



**Submission to**

**the Standing Committee on Regional Australia**

**Inquiry into certain matters relating to the proposed  
Murray-Darling Basin Plan**

**by Lachlan Valley Water**

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# **SUBMISSION TO THE INQUIRY INTO CERTAIN MATTERS RELATING TO THE PROPOSED MURRAY-DARLING BASIN PLAN**

Lachlan Valley Water (LVW) welcomes this invitation to make a submission to the inquiry in respect of the groundwater sustainable diversion limits (SDLs) in the revised proposed Basin Plan

LVW is the peak valley-based organisation representing 650 surface water and groundwater irrigator members in the Lachlan Valley, including irrigators within Jemalong Irrigation Limited (JIL). This submission has been prepared on behalf of all members and represents a 'whole of valley' position, however, members also reserve their right to make a separate submission.

## **1. Terms of Reference**

LVW has been asked to comment specifically on term of reference 3:

### **The groundwater sustainable diversion limits (SDLs) for Basin in the revised proposed Basin Plan**

In summary, LVW supports the approach to groundwater that the MDBA has taken in the draft Plan and believes is more accurate and more soundly based on the evidence than the approach taken in the Guide. Our submission sets out the basis for this position, firstly in relation to the overall Basin Plan and then specifically addressing groundwater in the Lachlan catchment.

## **2. Whole of Basin**

Across the Basin there have been significant changes in the proposed Sustainable Diversion Limits (SDLs) between the Guide to the Basin Plan published in late 2010, the draft Plan published in late 2011 and the revised draft Plan published in May 2012.

Much of the public comment on these changes appears to have concentrated on the total volume of groundwater SDLs and the proposed increase in the combined groundwater SDLs of more than 2000 GL between the Guide and the draft Plan. This global approach does not indicate an understanding of the specific characteristics of each aquifer, the variable connectivity between groundwater and surface water, or the detailed explanations the MDBA provided to support the changes.

The MDBA's Consultation Report<sup>1</sup> notes in regard to the groundwater SDLs *"The submissions in general looked at the aggregate volume of SDLs across the Basin and were concerned that the increased groundwater SDLs would largely negate the gains from reducing surface-water take across the Basin. Implicit in some of these submissions was the assumption that the groundwater resources could be aggregated to a single volume and for every 1 ML of groundwater extracted there was a corresponding 1ML reduction in surface water inflow due to the connectivity between surface and groundwater"*.

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<sup>1</sup> Proposed Basin Plan Consultation Report, MDBA, 2012

### Basis for SDLs in the Guide

The MDBA explained in their Groundwater Methods Report<sup>2</sup> how the initial assessment of SDLs was made in the Guide. Numerical models exist for 13 groundwater sources that account for around 75% of the existing total groundwater extraction in the Basin, and these models were used where available. However, where there was no numerical model the SDL was assessed through an analytical risk assessment framework, which calculated the estimated average annual recharge and then allowed only a percentage of that recharge to be extracted.

The percentage of recharge able to be extracted was based on both the risk to the environmentally sustainable level of take and the level of uncertainty about the information, and at most allowed the extraction of 52.5% of the estimated annual recharge, and at the lowest 5% of the estimated annual recharge.

In addition, for the less developed groundwater sources the approach in the Guide was to maintain the SDL at or below the current level of usage, regardless of the volume of entitlement issued or whether there was potential to increase extraction without unacceptable environmental impacts.

This was an inherently conservative approach to assessing the SDLs, and therefore it is not surprising that when the MDBA included additional data and undertook further assessment after the Guide was published, the SDLs were increased.

### Basis for Change in SDLs

The Groundwater Methods Report outlined the main reasons for the increase in total groundwater SDL between the Guide and the draft Plan:

- Inclusion of 3 additional aquifers
- Use of updated data to determine baseline diversion limits
- Further assessment of the extent to which aquifers can sustain additional extraction
- Consideration of existing state based groundwater reduction schemes.

The Methods Report then detailed the reasons for the change in SDLs in specific aquifers. LVW agrees that when more information becomes available to enable better decision making, that information should be used. The MDBA has clearly laid out the evidence and their rationale for increasing the groundwater SDL's in various cases. We support their reasoning that it's better to get the evidence first and then make the decision, rather than the other way round.

Analysis of the data in Appendix 2 of the MDBA Groundwater Methods Report indicates that the majority of the volume increase in SDL's between the Guide and the draft Plan was in groundwater areas with low levels of development and unassigned water. The Report goes on to say that there is the potential to increase extraction in these areas without compromising environmental characteristics, and that in some cases the MDBA has set extraction limits for areas with unassigned water for the first time.

LVW believes it is entirely appropriate that the MDBA should increase the SDLs if the evidence warrants it, on the basis that the Government is seeking to optimise the social, economic and environmental outcomes through the Basin Plan process.

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<sup>2</sup> The proposed Groundwater Baseline and Sustainable Diversion Limits: Methods Report, MDBA, 2012

### 3. Lachlan Groundwater

There are six groundwater resource units in the Lachlan catchment:

Lower Lachlan Alluvium – has a numerical model, is managed under a Water Sharing Plan

Upper Lachlan Alluvium – has a numerical model, Water Sharing Plan in preparation

Belubula Alluvium – has a numerical model, Water Sharing Plan in preparation

Young Granite – managed under a Water Sharing Plan

Orange Basalt – managed under a Water Sharing Plan

Lachlan Fold Belt: Lachlan – managed under a Water Sharing Plan

#### 3.1 Lower Lachlan Alluvium

##### Background

The Lower Lachlan Groundwater Sharing Plan was introduced in 2008. It set an extraction limit of 108 GL that was agreed by both the State and Federal Governments under the Achieving Sustainable Groundwater Entitlements (ASGE) program, and resulted in licensed entitlement being reduced from 215 GL to 108 GL. It also included water management rules to manage local area impacts.

The 2010 Guide proposed an SDL that was 40% (43 GL) below the Water Sharing Plan (WSP) extraction limit. At that time both LVW and the NSW Office of Water disagreed that a further cut was needed so soon after WSP had been introduced. LVW submitted that the proposed SDL ignored the effect of the WSP and that recent data did not support the need for a further cut. Even in 2010 the water levels in monitoring bores were starting to show a levelling off.

##### Change in SDL

The MDBA undertook further assessment and detailed consultation with the NSW Office of Water, and subsequently increased the SDL to the WSP Limit of 108 GL. LVW believes this was the correct decision in view of the evidence, that the additional data available since then supports that decision, and that the SDL should remain at 108 GL, for the following reasons:

1. The Water Sharing Plan has already resulted in a significant change in usage within the aquifer. The WSP has effectively managed actual usage at below the maximum Plan Limit, as shown below:

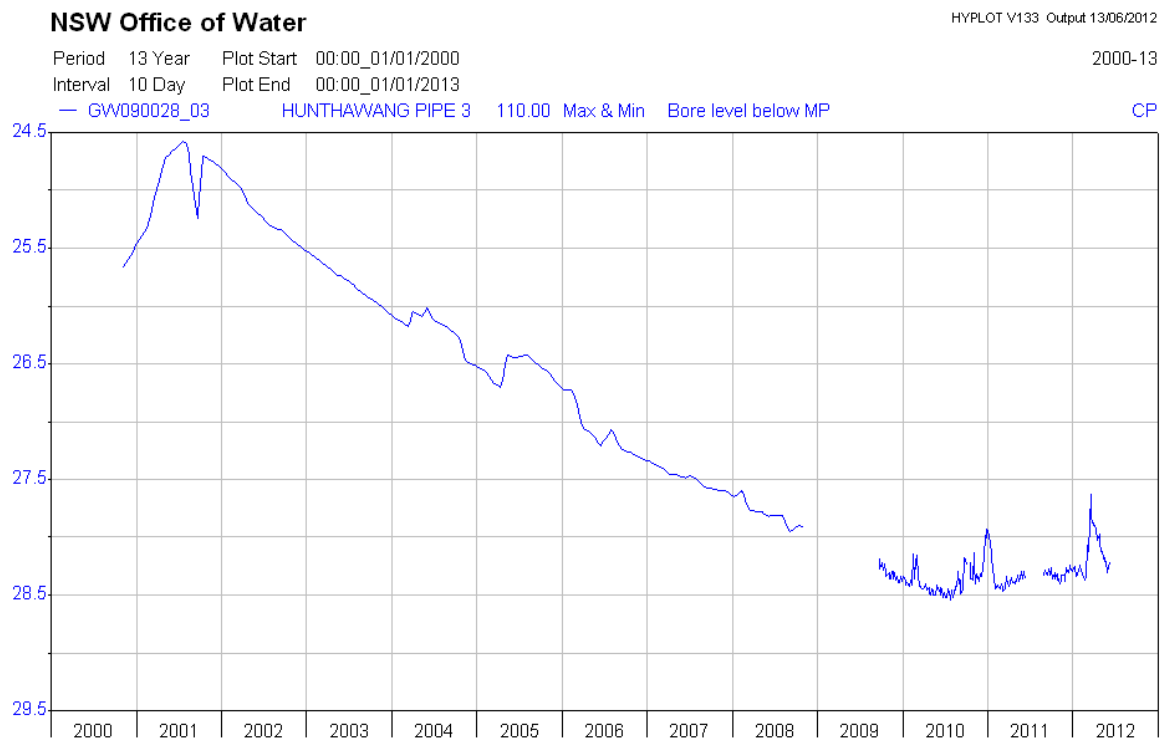
##### **Lower Lachlan Alluvium Groundwater Usage**

<b>Year</b>	<b>Groundwater Usage (GL)</b>	<b>Comment</b>
2002/03	122	
2003/04	136	Highest historic usage
2004/05	120	
2005/06	85	
2006/07	127	
2007/08	123	
2008/09	104	WSP introduced
2009/10	98	
2010/11		

Data source: NSW Office of Water

2. In addition, the Water Sharing Plan contains specific water management rules to prevent and manage the impact of localised drawdown due to concentrated extraction pressure in specific areas. This is a more sophisticated way to manage local impacts than simply reducing usage across the whole aquifer.
3. The monitoring bore hydrographs, as shown below, are already showing a response, with a levelling off or recovery of water levels from 2008 onwards. In contrast, the MDBA had based the SDL in the Guide on an assumption that continued extraction at the Plan Limit of 108 GL/year would result in a continuing decline in groundwater levels and that in order to stabilise the decline within 50 years the extraction would need to be cut to 64 GL/year.
4. The ratio of aquifer storage to aquifer recharge is high, providing a buffer against high short-term extraction rates.

### Selected Monitoring Bore Hydrographs

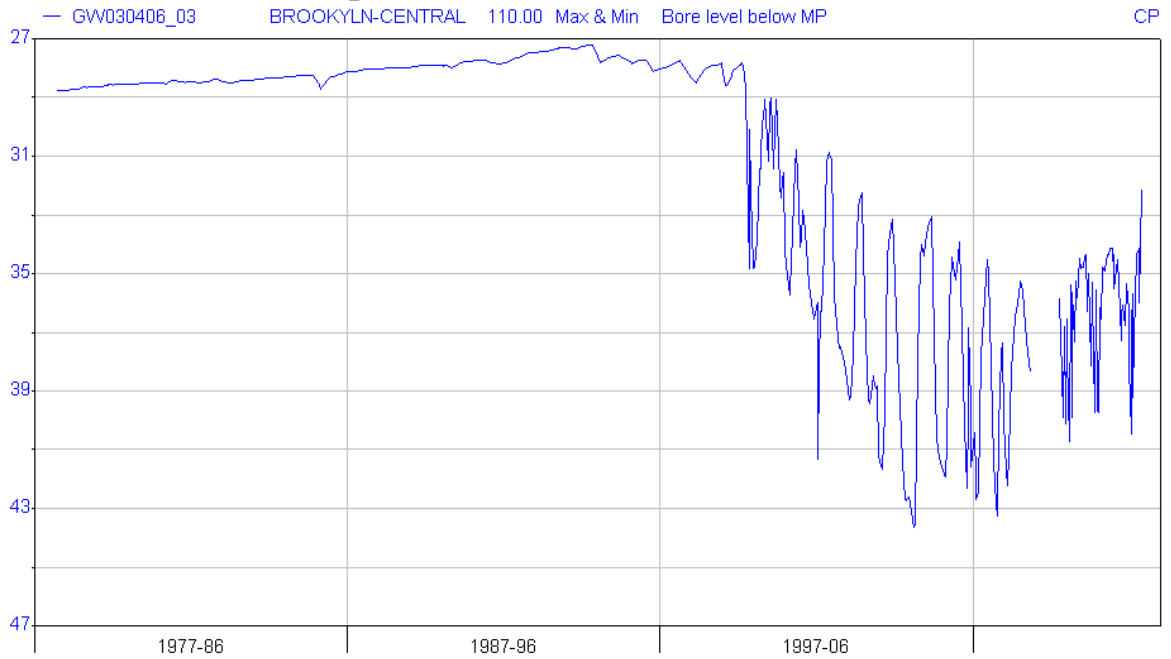


**NSW Office of Water**

HYPLOT V133 Output 13/06/2012

Period 36 Year Plot Start 00:00\_01/01/1977  
Interval 1 Month Plot End 00:00\_01/01/2013

1977-13

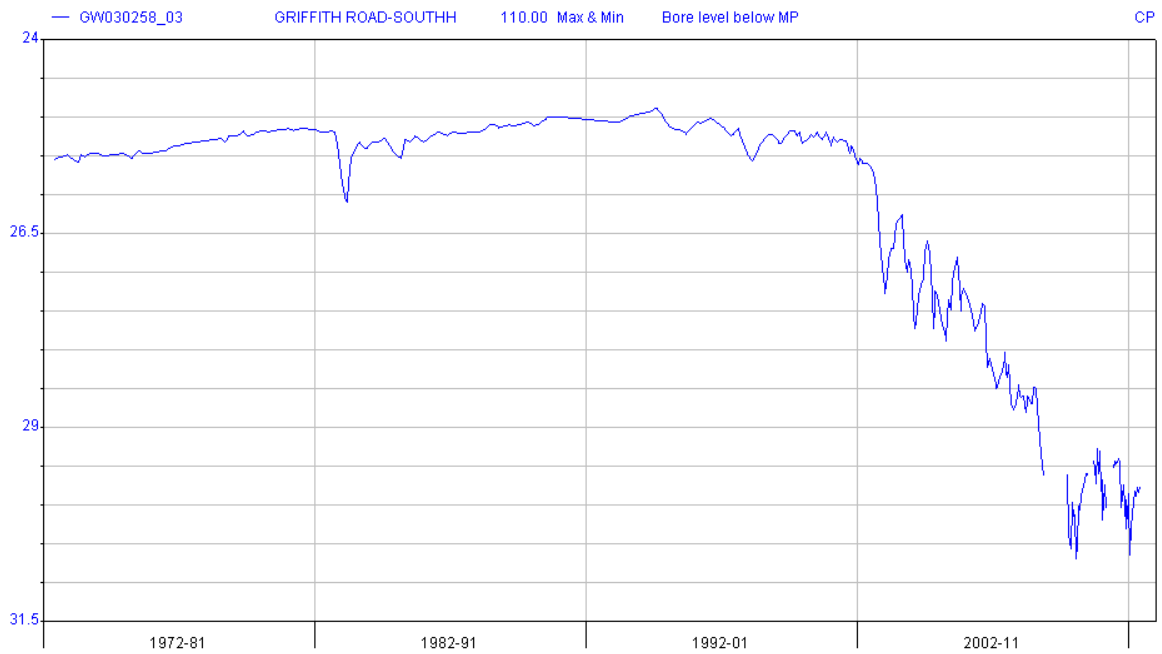


**NSW Office of Water**

HYPLOT V133 Output 13/06/2012

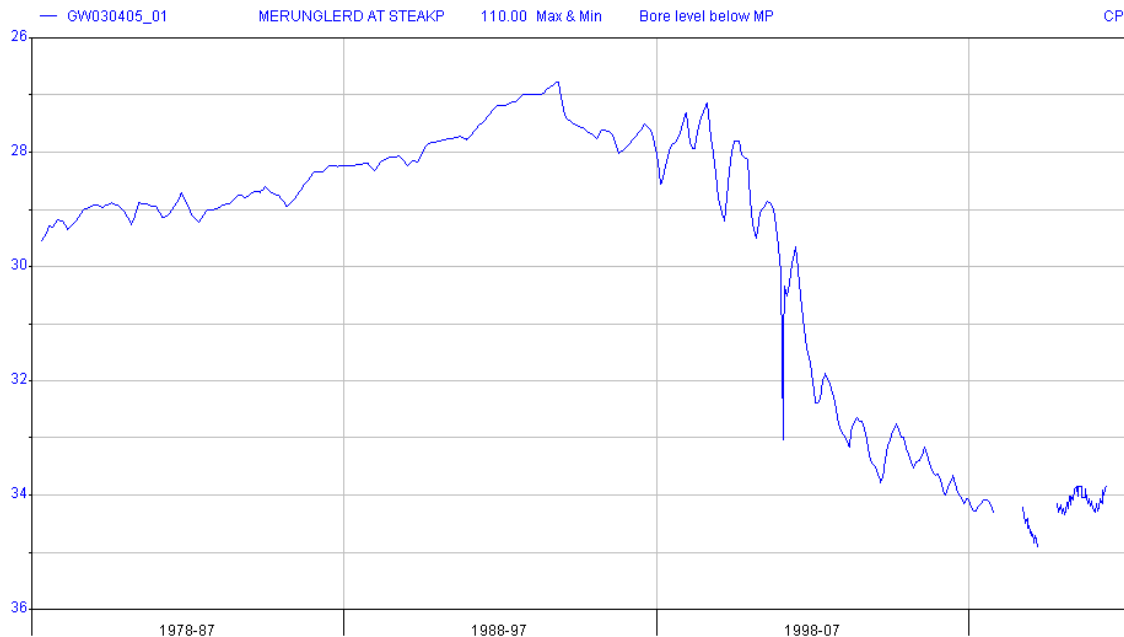
Period 41 Year Plot Start 00:00\_01/01/1972  
Interval 1 Month Plot End 00:00\_01/01/2013

1972-13



Period 35 Year Plot Start 00:00\_01/01/1978  
 Interval 1 Month Plot End 00:00\_01/01/2013

1978-13



### Summary

In summary, LVW supports the conclusion in the MDBA Groundwater Methods Report that the reduction program as set out in the Water Sharing Plan should be completed and the outcomes determined before any further changes to the SDL are considered.

We also agree with the MDBA that the Lower Lachlan aquifer has a large groundwater storage (a minimum of 200 years at current levels of use) and that there is a low risk of depleting the storage within the aquifer during the period of the first Basin Plan.

There would have been high social and economic impacts for Hillston if the proposed SDL in the Guide was implemented because growers had already adjusted to the WSP through significant capital investment to adopt more efficient technology and move to high value enterprises. A further 40% cut, without evidence of the need to do so, would be outside the adjustment capacity of most growers and therefore have been a severe blow to the economy and community of Hillston, a town largely reliant on irrigation.

If the Basin Plan is to achieve triple bottom line outcomes, it should provide for productive usage of groundwater and adaptive management of groundwater systems to achieve these outcomes.

## 3.2 Upper Lachlan Alluvium

The Upper Lachlan Alluvium has entitlement of 183 GL and a WSP extraction limit of 88 GL (excluding stock and domestic). The Guide initially proposed an SDL of 63 GL, but at the time the Guide was being prepared the NSW Office of Water Upper were finalising a numerical model for the area and still in the process of preparing the Water Sharing Plan. LVW understands that for the Guide the MDBA used the recharge assessment method rather than the numerical model to set the SDL for the Upper Lachlan Alluvium.

Since then the MDBA has used the numerical model, and after consultation with NSW Office of Water has also adopted the NSW WSP figures for the SDL, an increase of 25 GL.

LVW endorses this approach. As was the case in the Lower Lachlan, where more recent, more detailed data or models are available we support their use in decision making.

### **3.3 Lachlan Fold Belt: Lachlan**

The Lachlan Fold Belt: Lachlan covers a large geographical area, stretching from Crookwell almost to Ivanhoe, and is one of the areas where there is unassigned water. Under the Guide the MDBA had set the SDL at the estimated level of usage.

The Groundwater Methods Report notes that there is either variable or no connectivity between the Fold Belt and surface water sources and consequently there was potential to increase groundwater extraction without compromising environmental requirements. The draft Plan now proposes to set the SDL at 5% of the available recharge, ie, 95% of the recharge is reserved for the environment.

As noted in section 2, LVW considers it is appropriate that the MDBA should increase the SDLs on the basis of new knowledge, to allow the optimisation of the social, economic and environmental outcomes through the Basin Plan process.