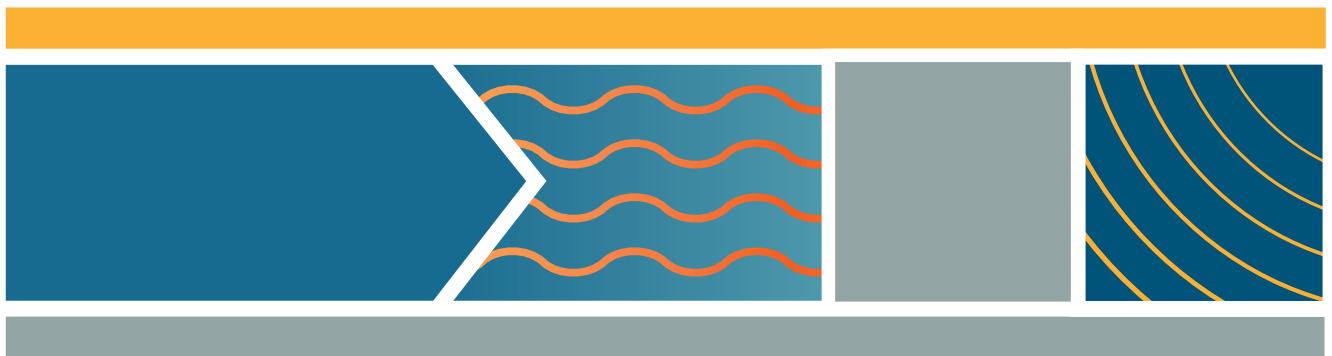


# Water sharing in the Lachlan Regulated River

Progress report 2004 to 2008



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## Introduction

A water sharing plan (WSP) for the Lachlan regulated rivers water source commenced on 1 July 2004. This plan contains rules for how water is shared between the environment and water users and different categories of licences. The Plan was, however, immediately suspended due to the extremely dry conditions. Since this time, the Department of Water and Energy has put in place measures aimed at meeting critical water needs of towns, domestic and stock and industry.

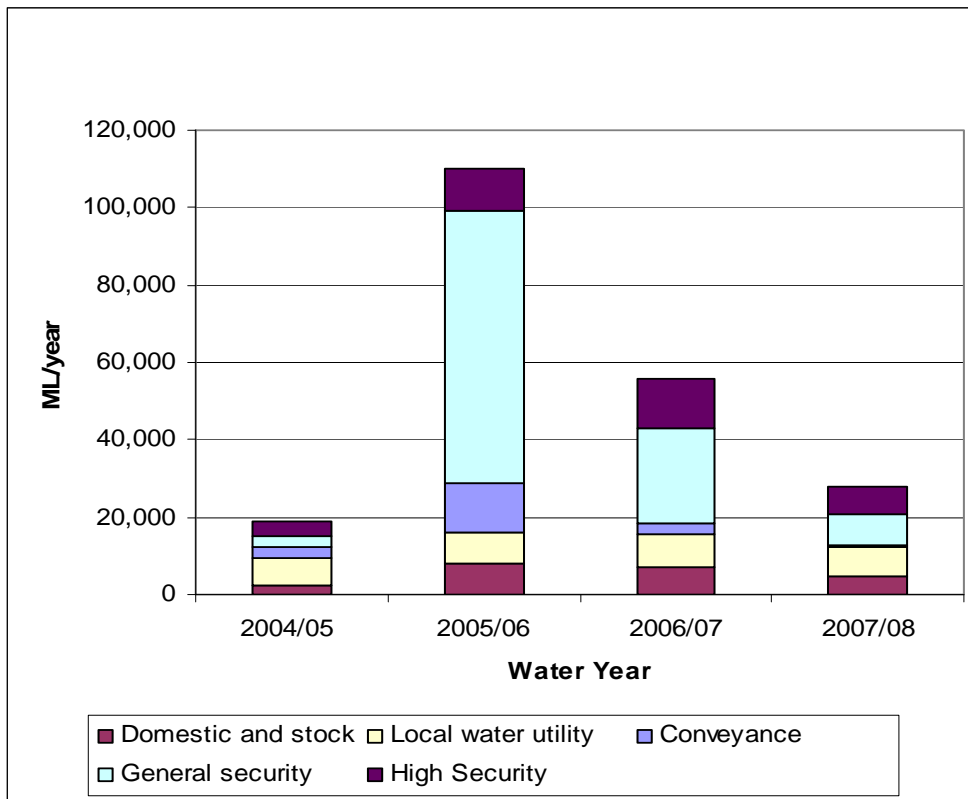
Despite the suspension of the Plan, there has been significant progress in implementing the rules detailed in the Plan in the four years, from 2004 to 2008. This report summarises key activities arising from implementation of the Lachlan Regulated River WSP and details how water management has differed from the rules in the plan (see also critical water planning updates on [www.dwe.nsw.gov.au](http://www.dwe.nsw.gov.au) ).

## Water for the environment

### Managing to extraction limits

The Plan establishes a long-term average annual extraction limit estimated as 305,000 megalitres per year and identifies water above this limit (approximately 75 per cent of flows) as planned environmental water. This limit is determined by hydrologic modelling - it is not the volume of water extracted from the water source in any particular year.

The Department updates this model with any available new information and reruns it every year. There has been no apparent increase in irrigation development in the Lachlan since the development of the plan and actual water use since the commencement of the WSP has been low, due to the dry conditions (see Figure 1). The Department will continue to monitor the situation and assess the long term average annual extraction against the Plan limit.

**Figure 1 Lachlan Regulated River Water Use 2004 to 2008**

## Improving winter to spring flow variability

The Plan contains rules (known as dam translucency rules) which require a portion of inflows to Wyangala Dam to be released, between 15 May and 15 November. Translucent releases are made when the combination of dam inflows and downstream tributary inflows are sufficient to produce the target flows at Brewster Weir. The target flows for these releases vary between 3,500 ML per day and 8,000 ML per day measured at Lake Brewster Weir, depending on the volume of water in Wyangala Dam. Delivery of translucent releases is conditional on both the inflows to Wyangala Dam and on the flows past Lake Brewster Weir. These rules also prohibit the extraction of some tributary inflows or the diversion of flows into Lakes Brewster or Cargelligo from 1 June to 30 November. The translucent releases are aimed at improving flows in the lower Lachlan and reintroducing a more natural flow pattern and are identified in the Plan as planned environmental water.

In 2005, total inflows into Wyangala Dam since 1 January that year were above 250,000 ML, the trigger in the Plan for translucency releases. As the Plan was suspended, no translucency releases were made. Water was, however, made available in 2005 from tributary flows downstream of Wyangala Dam (see section on environmental flows under drought management below).

## Environmental releases from Wyangala Dam and Lake Brewster

The Plan establishes a water reserve of 10,000 ML (or environmental contingency allowance) in both Wyangala Dam and Lake Brewster whenever the total volume of water available to general security access licences exceeds 50 per cent of the access licence share volume at the beginning of a water year or reaches 75 per cent during a water year. This water may be released to support waterbird or fish breeding, wetland watering or increase flow variability when needed.

At no time during the last four years have the criteria set out in the Plan for these allowances been met – the maximum volume of water available to general security licence holders was 0.19 ML per share in 2005–06.

When water availability improves in the Lachlan and the Plan is reinstated, decisions about releases of water from the environmental contingency allowance from Wyangala Dam and Lake Brewster will be made by the Department of Environment and Climate Change (DECC).

## Water quality allowance

A separate reserve of 20,000 ML in Wyangala Dam for reducing salinity levels or mitigating blue-green algae outbreaks was also established by the Plan.

No releases have been made from this allowance since 2004.

## Environmental flows under drought management arrangements

Wherever possible, water has been made available to the environment under the drought management arrangements which are in place whilst the WSP is suspended.

In 2005 a total of approximately 25,800 ML was delivered to Brewster Weir to the benefit of the riverine environment in three events from the tributary flows as part of the drought contingency operation.

In December 2005 releases of 5,500 ML into Merowrie Creek and 905 ML into Lake Brewster were made to support a major bird breeding event in the lower Lachlan from water allocated for environmental contingencies as part of the drought contingency plan. A further 5,000 ML was delivered into Muggabah Creek between October and December 2005 from environmental contingencies to water the Murrumbidgee Swamp. The delivery was, however, ceased as the flow was not achieving its objectives.

No environmental flows occurred in 2006–07 as priority for the limited water which was available was given to towns, domestic and stock and industry. In December 2007, a total of 7,000 ML was delivered to Brewster Weir to the benefit of the riverine environment.

## Adaptive environmental water

The WSP allows for licence holders to nominate their licence as Adaptive Environmental Water (AEW). Once a nomination has been processed, the entitlement cannot be used for any purpose other than environmental benefit, outlined in an Adaptive Environmental Water Use Plan.

Since 2006, the Department of Environment and Climate Change (DECC) has purchased five general security licences totalling 10,645 ML entitlement under the RiverBank program. In early 2008 the Minister approved a Use Plan for the Lachlan Regulated River water source which sets out how AEW licences will be used to further the objectives of the Lachlan Regulated River Water Sharing Plan. These licences held by DECC now contain AEW conditions linked to the RiverBank Use Plan for the Lachlan.

To date, there has been no use of AEW water in the Lachlan as there has not been any water made available to general security licences since the nomination of these licences.

## Clear water rights and trading

The Plan establishes rules for how water is shared between extractive users. Information on access licences, including conditions, entitlements, available water announcements and trading is available on public registers established by the Department in 2004 ( web site reference <http://dwe.nsw.gov.au>).

### Basic rights

The Plan provides for water to satisfy basic landholder rights. No access licences are required for accessing these rights. Water to meet these needs is included in State Water's operational protocols and is delivered on top of water ordered by licence holders.

The water extracted as basic landholder rights in the regulated sections of the Lachlan is usually insignificant compared to Plan's long-term extraction limit. During the last four years, water has been provided for basic landholder rights in all regulated sections in the Lachlan. The drought conditions have meant, however, that this has required considerably more resources than would generally be the case.

The Plan also provides for basic landholder rights in some unregulated effluent creeks in the form of annual replenishment flows (section 60 in the WSP). During the last four years, irregular deliveries of annual replenishment flows were delivered based on availability of surplus flows. This varied considerably across the creeks nominated in the Plan.

Booberoi Creek was the only creek to receive some replenishment flows in each of the past four years (7,510 ML in 2004–05; 8,435 ML in 2005–06; 6,918 ML in 2006–07; and 3,311 ML in 2007–08). Merrimajeel–Muggabah Creek received flows in two of the four years; 7,030 ML in 2005–06 and 5,446 ML in 2007–08. Willandra Creek received flows of 13,800 ML in 2004–05 and 10,170 ML in 2005–06. Merrowie Creek only received flows totalling 8,520 ML in 2005–06.

### Access licences

Share entitlements for access licences within the Lachlan regulated river water source were estimated at the commencement of the Plan. Prior to the commencement of the Plan, the Department converted 1,409 existing licences issued under the *Water Act 1912* to new licences and approvals under the *Water Management Act 2000*.

Over the past four years, there has been very little change in the total entitlement in the Lachlan regulated river water source. During this time, there was an increase in total entitlement for domestic and stock licences of 100 ML (or less than one per cent). The only other change during this period was a decrease in general security access licence entitlement of 13 ML.

### Available Water Determinations

An AWD is the volume of water that is made available to a category of access licence. Announcements are made at the start of the water year and whenever there is an improvement in water availability. For all categories of licence, except general security, announcements are made at the commencement of the water year (1 July). Announcements for general security licences are reviewed and updated regularly reflecting changes in the Department's assessment of available water.

The rules set out in the plan for calculating and distributing the AWDs for each licence category and the carry-over provisions were suspended in July 2004. This has made it possible to maintain essential supplies such as town water supply, domestic and stock water and water for the critical industries such as permanent plantings and mines.

Due to record low inflows, AWD announcements for general security access licences was set at zero for significant periods since 2004. Since this time, water has only been made available to this category of licence for the nine months between 30 September 2005 and 30 June 2006 (cumulative AWD of 0.19 ML per share).

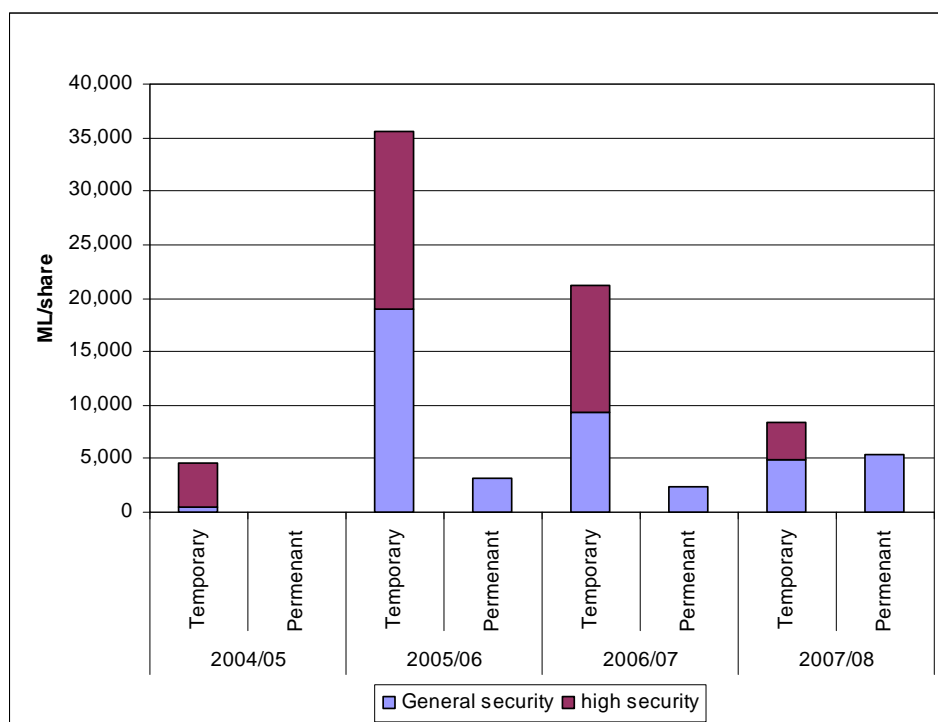
Further limitations were placed on the use of water which had been debited to general security licence holders' accounts under the drought management arrangements. In 2006–07, a maximum of 40 per cent of the balance in general security licence holder accounts was able to be used. In 2007–08, this limit was 20 per cent.

Announcements for all other categories of licence also reflect the extremely dry conditions. The cumulative AWD for high security access licences ranged from 0.3 ML per share in 2004–05 and 2007–08 to 1.0 ML per share in 2005–06. Announcements for other categories of licences followed a similar pattern, with 2004–05 being the lowest announcement (30 per cent per share domestic and stock, 50 per cent per share for local water utilities and 0.0558 ML per share for conveyance licences) and 2006–07 being the highest (100 per cent per share for domestic and stock and local water utilities and 0.82515 ML per share for conveyance licences).

## Water markets

Temporary transfers of water licences were introduced in NSW in regulated streams in 1983–84 and permanent trades in 1989.

The implementation of the WSP has involved removal of barriers to the efficient operation of these water markets, facilitating more efficient and better informed trades. Key mechanisms include clear rules for trading (in the WSP), the separation of the water licence from the land title in 2004, and the establishment by DWE of public registers in 2004, showing the volume and price paid for access licences. Figure 2 shows details of water licence trades from 1 July 2004 to 30 June 2008 within the Lachlan Regulated River water source. Volumes shown for temporary trades are for temporary share assignments (where water in a licence holder's account is sold, but ownership of the licence retained). Permanent trades include both share assignments and sale of the licence entitlement. Variations between those years are mostly related to climatic conditions and the volume of water made available to different licence categories.

**Figure 2 Lachlan Regulated River Licence Dealings 2004 to 2008**

Transfers of Local Water Utility access licences are prohibited under the Minister's trading principles. The Department's register, however, shows a small number of temporary share assignments involving local water utilities. All of these transfers were between different licences held by the same council to meet recreational water needs. Lachlan Shire Council transferred account water in 2004–05 to fill Gum Bend Lake. Carrathool Shire Council transferred account water between their licences in each of the following three years to fill Lake Woorabinda. Forbes Shire Council transferred account water between their licences for playing fields.

In one or two instances, the assignment of stock licence allocations was allowed due to drought conditions. Under normal circumstances, the Minister's dealing principles prohibits such trades.

## Water source operation

The Plan requires that a minimum visible flow be maintained at Geramy. The Lachlan drought contingency plan included the provision of very minimal flows and pulsing of flows to the lower Lachlan below Booligal Weir. Anecdotal evidence indicates that there has been a visible flow at Geramy most, but not all of the time.

## Monitoring

The effectiveness of the Lachlan plan in achieving its objectives will be assessed by 2014. The Department has developed methods for long term monitoring of plans to support this assessment (see [www.dwe.nsw.gov.au](http://www.dwe.nsw.gov.au) for more information on the ecological monitoring).

In the Lachlan the ecological monitoring program has focussed on monitoring and modelling the effectiveness of the environmental flows rules as whole, which are mostly influenced by translucency and environmental contingency allowance (ECA) and for water quality concerns the Water Quality Allowance (WQA). This includes:

- Monitoring and modelling responses to flow within nationally significant wetlands in the lower Lachlan Valley, and billabongs downstream of Forbes since 1998. For example, observing the response of the regionally significant glossy ibis (*Plegadis falcinellus*) in Booligal Swamp. This has allowed the determination of the size and duration of flows required for, and the effects of drought on colonial bird nesting events.
- Modelling has also determined which wetlands are the greatest beneficiaries if environmental water to advise further wetland management.
- The Department of Water and Energy and other agencies are working with State Water in the redesign of Lake Brewster and, within Integrated Modelling of Environmental Flows (IMEF) are continuing monitoring and modelling to improve the use of the LBECA for algal bloom mitigation.
- State Water and the Department of Water and Energy are monitoring salinity levels in tributary streams of the Lachlan and Lachlan at Cowra, Forbes and Condobolin to determine when the Water Quality Allowance is needed to dilute river water in order to reduce river salinity.

The review of the WSP's effectiveness will also consider the economic and social elements of the Plan's objectives. To this end, key indicators for monitoring of the irrigation sector have been identified and a survey conducted in 2006 to establish baseline information for ongoing assessment.

## Plan amendments

The Plan allows for a number of changes to be made to it. No amendments have been to the Plan since its commencement.

The Plan provides for the regulated river (conveyance) access licence held by Jemalong Irrigation Limited to be either adjusted to reflect actual losses experienced under continuous accounting rules or converted into high and general security access licences. It is anticipated that this will be done within twelve months of the recommencement of the Plan.