

# Forest water use

## Lower Limestone Coast Water Allocation Plan | March 2015 | Factsheet 3

The groundwater resources of the Lower Limestone Coast are unique and precious, and underpin the region's people, townships, industries and environment.

The Minister for Sustainability, Environment and Conservation adopted the Lower Limestone Coast Water Allocation Plan (the WAP) to ensure the long term sustainability of the region's water resources.

Developing the WAP has involved significant research and stakeholder consultation, resulting in what is believed to be a world-first approach to sustainable water resources management in that it now includes commercial forests as a licensed water user.

The WAP introduces a water licensing system for commercial forests based on expected water use over time. This fact sheet describes the way that the WAP manages forest water use.

### WHY ACCOUNT FOR FOREST WATER USE?

All vegetation types in the Lower Limestone Coast impact on water resources to various extents by reducing the amount of water runoff and infiltration, and in some cases, through the direct extraction of groundwater.

Plantation forestry is no exception, as regardless of species, forest canopy cover causes reduced runoff and groundwater recharge in a process known as interception. In addition, in places where the depth to the groundwater is less than six metres, plantation forests may directly extract groundwater.

In the Lower Limestone Coast areas of commercial forest plantation have been a direct contributor to groundwater decline, irrespective of recent dry climatic conditions, primarily in the management areas of Coles and Short.

It is important that water allocation plans account for the impact that all significant users are having on underground water resources, which is why this WAP includes a water licensing system for forestry.

Doing so also implements recent amendments to the *Natural Resources Management Act 2004* (NRM act) and the 2009 *statewide policy framework managing the water resource impacts of plantation forests*.

### A WATER LICENCING SYSTEM FOR FORESTRY

The WAP manages water use by commercial forests through the granting of allocations attached to a forest water licence.

The WAP grants allocations attached to forest water licences to:

- existing commercial forests
- commercial forests clearfelled no more than three years prior to the adoption of the WAP
- unplanted land where a valid development authorisation exists for a change of land use to commercial forest.

Any allocation in existence from 1 July 2014 being used to off-set the water resource impacts of commercial forests (known as an off-set allocation) will be converted to an allocation attached to a forest water licence.

Consistent with the *Lower Limestone Coast Water Allocation Plan Policy Principles (2012)*, once allocations are issued to commercial forests in existence at 1 July 2014, the forest threshold expansion opportunity shall cease to exist.

The forest threshold expansion opportunity was an allowance made in water budgets for an area set aside for the expansion of forestry.

### HOW MUCH WATER WILL BE ALLOCATED TO COMMERCIAL FORESTS?

The WAP provides for water allocations attached to forest water licences to be granted to existing commercial forests, based on recharge interception and direct groundwater extraction (where applicable).

For recharge interception, the allocation is based on the recharge intercepted by a forest at canopy closure (100% of recharge).

The allocation for direct groundwater extraction will be the assumed deemed rates of water use of 1.82 ML/ha/year for hardwoods and 1.66 ML/ha/year for softwoods, where the forest overlies a water table that is less than six metres.



There are different allocations for commercial forests in management areas identified in the risk management process as being at high to very high risk of degradation and which are proposed to undergo reductions in allocations.

In these areas, the volume to be allocated shall be either equivalent to 100% recharge interception minus a volume equivalent to the reductions in allocations, or the minimum volume of allocation required, whichever is the greater.

Following the granting of allocations to existing commercial forests, the minimum volume of water allocation a licensee is required to have attached to their forest water licence to account for commercial forest water use, is based upon the deemed rates of forest water use, which were developed in consultation with the forestry industry and other stakeholders. The deemed rates are shown in Table 1 on the back page. These deemed rates outline the expected water use of a forest over its life, based on assumptions about rotation lengths, number of thinnings and fallow periods.

Hardwood forests coppiced after declaration date or 1st July 2014 are required to obtain additional water through trade or transfer at rates outlined in Table 1.

### IS THERE ALTERNATIVE WAYS TO ACCOUNT FOR FOREST WATER USE?

As envisaged by the Lower Limestone Coast Water Allocation Plan Policy Principles, the WAP allows for the development of alternative deemed rates of forest water use in the following situations:

- Where more than one year of forest fallow occurs prior to the start of the forest rotation
- No forest fallow year occurs prior to the start of the forest rotation (and the forest is not a hardwood plantation established after the date of adoption through coppice regrowth)
- A softwood plantation undergoes five or more forest thinning operations
- A softwood plantation undergoes three or less forest thinning operations.

These alternative deemed rates are determined using the same assumptions as the deemed rates in Table 1. Details on how these additional deemed rates are determined are set out in section 4 of the WAP.

### TRADING ALLOCATIONS ATTACHED TO FOREST WATER LICENCES

The WAP provides the framework for an effective water market, whereby water allocations can be moved between different users, providing flexibility as circumstances change.

Any water held by a forest water licensee in excess of the minimum volume required, is able to be transferred (traded).

For the purposes of trade and transfer, the entire allocation attached to a forest water licence is considered to be the 'tradeable component'. This means that an allocation may be transferred to another licensee, where it is not offsetting an existing forest and subject to the hydrogeological assessment and other conditions on trade and transfer.

In three of every five years, forest water licensees are eligible to transfer in a volume (capped at 20% of their allocation) from another licensee in the same management area. These transfers are not subject to hydrogeological assessment and expire at the end of the water use year.

These policies were originally included to assist licensees to manage seasonal variability. This transfer is restricted to three out of every five years to ensure that licensees do not use this provision to permanently expand their crop area or activity extent. In the WAP, forest water use is averaged across the forest rotation and is therefore not impacted by seasonal variation, however, this provision has been extended to forest water licensees.

The WAP also allows forest water licensees to apply to transfer up to 75% of the volume of their reduction from another licensee in the management area, with no form of hydrogeological assessment. Additional volumes in excess of 75% of the volume of the reduction can also be transferred to the licensees' forest, but these transfers are subject to assessment.

Transfers from forest water licences to non-forestry licensees are also subject to the Permissible Annual Volumes and Allowable Annual Volumes set under the Border Groundwaters Agreement.

### WHAT'S CHANGED AS A RESULT OF COMMUNITY CONSULTATION?

The requirement for a year of fallow to occur prior to the transfer of an allocation attached to a forest water licence has been removed, in recognition of the fact that the deemed rate of forest water use is based on an average forest fallow period of 12 months, rather than a minimum.



## HYDROGEOLOGICAL ASSESSMENT

Hydrogeological assessment is pivotal to the effective implementation of water allocation policy. This is because hydrogeological assessment can help us to understand the condition of the resource in any given location, monitor trends and understand the likely impact of additional extraction.

A different approach to hydrogeological assessment is needed for forestry because it does not impact upon underground resources from a single point but rather has a diffuse impact across a larger area.

The WAP requires that applications for new allocations attached to forest water licences (excluding the initial issuing of allocations to existing commercial forests) be subject to the 16km<sup>2</sup> circle test. This ensures that the level of allocation within a 16 km<sup>2</sup> circle centered over the geometric centre of the proposed forest does not exceed 1.25 times the amount of annual average vertical recharge for the management area within the circle.

In addition, the WAP states that no allocation shall be made which appears to have the potential to cause the resource condition triggers (a decrease in the water table of >0.1 m/year or an increase in salinity of the groundwater of > 2% per year, both measured over the preceding 5 years) to be exceeded.

With respect to groundwater-dependent ecosystems, the WAP requires that first rotation commercial forests be subject to principles requiring a set-back distance from the 13 priority groundwater dependent ecosystems (GDE's) and GDE's of high or very high conservation value.

## RESPONDING TO STRESSED WATER RESOURCES

In management areas identified in the risk assessment process as being at high to very high risk of degradation, the WAP implements reductions to water allocations, including allocations attached to forest water licences.

Unlike other types of water allocations, allocations attached to forest water licences may only be reduced following clearfell, with the consent of the forest water licensee, or in accordance with a scheme approved by the Minister under section 169E of the NRM Act.

In calculating the level of reductions required following clearfell, the reduced volume of water proposed to be allocated to existing commercial forests in management areas at high to very high risk of degradation, will be taken into account.

Where the reduction is to occur following clearfelling, the volume of allocation equivalent to the clearfelled area shall be reduced from the forest water licence. This will occur until all reductions to allocations attached to forest water licences in that management area have been completed.

The Minister may approve an alternative reductions scheme for forest water licensees under section 169E of the NRM Act. Such schemes should relate to the management of the forest (including as to the planting and harvesting of trees constituting the forest), and subject to the licensee complying with any conditions attached to that approval.

The WAP states that a licensee who has undergone reductions to allocations is eligible to apply for a water (taking) allocation or an allocation attached to a forest water licence, in an under-allocated management area, subject to hydrogeological assessment and a number of other conditions. The volume of allocation may be equivalent to or less than the volume of reduction to the tradeable component or to the allocation attached to a forest water licence.



## WILL ALL FORESTS BE LICENSED?

**The entire Lower Limestone Coast Prescribed Wells Area is designated as a declared forestry area as of 1 July 2014.**

This means that all commercial forests within the Lower Limestone Coast, with the exception of farm forestry, are included within the water licensing system on account of their impacts on water resources.

## FARM FORESTRY

*The NRM (Commercial Forests) Amendment Act 2011 allows for a water allocation plan to exclude specified forests, or forests of a specified class, from requiring a forest water licence.*

**Consistent with the Lower Limestone Coast Water Allocation Plan Policy Principles, the WAP proposes that farm forestry as defined, should be excluded from the requirement for a forest water licence.**

Farm forestry is forestry activity that is integrated with other farming activities, such as cropping or livestock production.

For the purposes of the WAP, farm forestry is defined as any commercial plantation forest where the net planted area does not exceed, or will not exceed, 10% of the area described on a Certificate of Title or Crown Lease or 20 ha per Certificate of Title or Crown Lease, whichever is greater, and is situated on a farm.

That being said, any farm forest that expands to become a commercial forest will be required water to find water through trade or transfer for the entire area (An allocation may be granted from the Crown for the area originally considered to be farm forestry), if the original farm forestry area was planted prior to 1 July 2014. (The date of declaration of the Lower Limestone Coast Declared Forestry Area)

More information about farm forestry is set out in a separate fact sheet of the same name, available at:

[www.naturalresources.sa.gov.au/southeast](http://www.naturalresources.sa.gov.au/southeast) or phone on **08 8735 1177**.

## FURTHER READING

Guide to the WAP

- Factsheet 1 - Sustaining our region through water allocation planning
- Factsheet 2 - Changes to how water is allocated
- Factsheet 3 - Forest water use
- Factsheet 4 - Protecting vulnerable water resources
- Factsheet 5 - Water trade and transfer
- Factsheet 6 - Protecting groundwater dependent ecosystems
- Factsheet 7 - Managing the confined aquifer
- Factsheet 8 - Managing water in the Border Zone
- Factsheet 9 - Farm forestry

Table 1: Summary of current assigned deemed annualised recharge interception and direct groundwater extraction values for Lower Limestone Coast Plantation Forests

Plantation type:	Hardwood	Softwood	Hardwood coppiced after July 1 2014
Nominal rotation length – planting to clear felling (Years)	10	35	8
Recharge under forest relative to management area annual average vertical recharge rate (%)	22	17	22
Extraction rate per hectare, where median water table is 6 metres, or less at 30 June 2004 (WAP Figure 12, Appendix of Figures and Tables) (ML/hectare/year)	1.82	1.66	2.50

