

GOULBURN-MURRAY  
**WATER**



Katunga

Water Supply Protection Area  
Groundwater Management Plan

# Annual Report

June 2014

## Document History and Distribution

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## Foreword

Goulburn-Murray Water (GMW) is pleased to present the annual report for the Katunga Water Supply Protection Area Groundwater Management Plan (the Plan) for the 2013/14 season.

GMW is responsible for implementation and administration of the Plan, which was approved by the Minister for Water on 24 July 2006.

This report has been prepared in accordance with section 32C of the *Water Act 1989*.

The report provides an overview of the groundwater management activities in the Katunga Water Supply Protection Area and documents the successful implementation of the Plan during the 2013/14 season.

A copy of this report is available for inspection at the Tatura office of GMW, or for download from the GMW website.



Gavin Hanlon  
MANAGING DIRECTOR

Date

## **Executive summary**

The Katunga Water Supply Protection Area Groundwater Management Plan (the Plan) was approved on 24 July 2006 by the then Minister for Water.

The 2013/14 season marks the eighth year of successful implementation of the Plan.

Groundwater monitoring and metering programmes continue to be successfully undertaken to support the implementation of the Plan.

Groundwater use in the 2013/14 irrigation season was 42 per cent (25,123 ML) of total licence entitlement in the Katunga Water Supply Protection Area. This is similar to usage in the 2012/13 season and is consistent with the continuation of below average rainfall.

Groundwater monitoring shows that groundwater recovery levels are still several metres higher than levels recorded at the end of the extended dry period in 2009.

The annual allocation for the 2013/14 season was set at 70 per cent of entitlement, the maximum allowable under the Plan.

The Plan was reviewed by GMW in November 2011 and a number of recommendations were made for improvements to the Plan. Since the review, the Murray-Darling Basin Plan has been released and the Victorian Water Law Review has commenced. These processes have created some uncertainty around the way forward for the revision of the Plan. Until these issues are resolved, the Plan remains in place.

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# 1 Introduction

## 1.1 Purpose

This annual report provides an overview of groundwater resource status and use in the Katunga Water Supply Protection Area (WSPA) throughout the 2013/14 irrigation season.

## 1.2 Water Supply Protection Area

The Katunga WSPA is located in the Murray and Goulburn Valleys, extending from Yarrowonga to Barmah and from the River Murray to Numurkah. The Katunga WSPA boundary has been set to manage groundwater resources at a depth of greater than 25 m below the ground surface. The overlying groundwater resources are managed in accordance with the Shepparton Irrigation Region Groundwater Management Area.

There are three management zones within the Katunga WSPA: 1061, 1062 and 1063 (Figure 1).

## 1.3 Groundwater Management Plan

The Groundwater Management Plan (the Plan) was approved on 24 July 2006 by the then Minister for Water in accordance with section 32A(6) of the *Water Act 1989*.

The objective of the Plan is to make sure that the groundwater resources within the WSPA are managed in an equitable and sustainable manner. The Plan enables annual allocations to be set which manage groundwater extraction. The intent of the annual allocation process is to prevent groundwater levels from falling below what many groundwater users consider to be an acceptable level, based on equity, accessibility and cost.

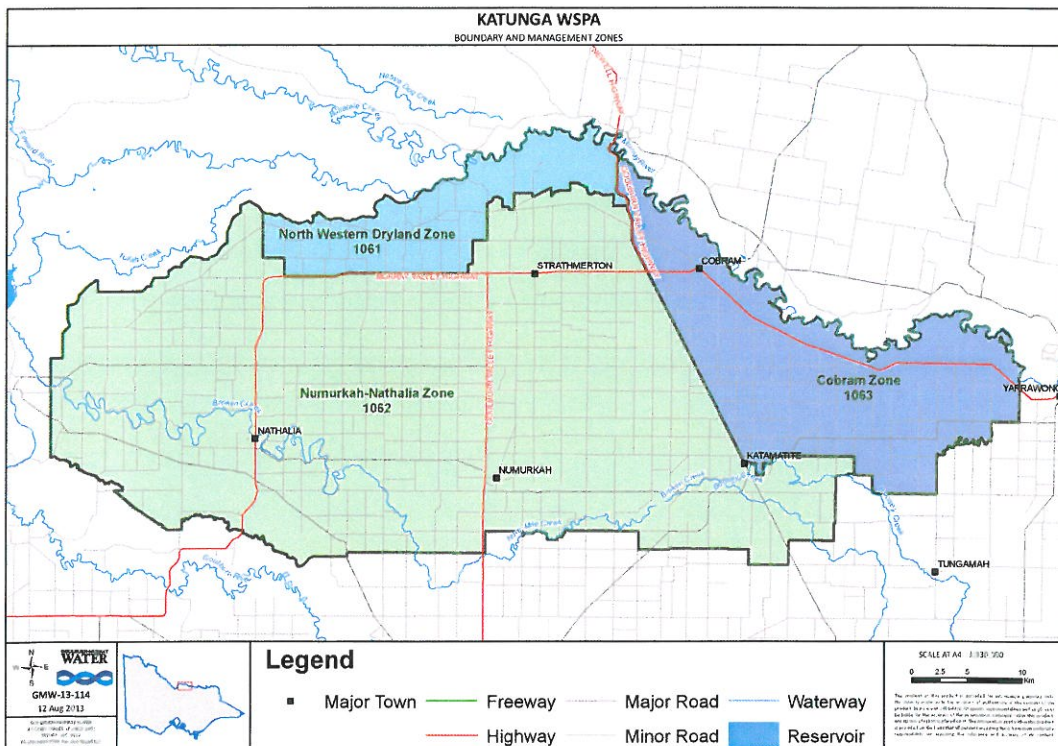


Figure 1 Katunga Water Supply Protection Area

## 2 Groundwater management

### 2.1 Licence volume

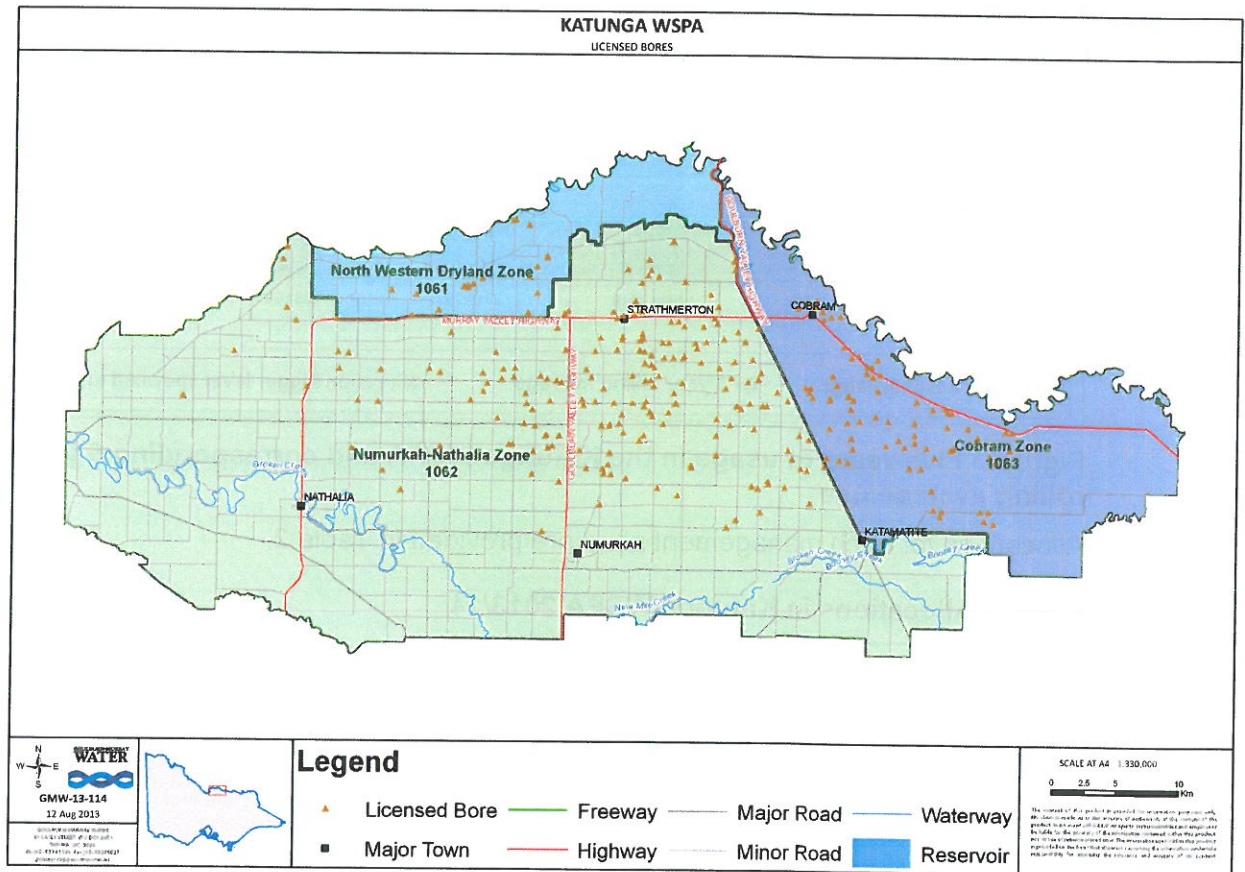
A limit on groundwater entitlement (Permissible Consumptive Volume) for the Katunga WSPA has been set by the Minister for Water at 60,577 ML.

The groundwater licence volume in the Katunga WSPA was 60,445.7 ML as at July 1 2013. The volume of entitlement in each management zone is summarised in Table 1 along with the total number of licensed bores and their distribution by management zone. Licensed bores are shown spatially in Figure 2.

**Table 1 Entitlement in the Katunga WSPA (2013/14)**

Zone	Licences	Licensed bores	Licence volume (ML)
1061	16	17	3,325
1062	176	192	36,376.7
1063	64	78	20,744
<b>Total</b>	<b>256</b>	<b>287</b>	<b>60,445.7</b>

Note: Data extracted from the Water Register 30 June 2014



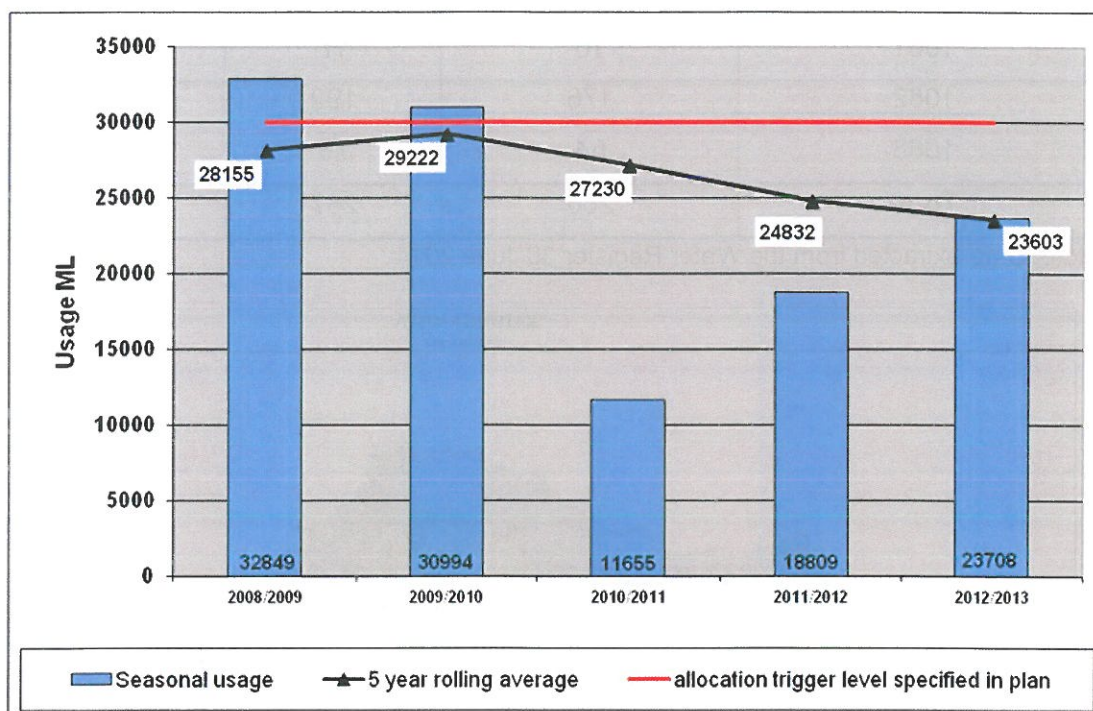
**Figure 2 Licensed bores in the Katunga WSPA**

## 2.2 Groundwater allocations

The process for setting annual allocations for groundwater licence holders in the Katunga WSPA is specified in Prescription 3 of the Plan, and is based on groundwater use. If the five year rolling average usage figure is greater than 30,000 ML then the annual allocation is 50 per cent of entitlement in the following year. If 5 year rolling average usage is below 30,000 ML, the allocation is set at 70 per cent of entitlement (the maximum allowable in the Plan).

The five year average usage for the period 1 July 2008 to 30 June 2013 was 23,603 ML (Figure 3) and resulted in an allocation of 70 per cent being announced for all management zones during 2013/14.

The 2013/14 allocation was announced in a notice circulated in the Cobram Courier, Yarrawonga Chronicle and Numurkah Leader on 24 July 2013. A media release was also distributed to media outlets in the region and all licensees were notified by mail.



**Figure 3 Five years of usage in the Katunga WSPA and corresponding 5 year rolling average use**

Allocations for each management zone are provided in Table 2.

**Table 2 Allocations in Katunga WSPA 2013/14**

Zone	Allocation (ML)
Zone 1061	2,327.5
Zone 1062	25,463.7
Zone 1063	14,520.8
<b>Total</b>	<b>42,312</b>



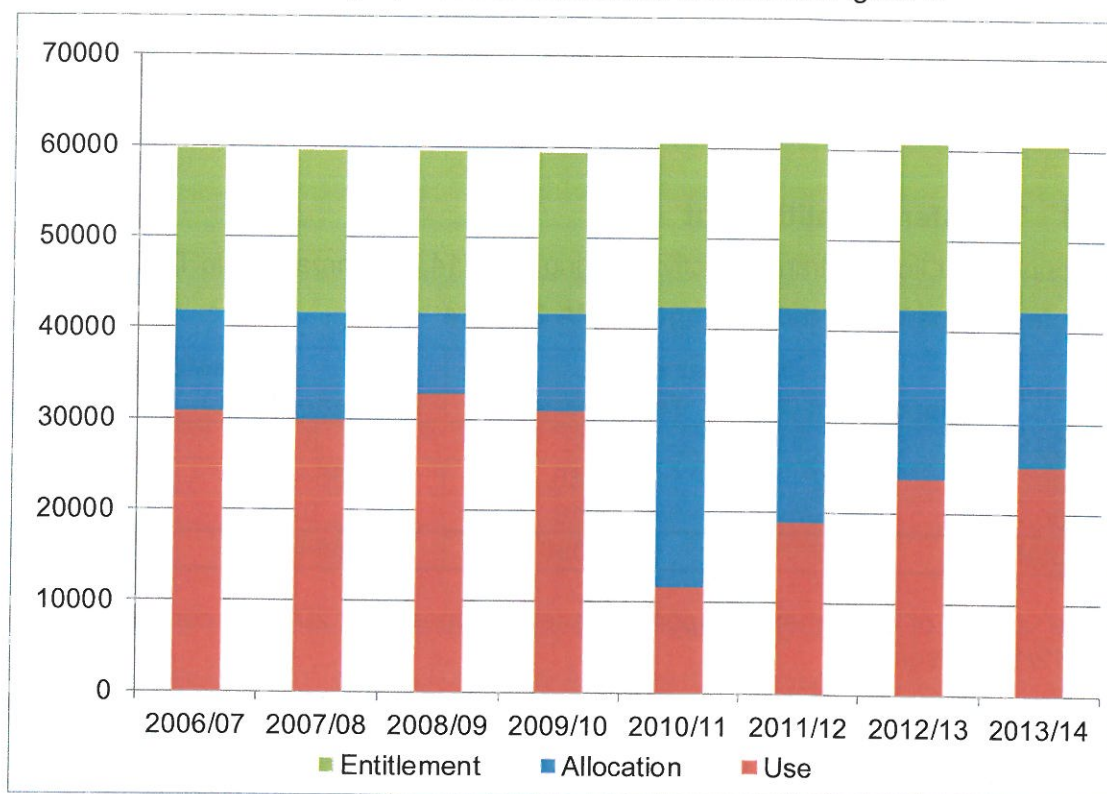
### 2.3 Groundwater use

Total metered usage for 2013/14 was 25,122.8 ML, which is 42 per cent of total entitlement. Metered use by zone is shown in Table 3.

**Table 3 Metered usage in the Katunga WSPA 2013/14**

Zone	Total use (ML)	% Licence volume
1061	1,264.3	38
1062	14,441.4	40
1063	9,417.1	45
<b>Total</b>	<b>25,122.8</b>	<b>42</b>

Annual metered use as a proportion of entitlement is shown in Figure 4.



**Figure 4 Annual entitlement, allocation, and metered usage in the Katunga WSPA**

Groundwater use in the Katunga WSPA is heavily influenced by climate and the availability of surface water for irrigation. Groundwater use increases during extended periods of dry weather and when surface water allocations are reduced.

Usage in 2013/14 has increased since 2012/13, which is consistent with the below average rainfall recorded in the region (Figure 5). Usage remains lower than the levels seen in the extended dry period pre-2010/11.

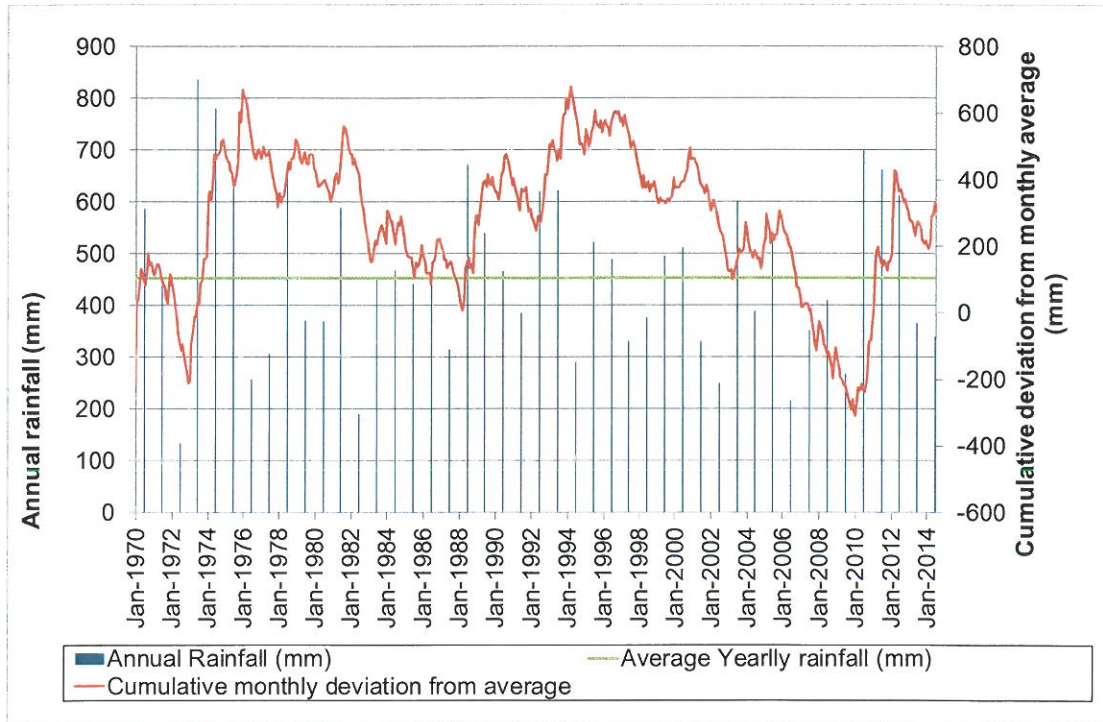


Figure 5 Annual rainfall measured at Cobram

## 2.4 Transfer of entitlement

Groundwater licence transfer activity during 2013/14 is summarised in Table 4 below.

Table 4 Transfers in the Katunga WSPA 2013/14

Zone	Transfer to		Transfer from	
	Permanent (ML)	Temporary (ML)	Permanent (ML)	Temporary (ML)
1061	0	41	0	0
1062	424.2	838	654.2	618
1063	160	216	0	477
<b>Total</b>	<b>584.2</b>	<b>1,095</b>	<b>654.2</b>	<b>1,095</b>

The volume of entitlement temporary traded decreased in 2013/14 compared to the 2012/13 season.

Temporary trading remains lower than during the recent extended drought, when entitlement volumes traded were around 2,000 to 3,000 ML/year.

The volume of water permanently traded increased markedly from 2012/13. In 2012/13, 20 ML was permanently traded, compared to 654.2 ML in the 2013/14 season. It is quite normal for such year on year variations, as a single trade can influence the annual figure in any one year.

## 2.5 Meter installation, maintenance and replacement

Metering activities undertaken in 2013/14 are summarised in Table 5. This includes the numbers of new meters installed, meters that required maintenance, and meters replaced.

**Table 5 Meter installation and maintenance activities 2013/14**

<b>Activity</b>	<b>Number of meters</b>
Number of new meters installed or replaced	2
Meters requiring maintenance	1

## **2.6 Domestic and stock bores installed**

Domestic and stock use is not required to be metered as it is a private right under section 8 of the Water Act 1989.

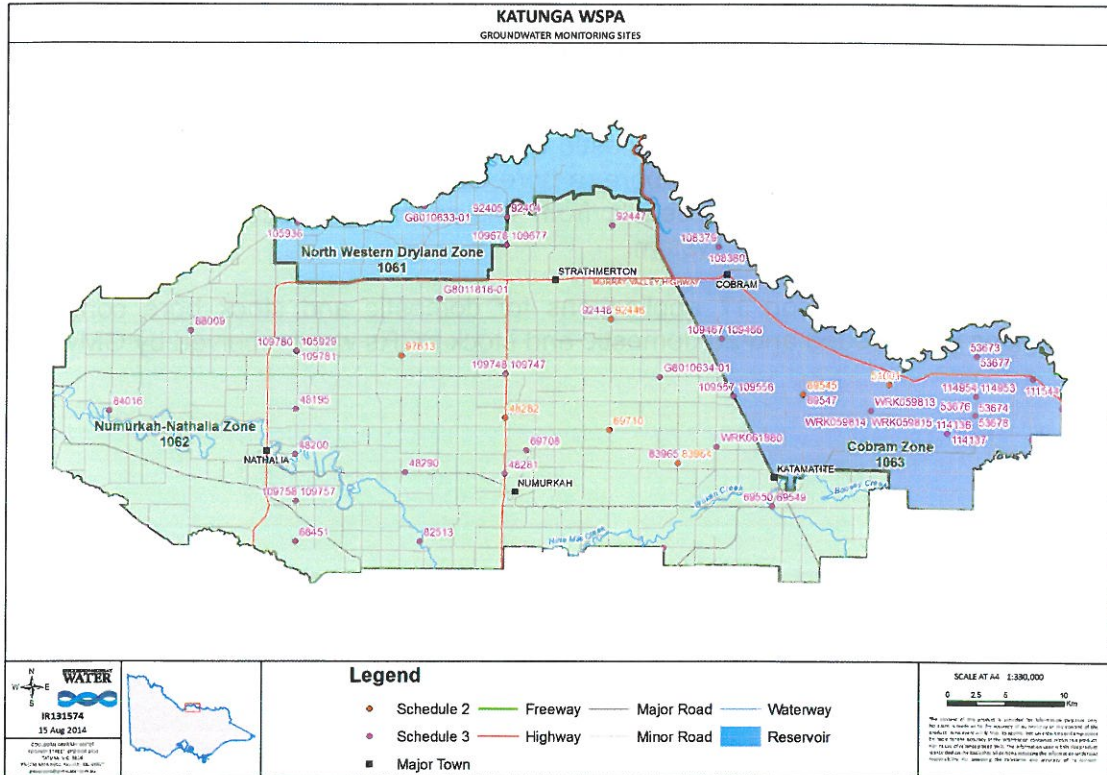
The installation of a bore for domestic and stock use requires a bore construction licence. Upon completion of a bore, a bore construction report (BCR) is required to be submitted to GMW and details from this report are documented in the State groundwater management system.

In the 2013/14 season 17 applications for domestic and stock bore construction licences were issued and 20 domestic and stock BCRs were received by GMW.

### 3 Monitoring program

#### 3.1 Groundwater levels

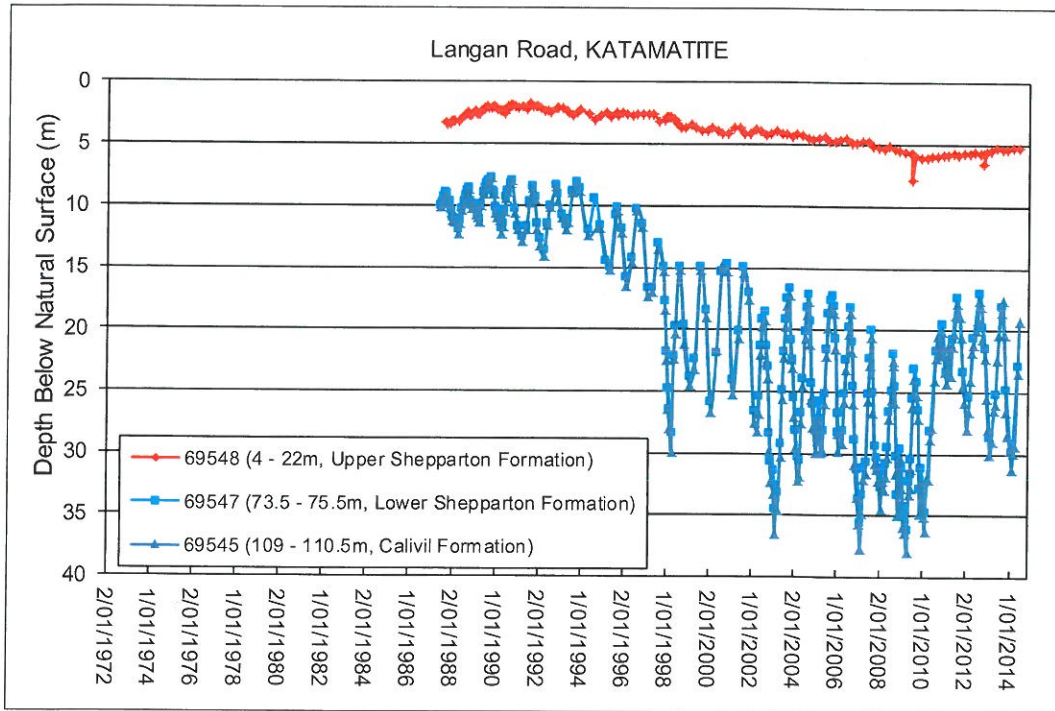
The Plan requires that groundwater levels are monitored in 52 State Observation Bores (specified in Schedule 2 and 3 of the Plan), as shown in Figure 6.



**Figure 6 Map of State Observation Bores in the Katunga WSPA**

Hydrographs for all Schedule 2 bores are provided in Appendix A.

Groundwater level monitoring indicates that Deep Lead and Lower Shepparton groundwater levels steadily declined as groundwater development increased from 1990 onwards, as shown in Figure 7. This hydrograph also shows strong seasonal variation in response to pumping, and that following wetter than average conditions in 2010/11 and 2011/12, groundwater levels recovered by approximately 10 m.



**Figure 7 Groundwater monitoring at Katamatite**

### 3.2 Licence compliance

There were no prosecutions or convictions relating to groundwater matters in the area.

There were six incidents where the transfer of licence entitlement was approved subsequent to the take and use of water.

These incidents have been investigated and GMW has taken action to encourage users to trade earlier in the season to ensure compliance. GMW manages compliance in accordance with the National Framework for Compliance and Enforcement of Systems for Water Resource Management.<sup>1</sup>

<sup>1</sup> Australian Government Department of Sustainability, Environment, Water, Population and Communities, 2012. National Framework for Compliance and Enforcement of Systems for Water Resource Management. Viewed 28 August 2014, <http://www.environment.gov.au/system/files/resources/d4367a3b-28a9-430d-a869-2effbda8a447/files/ris-water-compliance-enforcement.pdf>

## 4 Groundwater quality

Regular analysis of groundwater salinity is required so that any emerging salinity changes can be identified. Prescription 29 of the Plan requires that GMW conducts a salinity sample mail-out to customers once a year. GMW conducted the salinity mail-out in December 2013. A sample bottle was sent to every licence holder, along with a reply paid envelope and a letter requesting that a groundwater sample be collected during operation of the bore, and returned to GMW for testing.

Domestic and stock groundwater users are also encouraged to submit a salinity sample from their groundwater bore; however, in accordance with the Plan, they must contact GMW to register their interest and be supplied with a sample bottle.

Sample bottles and letters were sent to the owners of 313 licensed bores and a total of 43 samples (13%) were returned. The return rate during the 2012/13 season was 22 per cent.

The results of the groundwater salinity sampling program are shown in Figure 8. Generally groundwater salinity values recorded haven't changed significantly since 2012/13.

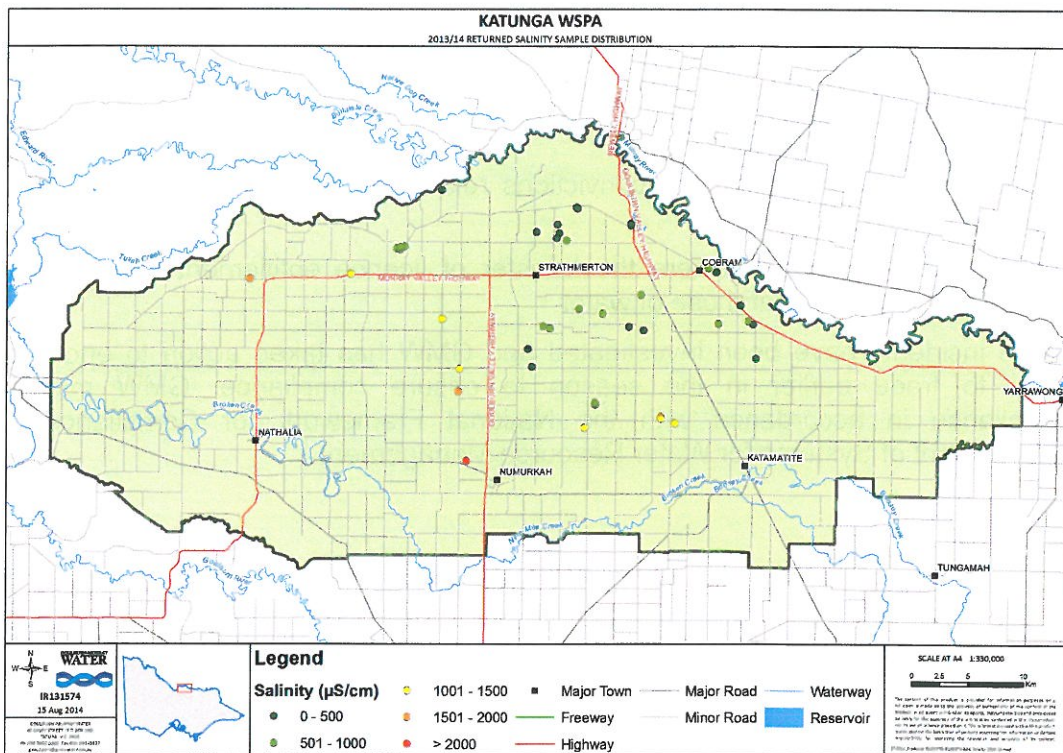


Figure 8 Salinity monitoring in the Katunga WSPA

## **5 Future management considerations**

### **5.1 Changes to the Plan**

In accordance with the requirements of the Plan, GMW undertook a review of the Plan in 2011. The review recommended a number of changes to improve the Plan. Recommended changes included revising the annual allocation method, the trading rules and how groundwater salinity is monitored. The review also suggested the introduction of carryover be considered.

Since the review was undertaken the Murray-Darling Basin Plan has been released and the Victorian Water Law Review has commenced. This has created some uncertainty around the timing for the amendment process for the Plan. It is anticipated that these uncertainties will be resolved in the next six to twelve months, and that a process to amend the Plan will begin during the 2014/15 season.

### **5.2 SOBN review**

The State Observation Bore Network (SOBN) is owned and managed by the Department of Environment and Primary Industries (DEPI) which currently monitors around 2,300 bores across Victoria on a quarterly basis to provide valuable information on groundwater resources.

GMW uses the SOBN to collect additional monitoring data from selected bores across its region to inform resource management decisions.

DEPI has recently undertaken a detailed review of the SOBN. The aim of the review was to identify opportunities to make the network more cost effective, and to reassess management arrangements.

Following DEPI's review of the network, GMW has been asked to review its' own monitoring priorities and future monitoring needs.

GMW will seek its customers views on future groundwater monitoring needs through the Water Services Committees and Groundwater Reference Committees.

## Appendix A Compliance with Groundwater Management Plan

### RESTRICTIONS ON TAKING GROUNDWATER

Prescription	Activity	Compliant
1. By 1 August or earlier each year the Authority must determine and announce the annual allocation in accordance with Prescriptions 2 and 3 which aims to prevent the average groundwater recovery level falling below 20 metres below ground level.	25/7/13 on website – media release Customers notified by mail 14 August 2013	Yes
2. An announcement under Prescription 1 must be made, by publishing a notice in a newspaper circulating generally in the Protection Area.	Public Notice advertised in Cobram Courier, Yarrowonga Chronicle and Numurkah Leader newspapers on 24/7/13	Yes
3. In any year where the 5-year average annual groundwater use is: a) less than 30,000 ML/year, the annual allocation must be announced at 70%; or b) 30,000 ML/year or greater, the annual allocation must be announced at 50%.	70% allocations assessed - refer section 2.2 for detail.	Yes
4. The 30,000 ML/year specified in Prescription 3(a) and (b) may be recalculated by the Authority, to account for use from bores that were operational but not metered prior to the commencement of this management plan.		Yes
5. For the purpose of Prescription 1, the average groundwater recovery level means the groundwater recovery level determined by summing the highest winter/spring water level elevation (measured as depth below ground level) available for the preceding five years for each observation bore listed in schedule 2 (or any replacement bore as provided in Prescription 28) divided by the total number of readings used in the calculation.		Yes
6. For the purpose of Prescription 3, the average annual groundwater use means the volume determined by summing the total volume of groundwater use for the Protection Area for the preceding five years and dividing this cumulative volume by five.		Yes

### LICENCE TRANSFERS

Prescription	Activity	Compliant
7. The Authority may approve an application for the temporary transfer of a licence for the current year under section 62 of the Act only to the extent that it will permit a licence holder to take and use up to a volume of groundwater that would have been authorised if restrictions under Prescription 1 did not apply.	No temporary trades allowing licence holders to take more than 100% of their entitlement were undertaken.	Yes
8. The Authority must not approve an application for the permanent transfer of a licence under section 62 of the Act if:	All permanent trades undertaken were assessed for compliance with Prescription	Yes



<p>8.</p> <p>a) the groundwater subject to the transfer is to be taken from a location within 2 kilometres of the River Murray; or</p> <p>b) the total groundwater licence entitlement from all licences authorised to be taken within a 2-kilometre radius of the proposed extraction site exceeds 3700 ML/year or the approval of the application would lead to this volume being exceeded;</p> <p>c) the transfer would result in:</p> <p style="padding-left: 20px;">i. <i>the total groundwater licence entitlement from all licences in Management Zone 1061 exceeding 6,500 ML/year; or</i></p> <p style="padding-left: 20px;">ii. <i>the total groundwater licence entitlement from all licences in Management Zone 1063 exceeding 25,000 ML/year.</i></p>	
<p>9. Despite Prescription 8(a) the Authority may approve an application if:</p> <p>a) the groundwater licence to be transferred is used in conjunction with an existing groundwater licence; and</p> <p>b) the groundwater licence entitlement of the transferred licence does not exceed 43% of the groundwater licence entitlement of the existing licence.</p>	<p>All permanent trades undertaken were assessed for compliance with Prescription 9.</p> <p style="text-align: right;">Yes</p>
<p>10. If the Authority approves an application for the permanent transfer of a licence which is not associated with the transfer or conveyance of land, the groundwater licence entitlement must be reduced by 20%</p>	<p>There was one transfer undertaken that the 20 % reduction was not applied to. This is being investigated.</p> <p style="text-align: right;">No</p>

### CHANGING THE GROUNDWATER EXTRACTION SITE

Prescription	Activity	Compliant
<p>11. The Authority must not approve an application for a groundwater licence under section 51 of the Act or a bore construction licence under section 67 of the Act if:</p> <p>a) the application is to enable groundwater to be taken for uses other than domestic and stock from a location within 2 kilometres of the River Murray; or</p> <p>b) the total groundwater licence entitlement from all licences authorised to be taken within a 2-kilometre radius of the proposed extraction site exceeds 3700 ML/year or the approval of the application would lead to this volume being exceeded; or</p> <p>c) the approval of the application would result in:</p> <p style="padding-left: 20px;">i) <i>the total groundwater licence entitlement associated with all licensed bores in Management Zone 1061 exceeding 6,500 ML/year; or</i></p> <p style="padding-left: 20px;">ii) <i>the total groundwater licence entitlement associated with all licensed bores in Management Zone 1063 exceeding 25,000 ML/year.</i></p>	<p>No applications were approved that contravened Prescription 11.</p>	<p style="text-align: right;">Yes</p>

<p>12. Prescription 11(a) and 11 (b) do not apply where:  a) an application is for a bore construction licence to replace an existing bore and the new bore site is within 20 metres of the existing bore; or  b) an application is related to an existing groundwater licence and the approval of the application would not result in an increase in the amount of groundwater authorised to be taken from that location.</p>	<p>Applications were assessed with consideration of Prescription 12.</p>	<p>Yes</p>
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### RESTRICTIONS AND PROHIBITIONS ON THE ISSUE OF LICENCES

Prescription	Activity	Compliant
<p>13. The Authority may issue a new groundwater licence provided that in doing so the total groundwater licence entitlement from all licences in the Protection Area does not exceed 59,780 ML/year or any volume adjusted in accordance with Prescriptions 14 to 17.</p>	<p>No new take and use licences were issued.</p>	<p>Yes</p>
<p>14. If a groundwater licence is surrendered, revoked or not renewed the total groundwater licence entitlement in Prescription 13 will be adjusted by the amount of the groundwater licence entitlement that applied to the groundwater licence that was surrendered, revoked or not renewed.</p>	<p>No licences were surrendered or revoked</p>	<p>Yes</p>
<p>15. If the Authority approves an off-property transfer in accordance with Prescription 10 the total groundwater licence entitlement in Prescription 13 will be adjusted by the corresponding adjusted volume under Prescription 10.</p>		<p>Yes</p>
<p>16. If the Authority renews a groundwater licence that authorises the use of groundwater in a dairy in accordance with any State-wide policy approved by the Minister for Water, the total groundwater licence entitlement in Prescription 13 is deemed to be adjusted by any additional volume of groundwater authorised under the renewed licence.</p>	<p>No dairy wash licences issued</p>	<p>N/A</p>
<p>17. The Authority may issue a licence which may lead to the total groundwater licence entitlement specified in Prescription 13 being exceeded to overcome an administrative oversight or error or other anomaly.</p>	<p>No licences issued to overcome an administrative oversight.</p>	<p>Yes</p>
<p>18. The Authority must report the details of any licence referred to in Prescriptions 14 to 17 in the annual report on the administration and enforcement of the management plan required under section 32 of the Act.</p>		

## METERING PROGRAM

### Installation of meters

Prescription	Activity	Compliant
19. Within 12 months from the time that the management plan commences, the Authority must ensure that a meter is fitted to every operational bore listed on a groundwater licence that authorises the extraction of 20 ML/year or more.	Meters are fitted to all operational bores that extract more than 20 ML/year	Yes
20. The Authority must ensure that a meter is fitted to any new operational bore that is constructed in the Protection Area that is used for other than domestic and stock purposes	Meters are fitted to all operational bores that extract more than 20 ML/year	Yes

### Maintenance of meters

Prescription	Activity	Compliant
21. The Authority must: a) inspect the condition of the meter whenever it is read by the Authority; b) maintain the meter in good condition; c) recalibrate the meter at any time when the Authority has reason to believe that a reading from the meter may be inaccurate; d) replace any damaged meter; and e) keep a record of all work done under paragraphs (b), (c) and (d).	Meters have been maintained and replaced as outlined in section 2.5	Yes
22. The licensee must: a) ensure reasonable care is taken of any meter fitted to the bore; and b) ensure the Authority is promptly advised whenever that meter appears to be defective, registering incorrectly or is damaged		Yes

### Meter Readings

Prescription	Activity	Compliant
23. The Authority must: a) read each meter at least once in every year; b) determine the volume of water extracted from each metered bore each year; and c) within 30 days after a meter is read, record the amount of water determined in paragraph b) in a database.	Meters have been read and readings recorded in IPM	Yes
24. If for any reason the Authority is unable to determine the amount of water by means of a meter it must estimate the volume of water extracted and record the estimate in a database.	No estimations of water use were required	Yes
25. If the Authority requests the Licensee to read a meter and to provide the Authority with the meter reading, the Licensee must comply with the request.		N/A

## BORE MONITORING PROGRAM

### Groundwater Level Monitoring

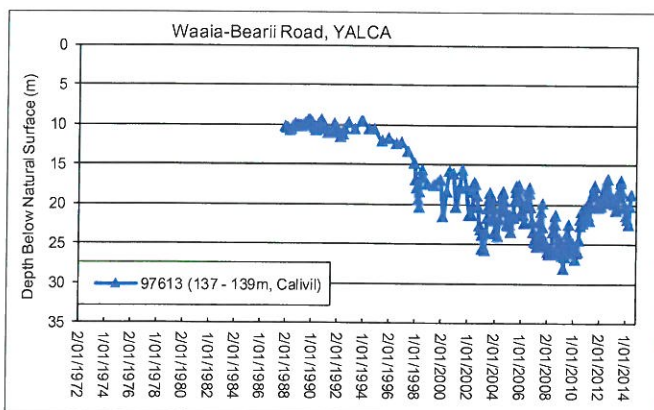
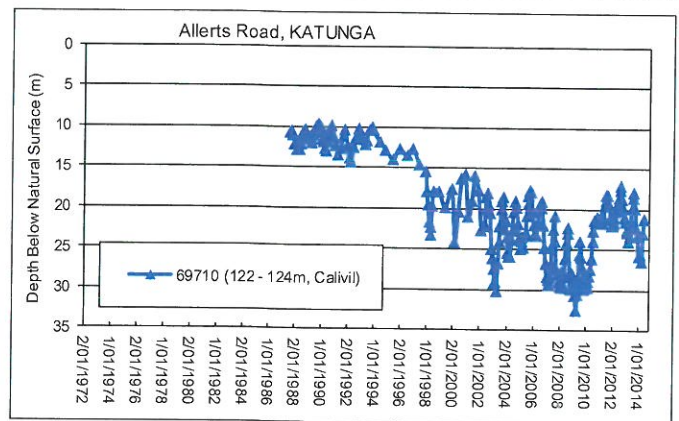
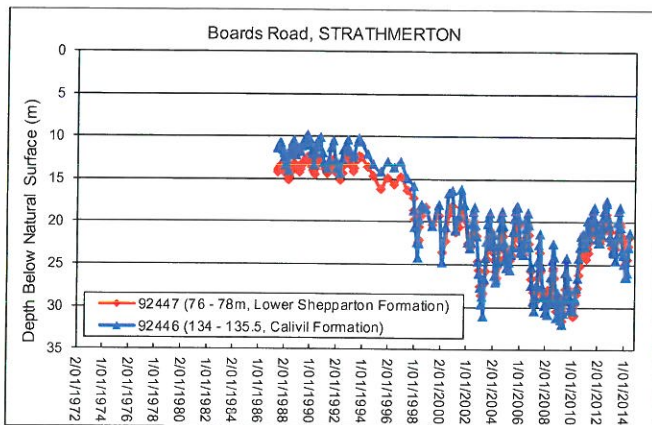
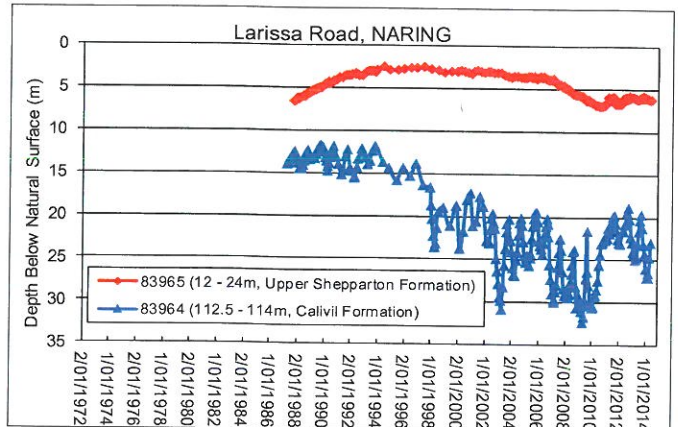
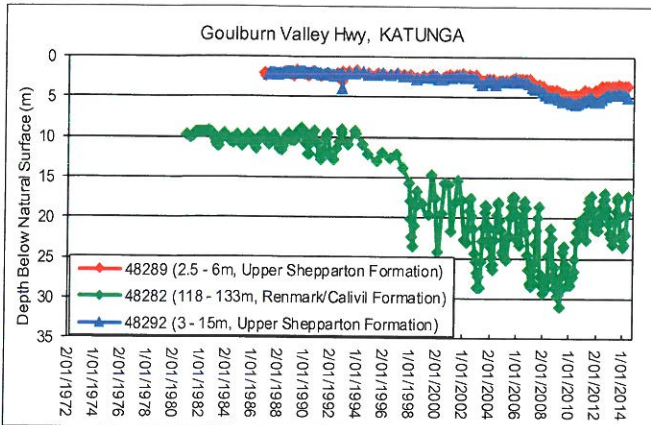
Prescription	Activity	Compliant
26. The Department of Sustainability and Environment (sic DEPI) and the Authority must ensure that the bores specified in Schedule 2 are monitored at the frequencies listed in the schedule.	Schedule 2 bores have been monitored as required	Yes
27. In addition to the monitoring in Prescription 26 the Department of Sustainability and Environment and the Authority must ensure that water level monitoring is carried out at appropriate locations throughout the Protection Area to: a) assess annual and long term impact on water levels from groundwater pumping; b) monitor regional and local seasonal drawdown; c) examine interrelationships with the River Murray, overlying aquifers, aquifers in New South Wales and saline groundwater in the west and south west; d) provide information for future resource assessments; and e) monitor the impacts of groundwater pumping generally across the Protection Area and in areas of high intensity groundwater pumping.		Yes
28. The Department of Sustainability and Environment and the Authority must ensure that: a) monitoring bores are properly maintained and replaced if necessary; and b) data collected from the bores is entered into the groundwater management system, within 30 days after it has been collected.		Yes

### Groundwater Salinity

Prescription	Activity	Compliant
29. The Authority must: a) at least once a year provide a sample bottle to every groundwater licence holder; b) provide a sample bottle to any domestic and stock user who requests one; c) on receipt of a returned sample analyse the water within 30 days; d) enter the analysis results into the groundwater management system within 30 days of the analysis; and e) send a copy of the results of the analysis to the licence holder who supplied the water sample.	Salinity sampling program undertaken in December 2013	Yes

## Appendix B Hydrographs for key monitoring bores listed in the Plan (schedule 2)

### ZONE 1062



**ZONE 1063**

