



Government of South Australia
 Adelaide and Mount Lofty Ranges
 Natural Resources Management Board

Northern Adelaide Plains and Central Adelaide Prescribed Wells Areas



Annual Report Card

Water Allocation Planning 2010–2011

Water Allocation Plan Report Card
 for the Northern Adelaide Plains and
 Central Adelaide Prescribed
 Wells Areas

July 2010 – June 2011 reporting year



Together we can

A collective effort of state and local governments,
 industries and community in meeting our
 Regional NRM Plan targets

What is a Prescribed Wells Area?

A **water resource** can be prescribed under the *Natural Resources Management Act 2004 (NRM Act)* if it is determined that regulation is required to ensure the adequate management of that resource. Water resources can include surface water (in dams), water course water (in rivers and creeks) and underground water (groundwater). The NRM Act requires a Water Allocation Plan (WAP) to be prepared for all prescribed water resources. The underground water resource (assessed by prescribed wells) is prescribed in the Northern Adelaide Plains and Central Adelaide Plains Prescribed Wells Areas (PWA).

What is a WAP?

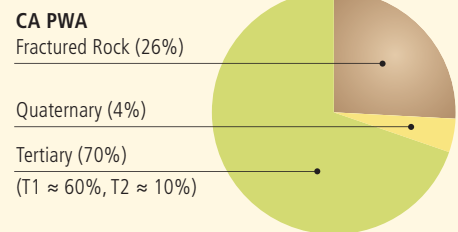
A **Water Allocation Plan (WAP)** provides the rules under which prescribed water resources are managed. They identify the needs of water for users and the environment. They also describe water affecting activities that may require a permit to be undertaken.

The WAP for the Northern Adelaide Plains PWA considers the volume of water available from the prescribed underground water resources and the capacity of the resource to meet demands from both water users and the environment.

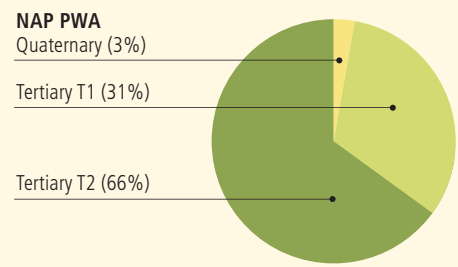
A combined WAP for the Northern Adelaide Plains PWA, Central Adelaide PWA (no current WAP) and the Dry Creek PWA (not shown on this report card) is currently in preparation.

What are the main aquifers used?

PROPORTION OF TOTAL EXTRACTION FROM EACH AQUIFER



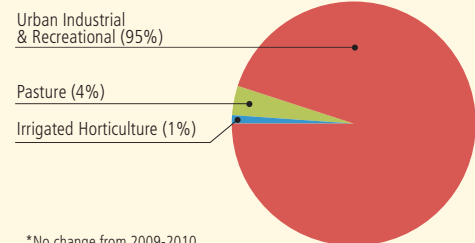
*No change from 2009-2010



*2009-2010 extraction: Quaternary (2%), Tertiary T1 (25%), Tertiary T2 (73%)

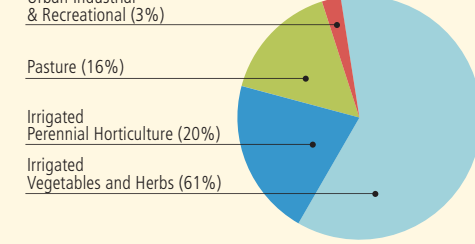
Proportion of extraction by land use

CA PWA



*No change from 2009-2010

NAP PWA



*2009-2010 extraction: Urban Industrial (10%), Pasture (14%), Irrigated Perennial Horticulture (22%), Irrigated Vegetables and Herbs (54%)

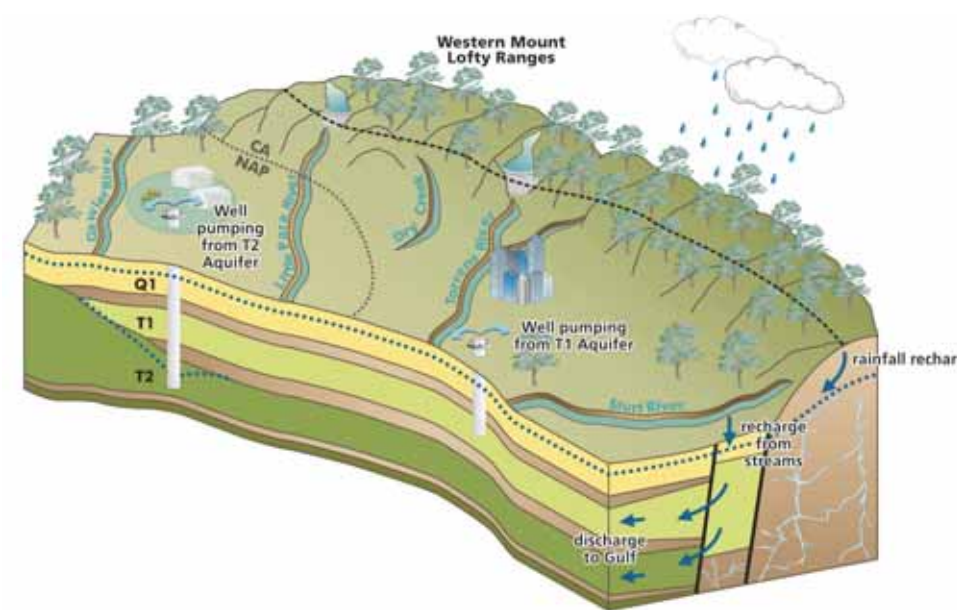
Water Level 10 year trend

- Stable
- Increase
- Decrease

Salinity 10 year trend

- ▲ Stable
- ▲ Increase
- ▲ Decrease

■ Irrigated land



Nature of underground water resources in the PWAs

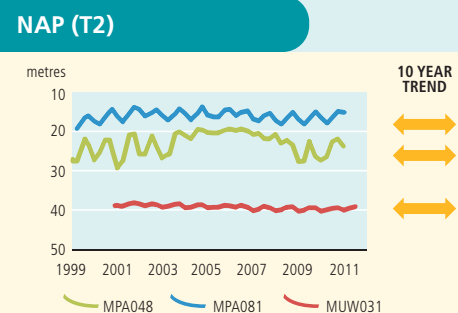
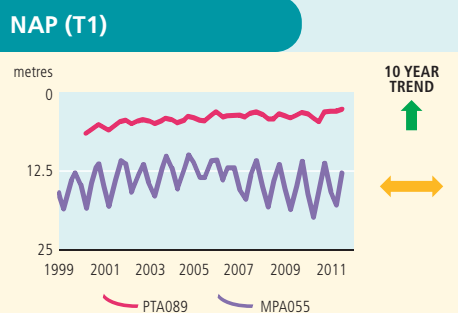
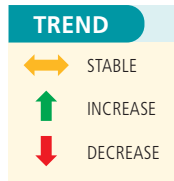
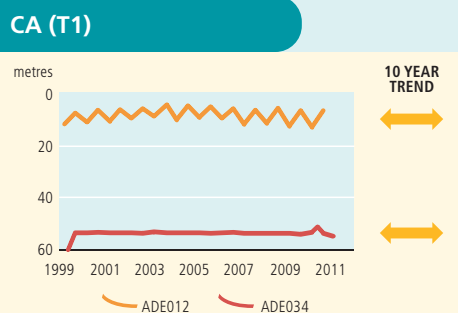
Underground water is stored in the pore spaces of the Adelaide Basin sediments and the fractures of the underlying and surrounding basement rocks that comprise the Adelaide Hills. The aquifer is recharged by rainfall and in places by streams. Underground water can discharge to the ocean, to streams, it may be lost to the atmosphere by evapotranspiration or it is removed from the aquifer by extraction. The best underground water resources are those that have low salinity and high yields – which corresponds to the T1 aquifer in the Central Adelaide PWA and the T2 aquifer in the Northern Adelaide Plains PWA.

Monitoring & reporting requirements

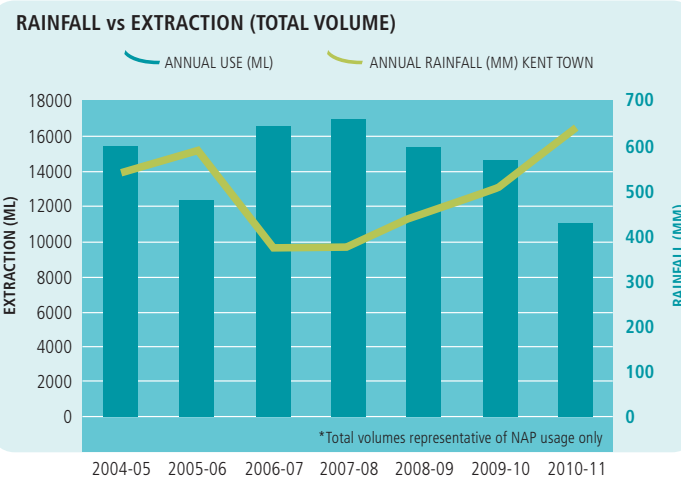
Monitoring and evaluation are required to assess the capacity and health of the underground water resource. Data from selected observation wells with a long monitoring record are presented below. Raw underground water data, including data about all licenced wells, can be obtained from <https://www.waterconnect.sa.gov.au/GD>

Water Level

Water level provides a measure of the level of storage of underground water in the aquifer. It is measured in metres below ground level. Example observation wells shown on graphs below.

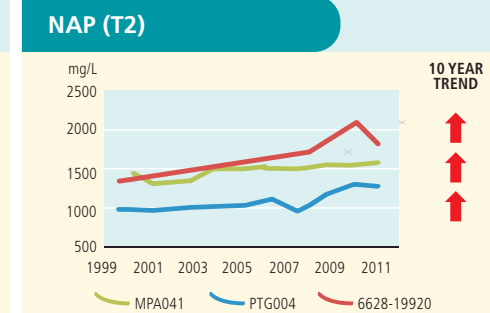
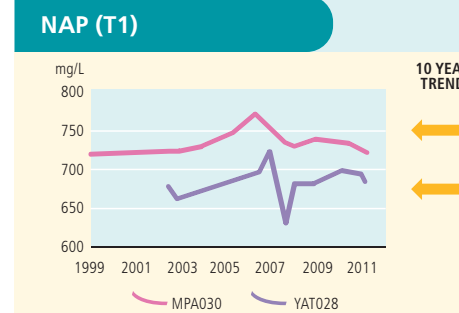
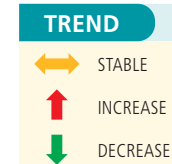
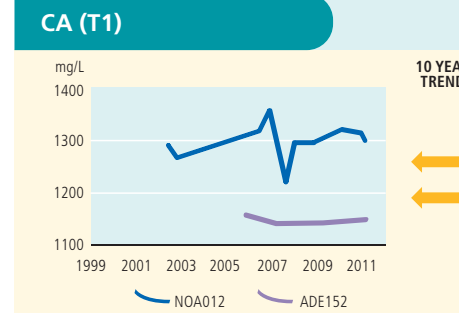


NAP metered extraction data (DEWNR 2012), land use coverage (DWLBC 2008). CA extraction volumes are based on licence application data only (AMLR NRM). Volumetrically, there were reductions in usage across all land use types compared to 2009-10. The land use coverage is assumed to provide an accurate representation of the area; purpose of extraction was assigned based on the corresponding land use type associated with each well.



Salinity

Salinity provides an indication of the suitability of underground water for irrigation uses (for more information refer to Glossary and Explanation). Example observation wells shown on graphs below.



Glossary and Explanation

What does *water allocation* mean?

The quantity (volume) of water available to be taken (extracted) or held (stored) annually under a water licence.

What does *extraction* mean?

The water taken for use from aquifers.

Why is there seasonal variation in water level?

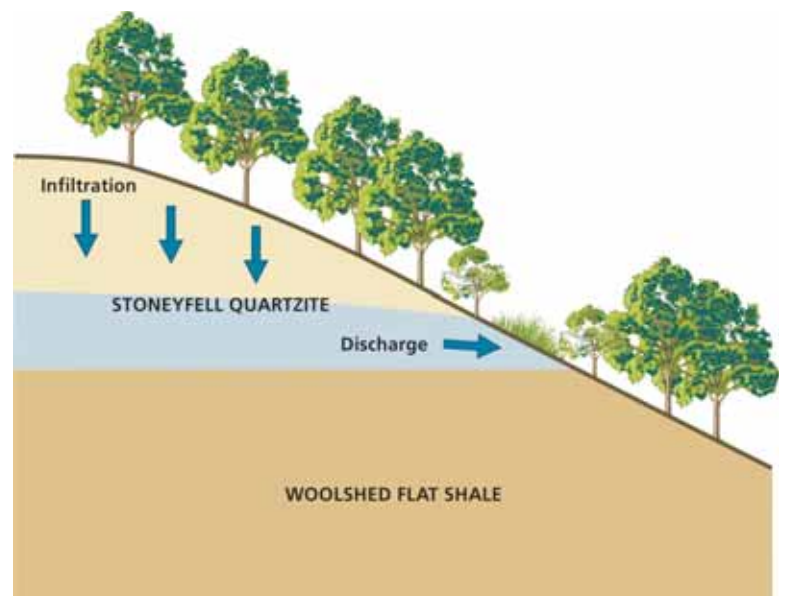
In most areas, demand for underground water for irrigation use is greater in summer. As demand increases and more underground water is extracted, water levels fall. The levels recover during winter when less water is extracted.

Why does salinity change?

Many factors may be responsible for changes in underground water salinity: contamination, changes in inflows from adjacent salty aquifers, or reduced outflows that export salt from an aquifer. Underground water extraction may alter some of these dynamics and thereby cause salinity to change within an aquifer.

Groundwater Dependent Ecosystems

Groundwater dependent ecosystems (GDEs) are ecosystems that rely on underground water for all or part of their water requirements. In the Central Adelaide PWA, high value GDEs exist in the upper catchment within the Mt Lofty Ranges where underground water discharge supports bogs and wetlands (such as in the example shown) or where it supports permanent pools or permanent flow in streams. Given their reliance on underground water, GDEs may be adversely impacted by nearby underground water extraction and it is important that such extraction is carefully managed.



Links and Further Information

Further information on water allocation planning is available from the Adelaide and Mount Lofty Ranges NRM Board and Water for Good:

<http://www.amlnrm.sa.gov.au/Plans/Waterallocationplans/Waterallocationplansoverview.aspx>
<http://www.waterforgood.sa.gov.au/water-planning/water-allocation-planning/>

Groundwater Status Reports prepared by the Department for Environment Water and Natural Resources (DEWNR) are available from Water Connect:

<https://www.waterconnect.sa.gov.au/GSR/Pages/default.aspx>

Underground water data and well information held and collected by the Department of Environment Water and Natural Resources (DEWNR) is available from Water Connect:

<https://www.waterconnect.sa.gov.au/GD/>

To obtain electronic copies of this and other regional report cards go to the Board's website www.amlnrm.sa.gov.au and click on the Monitoring and Evaluation tab