

# *Angas Bremer Irrigation Management Zone 2010 – 2011 Annual Report*

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**Project Coordinator: Sylvia Clarke**

Angas Bremer Water Management Committee Inc

*Supported by*



**Government of South Australia**

South Australian Murray-Darling Basin  
Natural Resources Management Board

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***Angas Bremer Water Management Committee Inc.***

**Committee Members 2010-2011**

*Chairman – John Pargeter  
Vice Chairman – Colin Cross  
Treasurer – Rick Trezona*

*Committee*

Phil Reilly, Brian Wyatt, Mac Cleggett, Rob Tonkin, James Stacey  
Dale Wenzel, Michael Clements and David Eckert.

*Non-elected members of the Committee*

*Secretary - Barbara Blaser*

*Program/Project Coordinator - Sylvia Clarke*

Cameron Welsh and Michael Cutting – *SA Murray Darling Basin NRM  
Board*

**Report of the Activities of the Committee 2009-2010**

**1. Flood Plain Study**

The monitoring of well-water-levels and soil moisture along the Angas and Bremer River flood plains began in late 2002. The data collected has helped the Committee and the Department for Water (DFW, previously DWLBC) to understand the groundwater system.

The committee's water level dataloggers were removed in October 2010 and at this time DFW installed some of their own loggers in a smaller number of Observation Wells to continue the collection of data.

A small grant was received from the State Government to allow the committee's Project Coordinator to process the historical data collected by the committee ready for uploading to the state database SA\_Geodata. This will mean the information will be safely archived and available for all to access. The processing of the data should be completed in the near future and it will then be ready to be added to the database. The information currently being collected by DFW and the large amount of data collected by the committee over the last few years will be made publicly accessible on the DFW website by early 2012.

With the increase in Aquifer Storage and Recovery, now referred to as Managed Aquifer Recharge (MAR), over the last couple of years and the increasing salinity of the water in the confined aquifer, the data collected by the committee plus the new information being collected by DFW will allow us to keep a close eye on changes within the groundwater

resource, keep the new hydrological model calibrated and allow more informed management decisions to be made.

## **2. Groundwater modelling**

Following the approval of funding for the Angas Bremer Groundwater Modelling Project as part of the Murray Futures Program, the Department for Water (DFW) engaged consultants Aquaterra to construct a 3D multi-layered groundwater flow and solute transport model to assess the capacity of the limestone aquifer to store off-peak water supplied by the Irrigation Pipeline project.

This model has been used throughout 2010-2011 to inform the Eastern Mt Lofty Ranges Water Allocation Plan and the Murray Darling Basin Plan. Where cuts to groundwater allocations in the region had been suggested in the drafts of both plans, the model showed this was not likely to be necessary, and subsequently these were removed from the plans and water allocations will not be affected for the time being.

Obviously, close monitoring and updating of the model will be required into the future to ensure that the aquifer is not adversely affected by the amount of extraction and recharge that is occurring.

## **3. Angas Bremer Database and Website**

The Committee received \$5963.64 from the Commonwealth Government Community Action Grants in 2010 to upgrade the Irrigation Annual Reporting database and its website. The changes to the database were completed in time for the 2010/11 reporting period. On-line submission of reports was trialled and although only a few irrigators attended the demonstration workshop held in June 2011, the uptake of the new technology was very high with 100 of the 134 irrigation annual reports submitted on-line through the website. Overall, the feedback was positive and on-line reporting will be used again next year. This will save the committee time and money when collating the district report.

## **4. Managed Aquifer Recharge Risk Assessment Project**

The Aquifer Storage and Recovery (ASR) risk assessment project was developed with the aim of identifying whether or not there were contaminants present in the surface water used for ASR, now referred to as Managed Aquifer Recharge (MAR), and if present, what impacts could this cause to the aquifer and water users.

Since 2007, water samples have been collected and analysed by the Australian Water Quality Centre (AWQC). The original protocol involved collecting samples from recharge water sources; the Angas and Bremer Rivers, and Lake Alexandrina, and a well used for artificial recharge on a property in Langhorne Creek. In 2009, the water levels in the lake were too low and the water quality too poor to be used by irrigators for artificial recharge so no samples were collected from Lake Alexandrina and the sample from the Bremer River was collected by an automated sampler (near Wanstead Road Ford) installed by the SA Murray Darling Basin NRM Board. Groundwater was also sampled from a second well that was not used for artificial recharge. This site was up gradient of any artificial recharge sites and gives a good indication of the chemistry of the native groundwater.

No samples were collected in 2010 as sufficient funds could not be sourced to continue the project. The SA Murray Darling Basin NRM Board granted the committee two grants

of \$1000 each which was used in 2011 to take limited water samples for analysis. This amount of funding allowed for two samples to be taken at each time. In May 2011, samples were taken from the same recharge bore and non-recharge bore as had been used in 2009.

In 2011, the recharge bore had water of much lower salinity than the non-recharge bore, but quite high turbidity. The recharge bore also had much higher iron and manganese levels but the non-recharge water sample was high in chloride.

As no samples from the 'source' waters could be taken, the information collected by others had to be relied upon which included; River Murray water analysis of water from Jervois conducted by The Creeks Pipeline Company; Bremer River salinity measured by the automated sampler at Wanstead Rd, and Angas River water sampled by the Angas River Catchment Group and Terramin Angas Zinc Mine near Strathalbyn. Unfortunately these samples were either not taken at times of high flow when the water would be taken for recharge, or were not taken near Langhorne Creek or only a very basic analysis was undertaken, meaning that they were not very useful for determining the quality of the source waters used for recharge during 2010-11 or if any threat posed was posed to the confined aquifer.

In October 2011 another two samples were taken, this time from two Non- recharge bores, to look for any impact from nearby recharge. One was within about 350m of, and adjacent to, a bore which had been used to inject large amounts of recharge water over time, from which anecdotal evidence suggested that it might have been impacted. The other sampled bore was about 250m further north and not likely to have been affected by the recharge.

The results showed that the two water samples were relatively similar in all attributes measured. The bore closer to the recharge site actually had very slightly higher salinity (3000  $\mu\text{S}/\text{cm}$  compared with 2800  $\mu\text{S}/\text{cm}$ ), total dissolved solids and turbidity levels. For both samples the level of Total Dissolved Solids, chloride and coliform levels were above the Australian Drinking Water Guidelines but all other analytes were within acceptable levels.

The reasons that no effect of the recharge water on the bore water was detected could be because the closer bore was adjacent rather than down gradient of the recharge bore and water tends to move down gradient towards Lake Alexandrina. Water is also thought to move relatively slowly through the Confined Aquifer so unless a bore is very close to an injection site, any impact on the surrounding groundwater may not be detected in the short term. If we could have sampled the water in the Recharge bore, it would also have given us something with which to compare the two samples.

In reality, one water sample from two different sites is not sufficient to draw any conclusions about the impact of Managed Aquifer Recharge on the aquifer. Ideally, regular monitoring of the source waters (Angas and Bremer Rivers, Murray River and Lake Alexandrina) during peak recharge times and of the water in bores used for recharge should be carried out to ensure the quality of the groundwater in the confined aquifer is not compromised. The opportunistic data the committee is currently collecting might at least be of use for comparison if samples are able to be taken from similar sites at a later date.

## 5. Mundulla Yellows Project

The Full report (with photos) can be found on the website ([www.angasbremerwater.org.au](http://www.angasbremerwater.org.au))

The cause of Mundulla Yellows (MY) is largely unknown but is believed to be related largely to soil properties. It was advised that the use of iron (Fe) implants could improve the health of the trees in the short term.

The ABWMC resolved to conduct a trial at 3 sites in the Angas Bremer Prescribed Wells Area, with the aim to:

1. confirm the diagnosis of MY, and
2. test the effectiveness of Fe implants for treatment of the symptoms of MY.

Three sites were selected:

- Site 1. Brian Meakins Horse Radish Farm
- Site 2. Peter Silvers Lucerne Farm
- Site 3. Wellington Road

Photos were taken over the next couple of years and neither the treated nor the control trees appeared to be very healthy and many of the treated trees were displaying yellowing of the leaves again. The climatic conditions over this time have not been ideal for new growth, particularly the lack of spring rainfall. From these results it appears the iron implants have not been very successful for treating the red gums under these conditions. The trees were opportunistically visited and photos taken over the 2010-2011 year, thanks to the Langhorne Creek Wine and Grape Inc and the Goolwa to Wellington LAP. Despite the much wetter conditions over the last couple of years, and the generally better health of red gum trees in the region as reported by irrigators (see below), most of the trees used in this study still had very little canopy and one of the control trees appears to have died.

If funds permitted, it would be interesting to repeat the iron implant experiment on some other trees suffering from Mundulla Yellows now that a couple of wetter seasons have passed, to see if any improvement would be seen under better conditions.

## **6. Salt trends**

The success of the Rootzone Salinity Project to date, and the fact that many of the FullStops on people's properties are now failing, has prompted the Angas Bremer Water Management Committee Inc, the SA Murray Darling Basin Natural Resource Management Board, the Langhorne Creek Grape and Wine Inc, and Dr. Richard Stirzaker (CSIRO) to design a new project to provide more information for irrigators on rootzone salinity.

Five demonstration sites have been established on irrigated vineyards with varying soil types, irrigation, water quality, irrigation management practices, and good past root zone salinity record keeping. FullStop devices and SoluSamplers™ (to demonstrate another device), have been installed at varying depths. Now that irrigation has commenced, water samples are being collected by the irrigators. All irrigators will be informed of the progress of the project via field days, fact sheets, newsletters, website, and a final report.

Funds have been successfully applied for through the Commonwealth Government's Community Action Grants, adding just under \$9000 to assist with this project. A further grant of \$17,250 has been recently granted to the ABWMC through the same grant program to expand this project further to incorporate properties other than vineyards, to make it more representative of the district as a whole. This extra funding will also allow Dr. Richard Stirzaker to analyse the results, compile a report and put the results on a website so they are available to be viewed soon after the data has been collected.

### **Irrigation Annual Report Forms**

Irrigation Annual Report forms (IAR's) were mailed to 134 irrigators. 113 irrigators who returned their completed forms on time have achieved "Accredited Irrigator" status and will be issued with accreditation certificates. 100 of these irrigators submitted their reports on line. Twelve IAR's that were received by the Committee after the due date did not achieve accreditation and a further 7 irrigators have not (at the date of this report) returned their IAR forms. Two others are no longer irrigators. The data from 127 irrigators has been collated and that data is presented in the following graphs and tables. Comments are included with each chart or table.

**Flooding:-** Flooding by diversion or pumping was reported by a large number of irrigators. The flooding events occurred during July, August and September 2010. 1053 ha were flooded compared with 525 ha in 2009-10 and 215 ha in 2008-9; these figures include some properties that were flooded twice or more.

**Revegetation:-** The total area of re-vegetation reported in the Irrigation Annual reports is 1849.86 ha. This total is made up of;

- 1398.06 ha of privately owned
- 236.10 ha jointly owned
- 57ha of leased revegetation
- 148.10 of Community plantings; and
- 10.6ha of revegetation on Council Reserves for which irrigators have an agreement with the Alexandrina Council.

This represents an increase in the area of revegetation compared with last year.

**Red Gum Health:-** 80 Irrigators reported on the health of the red gums on their properties. Health, or otherwise, was rated from 0 to 5, 5 being healthy and 0 being dead. Most irrigators reported no change or an increase in the health of their red gums over the year, which is similar to what was reported last year and a positive change from the declines noted in previous years. Many commented that the trees appeared to be responding again to the wetter winter and flooding events providing water to red gums along the rivers and in swamps.

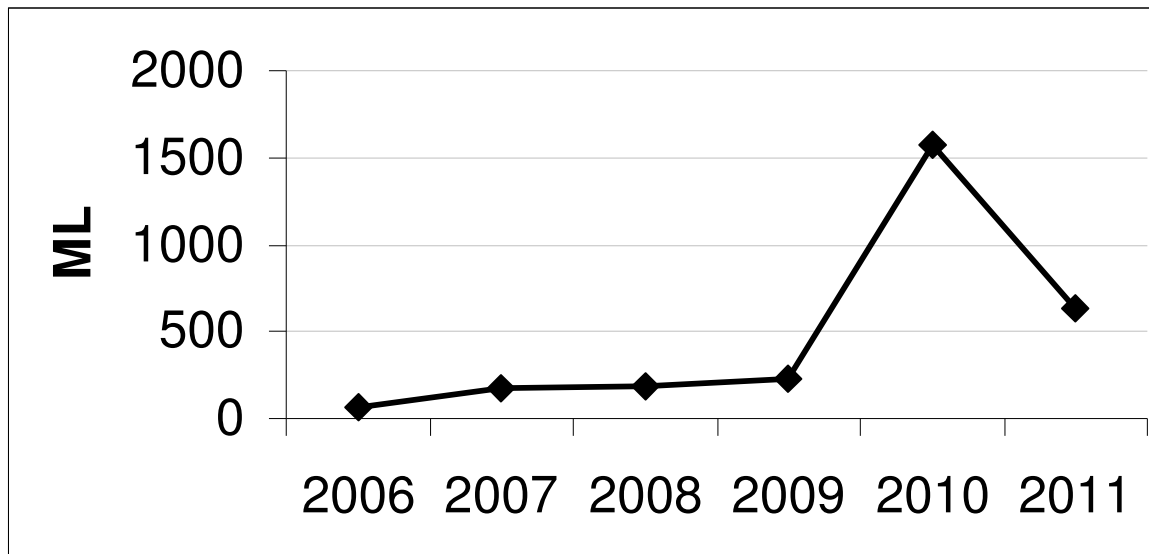


**Water Leasing:-** Table 1 below shows the amount of water leased in 2010-11 compared with water leased in 2009-10. This table shows that there was a shift in the way water was traded within the Angas Bremer Irrigation Management Zone over this last year. Overall there was less water leased by irrigators this year than last, with the relatively high rainfall, flood events and the pipeline bringing River Murray water into the region. River Murray water leasing within and outside the zone was lower, especially the amount leased into the zone from elsewhere. The amount of groundwater leased between irrigators within the zone was slightly higher than last year.

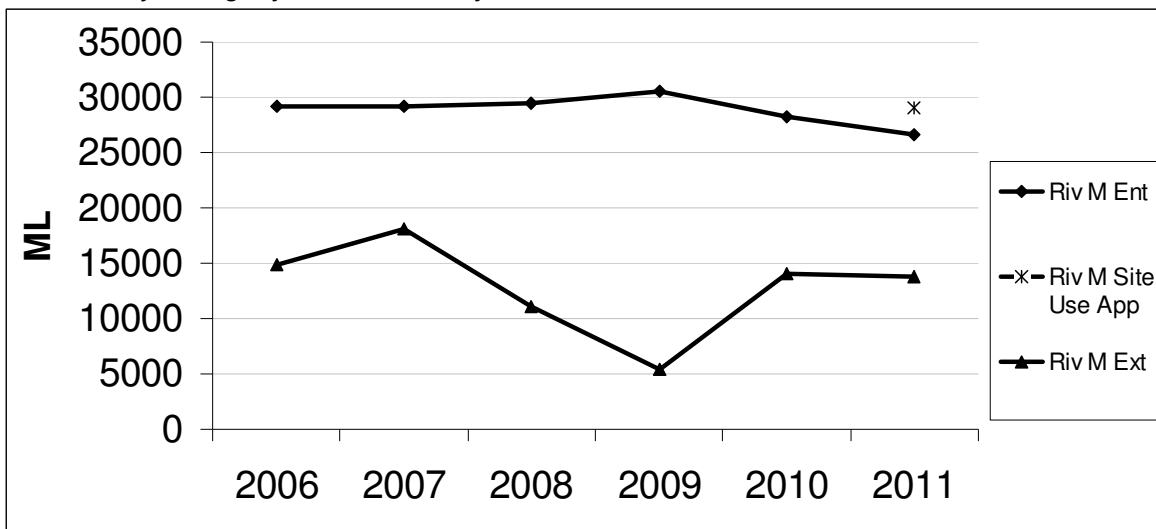
**Table 1**

Type of Lease	Megalitres 2009-2010	Megalitres 2010-2011
RM water leased from ABIMZ to outside ABIMZ	412	264.5
RM water leased from outside ABIMZ to inside ABIMZ	3428.2	1214.3
RM water leased from inside ABIMZ to inside ABIMZ	705.17	566.98
Groundwater leased from AB licence to AB licence	404.7	425.90

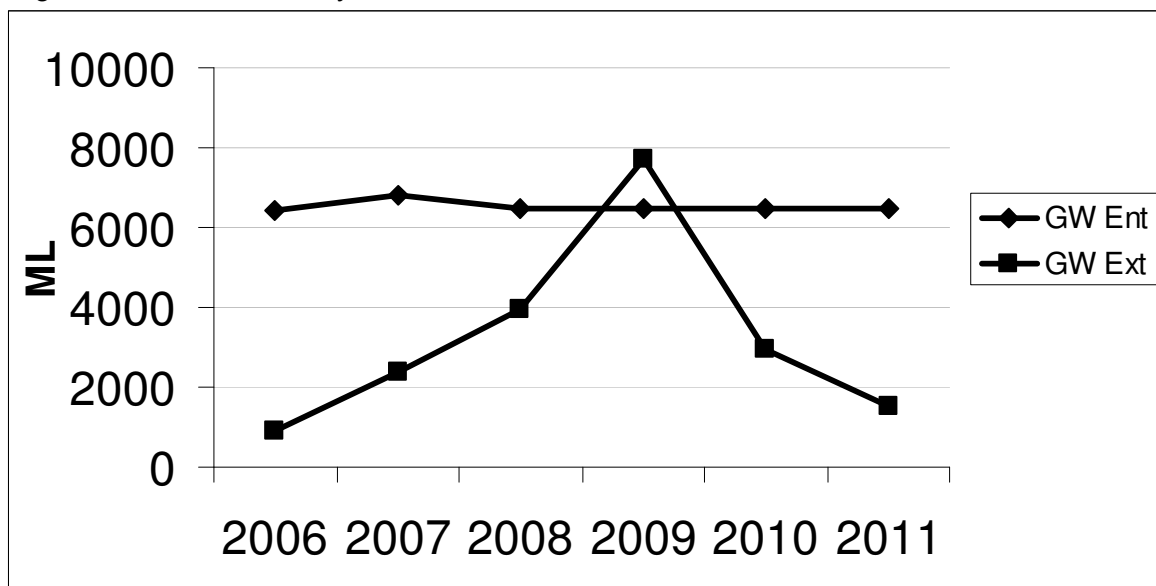
**Chart 1: Angas and Bremer Rivers Water Extractions 2006-2011:-** Not all of the water taken from these Rivers is accounted for in this chart, such as the water diverted through weirs and sluices. The volumes on this graph are metered volumes as well as the amount recharged into the aquifer from these rivers as reported on the Irrigation Annual Reports. The amount of water that was recorded as having been extracted from these rivers decreased substantially in 2010-11 even though a large amount of water was available from the rivers at various times during the year.



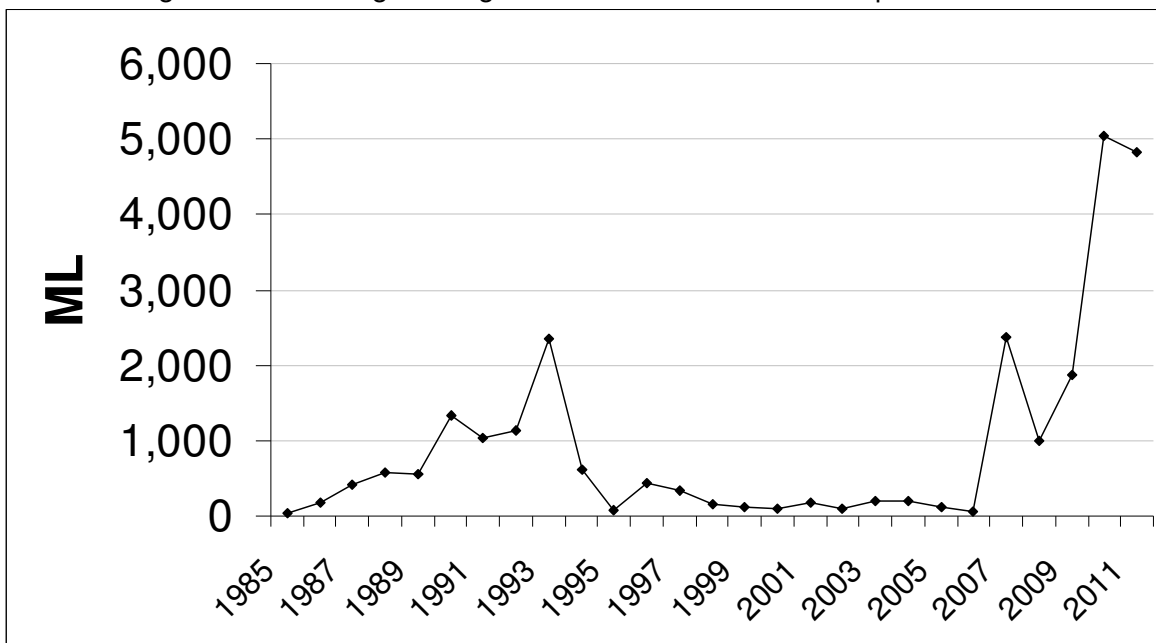
**Chart 2: River Murray Water Entitlement and Extraction 2006-2011:-** Entitlement is the volume of water endorsed on licenses and does not include any credits for rollover, recharge etc. The River Murray Site Use Approval is the maximum quantity of River Murray water that can be used for irrigation on land identified as being in the Angas Bremer Irrigation Management Zone in 2010-2011. Extraction is the volume of water that was used during the irrigation year. The entitlement for 2010-11 was 26,572 ML, while the total Site Use Approval volume was 29,025 ML, and the recorded use was 13,809 ML, which was just slightly less than last year.



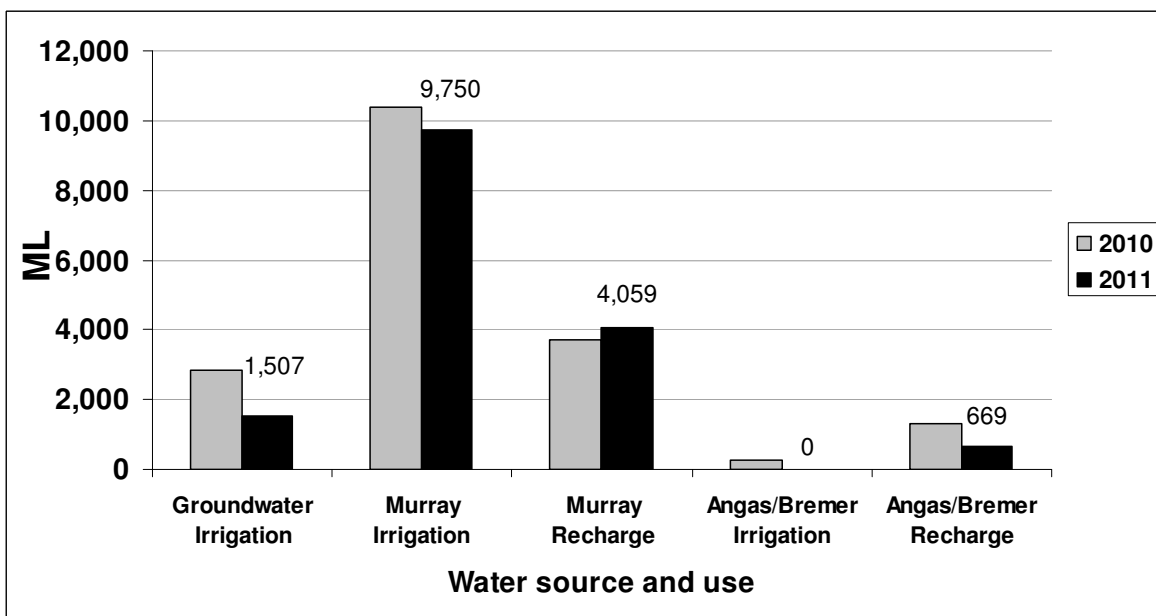
**Chart 3: Groundwater Entitlement and Extraction 2006-2011:-** The maximum entitlement for 2011 was 6,500ML and the recorded use was 1507 ML. This is much lower than the 7,700 ML used two years previously and brings the region back near to the levels used in 2006. The impact on the aquifer was again reduced because of the wetter weather and most irrigators preferentially using the better quality water available from the Angas, Bremer and Murray Rivers.



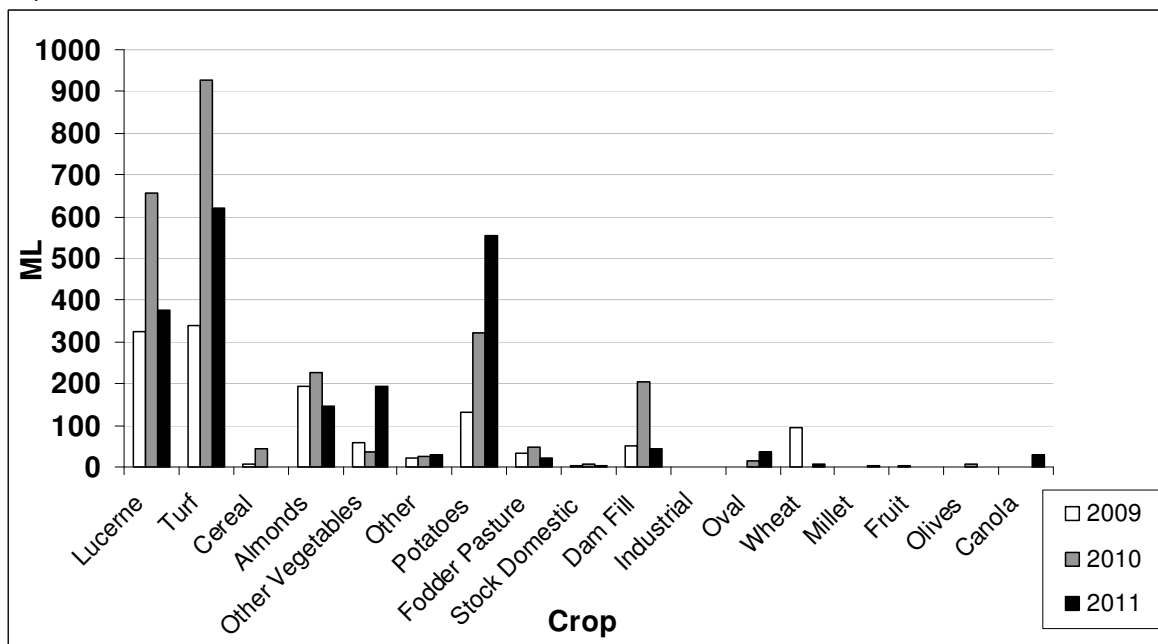
**Chart 4: Managed Aquifer Recharge (formally termed Aquifer Storage and Recovery (ASR))** :- This chart shows the total volume of water artificially recharged to the aquifer from 1985 to 2011. The **4825ML** recharged from the rivers in 2010-2011 was slightly lower than the record levels achieved last year. The salinity of the water recharged during 2010-11 was not recorded through on-line reporting but assuming the salinity was similar to last year (varied between 150 and 1400ppm) continued Managed Aquifer Recharge should lead to a long-term freshening of the groundwater in the confined aquifer.



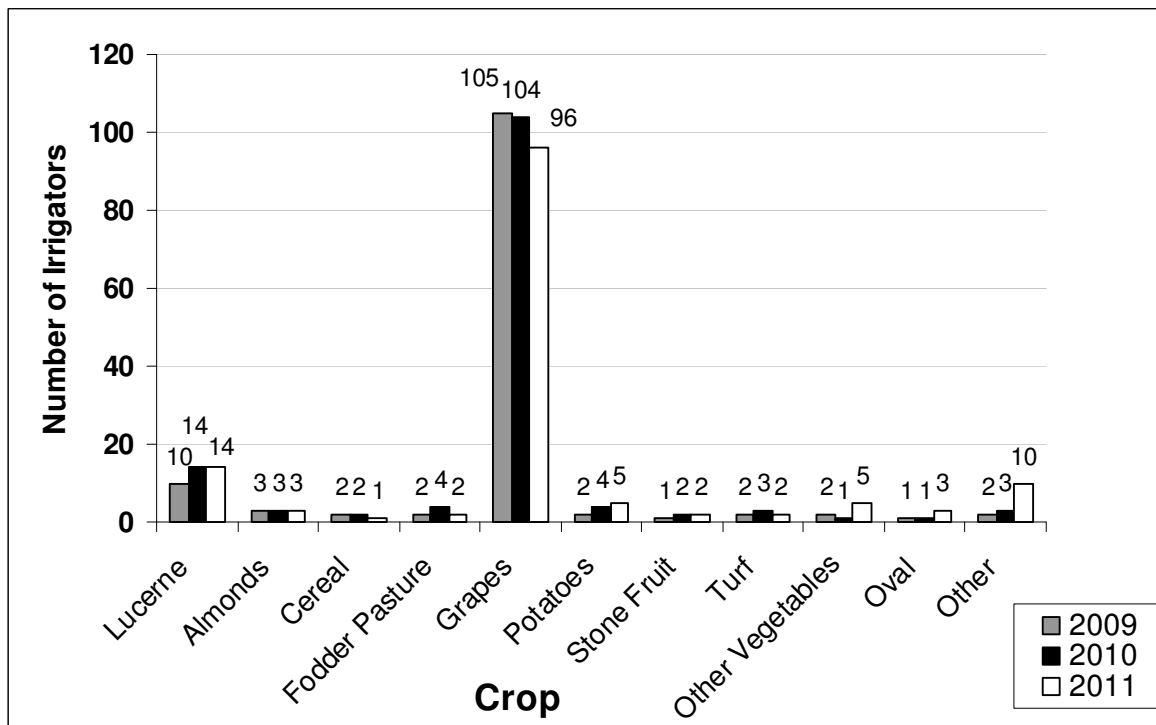
**Chart 5: Total volume of water used 2010-2011:** - The total volume of water used from all sources within the region was **15,985 ML** lower than last year's total of 18,479 ML.



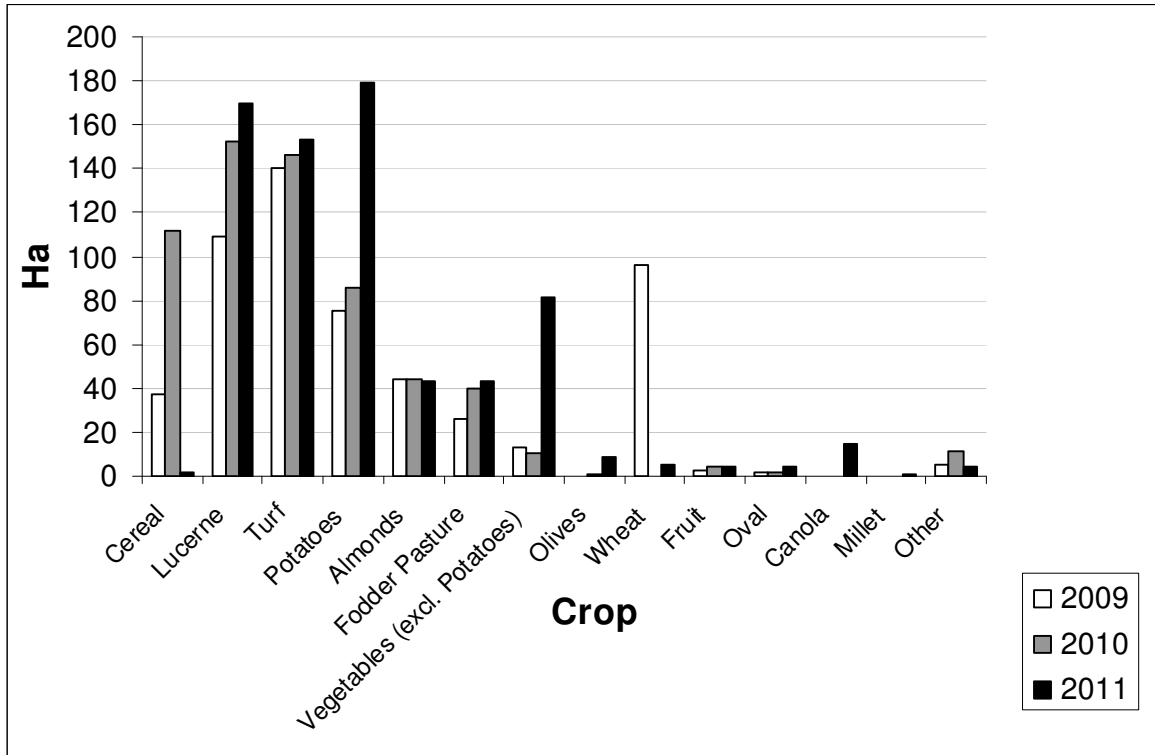
**Chart 6: Total volume of water used for each crop type:** - This volume is the total used from all sources; groundwater, watercourse water and River Murray water that was applied to each crop type (grapes excluded). **The total volume of water applied to grapes was 11,274.51ML in 2010-11 compared with 13,718.65ML in 2009-10 and 10,738.03ML in 2008-9.**



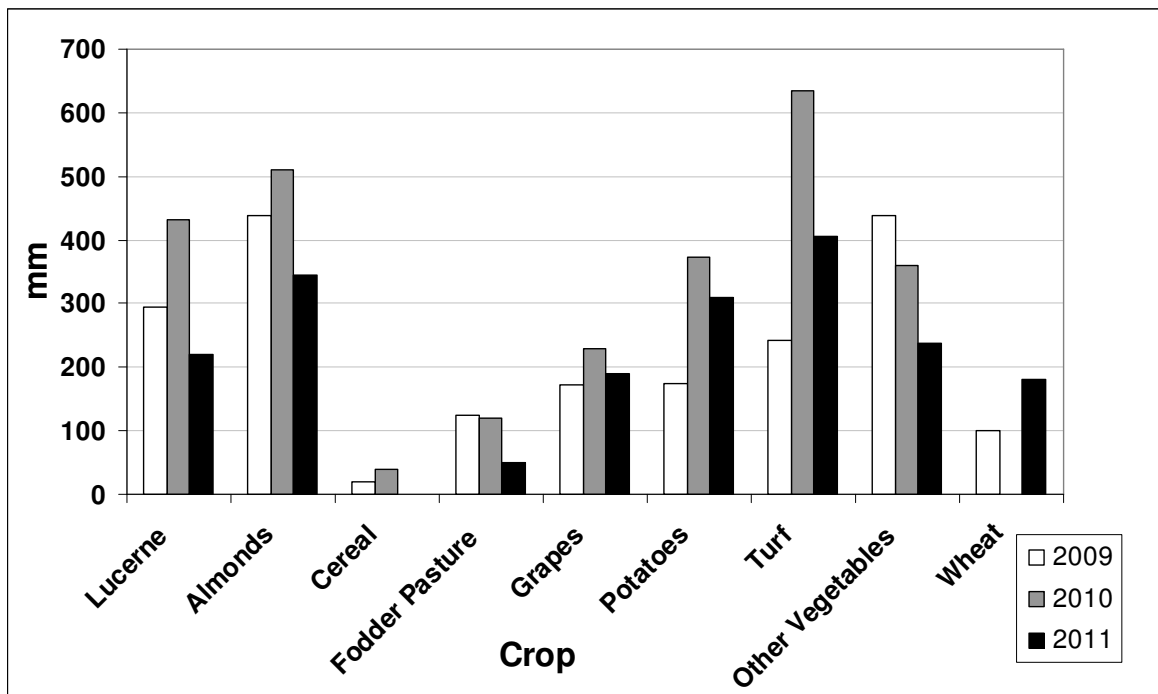
**Chart 7: Number of Irrigators for Each Crop Type:** - The number of irrigators growing each crop type in the region appears to have changed slightly over the last year with less irrigating grapes and more moving into other areas of horticulture such as vegetables.



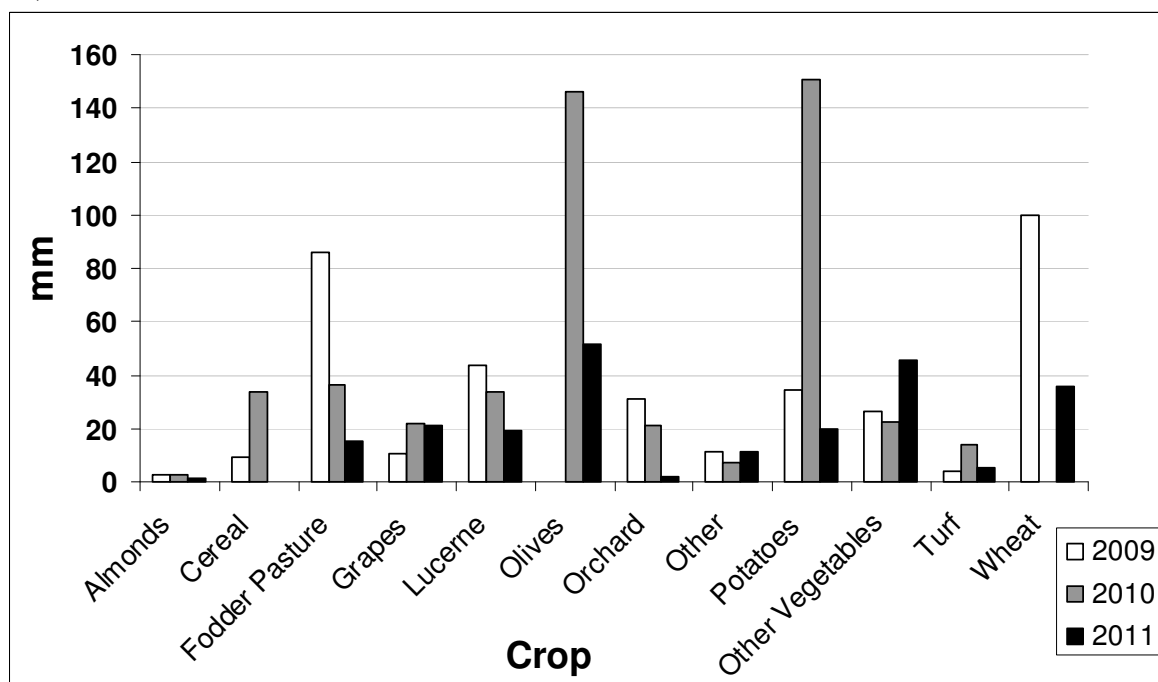
**Chart 8: Area Irrigated by Crop Type:** - The area of each crop irrigated is shown in hectares. **The area of grapes in 2010-11 was 5965Ha, similar to last year's total of 5971Ha, and lower than the 2008-9 total of 6748.02Ha.** The total area under irrigation in 2010-11 was 6678.25 Ha, slightly higher than the 2009-10 total of 6578.16Ha, but again lower than the 7296.82Ha irrigated in 2008-09. The greatest increases appear to be in the area planted under potatoes and other vegetables.



**Chart 9: Average total irrigation for the year by crop type:-** Irrigation is shown in mm for 2008-09, 2009-2010 and 2010-11. Most crops received less irrigation water this year than last.

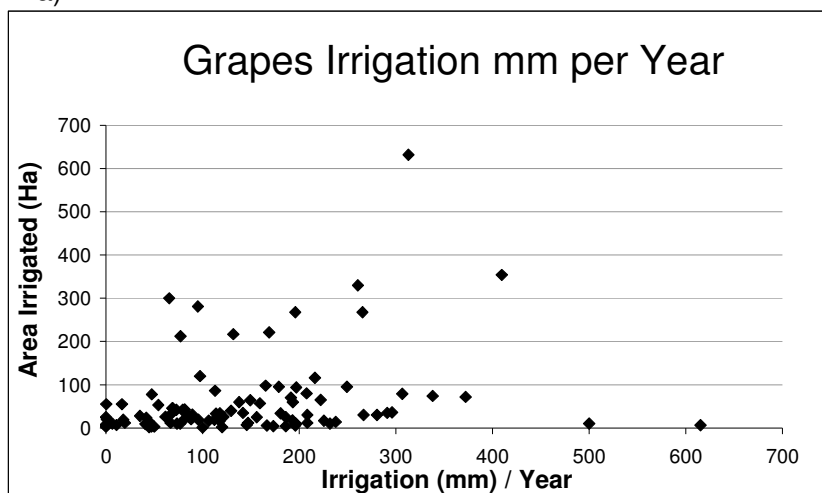


**Chart 10: Average mm of water applied per irrigation for each crop type for 2008-09, 2009-2010 and 2010-11.**

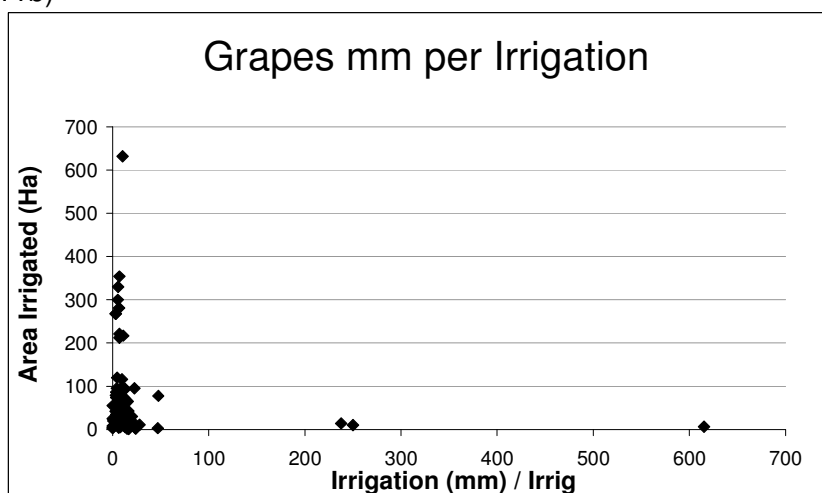


**Charts 11 to 15:-** These charts are for the larger crops. **For each crop one chart shows (a) the mm per year and (b) the mm per irrigation.** For grapes an additional chart (11c) has been included. It excludes those irrigators who used winter flooding that applied a large volume of water in a single irrigation.

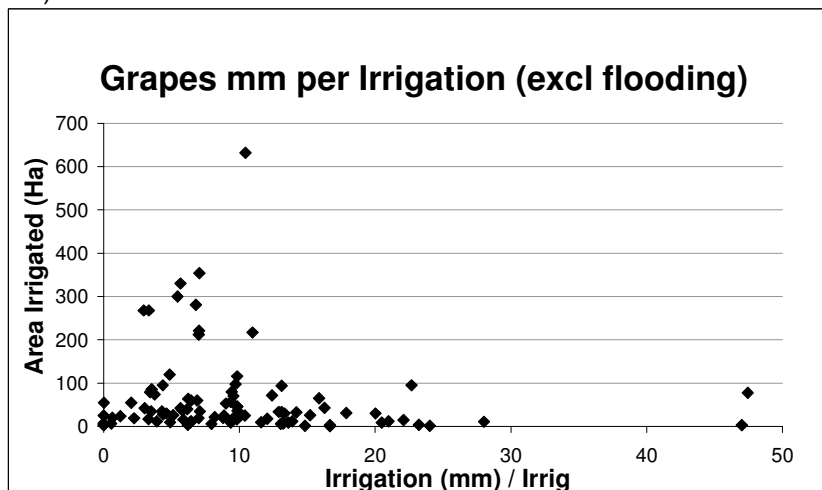
11a)



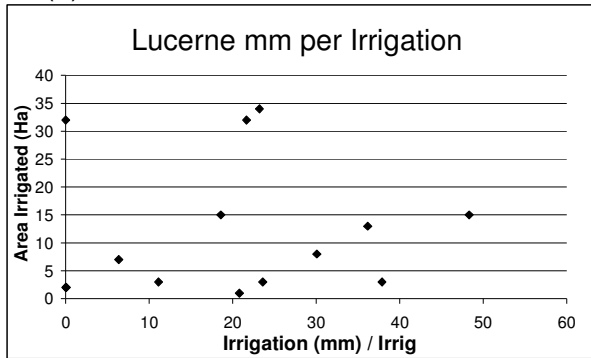
11b)



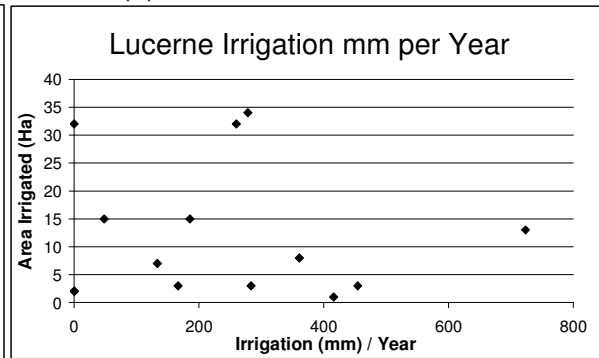
11c)



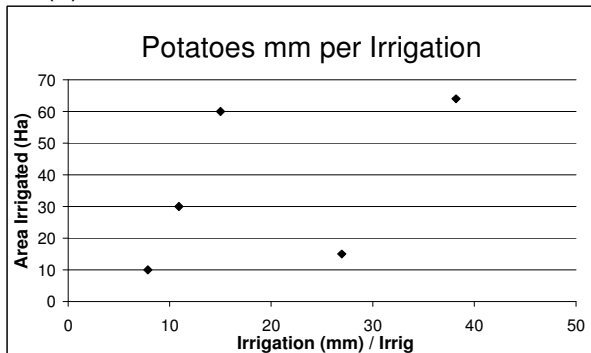
12 (a)



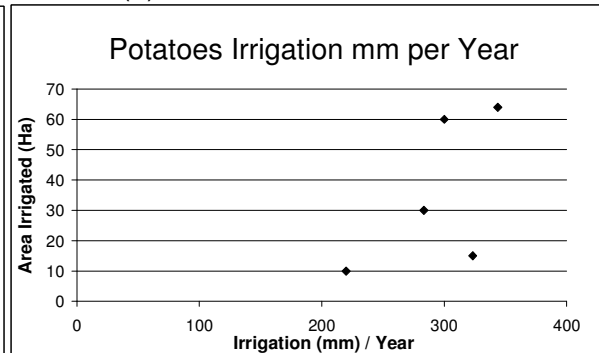
12 (b)



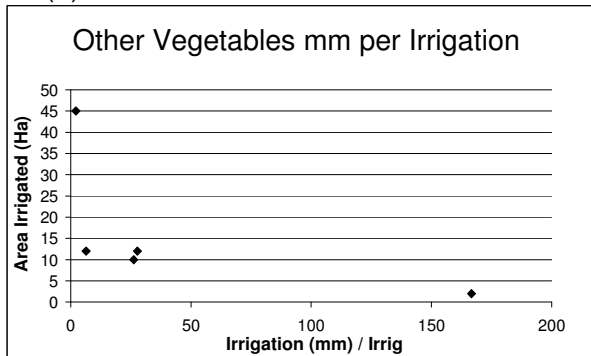
13 (a)



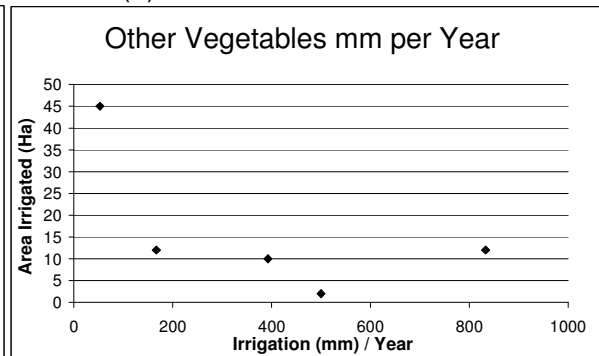
13 (b)



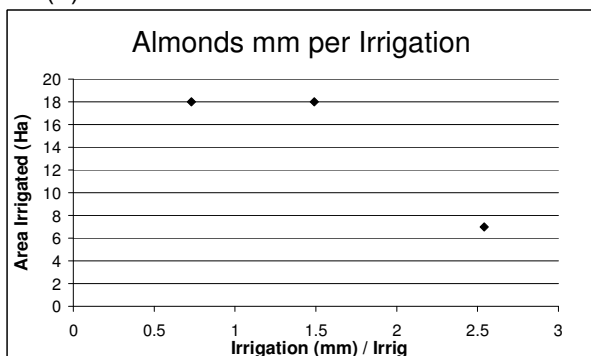
14 (a)



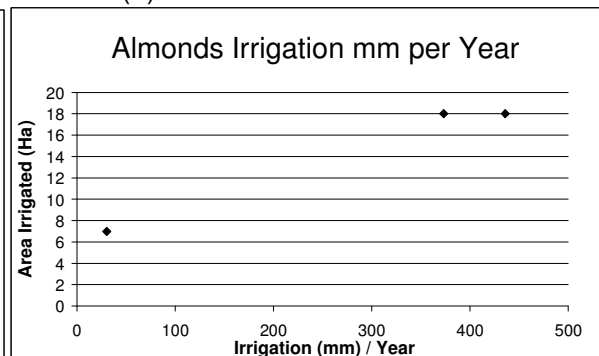
14 (b)



15 (a)

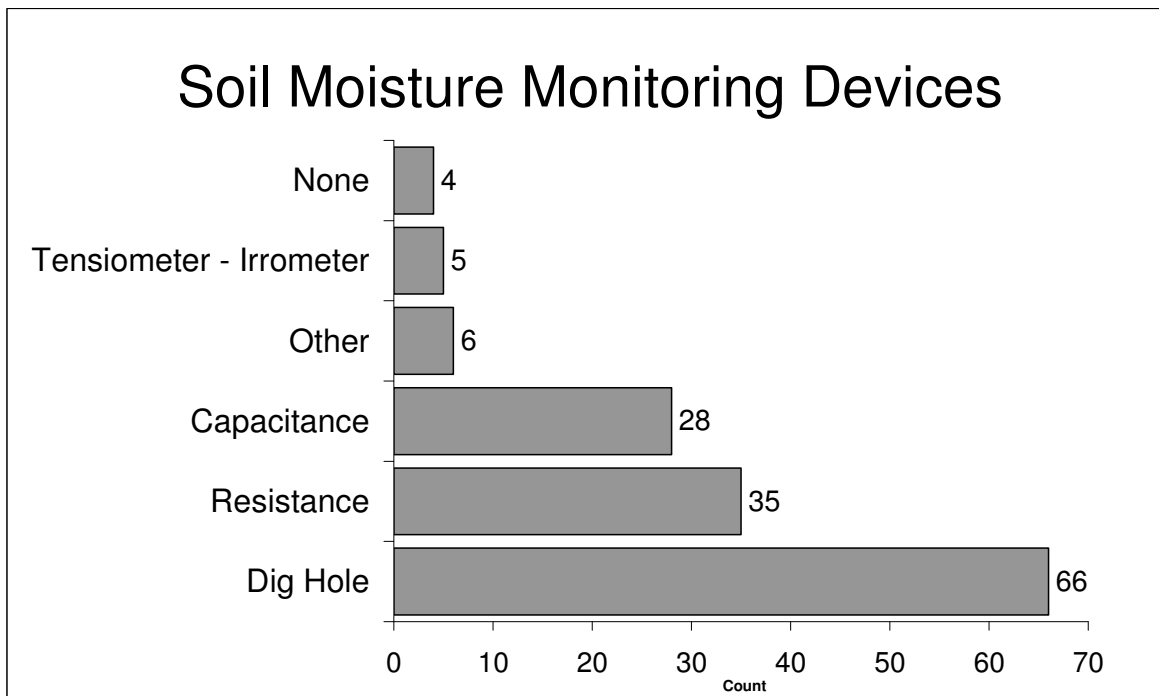


15 (b)





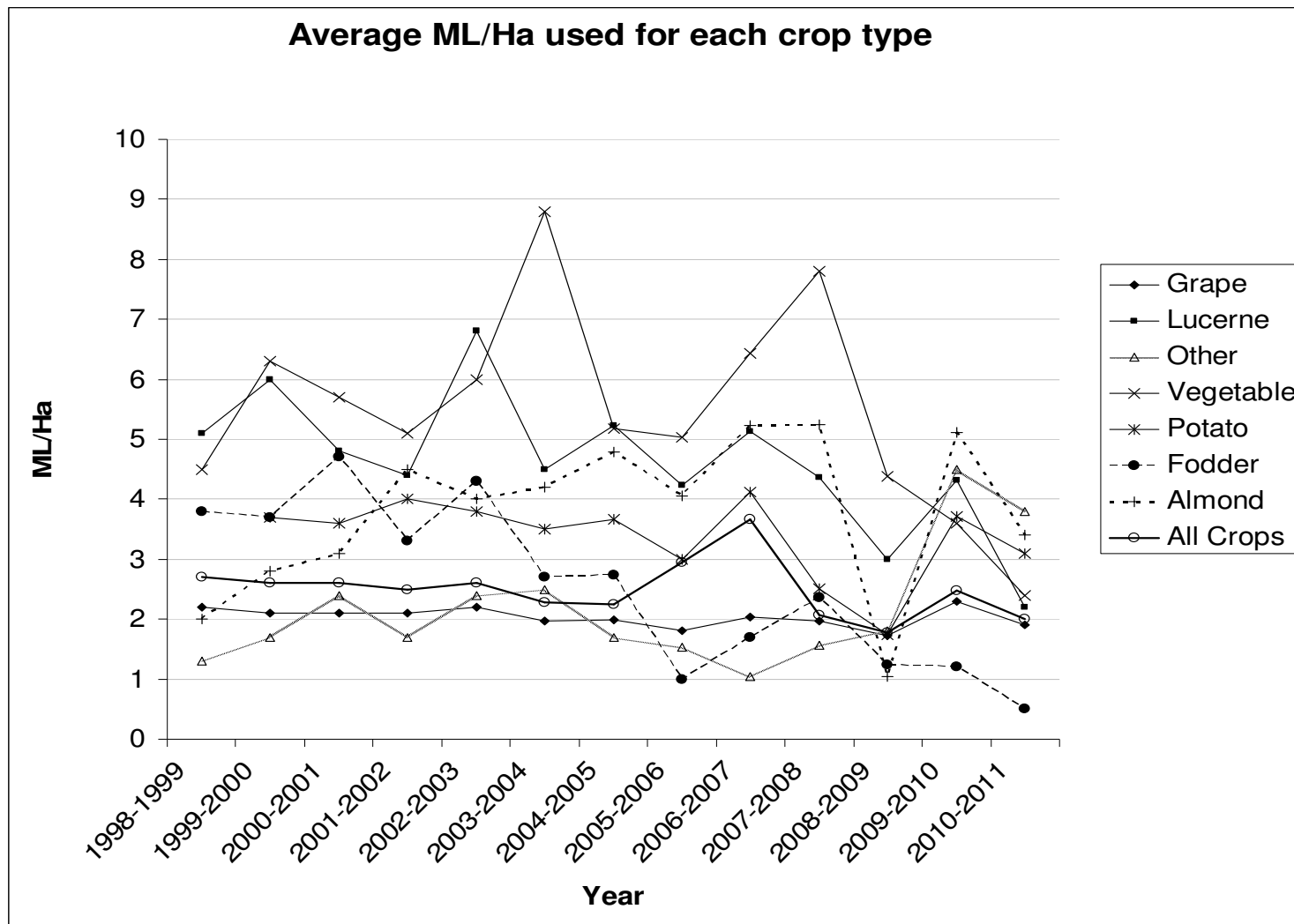
**Chart 16: Number of growers using Soil Moisture Monitoring devices:-** “Resistance” includes Gypsum Blocks. “Capacitance” includes Agwise soil moisture probes, Agrilink C probe, Dataflow Gopher, Sentek Diviner and Sentek EnviroSCAN. “Dig hole” includes Dig stick, spade, auger and post hole digger.



**Table 2: Average ML/ha per crop per year:-** This table shows the average ML/ha of irrigation water applied to different crop types and compares 2011 with previous years. This information is also displayed in the following chart 17.

Year	Grape	Lucerne	Other	Vegetable	Potato	Fodder	Almond	All Crops
2010-2011	1.9	2.2	3.8	2.4	3.1	0.5	3.4	2
2009-2010	2.3	4.32	4.49	3.6	3.72	1.2	5.11	2.47
2008-2009	1.73	2.99	1.81	4.38	1.74	1.24	1.04	1.78
2007-2008	1.97	4.36	1.57	7.8	2.51	2.36	5.24	2.07
2006-2007	2.04	5.13	1.05	6.43	4.12	1.7	5.23	3.67
2005-2006	1.8	4.23	1.53	5.04	2.99	1	4.06	2.95
2004-2005	1.99	5.22	1.69	5.18	3.67	2.74	4.79	2.25
2003-2004	1.97	4.5	2.5	8.8	3.5	2.7	4.2	2.28
2002-2003	2.2	6.8	2.4	6	3.8	4.3	4	2.61
2001-2002	2.1	4.4	1.7	5.1	4	3.3	4.5	2.5
2000-2001	2.1	4.8	2.4	5.7	3.6	4.7	3.1	2.6
1999-2000	2.1	6	1.7	6.3	3.7	3.7	2.8	2.6
1998-1999	2.2	5.1	1.3	4.5		3.8	2	2.7

Chart 17



**Table 3 - ML used and ha irrigated comparison chart:-**

	2010 2011	2009 2010	2008 2009	2007 2008	2006 07	2005 06	2004 05	2003 04	2002 03	2001 02	2000 01	1999 00	1998 99
<b>Total ML</b>	<b>13,346</b>	<b>16,241</b>	<b>12,001</b>	<b>14,743</b>	<b>20,911</b>	<b>15,811</b>	<b>17,719</b>	<b>17,154</b>	<b>20,715</b>	<b>17,428</b>	<b>17,467</b>	<b>16,961</b>	<b>16,509</b>
<b>Total ha</b>	<b>6,687</b>	<b>6,578</b>	<b>6,748</b>	<b>7,049</b>	<b>8,370</b>	<b>7,739</b>	<b>7,869</b>	<b>7,509</b>	<b>7,934</b>	<b>7,089</b>	<b>6,788</b>	<b>6,625</b>	<b>6,153</b>
Grape ML	11,275	13,718	10,738	12,330	12,827	11,293	11,688	11,927	13,165	11,159	10,626	10,021	8,864
Grape ha	5965	5,971	6,199	6,245	6,271	6,170	5,876	6,059	6,059	5,357	4,991	4,665	4,084
Lucerne ML	376	657	326	675	1,437	1,378	1,791	1,608	2,560	2,051	2,040	2,491	3,526
Lucerne ha	170	152	109	155	280	325	343	354	376	471	429	418	698
Veg ML	193	36	57	179	373	363	638	605	647	651	769	761	2,355
Veg ha	81	10	13	23	58	72	123	69	108	103	134	121	518
Potato ML	555	320	131	136	1,200	1,171	1,278	1,280	1,504	1,719	1,773	1,812	
Potato ha	179	86	75	54	291	392	348	360	394	425	490	485	
Fodder ML	22	47	32	53	222	144	505	399	752	316	742	358	906
Fodder ha	43	39	26	23	130	144	184	146	173	97	157	96	241
Almond ML	148	225	193	231	251	195	230	203	188	246	172	164	119
Almond ha	43	44	44	44	48	48	48	48	47	55	55	58	61
Other crops ML	777	1,238	524	795	2,004	900	1,589	1,132	1,899	1,286	1,259	1,354	738
Other crops ha	206	276	282	505	906	588	936	443	777	583	533	777	555

Chart (s) 18 a + b (Pg 22-23) These and the following charts were produced by the Dept for Water. These two charts are contour maps of the Quaternary (Q) unconfined aquifer. The first is from the 2010-2011 water use year (Winter 2011), the second from the 2009-2010 irrigation season. The shallowest reading from each monitoring site over the year or season has been mapped. The data for each map came from the growers monitoring wells and from Government Quaternary aquifer observation wells. The numbers on the maps are metres below ground level of the standing water table. Winter was selected as it is the time of greatest risk of shallow watertables. When compared to previous years it is shallower (i.e. closer to the ground surface), particularly near Langhorne Creek. The 2009-2010 depth to watertable in the vicinity of Langhorne Creek was between 3 – 6 m.

Chart 19 a + b (Pg 24-25) The next charts show the potentiometric surface contours of the Tertiary (T) confined aquifer in February 2011 (post irrigation), and March 2010 (post irrigation) and October 2010 (pre irrigation) in the second chart. The data for the charts came from the Government confined observation wells. February 2011 (post irrigation season) was selected as it shows the greatest level of impact due to extraction from the aquifer. There is an improvement on the water level elevation in the confined aquifer in comparison to the March 2010 post irrigation season water level pressures.

Chart (s) 20 a+ b (Pg 26-27) The salinity maps below shows the salinity contours of the confined aquifer. They were produced using the most recent value obtained from each monitoring point during 2010-2011 and 2009-2010 respectively. The data for these maps comes from the Government observation wells and from the water samples submitted by the growers at the start and end of the irrigation season. The numbers on the maps are in mg/litre (equivalent to ppm). There were fewer wells monitored for salinity in 2010-2011 than in previous years, as a result the contours differ in some location to that reported in previous years (particularly to the north east of the PWA).

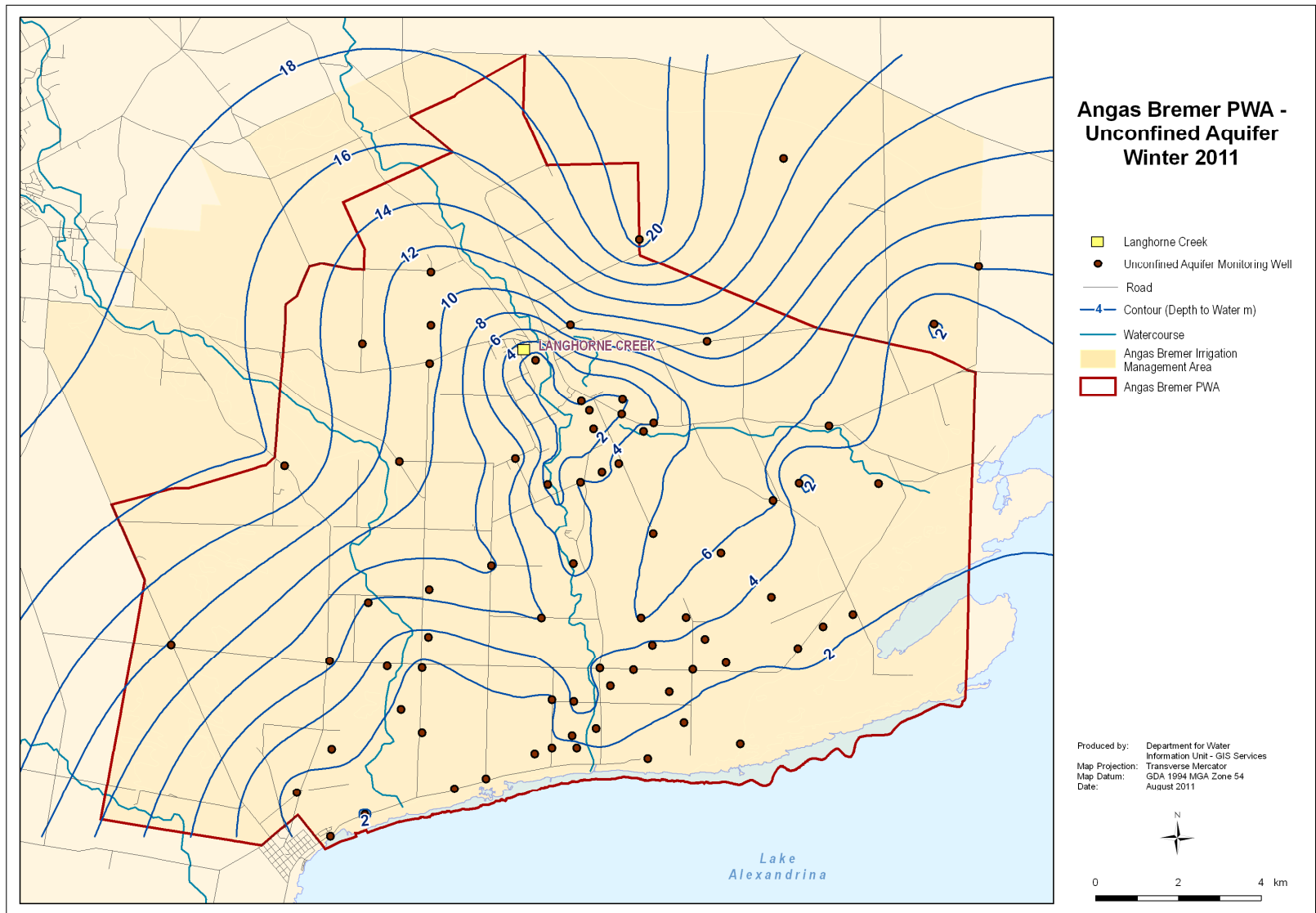
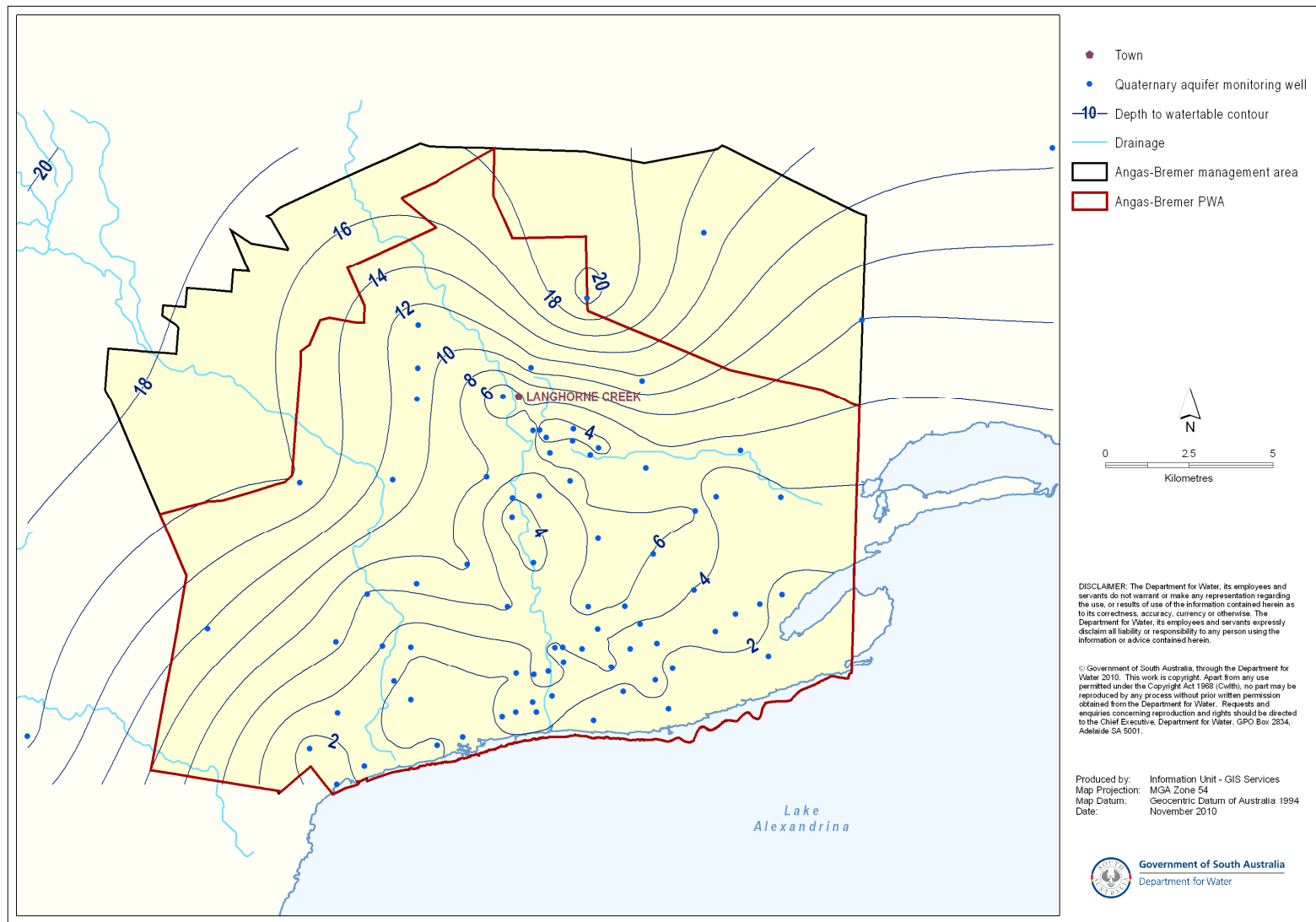


Chart 18a Standing Water Level in Quaternary Unconfined Aquifer Winter 2011



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**Chart 28b Standing Water Level in Quaternary Unconfined Aquifer 2009-2010**

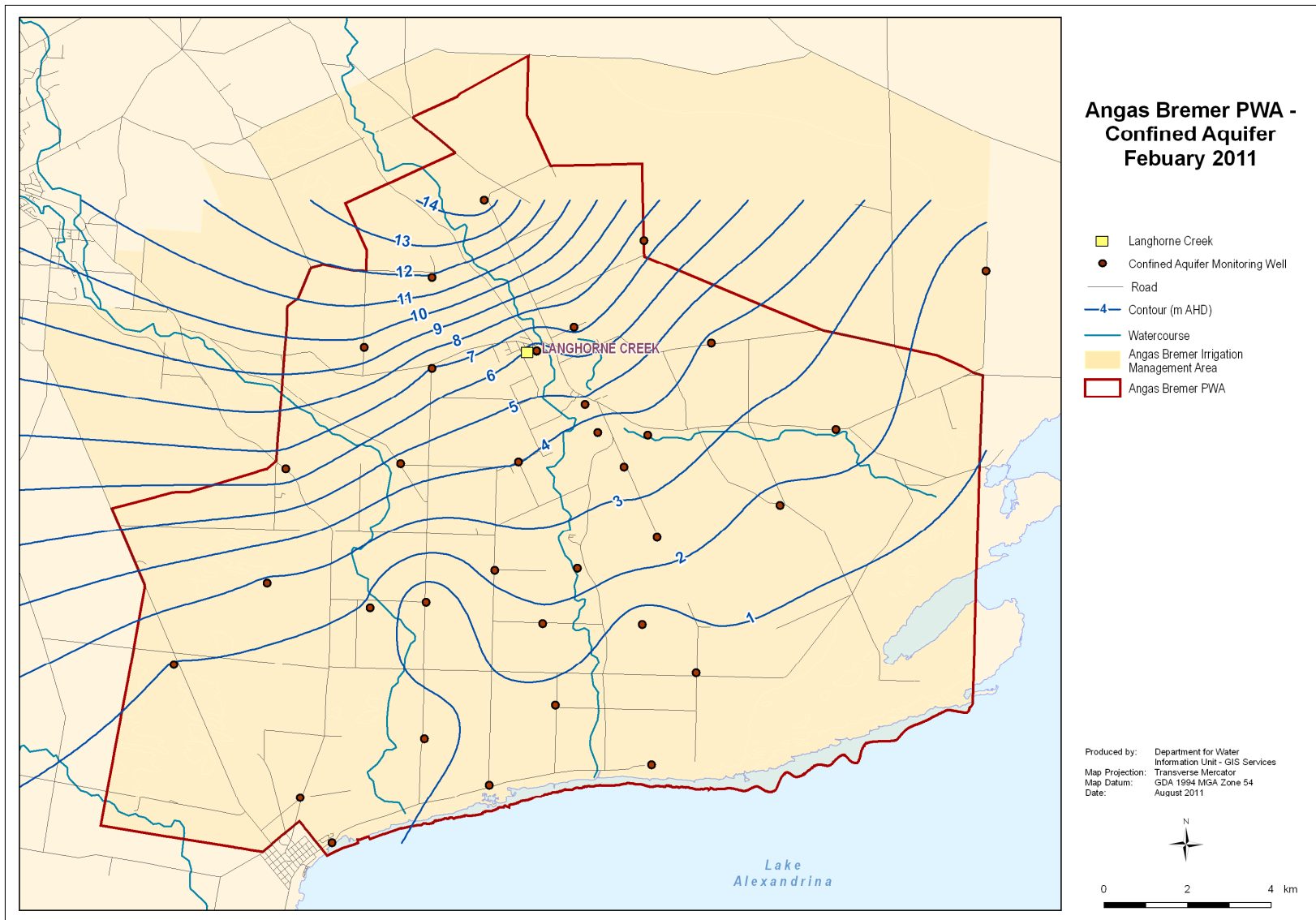


Chart 19a Water Level Elevation (m AHD) in Tertiary Confined Aquifer February 2011 Post Irrigation



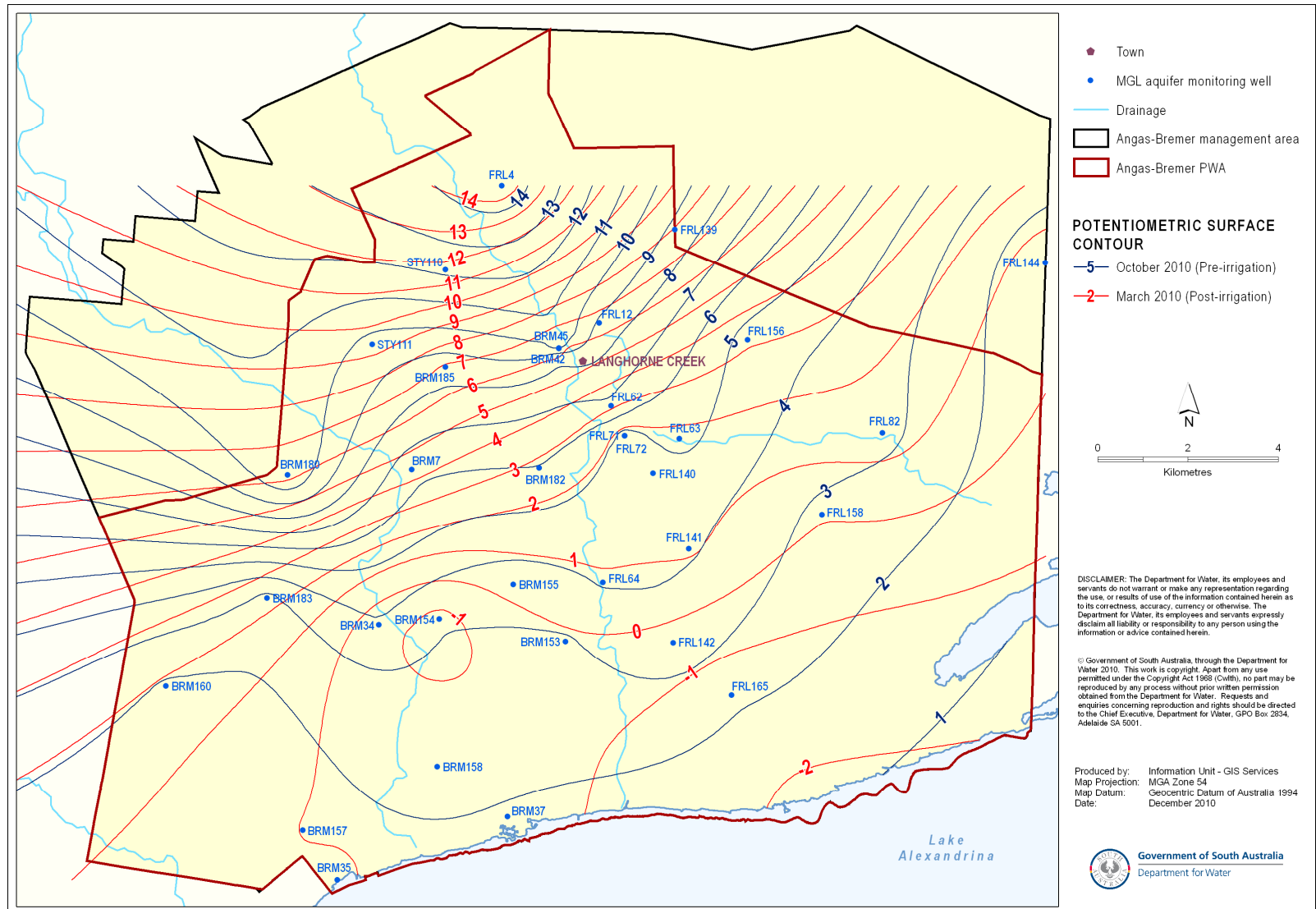


Chart 19b Potentiometric Surface in Tertiary Confined Aquifer Post (March 2010) and Pre (October 2010) Irrigation

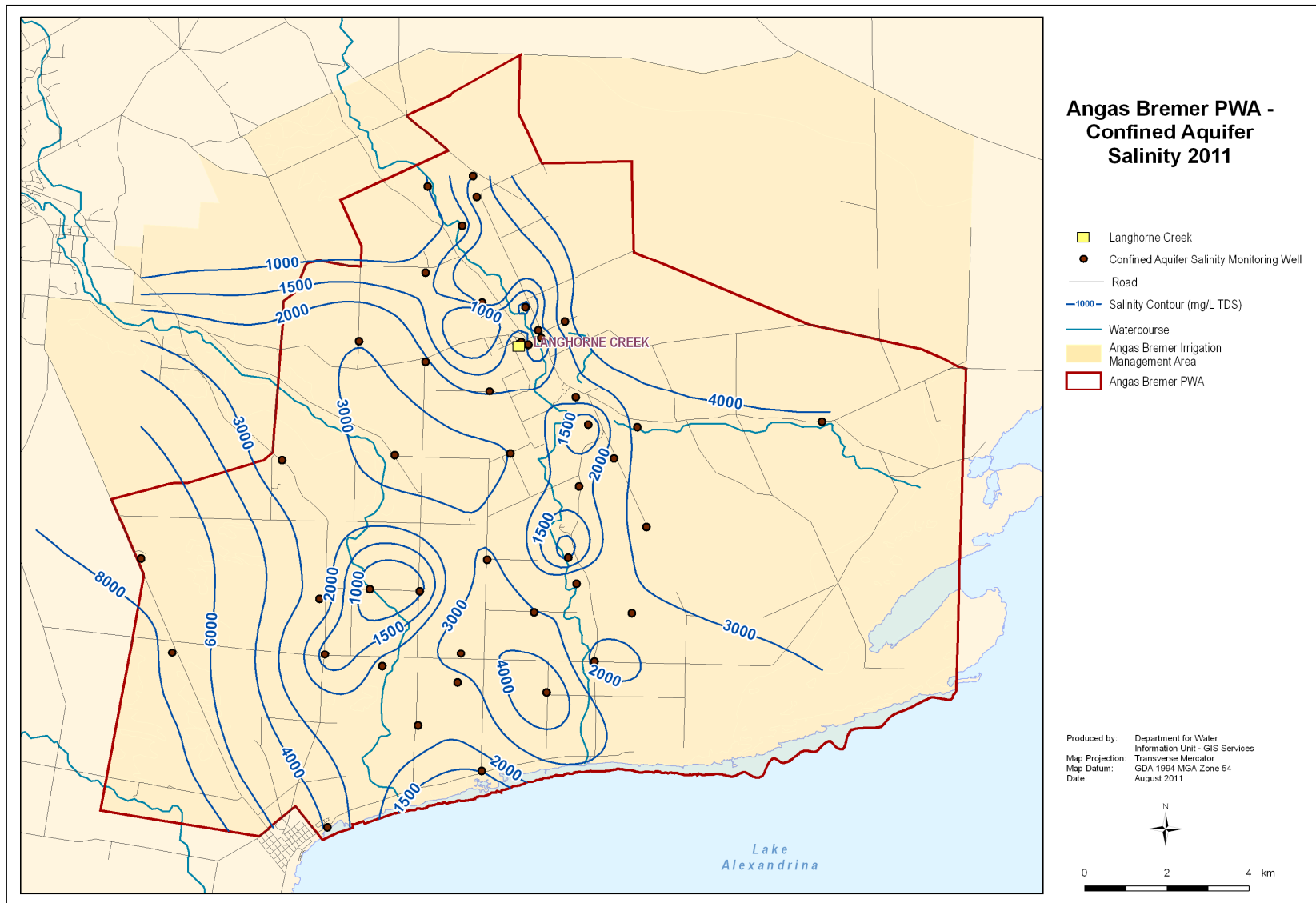


Chart 20a Salinity contours in Tertiary Aquifer 2011

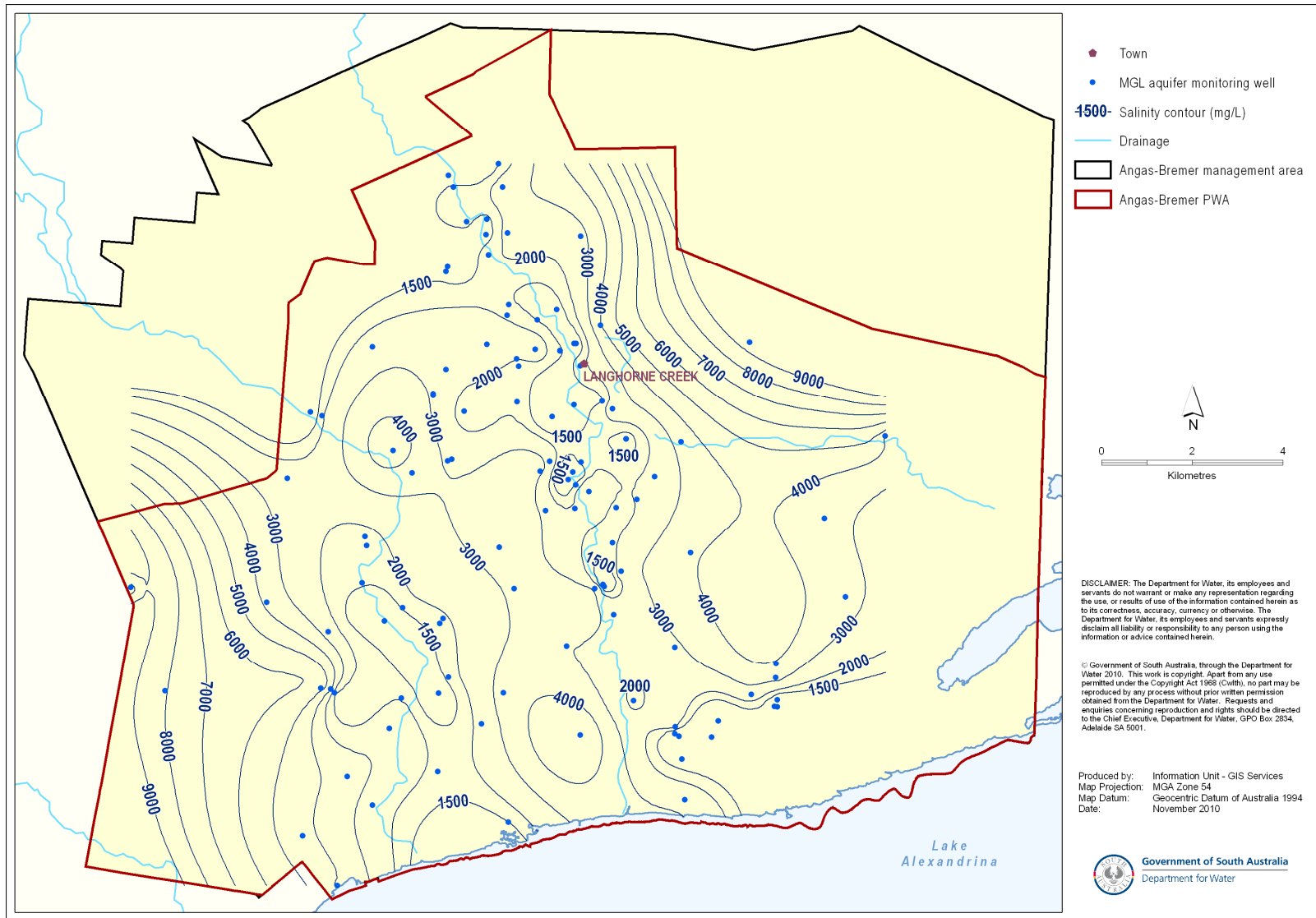


Chart 20b Salinity contours in Tertiary Aquifer 2009-10

## **Langhorne Creek Weather Station Statistics**

### ***Background***

An automatic weather station owned and operated by the SA Murray-Darling Basin NRM Board was installed at Lake Breeze vineyard in November 2006 and has been collecting local weather information since this time.

The Langhorne Creek station is part of an extensive automatic weather monitoring network operated by the NRM Board consisting of 29 automatic weather stations and 7 rainfall only monitoring sites. All sites report data to a dedicated website on an hourly basis which is available for viewing at: [www.aws-samdbnrm.sa.gov.au](http://www.aws-samdbnrm.sa.gov.au). The website was upgraded in 2010.

### ***20010/11 Seasonal Summary***

As illustrated in Figure1. 508.6mm of rainfall was recorded at the Lake Breeze weather station during 20010/11. Since the station was installed in 2006 this is the largest amount of July – June rainfall recorded at the site.

Due to the migration of local weather data to a new system during 2010/11 the rainfall and evapotranspiration totals have been compiled based on 333 days of records. The 32 days of missing data would account for some of the decrease in total evapotranspiration compared with previous seasons however generally speaking the season could be categorised as cooler and wetter than average.

Figure 1.

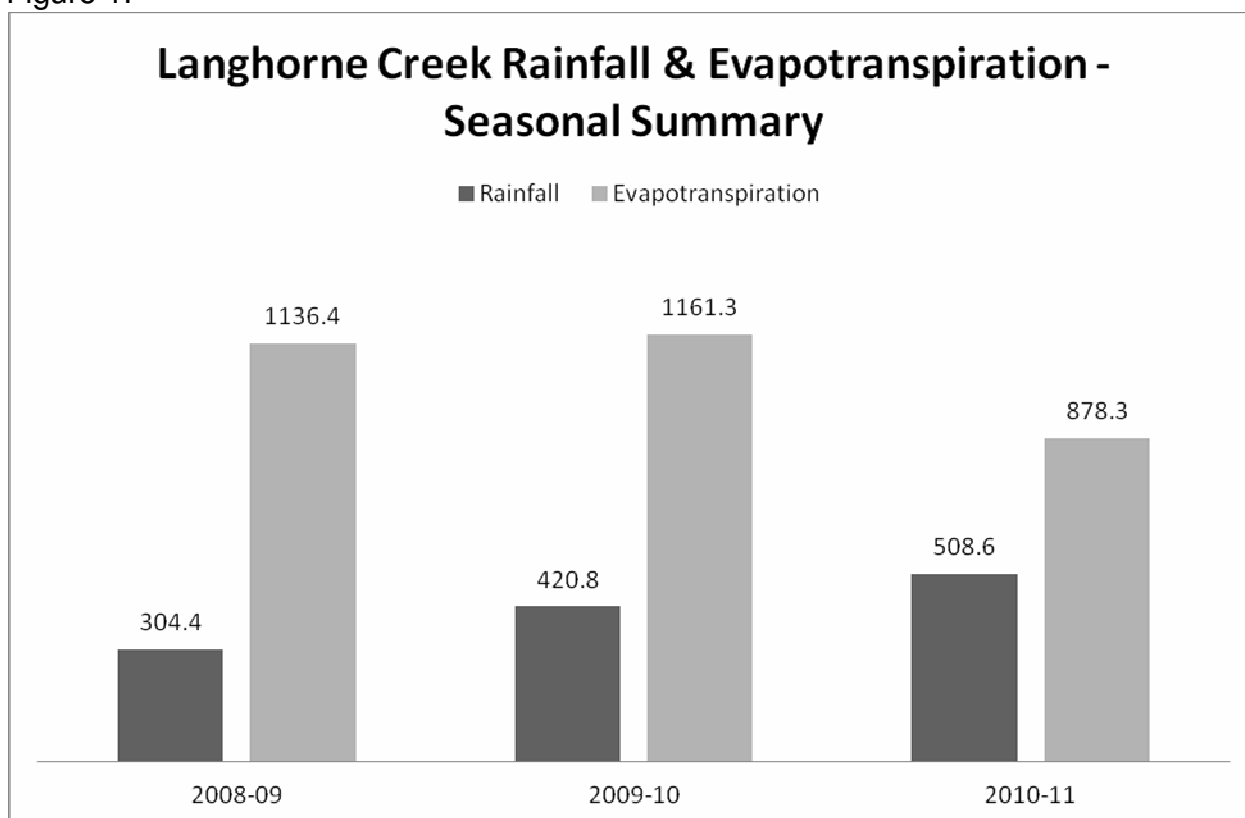


Figure 2. illustrates the distribution of rainfall during the 2010/11 season at Langhorne Creek and highlights a very different rainfall distribution pattern compared with the 2009/10 season which is shown in Figure 3.

Figure 2.

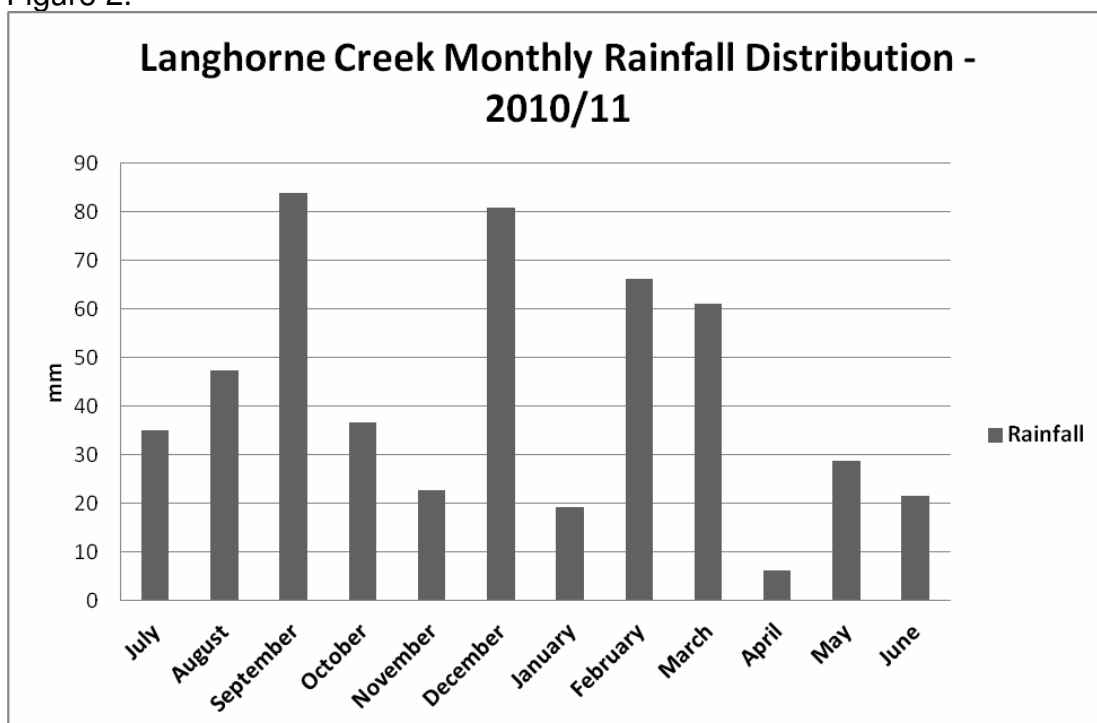
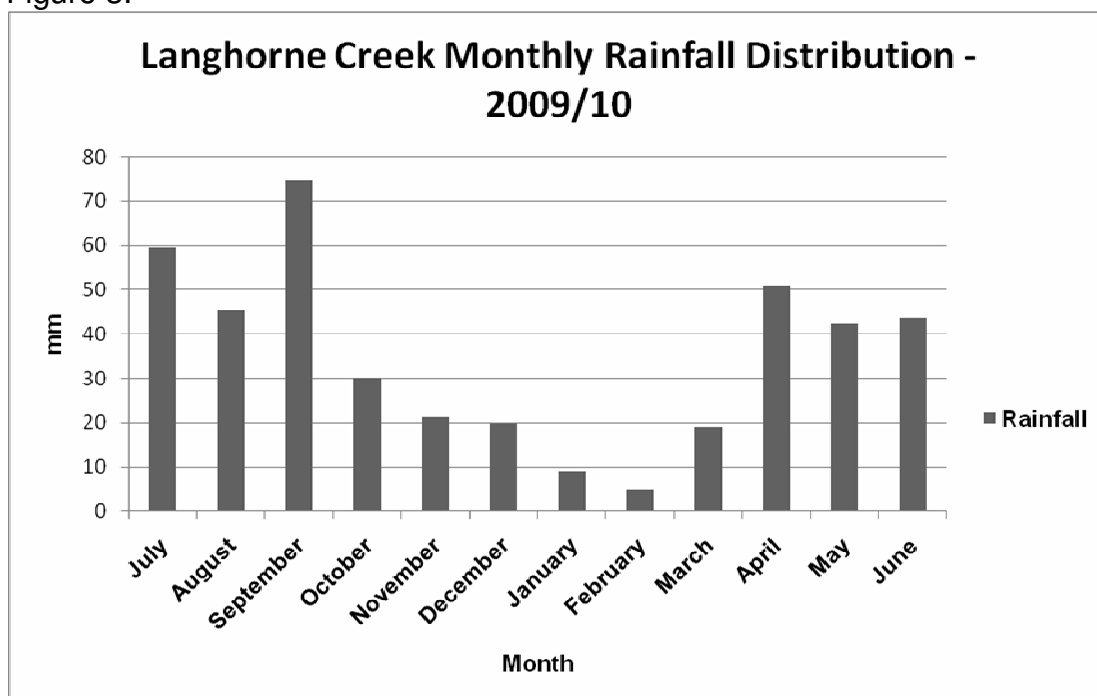


Figure 3.



In terms of temperature extremes, the hottest daily maximum recorded at the Lake Breeze site was 42.3°C on the 30<sup>th</sup> January 2011 and the coldest -0.9°C which was recorded on the 5<sup>th</sup> July 2010.

The maximum daily evapotranspiration figure of 7.5mm was recorded on the 31<sup>st</sup> December 2010 and the highest daily rainfall total of 51.6mm was observed on the 18<sup>th</sup> February 2011.

**Angas Bremer Water Management Committee**  
**Annual Public Meeting**  
**29<sup>th</sup> August 2011**  
**Langhorne Creek Bowling Clubrooms**

**Attendees:**

Sylvia Clarke, Cameron Welsh, Steve Barnett, Rick Trezona, Ray McDonald, John Pargeter, Sam Newell, Darren Aworth, Brett Cleggett, James Stacey, Bruce Nelson, Mac Cleggett, George Borrett, Graham MacGillivray, Trevor McLean, Rob Giles, Peter Eckert, Phil Reilly, Sue Phillips, Len Case, David Hender, Jarrod Eaton, Di Davidson.

**Apologies:**

John Follett, Guy Adams, Dale Wenzel, Colin Cross, Geoff Warren, Brett Phillips, Lian Jaensch.

**Meeting opened:** 7:12 pm

**Chairman's report:**

John Pargeter, Presiding Member, gave a summary of the year's achievements and challenges.

Mr Pargeter explained that the purpose of the Angas Bremer Water Management Committee had been revisited by the committee members during the year, and in order to clarify the current and future directions of the committee for its members, a Terms of Reference had been drafted. This could also be of use to explain the role of the committee to others.

The achievements made by the ABWMC through its many projects were listed, and the commencement of on-line Annual Irrigation Reporting in 2011 was highlighted. The committee's involvement in the production of the draft Eastern Mt Lofty Ranges Water Allocation Plan was also mentioned.

It was suggested that some assistance might be needed to get ABIRA back on its feet and to sort out the legal contracts associated with the revegetation.

He also mentioned that the River Murray Advisory Committee was looking for a new member if anyone from the region was interested in taking up this position.

John Pargeter lastly thanked the committee members for their efforts through the year and special thanks were given to Rick Trezona, Cameron Welsh, Michael Cutting, Barb Blaser and Sylvia Clarke.

**Terms of Reference**

The Terms of Reference drafted by the committee were presented to the meeting.

The questions – 'Do we need a committee and are these Terms of Reference relevant?' were posed.

Di Davidson responded that she really hoped the committee would continue despite the time and commitment issues faced. The committee had input into the Basin Plan, the data was there and it is well known that this area has the best handle on its water and usage. When the Basin Plan is rolled out they will need committees like this.

Rick Trezona cited the committee's constitution and the Memorandum of Understanding with the Catchment Management Board from many years ago. These highlighted monitoring and communication as the roles of the committee and these are still very important.

Trevor McLean stated that various groups in the region had been liaising with government for the last 50 years, which was a good legacy to continue.

John Pargeter suggested that it is still important for the NRM Board and DFW to have someone to come to. Cameron Welsh agreed that it is much easier for the NRM Board to come to a core group of people who can be the conduit to the rest of the community. These committees are a powerful and useful tool. Steve Barnett said that this also applied from a groundwater perspective.

John Pargeter described that over the last year the committee had often struggled to get a quorum at meetings, with everyone lacking staff and needing to be on their properties more. He suggested that people put their hand up and give it a go.

The need to get behind the NRM Board to try and get money for the committee was emphasised by Sam Newell. Cameron Welsh explained that the funding landscape had changed over the last 5-7 years and that the Board gets its funds externally itself. The organisation had recently changed and merged with the state government to form DENR. In 12-18 months they should learn what that means for NRM. The committee has been on the Board's back and needs to keep pushing for funding, but the bucket of money is getting smaller.

Steve Barnett outlined that DFW had taken over the dataloggers for the committee and their Groundwater Status report will assist with some of the reporting but funding personnel was much more difficult.

The Chair asked if there was anything missing from the Terms of Reference, anything else the committee should be doing? Can we set it in stone for a year or accept it as a working draft?

**Rick Trezona moved to adopt the Terms of Reference as a working paper to form a guide for the new committee and to encourage the new committee to develop plans and strategies to achieve the Terms of Reference. Seconded Sam Newell.**

#### **Di Davidson – Where we sit with the Basin Plan.**

The Murray Darling Basin Plan will be released in Mid-November, with no date set. The Plan has been delayed to ensure the states are aligned. It has to be delivered in a legislative form. The States all have different roles, different Water Allocation Plans (WAPs), and it's all very political. They need to get to a point where none of the states can say they don't agree. There are currently 2 meetings a week with state authorities to talk about the rules.

The major change so far has been the time of implementation, with the Plan now not put into action until 2019. This will provide 7 years of adaptive management, but the Environmental work will begin straight away. Irrigation and consumption changes won't come into effect until 2019. Victoria had their WAPs not due for adoption until 2019 so this would have been an advantage to Victoria. By 2018 all states now need to have their WAPs ready. This gives 7 years to deal with the social and economic impacts. Some communities (not here) will need to make some decisions about their future. The government strategic buyback will be useful to the environment and will also release money for infrastructure.

There will be a pause in 2015 for review. The government will only purchase 50% of its buyback by this time to make sure that they don't buy too much. This will also give time to see if the environmental watering plans are working. It's very difficult to ensure that the environmental watering plans are adequate as the available information is not accurate, because dealing with the environment is not like watering a crop. There are many different environmental needs. It is very complex, and they are worried the information they have is

not accurate enough. They will need years of data collection and checks will be needed along the way. It is currently based on good science and judgement but it will need to be checked.

Its not about a volume of water, it's a timeframe to adapt to change. The Environment is still the key point but it wont get more than it requires, leading to social and economic dislocation. Lots of savings through infrastructure have been planned but not yet funded. It won't be as bad for SA as feared. The science was fine but now it has been added to so that each catchment is responsible for its own environment.

The Langhorne Creek surface water will face a small cut in the volume of water for irrigation. It is a state decision as to how this is done. The amount coming over the border is set. A certain amount is earmarked for the environment and critical human needs, the rest will be divided up for irrigation and consumptive use.

If you want to fight for an amount for irrigation you need to fight with the states.

The plan can be reviewed at any time if 2 states request it. Otherwise it will be put into action in 2012, reviewed in 2015, with full implementation by 2019.

In terms of Groundwater there will be no change here because there was such good data. Unfortunately there wasn't good interaction between the states and the authority to begin with, but the information is there now.

This type of local group is needed so that the string of public servants understands what is going on. In other states the Catchment Management Authorities are involved. Here the NRM boards are a bit different.

The Langhorne Creek region needs a member on the River Murray Advisory Board as they may become the main advisory group. There are fewer people here but we mustn't let the impact be lost. It shouldn't make a big difference to your lives to be on the Board.

The whole process is mired in politics but we need to keep the train going because if it stops it will be much harder to get it going again.

The government has currently bought back a bit under 1000GL, more in the north. There is currently a tender targeting the southern basin. The Goulburn and Murrumbidgee need to part with some of their water. The ability to get water down the rivers is tricky physically. A dozen irrigators in the lower Murrumbidgee are offering to sell 350GL.

The infrastructure money has currently stopped and is being sat on by federal government. 35 projects put up by states but the due diligence process was impossible.

### **Steve Barnett discussed the Groundwater Status Report**

See attached slides.

Steve Barnett can now spatially display where the credit and debit of extraction is.

Indications are that salinities are coming down over the whole area.

Rob Giles suggested that we are banking for the future with 6 years of putting water away and hopefully this will see us through another drought.

When asked about natural recharge of flooding to underground aquifer, Steve Barnett responded that they are of the opinion that it doesn't reach the limestone aquifer, however some does get into the shallow aquifer. This process is the same for the rivers.

A discussion of whether financial or calendar year Groundwater Status Reports would be best for the region, determined that a financial year report would be best. Extraction is aligned with a financial year and although recharge from the rivers occurs during winter, recharge from the CPC pipeline now happens anytime.

### **Jarrold Eaton (DFW) discussed the Resources situation and also development of the carryover policy for SA.**

See attached slides.



Sam Newell objected to the fact that people were caught up this year with 67% of their allocation because people with carryover were dictating what everyone else could use, even those that didn't carryover.

Jarrold Eaton explained that carryover is now on top of entitlements. There will be a credit and debit situation. If you don't use all of your entitlement you will be in credit. It won't affect allocation decisions in the future. It was noted that the policy looked complicated but that they will make mistakes and learn from it. Jarrold will be making the institutional arrangements for the new process over the next month and a half and would like input. There is currently the opportunity to put up comments to this policy development. He will return to the committee with the proposed structure in early October. The option of a public meeting was also suggested.

## **Cameron Welsh – SA MDB NRM Board**

The public comments on the Eastern Mt Lofty Ranges Water Allocation Plan have been put together and are available from the Board, but they are yet to address the comments, so some of the answers may change. They are working as quickly as possible.

Ray McDonald asked what the chances were of the WAP being operational in time for the 2012-13 irrigation year?

Cameron's response was that it would more likely be the year after.

A comment was made on the fact that this process takes years and people's businesses have to go on during this time.

Cameron Welsh acknowledged that it puts everything on hold.

Mac Cleggett added that he is against water trading.

## **Project Coordinator Sylvia Clarke gave a presentation of the interim Irrigators Annual Report and an update of the committee's other projects**

### **Michael Cutting – SA MDB NRM Board**

Outlined the new Rootzone Salinity Project – see presentation slides attached.

### **Rick Trezona- treasurers report**

Budget attached.

There has been a loss over the year of \$20,000. From a bank balance of \$74,000 two years ago, it is now down to \$36,000. The committee still has problems in terms of remaining sustainable.

Rick Trezona moved that the Annual Accounts be accepted, seconded Phil Reilly.

## **Election of Committee Members**

**Current members:** Michael Clements, Brian Wyatt, Dale Wenzel, John Pargeter, Phil Reilly

### **Retiring members:**

David Eckert, Rob Tonkin, James Stacey, Colin Cross, Rick Trezona and Mac Cleggett were all due to retire by rotation.

Colin Cross and Rick Trezona had earlier indicated that they would not be seeking renomination. Rob Tonkin, James Stacey and Mac Cleggett declared that they would stand for re-election and were renominated at the Annual Public Meeting and accepted. David Eckert had not indicated whether he was standing for renomination or not. Peter Eckert nominated David Eckert but he was not present to accept.

**No formal nominations for other committee members had been received prior to the meeting.**

Nominations were called from the floor. George Borrett was nominated by Rob Giles. This was seconded by Phil Reilly and accepted.

**The Chair moved that they all be accepted for positions on the committee.  
Seconded – James Stacey. Carried by the meeting.**

The Chair asked if the committee members should actively seek members to build up the numbers on the committee. Rob Giles agreed this should be done, especially to try to attract younger members. Door knocking has worked well in the past.

### **General Business**

Steve Barnett asked those attending if it would be alright for him to use the crop irrigation information in the Irrigation Annual Reports in his Groundwater Status Report. He would use the percentage of Groundwater versus other water sources for each irrigator to try to calculate the amount of Groundwater alone used to irrigate the various crops. It was agreed that this would be allowed.

The outgoing Chair thanked all for attending

Meeting closed 10:05pm.

## Steve Barnett, DFW. Presentation.

## Groundwater Status Reports

- Are being prepared for all the Prescribed Wells Areas in SA
- Essentially a snapshot of groundwater trends over a 12 month period
- Does not replace assessment of long term trends for WAP
- Updated annually (calendar year)
- Eventually will be a web-based report





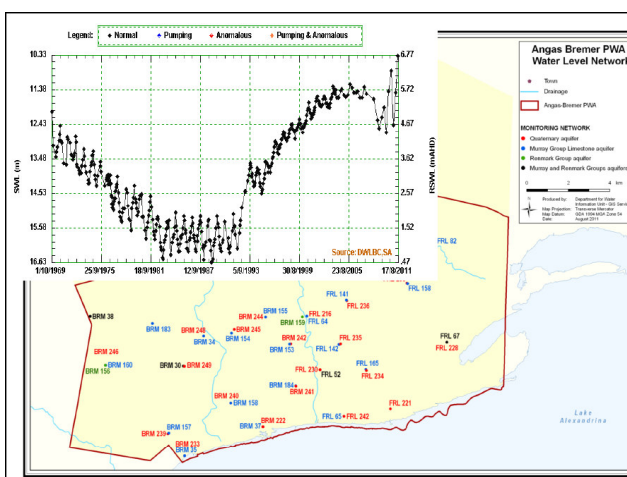
## Groundwater status

- No adverse trends, indicating a stable or improving situation
- Trends are either stable (no significant change), or improving (i.e. decreasing salinity or rising water levels).
- Degradation of the resource compromising present use within the medium term
- Observed adverse trends are gradual and if continued, will not lead to a change in the current beneficial uses of the groundwater resource for at least 15 years. Beneficial uses may be drinking water, irrigation or stock watering.

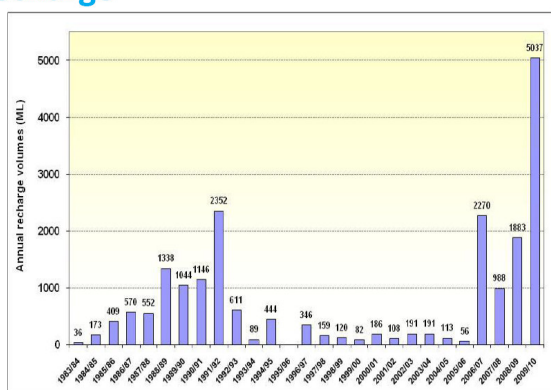


## Groundwater status

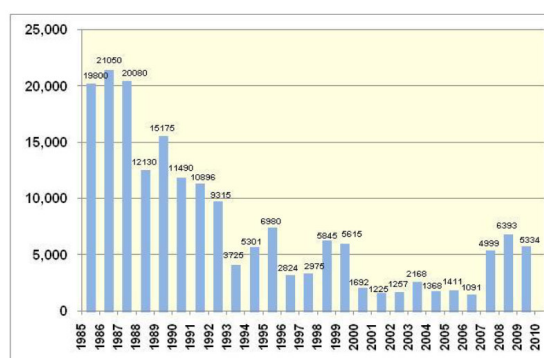
-  Adverse trends indicating high risk to the resource eventuating in the short to medium term
- Observed adverse trends are significant and if continued, will lead to a change in the current beneficial uses of the groundwater resource in about 10 years.
-  Degradation of the resource compromising present use within the short term
- Trends indicate degradation of the resource is occurring, or will occur within 5 years. Degradation will result in a change in the beneficial use (i.e. no longer suitable for drinking or irrigation purposes) and may take the form of increasing groundwater salinities, or a fall in the groundwater levels such that extractions from the aquifer may not be possible



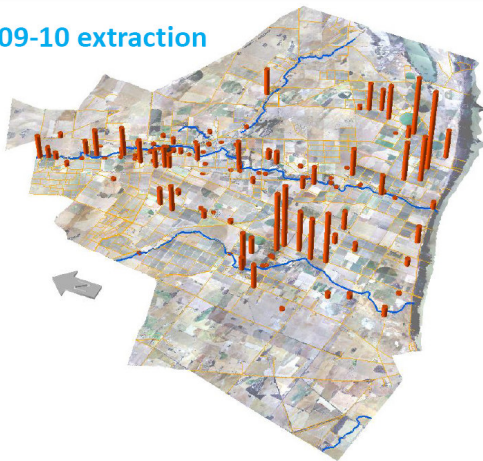
## Recharge



## Extraction



2009-10 extraction



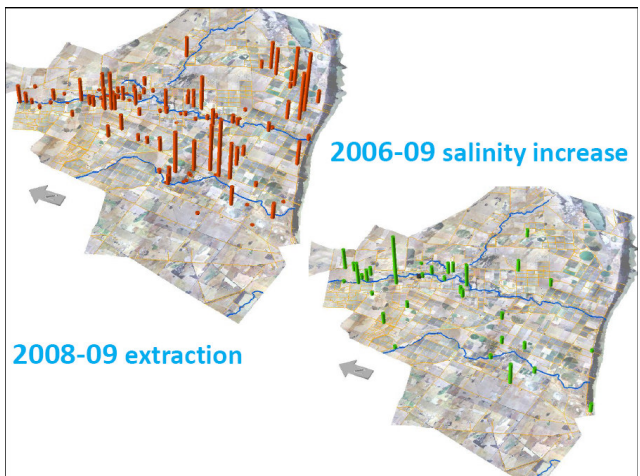
2004/05



2006-09 salinity increase



2006-09 salinity increase



2008-09 extraction

## What is all this telling us ?

- Preliminary analysis only
- Groundwater extraction above ~ 3000 ML unsustainable without ASR
- Confirms ASR critical to long term sustainability of the aquifer

## Likely contents

- Groundwater extraction volumes
- Aquifer recharge volumes
- Contours of limestone salinity, pressure level elevation
- Contours of depth to watertable
- Salinity and water level trends

# Jarrold Eaton, DFW. Presentations.

## Schedules G & H

- **Schedule G: Accounting for SA's Storage Right**
- **Schedule H: Water Sharing During Tiers 2 & 3**



Jarrold Eaton  
August 2011



## STATUS OF SCHEDULES & COMMENCEMENT

- Current drafting would require both schedules to commence on 1 June 2012.
- Agreement is being sought from the Ministerial Council to have the schedules commence on 1 September 2011.
- This is currently moving through the system.



## Benefits of the Schedules to South Australia

- Provide SA greater flexibility in managing the timing of the delivery of the State's water entitlements
- Will ensure that in all years South Australia's Critical Human Water Needs from the River Murray will be met.
- Schedule G alone provides SA with a formal storage right for the first time.
  - ⇒ Providing the opportunity to develop a long term carryover policy for irrigators and other water holders.
  - ⇒ To (potentially) store >300 GL of Entitlement water, which is equal to:
    - ⇒ 1.5x the storage capacity of the Western Mt Lofty Storages, or
    - ⇒ 3x the full production of Adelaide's new Desalination plant.
- The reforms are an important acknowledgement by the Commonwealth and the other States of South Australia's water requirements.



## Background to Schedules G & H

**Part of whole-of-Basin planning and management arising from the 2008 Intergovernmental Agreement on Murray-Darling Basin reform that:**

- a) SA can access storage capacity in the major storages to meet private carryover and future CHWN requirements (Schedule G).
  - b) There should always be sufficient water to provide for conveyance – to deliver States' CHWN (Schedule H).
- ⇒ Mechanisms for (b) include providing for a Conveyance Reserve, development of Water Sharing Tiers, triggers for moving between Tiers and identifying contingency measures.



## Schedule G (Accounting for SA's Storage Right) – Key Elements –

Allows SA to access the unused capacity ('air space') in the upstream major storages to store (defer delivery of) entitlement water:

- Provides for storage of up to 150% (18 months supply) of CHWN
    - ⇒ 201GL now; 204 GL proposed in Basin Plan;
  - No volumetric limit for private carryover; but one may be implemented
  - SA storage must not affect the water availability or storage access of the upstream states (NSW/VIC).
- ⇒ Conceptually, SA water 'floats on top' of NSW/VIC water and spills first;
- ⇒ Private carryover spills before CHWN;
- ⇒ SA private carryover will have last access to channel capacity.



Continued....

## Schedule G – Key Elements

- Where possible, spilt or pre-released SA deferred water will be re-regulated for use by SA; otherwise it will be used for environmental purposes.
- All deferred water in storage incurs net incremental losses.
- Delivery of deferred water is on top of SA's monthly Entitlements.
- Upon commencement, SA is to manage the new Storage Right via rolling 12-month Deferred Water Storage and Delivery Plans (Plan).
- Draft Plans must be submitted by the SA Basin Officials Committee (BOC) member on the first of each month to the MDBA (for approval) and to each Basin State (for information).





### Deferred Water Storage and Delivery Plan

- ⇒ Must be comprehensive SA River Operations plan, taking into account all aspects water availability (inc volumes in storage, forecast inflows etc) and planned allocations/requirements within SA.
- ⇒ For each month, for at least the following 12 months, must state:
  - ✓ Monthly volumes of entitlement flows to be deferred (not delivered)
  - ✓ What proportion of deferred water is private carryover *versus* CHWN
  - ✓ Nominate *preferred* downstream physical transfers and/or upstream substitutions (for water that is surplus to what is planned for delivery)
  - ✓ How much should be delivered to SA and from which storages.

### Process for MDBA Approval of Plan

After receiving a draft Plan, the MDBA:

- Has 14 days to approve.
- May specify conditions for which approval is granted.
- May reject and refer back to SA BOC member, with written rationale.
  - ⇒ e.g. MDBA believes upstream states will be affected, or prevailing circumstances for river operations make it impractical to implement.
- SA can revise and re-submit a draft Plan (no time line).
- Dispute resolution process is provided through the BOC (no time line).
- Upon approval, a draft Plan becomes the Plan.
- SA can request a departure from the Plan (inc. cancelling delivery).

### Process for Auditing SA's use of this Storage Right

'As soon as practicable' after the end of each water year:

1. The SA BOC member must inform the MDBA and each upstream state in writing of SA's use of the Storage Right for meeting CHWN and private carryover.
2. The MDBA establishes and maintains the accounts and:
  - may adjust them, with explanation, if it deems appropriate to do so.
  - must validate SA's findings and determine how effectively SA was able to use the Storage Right in accordance with the Plan, and whether the upstream states were affected.
3. Independent reviewer approved by BOC and appointed by MDBA will audit the MDBA and SA's reports i.e. IRORG.

### Schedule H: Water Sharing During Tiers 2 & 3

- To codify arrangements for- & mitigate likelihood of Tiers 2 and 3
  - Tier 2 = Insufficient water to meet Current Conveyance and/or Conveyance Reserve without use of contingencies.
  - Tier 3 = Extreme circumstances where insufficient water – or water of insufficient quality – to meet CHWN even with the use of contingencies.
- Based on:
  - Drought water sharing arrangements & processes.
  - CHWN is the highest priority water use in the system.
  - States have responsibility for securing their own CHWN

### Schedule H: Tier 2 Arrangements

#### Draft Triggers

- Insufficient water set-aside to meet Current Conveyance needs.
- 1 Sept to 31 May – Insufficient water to fill the Conveyance Reserve, without the use of advances.

#### Draft Action - BOC must:

- ⇒ Determine what advances are required (if any that must be repaid)
- ⇒ Determine plan of remedial actions to ensure adequate conveyance water (to deliver CHWN) that year.
- ⇒ Determine whether referral to Ministerial Council (MinCo) is required.
- ⇒ Report to MinCo at least every 4 months.

### Schedule H: Tier 3 Arrangements

#### Draft Triggers

- Worst case planning water resource assessments indicate:
  - ⇒ 'Extremely high risk' that there will be insufficient water in the RMS to meet CHWN in the current year.
  - ⇒ Insufficient water to meet conveyance, even with contingencies.
- Or, if water can not be treated to a standard fit for human consumption.

#### Draft Action

- BOC must meet at least every 2 months to consider, recommend, monitor & report on possible remedial actions
- MinCo must meet at least every 4 months to consider BOC's advice and take appropriate consequential action.

## Schedule H Implications

- Schedule H = administrative arrangements for dealing with Tiers 2 and 3 (e.g. reporting, meeting, planning)
- Requires changes to MDB Agreement proper including the insertion of CHWN and Conveyance Reserve into the order of water distribution.

ORDER of DISTRIBUTION	
1	Current Conveyance (696 + 150 + 750 = 1596 GL)
2	Reserved CHWN (max 342 GL = 204 [SA] + 77 [VIC] + 61 [NSW])
3	Conveyance Reserve (225 GL)
4	General State Entitlement with 100% repayment of any advances ahead of internal State allocation



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## Schedule H Implications

- When in Tier 2 or 3, Schedule G may be overridden & SA will not necessarily have access to its water deferred for carryover or CHWN.  
⇒ BUT greater security for provision of conveyance and CHWN during dry periods.
- Arrangements mean reaching Tier 3 is extremely unlikely (2030 dry climate scenario modelled)
- Clear process set out for when & how periods of severe water shortages in the River Murray are managed



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## DEVELOPMENT OF RIVER MURRAY LONG-TERM CARRYOVER POLICY

### CONSULTATION WITH KEY STAKEHOLDER GROUPS



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### Overview

- Basis for development of long-term carryover policy
- Feedback from key stakeholder groups
- Constraints
- High level principles for policy development



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Department for Water

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### Long-Term Carryover Policy Development

- Schedule G under the MDB Agreement provides SA with a storage right for the first time
- SA Government is committed to developing long term carryover arrangements through the establishment of:
  - robust legislation;
  - administrative procedures; and
  - operational information systems and frameworks



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Department for Water

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## Summary of Carryover Policy Comments provided by 3 August 2011

### Carryover Available To **Who**:

- No-one
- Water Access Entitlement holders only - no carryover of temporary water
- All Water Licence Access Entitlement holders with irrigators, environment and SA Water all treated equally
- Site Use Approval (SUA)
- Water Access Entitlement holders with SUA and pay water levy
- Not available to speculators



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## Summary of Carryover Policy Comments provided by 3 August 2011

### Carryover Available **When**:

- During drought conditions and when water restrictions are imposed
- Always available
- After maximum (100%) allocations to water access entitlements have been provided for in any year
- Use predicted inflows for the next year to form basis of when carryover might commence



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## Summary of Carryover Policy Comments provided by 3 August 2011

### **What** should be available to Carryover:

- Nothing
- Up to 100% Water Access Entitlement only - No carryover of temporary allocations
- % of Water Access Entitlement
- Up to 100% of Site Use Approval
- Between 15% and 50% of Site Use Approval



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## Additional Comments

- Need same rules across Basin – especially when it comes to storage rights
- Keep it simple to understand – clear and transparent
- Need certainty - established rules need commitment not changed on the run
- Carryover should be kept separate to normal water allocation
- Carryover must not inhibit the Government's ability to deliver maximum Water Access Entitlement
- Carryover should not be accumulative, one year at a time
- Carryover distorts the market and the long-term value of water
- Continuous water accounting
- Spillable water account
- Water accounts should be balanced as you use the water
- One or two water account
- No water accounts – carryover not required



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## Constraints on Carryover Policy

### Development

- SA can only access unused capacity "air space" in the major upstream storages
- SA stored water spills first
- Water first stored in location from which it would be delivered – Lake Victoria
- SA must manage storage right via a 12 month deferred delivery and storage plan
- SA have last access to channel capacity
- Use of storage right (storage and delivery) must be audited each year



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## Proposed High-Level Principles for Policy Development


- Remain within South Australia's Cap on diversions
- Preserve the integrity of Entitlements
- Maximise water available during dry periods
- All water that is not explicitly for Critical Human Water Needs is treated the same
- Simple operational rules
- Risk of storing and the potential for spill remains with those using the carryover facility
- Maximise provision of appropriate and timely information



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## Michael Cutting, SA MDB NRM Board. Presentation.




Government of South Australia  
South Australian Murray-Darling Basin  
Natural Resources Management Board

Murray-Darling Basin Natural Resources Management Board




# Rootzone Salinity Monitoring in the Angas Bremer – Future Proposal

August 2011



Government of South Australia  
South Australian Murray-Darling Basin  
Natural Resources Management Board

Murray-Darling Basin Natural Resources Management Board



## History of Rootzone Salinity Monitoring

- Added to the Angas Bremer Irrigator Code of Practice in 2002
- FullStop's installed on all properties in the district
- Records sent to Richard Stirzaker (CSIRO) for analysis and annual report generated
- Data provided has been of varying quality – “Angas Bremer growers were pretty amazing at providing data” (Richard Stirzaker)
- Many FullStop's are now no longer functional



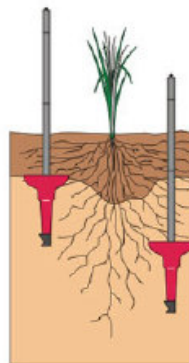
## The Future

- District wide reporting is very important, but the things measured, and the frequency of measurement need to be periodically reviewed
- The effort put into monitoring must be matched by the value of learning derived by the community
- In the case of salt monitoring at Angas Bremer, there have been general district-wide lessons but we have not had the resources to investigate 'innovations' at the farm level
- Future learning is probably best done with a smaller, motivated group given the resources that are currently available



## "Phase 2" Salinity Monitoring Proposal

- Establish a number (6-10) of pilot/demo sites in the region – standardised site set-up
- Data uploaded to the web where it can be viewed by all
- The focus of 'phase 2' salt monitoring shifts from district reporting to "Adaptive Management" - engage in real time learning



FullStop



GDot

See: <http://thescientistsgarden.blogspot.com/>



## Comments/Thoughts?

thescientistsgarden.blogspot.com

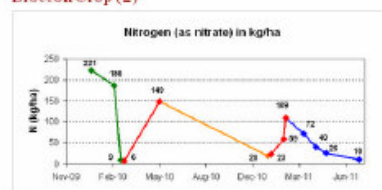
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Create Blog



MONDAY, AUGUST 1, 2011

Broccoli Crop (2)



Things happen slowly in winter. This July we had 17 mornings below zero with a minimum of -8 degrees C. I'm pleased to see such low temperatures because it will kill any overwintering fruit fly larvae. On the other hand the plants are making time and the

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TOPICS

From drought to flood (6)  
Growing Corn (20)  
Growing Corn with waste water (32)  
Second sweet corn plot (9)  
The Scientist's Garden (4)  
The Zimpeto Garden (17)



## On-Farm Irrigation Efficiency Program – Round 2 – Funding Available

- SA MDB NRM Board has received in-principal approval for \$13.5 million of funding through R2 of the *On-Farm Irrigation Efficiency Program* (OFIEP) – funding allocated across 8 different sub project types (like projects)
- Currently have funds available in the [Soil Moisture Monitoring](#) sub project type
- Minimum of 50% of the project water savings must be transferred to Commonwealth Govt
- Projects will be funded at approximately \$4,000/ML based on the water returned to the C<sup>th</sup>
- **Conditions:** Minimum water saving of 20ML per project; based on achieving a water saving of 0.5ML/ha therefore the minimum project area would need to be 40ha
- Projects need to be submitted to the Board by 9<sup>th</sup> September



## On-Farm Irrigation Efficiency Program – Round 2 – Example

- Project Area = 40ha (covered by soil moisture monitoring system)
- Project Water Saving =  $40\text{ha} \times 0.5\text{ML/ha}^{\wedge} = 20\text{ML}$
- 10ML (50% of saving) returned to the Commonwealth (minimum)
- 10ML (balance of saving) retained by the irrigator
- ~\$40,000 provided to the irrigator through the funding program
- Irrigator has the choice of system which is installed e.g. EnviroSCAN etc

*<sup>^</sup> Based on industry averages and advice received from certified irrigation agronomists*



# Audited Accounts 2010-2011

ANGAS BREMER WATER MANAGEMENT COMM INC: Profit & Loss Statement - 2011  
1/07/2010 through 30/06/2011 (in Aus. Dollars) (Cash Basis)  
20/07/2011

Page 1

Category Description	1/07/2010-30/06/2011
<b>INCOME</b>	
ABWMC Interest Income	137.87
Other ABWMC Interest Income	137.87
<b>TOTAL ABWMC Interest Income</b>	275.74
ASR WATER QUALITY	
Income	1,000.00
Other ASR WATER QUALITY	1,000.00
<b>TOTAL ASR WATER QUALITY</b>	2,000.00
DAFF 2011	
Income	8,960.00
<b>TOTAL DAFF 2011</b>	8,960.00
L&WMP Sus. Dev 2010	
Other Income	543.34
<b>TOTAL L&amp;WMP Sus. Dev 2010</b>	543.34
<b>TOTAL INCOME</b>	11,641.21
<b>EXPENSES</b>	
CAG09-00028 Exp	
ASR Risk Ass	232.00
<b>TOTAL CAG09-00028 Exp</b>	232.00
DAFF 2009 Web Reporting Expense	
DAFF Project	627.60
Other DAFF 2009 Web Reporting Expense	1,000.00
<b>TOTAL DAFF 2009 Web Reporting Expense</b>	1,627.60
L&WMP Sus.Dev 2010	
Community Data Manager	13,956.86
Insurance	3,694.72
Secretary	4,460.07
Venue Hire Catering Post Print e	1,699.16
<b>TOTAL L&amp;WMP Sus.Dev 2010</b>	23,810.81
L&WMP Sus.Dev 2009	
Community Data Manager	1,810.24
Other L&WMP Sus.Dev 2009:Communi...	1,810.24
<b>TOTAL Community Data Manager</b>	3,620.48
Secretary	613.46
Venue Catering Post Print etc	176.98
Other L&WMP Sus.Dev 2009:Venue Ca...	176.98
<b>TOTAL Venue Catering Post Print etc</b>	354.42
<b>TOTAL L&amp;WMP Sus.Dev 2009</b>	4,029.36
LC ROOTZONE SALINITY	
Expense	3,440.00
<b>TOTAL LC ROOTZONE SALINITY</b>	3,440.00
<b>TOTAL EXPENSES</b>	31,711.09
<b>OVERALL TOTAL</b>	-20,069.88

I HAVE AUDITED THE ATTACHED RECORDS  
AND FOUND THEM TO BE CORRECT WITH  
THE RECORDS PRESENTED.  
DATE 21/7/11  
GLYN MORRIS F.P.N.A.

ANGAS BREMER WATER MANAGEMENT COMM INC: Balance Sheet - As of 30/06/2011:2  
As of 30/06/2011 (in Aus. Dollars) (Cash Basis)  
20/07/2011

Page 1

Account	30/06/2011 Balance
<b>ASSETS</b>	
Cash and Bank Accounts	47,943.29
Angas Bremer Water Managemet	47,943.29
<b>TOTAL Cash and Bank Accounts</b>	95,886.58
<b>TOTAL ASSETS</b>	95,886.58
<b>LIABILITIES &amp; EQUITY</b>	
<b>LIABILITIES</b>	
Other Liabilities	7.34
ABN Withholding	174.66
Tax Control	182.00
<b>TOTAL Other Liabilities</b>	364.00
<b>TOTAL LIABILITIES</b>	364.00
<b>EQUITY</b>	47,761.29
<b>TOTAL LIABILITIES &amp; EQUITY</b>	47,943.29

I HAVE AUDITED THE ATTACHED RECORDS  
AND FOUND THEM TO BE CORRECT WITH  
THE RECORDS PRESENTED.  
DATE 21/7/11  
GLYN MORRIS F.P.N.A.



## **Angas Bremer Irrigators Revegetation Association Inc.**

The committee has met twice during 2011 at the Rosemount vineyard. There have been a number of office bearers retire since the previous committee was formed, notably President, Secretary, and Treasurer. We are currently working through this to get the committee back on track and formalised, get new signatories put in place etc. Discussions have revolved around 'where to from here'.

No correspondence in.  
Finance stands at around \$32,000.

Next meeting scheduled for January 2012.

### **AGENDA**

1. Appoint office bearers
2. New committee to seek, locate and look at landholders community revegetation projects
3. Find out where ABIRA is up to with land management agreements.

## Langhorne Creek Grape and Wine Inc

Although the 2010/2011 season was difficult for the wine industry at Langhorne Creek, many of the environmental initiatives in the region benefited from the unseasonal wet summer. Work has continued on existing projects and several new grants have been received.

Activities include:

- The focus of Environmental Management Systems (EMS) has been on the national wine industry accreditation system, Entwine, with 50 (out of a potential 90) vineyards involved. This participation is at a much higher rate than at other wine grape growing regions, with participants drawing on past EMS experience.
- The Climate Change native vegetation monitoring sites have been photographed each 6 months. The sites are flourishing from good rainfall. This is a long term exercise and, no doubt, we will see future dry and wet periods. A photographic record is also maintained of the ABWMC's Mundulla Yellows trial sites.
- A State NRM Community grant has been received to trial the restoration of the health of Redgums with the establishment of indigenous understory under Redgums in poor condition. Two sites are being established, one at Rusticana Vineyards and one at CMV Vineyards. Site preparation has commenced and seed collection has been organised.
- A NRM Volunteer Small Grant has been received to carry out maintenance and an upgrade of the bird hide at Mosquito Creek reserve overlooking Gollan's waterhole. A new floor, screens and seating have been arranged to provide for better use of this delightful facility by the students of the Langhorne Creek Primary school and the public. It compliments the seed orchard and botanic bush garden established at the site.
- With the Langhorne Creek Progress Association, an NRM Community Grant was received for the further development of the Alfred Langhorne Park in the town centre with labelled native vegetation and a self guided brochure. A bird bath, automatically fed by rainwater captured from a shelter, provides for birds and other animals. A further small NRM Volunteer Small Grant has allowed for the purchase of equipment for garden maintenance.
- Maintenance continues on the revegetation trail sites at Cross Road and on the bank of the Angas River at Vitimax Vineyards. Both sites are in good health with the rainfall of the past 12 months, although there have been some losses from flooding at the Angas River site.
- Financial and other support is being provided to the ABWMC for their work with Michael Cutting of the SAMDBNRM Board and Richard Stirzaker of the CSIRO to further understand how different irrigation regimes, water quality, rainfall and soil type affects root zone salinity to enable irrigators to better balance efficient water use with managing soil salinity.

Although the wine industry is subdued, it is encouraging that, with community support, environmental activities can continue in the Langhorne Creek wine region. The continued support from the GWLAP with these environmental initiatives is acknowledged and appreciated.