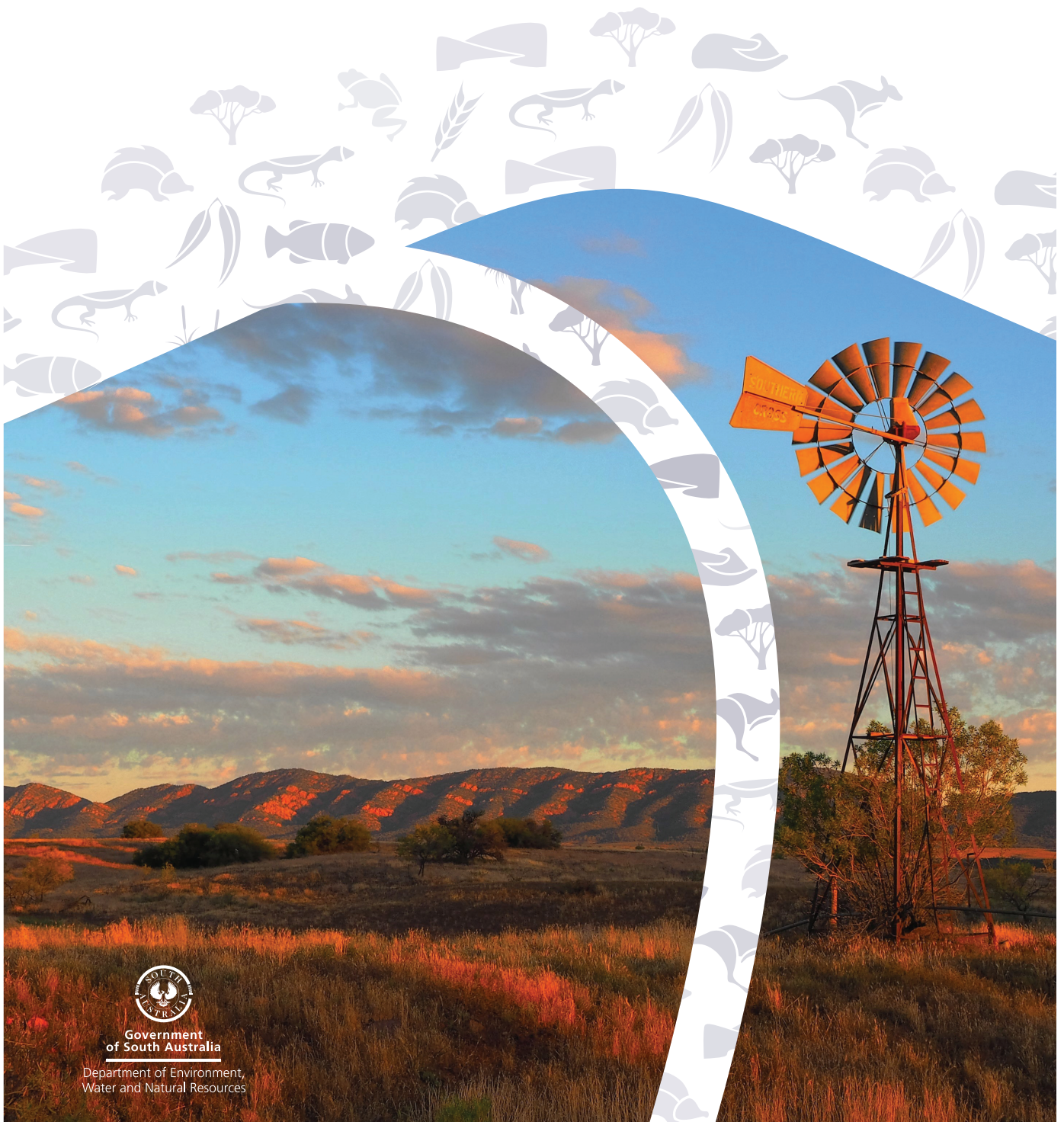


Western Mount Lofty Ranges PWRA Tertiary Limestone aquifer

2016 Groundwater level and salinity status report



Department of Environment, Water and Natural Resources
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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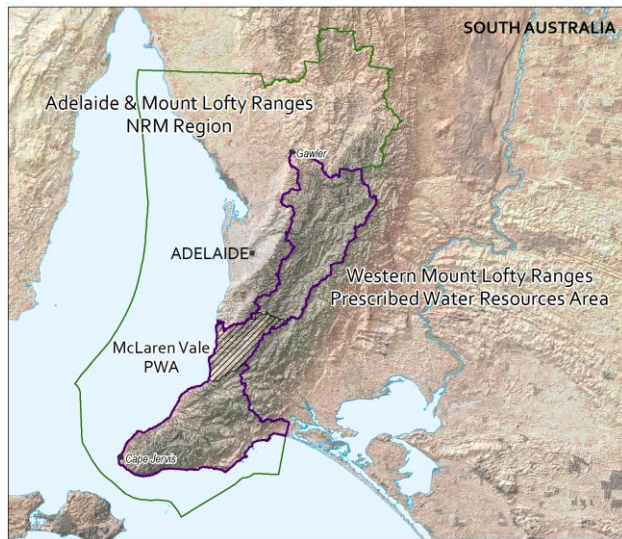
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Regional setting



The Western Mount Lofty Ranges (WMLR) Prescribed Water Resources Area (PWRA) is located within the Adelaide and Mount Lofty Ranges Natural Resources Management Region and 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 resource for which groundwater, surface water and watercourse water are prescribed under South Australia's *Natural Resources Management Act 2004* and a water allocation plan provides for the sustainable use of these resources. The McLaren Vale Prescribed Wells Area (PWA), located within the boundaries of the WMLR PWRA, is managed separately and a separate groundwater level and salinity status report that has been prepared for this PWA can be found on the [WaterConnect](#) website.

There are three sedimentary aquifers in the WMLR PWRA: Permian Sand, Tertiary Limestone and the Quaternary. This report focuses on the Tertiary Limestone aquifer, an important aquifer that is present only in the Myponga and Hindmarsh Tiers Basins in the south of the PWRA on the Fleurieu Peninsula. It produces high yields and contains good quality groundwater with salinity generally below 1000 mg/L. This aquifer is confined by overlying Quaternary clays and can develop seasonal artesian conditions. It is widely developed for irrigation, primarily for dairy pasture and viticulture.

Despite the confined nature of the Tertiary Limestone aquifers, which do not receive direct recharge from incident rainfall, the intensity and timing of rainfall (and related variations in rates of groundwater extraction) can have an effect on groundwater pressure levels and salinity. For example, if the Fleurieu Peninsula experienced above-average rainfall, this could result in less groundwater being extracted from the Tertiary Limestone aquifer for irrigation, with commensurate increases in groundwater pressure levels and reductions in salinities.

Hindmarsh Tiers Basin

The Tertiary Limestone aquifer in the Hindmarsh Tiers Basin has been assigned a green status for 2016:

2016 Status



Positive trends have been observed over the past five years

The 2016 status for the Hindmarsh Tiers Basin is based on:

- most monitoring wells (90%) show a five-year trend of rising groundwater pressure levels.

Myponga Basin

The Tertiary Limestone aquifer in the Myponga Basin has been assigned a green status for 2016:

2016 Status



Positive trends have been observed over the past five years

The 2016 status for the Myponga Basin is based on:

- most monitoring wells (75%) show a five-year trend of rising or stable groundwater pressure levels.

Rainfall

The Hindmarsh Valley rainfall station (BoM Station 23823) was used for rainfall analysis due to its central location within the Hindmarsh Tiers Basin (Fig. 1). In the 2015–16 water-use year, 796 mm of rainfall was recorded, which is 15% less than the long-term average of 941 mm (1900–2016) and commensurate with the five-year average of 815 mm (Figs 1 and 2). A trend of declining rainfall is evident when compared with the long term average (Fig. 1). In 2015–16, eight months recorded rainfall which is below their long-term averages, but January, February, May and June recorded rainfall which is greater than their respective monthly averages.

Water use

The Western Mount Lofty Ranges PWRA has a total extraction limit of 69 193 ML across all aquifers of the PWRA, of which 56 045 ML has been allocated. In previous years, water usage were estimated based on land-use survey of irrigated properties and the theoretical irrigation requirements for various crops; as such, these data are not suitable to perform five-year trend analysis. More recently, changes in the way water is managed across the region have required licensed water users to measure their water use. By 2015–16, 47% of water licensees had installed water meters and submitted water usage data. Metered extractions totalled 7277 ML for all aquifers within the WMLR PWRA, which represents 11% of the PWRA's total extraction limit¹. Within the Tertiary Limestone aquifer, metered extractions totalled 93.1 ML.

Groundwater pressure levels

In the five years to 2016, nine out of 10 monitoring wells in the Hindmarsh Tiers basin (90%) show a trend of rising groundwater pressure levels (Fig. 3). The rates of rise in levels range between 0.04 and 0.6 m/y with a median of 0.22 m/y. The remaining monitoring well shows a declining trend in pressure level at a rate of 0.16 m/y.

¹ The licensed groundwater extraction volume for the 2015–16 water-use year is based on the best data available as of March 2017 and may be subject to change, as some extraction volumes are in the process of being verified; installation of water meters by licensed users is still in progress across the WMLR PWRA.

In the five years to 2016, six out of eight monitoring wells in the Myponga Basin (75%) show a trend of rising or stable groundwater pressure levels (Fig. 3). The rates of rise range between 0.02 and 0.14 m/y. The remaining wells show a five-year trend of declining water pressure levels at rates ranging from 0.03 to 0.05 m/y.

Groundwater salinity

Groundwater salinity of the Tertiary Limestone aquifer is not regularly measured. Due to the paucity of salinity data, salinity has not been used when assessing the status of the resource in this report. However, the salinity of the Tertiary Limestone aquifer within the Myponga and Hindmarsh Tiers Basins typically measures less than 1000 mg/L.

More information

To determine the status of the Tertiary Limestone aquifer for 2016, the trend in groundwater pressure levels over the past five years (2012 to 2016, inclusive) were analysed, in contrast to the year-to-year assessments that have been used in past *Groundwater level and salinity status reports*. Please visit the [Frequently Asked Questions](#) on the *Water Resource Assessments* page on WaterConnect for more detail on the current method of evaluating the status of groundwater resources.

To view descriptions for all status symbols, please visit the *Water Resource Assessments* page on [WaterConnect](#).

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

To view or download groundwater level and salinity data from observation wells within the Western Mount Lofty Ranges PWRA, please visit [Groundwater Data](#) on WaterConnect.

For further details about the Western Mount Lofty Ranges PWRA, please see the *Water Allocation Plan for the Western Mount Lofty Ranges* on the Natural Resources SA Murray-Darling Basin [website](#).

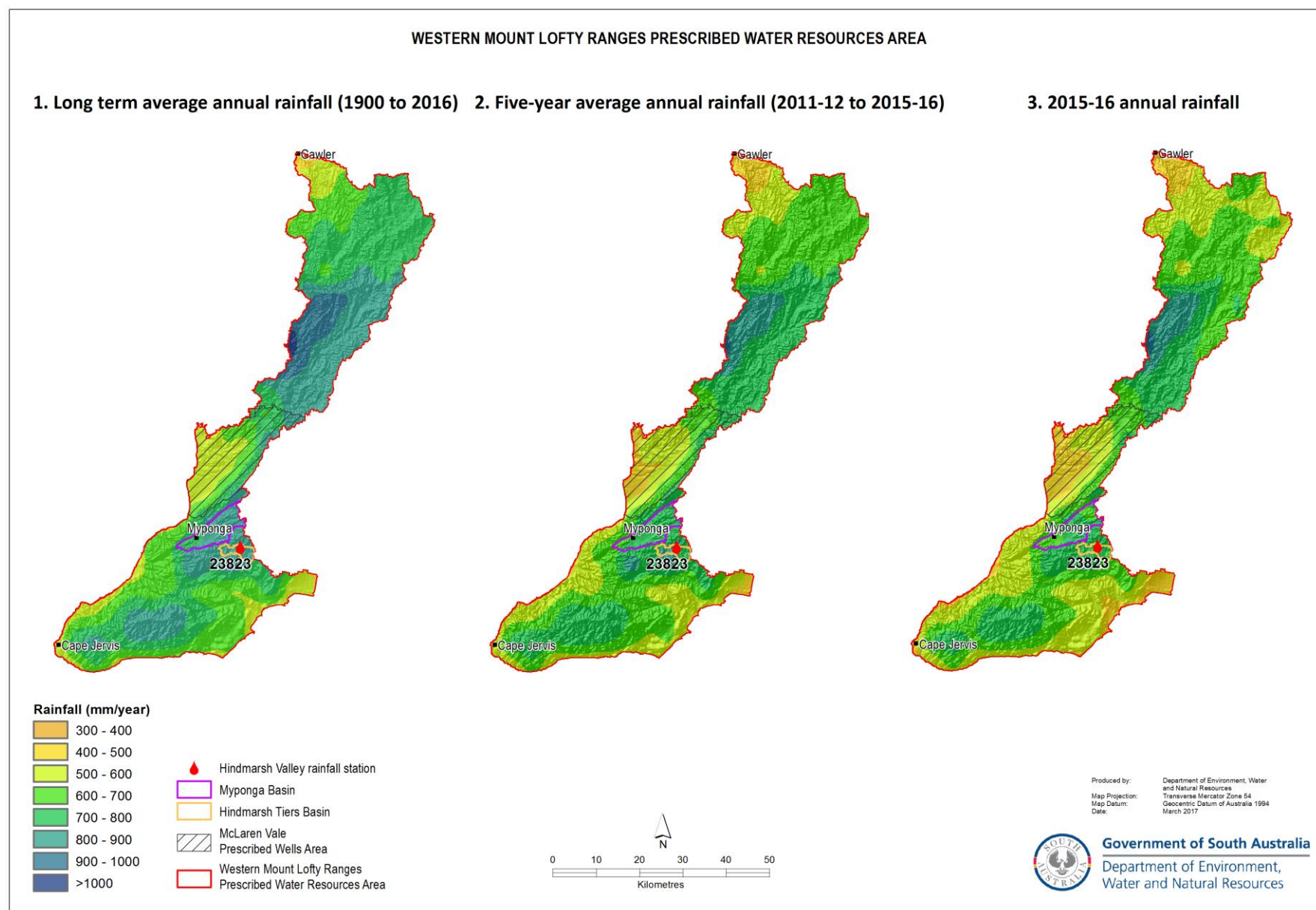


Figure 1. (1) Long-term and (2) five-year average annual rainfall and (3) annual rainfall for the 2015–16 water-use year in the Western Mount Lofty Ranges PWRA²

² 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.

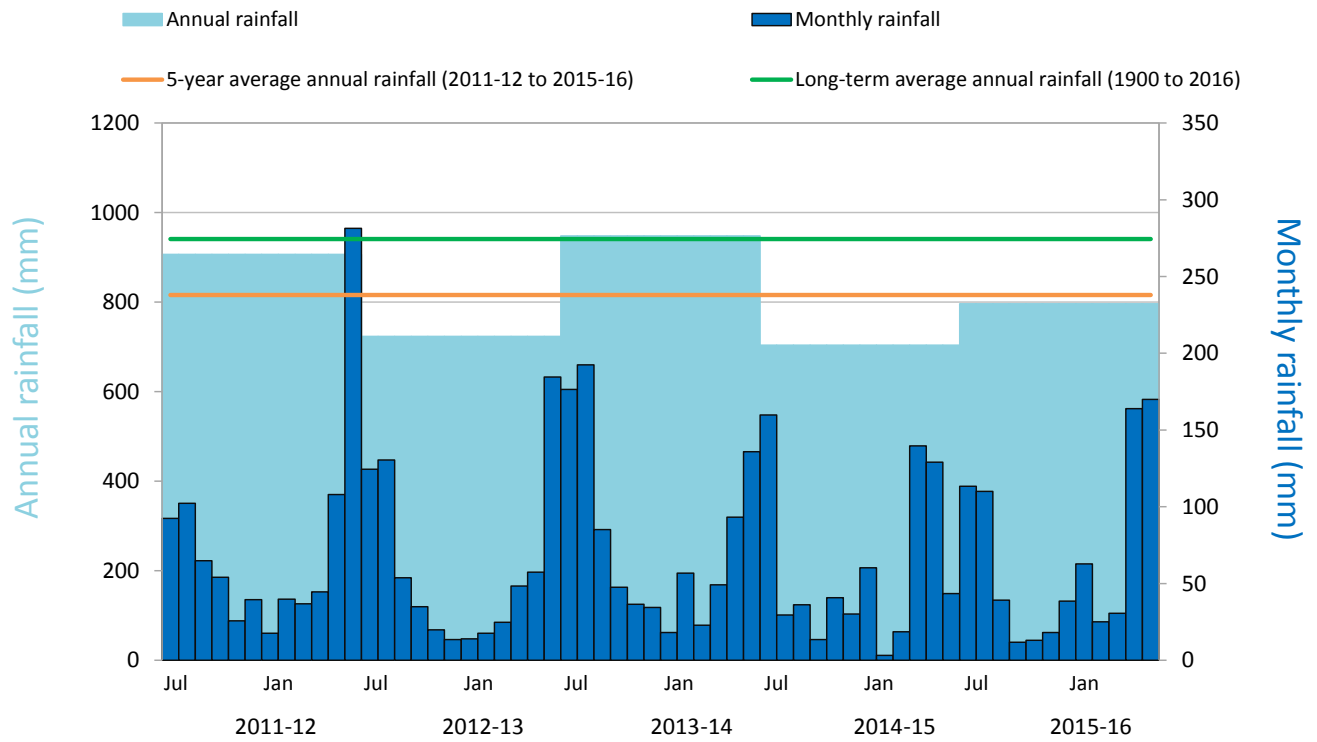


Figure 2. Annual (July–June) and monthly rainfall for the past five water-use years, and the five-year and long-term average annual rainfall recorded at Hindmarsh Valley (Fernbrook) (BoM Station 23823)³

³ 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.

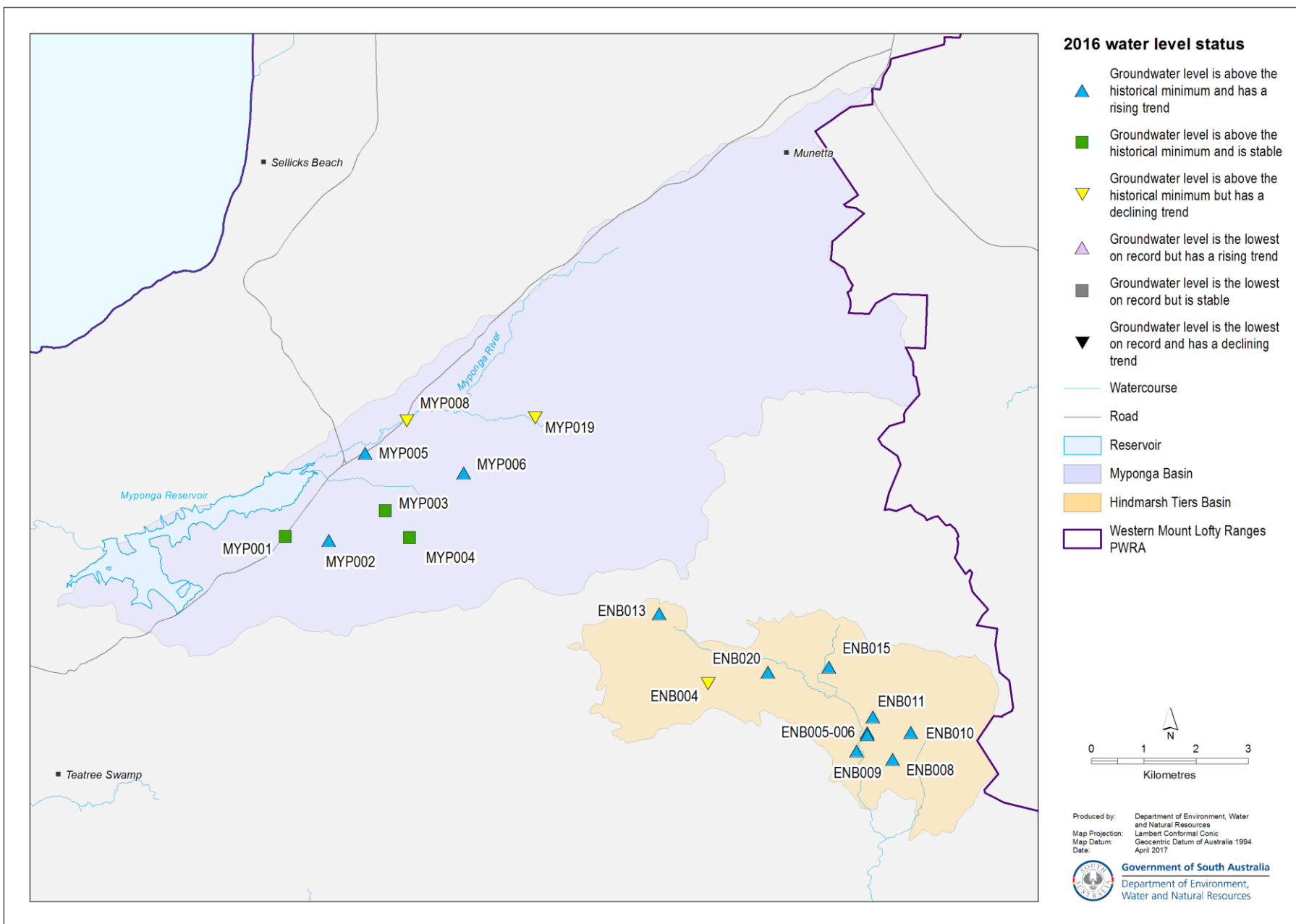


Figure 3. 2016 status of groundwater levels in the Tertiary Limestone aquifer (Western Mount Lofty Ranges PWRA) based on five-year trends from 2012 to 2016



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