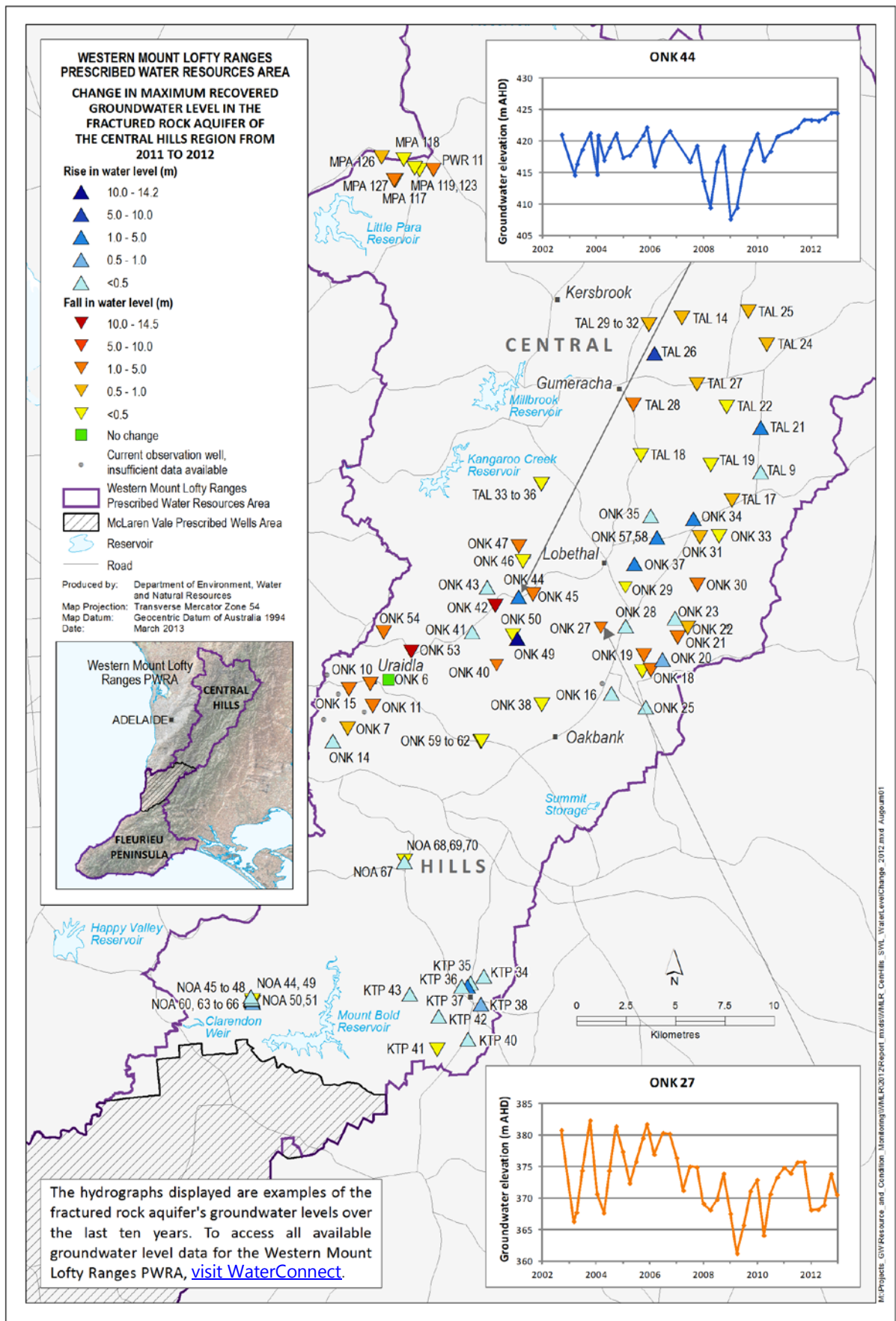


Figure 2. Overall changes in the maximum recovered groundwater levels in the fractured rock aquifers in the Western Mount Lofty Ranges Prescribed Water Resource Area from 2011 to 2012

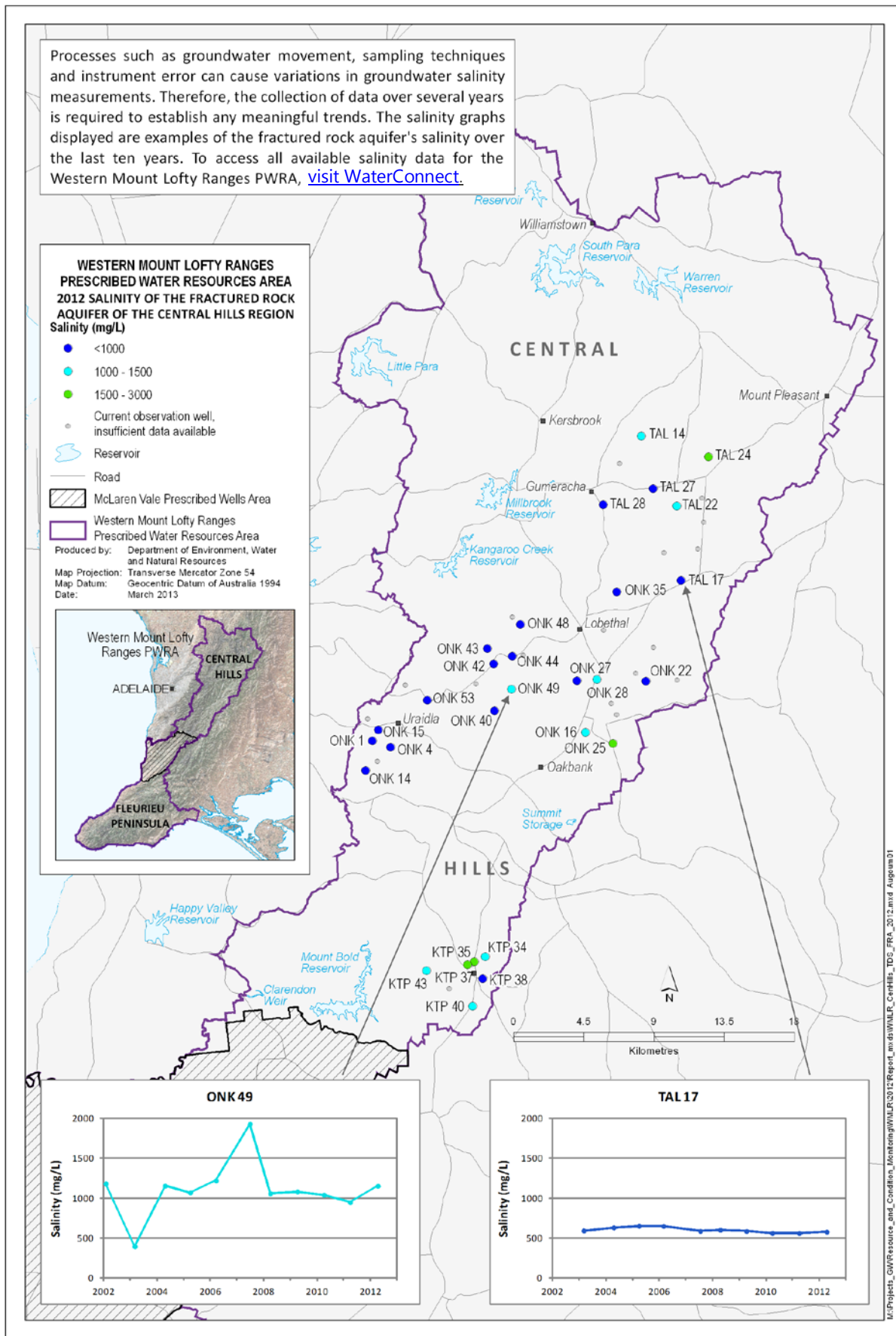


Figure 3. Groundwater salinity of the fractured rock aquifers in the Western Mount Lofty Ranges Prescribed Water Resource Area for 2012