

Eastern Recharge and Southern Recharge Groundwater Sources

Long-term average annual extraction limits and planned environmental water

The Department of Planning, Industry and Environment has updated estimates of recharge, planned environmental water and the long-term average annual extraction limits in the Eastern Recharge and Southern Recharge Groundwater Sources to incorporate new knowledge and updated information. We have changed the way in which the long-term average annual extraction limits and planned environmental water are described in the water sharing plan to make the definitions more accurate and to remove the reference to recharge.

Long-term average annual extraction limit

The Eastern Recharge and Southern Recharge Groundwater Sources are largely non-artesian. That is, water levels in bores are lower than the ground surface. In these water sources, a percentage of groundwater recharge (infiltration of rain to the water table) is reserved for the environment and the remainder is available for consumptive use (that is, the long-term average annual extraction limit).

The Warrego, Surat and Central Groundwater Sources are largely artesian (that is, water levels in bores are higher than the ground surface). The approach to setting the long-term average annual extraction limit for these water sources differs, and is set out in the fact sheet *Surat, Warrego and Central Groundwater Sources: Long-term average annual extraction limits and planned environmental water*, found here: www.industry.nsw.gov.au/gab-groundwater-water-sources-components-for-consultation

How the limit is determined

The extraction limit is defined as being a percentage of 'net' recharge.

We have reviewed the estimates of average annual recharge to both these groundwater sources. The review has resulted in an increase to the estimates used in 2008 water sharing plan.

Net recharge is the estimated average annual recharge less a portion that is reserved to maintain throughflow to the artesian water sources. Sixty per cent of the new estimated average annual recharge to each groundwater source is reserved to maintain throughflow. This percentage has not changed from the 2008 water sharing plan.

The percentage of net recharge that is made available for extraction was determined via a desktop risk assessment. The percentage of net recharge made available for extraction is 70% (the long-term average annual extraction limit) and 30% of net recharge is committed to the environment. This percentage has not changed from the 2008 water sharing plan.

The extraction limit for each groundwater source has therefore increased as a result of the increased estimates of average annual recharge.

For more information on how recharge in these groundwater sources was calculated, see the report *Literature review and recommended recharge rates: Southern and Eastern Recharge Groundwater Sources*, available here: www.industry.nsw.gov.au/gab-groundwater-water-sources-components-for-consultation

Table 1. Current and revised estimates for the Eastern Recharge Groundwater Source

Eastern Recharge GW Source	Current estimate in water sharing plan	Revised estimate recommended
Recharge (infiltration)	47,500 ML/yr	57,800 ML/yr
Throughflow (60% of recharge)	28,500 ML/yr	34,680 ML/yr
Net recharge (40% of recharge)	19,000 ML/yr	23,120 ML/yr
LTADEL* (70% of net recharge)	13,300 ML/yr	16,200 ML/yr

Table 2. Current and revised estimates for the Southern Recharge Groundwater Source

Southern Recharge GW Source	Current estimate in water sharing plan	Revised estimate recommended
Recharge (infiltration)	106,000 ML/yr	138,200 ML/yr
Throughflow (60% of recharge)	63,600 ML/yr	82,920 ML/yr
Net recharge (40% of recharge)	42,400 ML/yr	55,280 ML/yr
LTADEL* (70% of net recharge)	29,700 ML/yr	38,700 ML/yr

*Long-term average annual extraction limits

Planned environmental water in NSW

The NSW *Water Management Act 2000* requires environmental water rules be established for all water sources. Planned environmental water rules are established in water sharing plans.

Planned environmental water in the Great Artesian Basin Water Sharing Plan is described in the following two ways.

Firstly, the rules in groundwater water sharing plans ensure that there will be water remaining in the groundwater sources over the long-term by maintaining compliance with the long-term average annual extraction limits. These groundwater sources store large volumes of water accumulated

over thousands of years. This stored water is also replenished from time to time by rainfall, river and flood flows. The long-term average annual extraction limits specified in groundwater water sharing plans represent a small fraction of the water in storage. The remaining water is planned environmental water.

Secondly, the rules in groundwater water sharing plans limit the amount of water allocation in an account for an access licence that can be taken from a groundwater source in any one water year. It also limits how much unused allocation can be carried over from one water year into the next. The water sharing plans commit any unused water allocations that cannot be 'carried over' for use in subsequent water years as planned environmental water.

Monitoring and compliance in NSW

The NSW Government and water users both have a role in protecting planned environmental water by ensuring compliance with water sharing plan rules.

Water available for extraction is managed to ensure that the volume of water taken does not exceed the water sharing plan's extraction limits over the long-term. Water sharing plans include provisions that describe how compliance with the extraction limits is monitored and assessed. When extraction exceeds an extraction limit, the total volume available for extraction can be reduced through mechanisms such as:

- available water determinations – limiting the amount of allocation credited to a water allocation account associated with a licence, and
- restricting the water allocations that can be taken, assigned under section 71T of the Act, or otherwise debited or withdrawn, from a water allocation account.

More information

The draft NSW Great Artesian Basin Water Sharing Plan 2020 and other fact sheets are available from www.industry.nsw.gov.au/water/plans-programs/water-sharing-plans/water-sharing-plans-on-public-exhibition/gab

More information on groundwater available water determinations is available from www.industry.nsw.gov.au/__data/assets/pdf_file/0003/175935/Available-water-determinations-for-groundwater-fact-sheet.pdf

For more information on how recharge in these groundwater sources was calculated see www.industry.nsw.gov.au/water/plans-programs/water-sharing-plans/water-sharing-plans-on-public-exhibition/gab