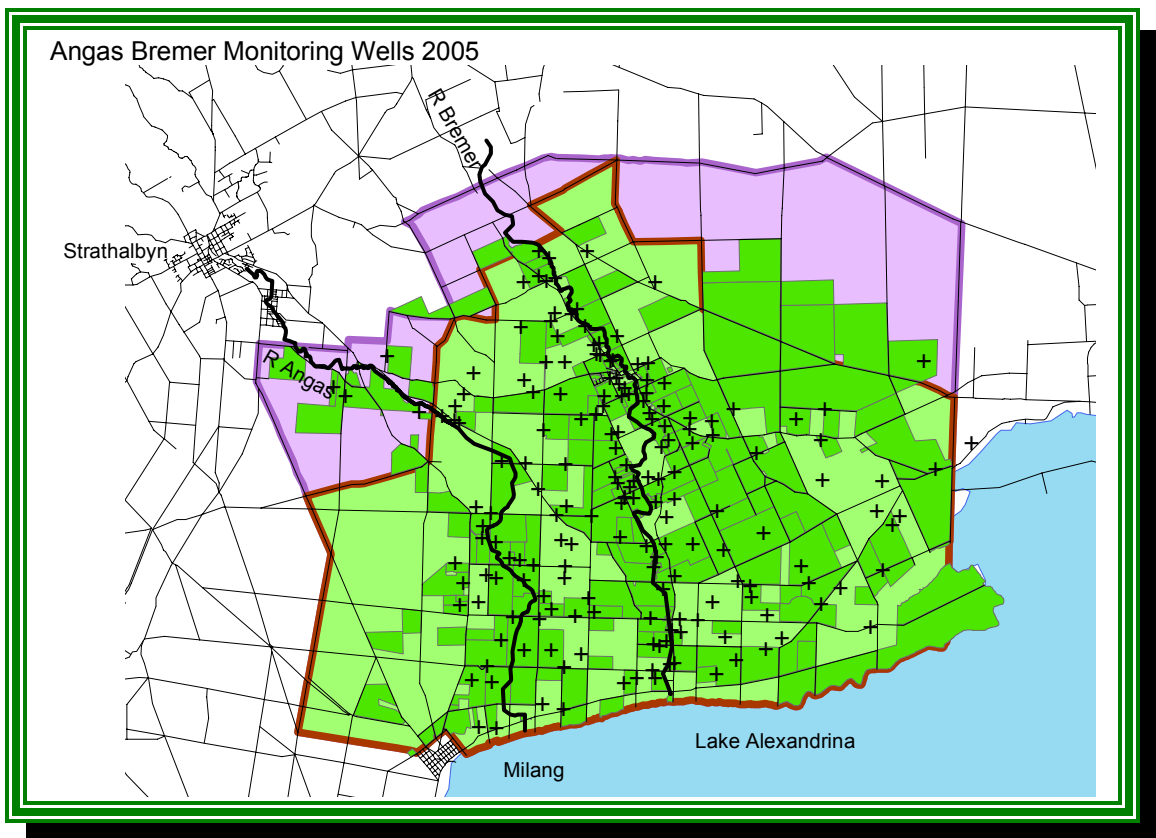


Irrigation in the Angas Bremer

Irrigation Management Zone

2004 – 2005 Annual Report



This report contains a summary of the data collected from the Angas Bremer Irrigators Annual Report forms and of the activities of the Angas Bremer Water Management Committee Inc. for the irrigation year 2004-2005.

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Appendix "B" (page 21) 2004-2005 Chairman's report.

Appendix "C" (pages 22-23) Sub-surface drainage trial report 2004-2005.

Appendix "D" (page 24) Community Revegetation Committee report 2004-2005.

Appendix "E" (pages 25 & 26) Maps of Growers monitoring wells water levels, Sept 04, Dec 04, March 05 and June 05.

Appendix "F" (pages 27) Maps of the Confined Aquifer depth to water table 2004-2005.

Appendix "G" (pages 28) Map of Unconfined wells salinity 2004-2005.

Appendix "H" (pages 29) Map of Confined wells salinity 2004-2005.

Angas Bremer Water Management Committee Inc.

Committee Members 2005-2006

Chairman

Mr. Terry McAnaney

Vice Chairman

Mr. John Pargeter

Treasurer

Mr. Guy Adams

Committee

Ms Sarah Keough

Messrs. Colin Cross, John Follett, Roger Follett, Rex Jaensch and Brian Wyatt

Non-elected members of the Committee

Ms Di Davidson representative of the Natural Resource Management Board (NRM)

Messrs. Tony Thomson and Peter Leah, Dept of Water, Land and Biodiversity Conservation (DWLBC)

Ms. Lyz Risby and Ms. Rachel Murphy, River Murray Catchment Water Management Board (RMCWMB)

Ms. Lian Jaensch, representing the Langhorne Creek Wine Industry Council

Secretary

Mrs. Barbara Blaser

Program/Project Coordinator

Mr. Bruce Allnutt

A Tribute to Rob Giles

At the recent AGM Rob Giles retired from the Angas Bremer Water Management Committee Inc. after almost 25 years service. Rob joined the Committee in 1981, one year after its inception, and has served continuously since then, becoming Chairman in May 1997.

Rob was involved in the difficult decisions taken in the Committee's early years to try and reduce allocations from the underground aquifer to a sustainable level and in the preparation of the first water management plans for the area. He became Chairman at about the same time as a new Water Resources Act abolished advisory committees leading to a frustrating couple of years where the Committee carried on without really having a home. It was due to Rob's tenacity and persistence that the Committee eventually found a place within the framework of the River Murray Catchment Water Management Board.

Since then Rob has led the Committee to the forefront of water management in Australia with the introduction of Annual Reporting, Monitoring Wells, Vegetation Planting and the use of Fullstops, all of which now form part of the Angas Bremer Code of Practice, leading to Irrigators being awarded Accredited Irrigator Certificates.

Over the years Rob has been dedicated to achieving sustainable irrigation practices in the Angas Bremer area and we recognise and thank him for his valuable contribution.

Activities of the Committee 2004-2005

1. Flood Plain Study: This project started in 2001 and is continuing. All the data collected so far has been collated by a consultant and a draft report has been presented, a final report will be provided on the Angas Bremer website in the near future.

The objective of the project is to determine what effect, if any, flood water and the holding of those flood waters in crops has on the land and the aquifers.

There are 8 soil moisture logging sites on the Angas and Bremer River flood plains and water-levels in 24 Observation wells are being logged as well, 12 in the confined aquifer and 12 in the un-confined.

The collected data shows the effects that the stream flows have on both aquifers. The time taken for the water levels in wells to rise after streams flow depends on the distance of the well from the stream channel.

2. FullStop Devices: These devices have been used in this district for the past 3 years. They were introduced so that every irrigator can measure whether they are sending irrigation water below the root zone. The results show that most irrigators seldom send irrigation water as deep as one metre (the deep FullStop does not trigger) and many do not wet the soil even down to 0.5 metre. The FullStop data, together with the data collected from the monitoring wells, provides valuable evidence that district irrigation practices are very "efficient". During 2004-5, 200 litres of water were applied from a drum that was placed on the ground above every FullStop that had not triggered. Except for one damaged FullStop, every FullStop did trigger and the salinity of the collected water sample was measured. As we learn more, the salinity of the water collected in the FullStop devices will become increasingly useful as a guide to irrigators about when and how-much leaching is needed and whether a leaching irrigation has removed any salt. A comprehensive report on the 2001-2 data is available from the Angas Bremer website. A report on the 2002-3 and 2003-4 data will be posted on the

website after Richard Stirzaker (CSIRO, inventor of FullStop) completes his analysis of that data.

Irrigators whose FullStop's are not registering are being supplied, free, an additional FullStop. This extra FullStop is being installed at 30cm (one foot) which should provide some data to the grower.

Irrigation Annual reports show that 111 FullStop sites are installed. Not all sites were reported on. There are still several growers who have not yet installed their FullStop's.

3. **Angas Bremer Website** (contribution from Lyz Risby)

The Angas Bremer Water Management Committee has established a website to enable dissemination of information to irrigators in the region and to other interested parties. The website is located at www.angasbremerwater.org.au and it has been designed to allow easy navigation through the site and access to relevant information in both word of pdf format.

The site includes a home page, the regional history, the code of practice for managing irrigation impacts, details of environmental management systems, information and reports regarding the FullStop (Wetting Front Detector) devices, Water Allocation Plans (WAP) for both the Angas Bremer and River Murray, details and a summary report of a recent aerial geophysical survey, irrigation annual reporting forms and district summary reports, maps, useful links, contacts and a summary of upcoming events.

The website is continually evolving and it is updated as new information becomes available.

4. **Computer Disc:** The Committee has produced and distributed to all Angas Bremer Irrigators a computer compact disc containing an enormous amount of data about the Angas Bremer Irrigation Management Zone.

Since 1970 a large amount of data has been collected in the Angas Bremer district.

The Water Management Committee is working to ensure that this data is used and that everyone knows that this data has been collected, is easily accessible and time and dollars are not wasted in the future by duplicating data-collection work.

The Angas Bremer Map Layers CD provides more than 100 map layers plus the Geographic Information System (GIS) software ("Arc Reader" and "Image Viewer") that is used to manipulate the map layers. Any person who uses the CD can design, view and print, their own maps. They can activate any chosen combination of map layers and they can choose the boundary of the piece of land to be mapped.

The first version of this CD is labeled DRAFT because it is incomplete. When more data is available an updated version of the CD will be distributed.

Irrigators who do not have a computer or are having difficulties with the CD can contact Lian Jaensch at the Langhorne Creek Wine Industry Council on 8537-3362 / 0438 600 121. Lian will guide you in using the software on the office computer at the Langhorne Creek Memorial Hall.

The contents of the CD includes:-

Angas Bremer Aerial photography

District boundaries

Roads, towns and rivers

Pipelines

Soil pit locations

Native vegetation

Areas at risk

Crop potential

Salinity

The Angas Bremer Soils book

Existing crops and Vineyards

Describing and interpreting

Wells & stream monitoring stations

Soil profiles

For further information about the Angas Bremer Map Layers CD please contact Tony Thomson
08 8463 6855

5. Angas Bremer Land and Water Management Plan (L&WMP): Every irrigator in the Angas Bremer IMZ should have a copy of the L&WMP, please contact a committee member if you do not have a copy.

The Plan is continually being revised / up-graded, the latest addition will be the Angas Bremer soils book which will become a module of the Plan. (note; the soils book is on the CD as well). A soils management section of the soils book needs to be completed before the book is issued to irrigators.

6. Environmental Management Systems (EMS) Trial.

Environmental Management in Viticulture – Langhorne Creek:

Rick Trezona

The trial funded by MDBC (Murray Darling Basin Commission) concluded June 2005. The region performed well with the 20 original participants working through to the conclusion. In excess of 65% of the 6,000 hectares of planted vineyards in the district have become involved in environmental risk assessment and environmental planning working towards the establishment of their Environmental Management Systems (EMS).

With the proposed introduction of the Winemakers' Federation of Australia environmental Australian Wine Industry Stewardship (AWIS) programme in 2006, the Cooperative Research Centre for Viticulture has provided funding to continue the EMS work at Langhorne Creek to June 2006. Rick has been engaged for 10 hours per week to provide a service to the existing participants and a further 10 properties are to be introduced to the project.

The best practice to manage biodiversity has become an issue. The project is working with a range of interested parties including Landcare, local government, PIRSA and the Local Action Plan group to develop a biodiversity plan for the region to support the biodiversity BMP (best management practices).

Rick has joined the Goolwa to Wellington LAP Board and the regional AWIS Coordinating Committee to maintain a district involvement with environmental issues. He can be contacted at ph 85363791.

7. Irrigation Annual Reporting

The database being used to collate the grower's data is to be up-graded to enable such things as electronic lodgement of the individual irrigation annual report forms. The updated database should be ready for next years report but the electronic lodgement may be several years away.

Irrigation Annual Reports District Summary 2004-2005

116 Irrigators will receive an accreditation certificate for 2004-2005 (same as last year !)

These irrigators will be entitled to use the accredited irrigator logo for 2004-2005.

To be accredited irrigators must comply with all the requirements of the AB Code of Practice for Irrigators.

A concession was made by the Committee, granting accreditation to several irrigators who submitted their Irrigation Annual Report forms after the due date (31st July 2005). Late returns slow down the production of the District summary report and extend the date when the report can be made available to the irrigators who provided their information on time..

The Committee has reviewed all the reports and has determined that 14 irrigators do not meet the criteria for accreditation. These irrigators will receive a letter from the Committee outlining the reasons for non-accreditation.

Four reports from statutory authorities were received to enable the water used by those authorities to be included in the district usage figures; these authorities will not receive an accreditation certificate.

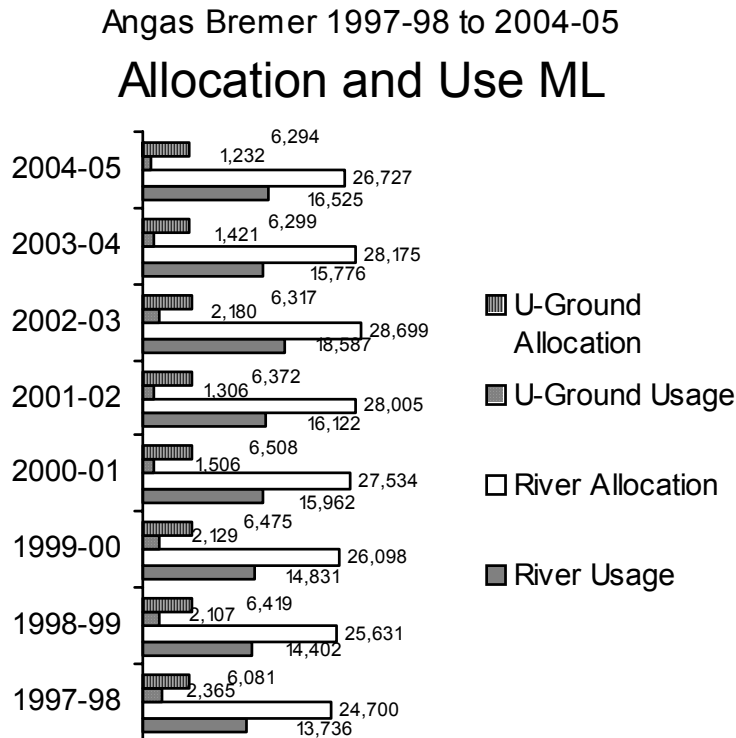
The seven irrigators who did not submit a report will be contacted by DWLBC.

Irrigators who would like to use the "Accredited Irrigator Logo" for 2005 can obtain the logo by contacting Program / Project Coordinator Bruce Allnutt on 853600114 / 0419800574.

The following charts include the amounts of water used, the quantity used on each crop and the number of hectares of each crop being irrigated.

1. Angas Bremer Water Allocation & Water used 2004-5

Chart 1. (below) shows the total amounts of groundwater and River Murray water on allocation in the ABIMZ and the amounts of water actually used during the 2004-2005 irrigation year against the previous seven years. The water used is that which was used on all crops including Industrial and Stock & Domestic usage. Groundwater use was 86% of that used in 2003-04 and River water use was 5% more than 2003-2004. The average ML per hectare for the Angas Bremer IMZ for 04-05 was 2.25ML/ha compared with 2.28ML/ha in 03-04.



2. Water use by Crop type 2004-2005

The total water use, both groundwater and River Murray water, for 2004-2005 was 17,757ML. Of the total, Stock & Domestic and Industrial accounted for 27ML, slightly less than 03-04.

Grapes used less water than 03-04 but then the hectares irrigated was also less.

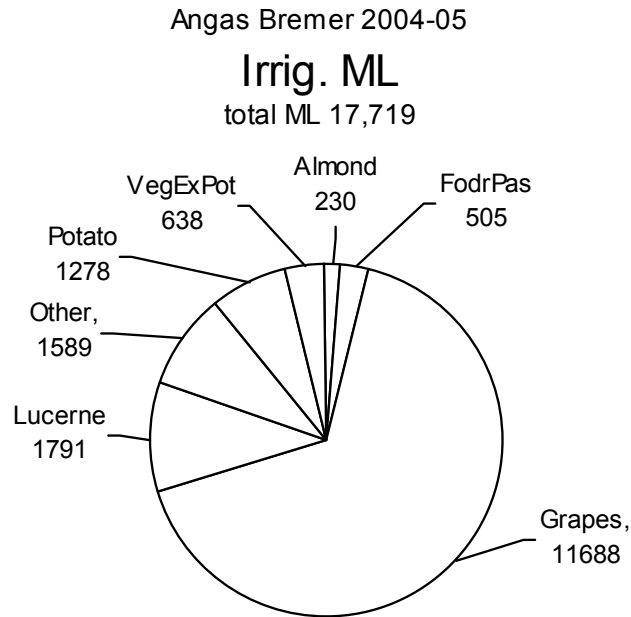
The hectares irrigated for Fodder + Pasture, Vegetables, Potato and Other all increased as did their water use when compared with 03-04

The area of Lucerne and Almonds remained about the same as 03-04 as did the water use for these crops.

See Table 1. page 9 for comparisons

Chart 2. (next page) shows the amount of ML applied to the various crop types for 04-05, Stock & Domestic and Industrial is not included in this chart.

Note: - "other" (crops) includes turf, oval watering, olives, cereals, fruit trees and conservation use.

Chart 2

3. Irrigated Land use 2004-2005

The total area irrigated in the ABIMZ in 2004-2005 was 7869ha, while this is an increase of 360ha from 03-04 (7509ha) there were areas that were not irrigated at all in 04-05 because they had been subjected to flood waters.

Chart 3 (below) shows the area of each crop type irrigated in 2004-2005

Note:- see table 1 (page 9) for comparison with other years

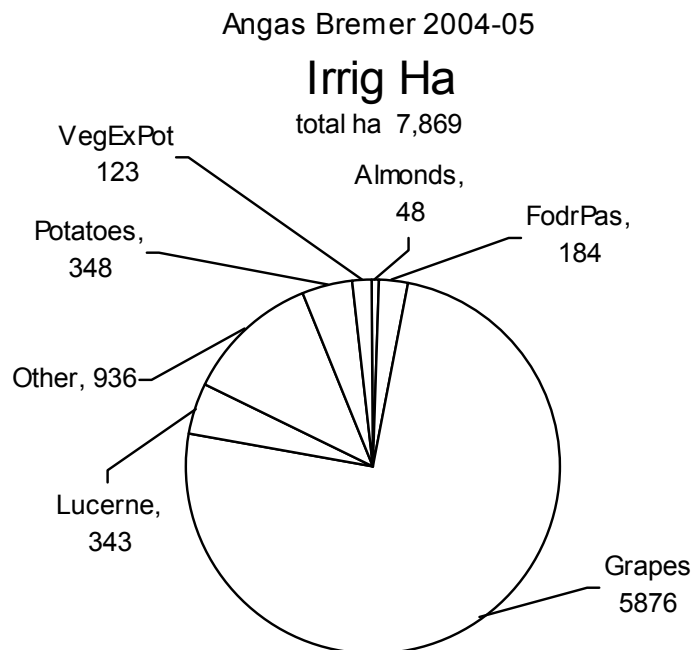


Table 1

The table below shows the total water used on each crop and the number of hectares of each crop irrigated, the percentage of change between 2003-04 and 2004-05 for water and hectares is shown at the bottom of the table.

Year	Total ML	Total ha	Grape ML	Grape ha	Lucn. ML	Lucn. Ha	Other ML	Other ha	Veg. ML	Veg. ha	Potato ML	Potato ha	Past. ML	Past. Ha	Alm. ML	Alm. Ha
1996-7	11,348	4,156	4,332	2,134	2,490	741	3,081		1,446					328		88
1997-8	16,100	6,545	6,001	3,645	3,700	876	2,248	872	2,670	679			1,526	369	147	61
1998-9	16,509	6,153	8,864	4,084	3,526	698	738	555	2,355	518			906	241	119	61
1999-00	16,961	6,625	10,021	4,665	2,491	418	1,354	777	761	121	1,812	485	358	96	164	58
2000-01	17,467	6,788	10,626	4,991	2,040	429	1,259	533	769	134	1,773	490	742	157	172	55
2001-02	17,428	7,089	11,159	5,357	2,051	471	1,286	583	651	103	1,719	425	316	97	246	55
2002-03	20,715	7,934	13,165	6,059	2,560	376	1,899	777	647	108	1,504	394	752	173	188	47
2003-04	17,154	7,509	11,927	6,059	1,608	354	1,132	443	605	69	1,280	360	399	146	203	48
2004-05	17,719	7,869	11,688	5,876	1,791	343	1,589	936	638	123	1,278	348	505	184	230	48
% change 03-04 to 04-05	+4%	+4.5%	-2%	-3%	+10.5%	-3%	+40%	+40%	+5%	+80%	-0.5%	-3.5%	+27%	+26%	+13%	same

Note : Potato was included with Vegetable prior to 99-00

Table 2

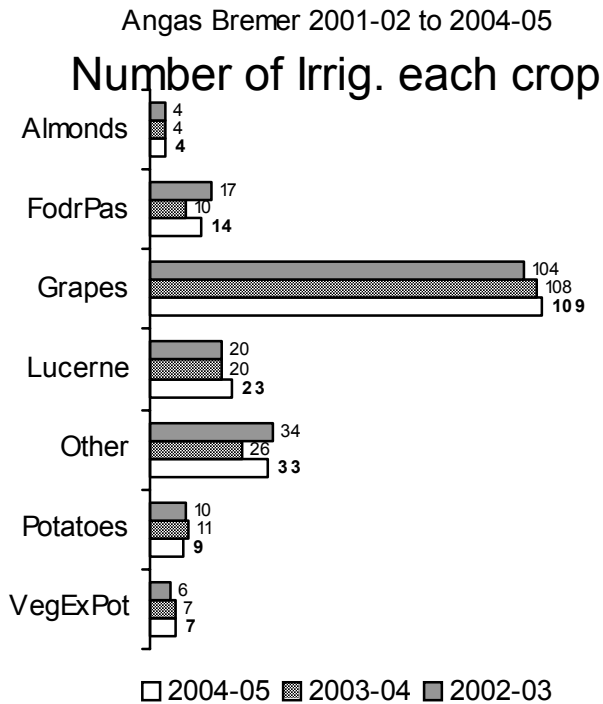
This table shows the percentage of the total ML used and ha irrigated for each crop type irrigated in 2004-2005

	Grape	Lucerne	Other	Vegetable	Potato	Fodder & Pasture	Almond
ML used	66%	10%	9%	3.5%	7%	3%	1.05%
Ha irrigated	75%	4.5%	12%	1.5%	4.5%	2%	0.5%

4. Number of Irrigators each Crop type

The chart 4 (below) shows the number of irrigators for each crop type with a comparison to the past two irrigation seasons.

Chart 4



5. Average Irrigation applied

The two charts below show the average irrigation in mm applied to each crop type for 04-05 compared with 03-04.

Chart 5 (a) shows the average mm applied to each crop for the irrigation seasons.

Chart 5 (b) shows the average mm applied per irrigation to each crop.

Chart 5(a)

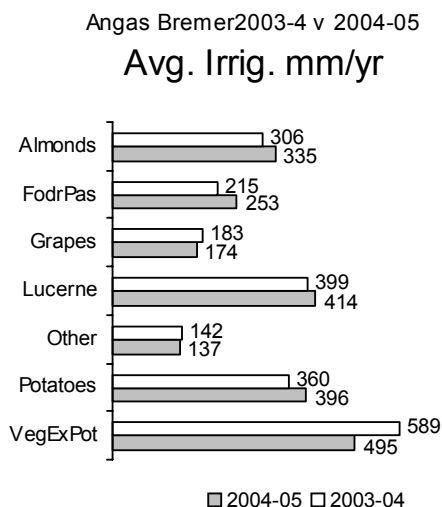
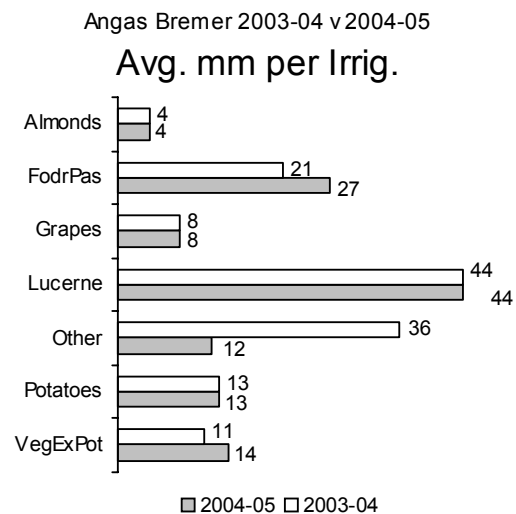


Chart 5(b)



6. Irrigation Water applied to each Crop type

The following 7 scatter charts specify the volume of water applied to each crop type, each dot on the chart represents a grower of that crop type and shows the mm applied and the hectares irrigated.

The charts (a) show the mm applied per year and the charts (b) the mm applied per irrigation.

Chart 6(a)

Angas Bremer 2004-05
Irrigation mm per year
Grapes

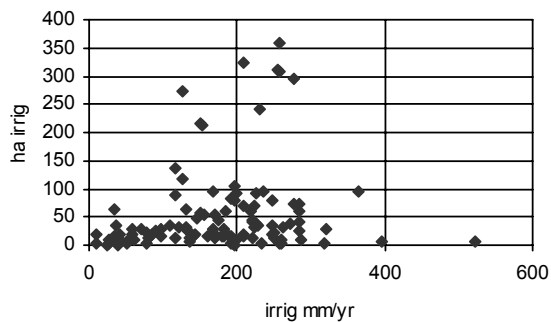


Chart (b)

Angas Bremer 2004-05
mm per Irrigation
Grapes

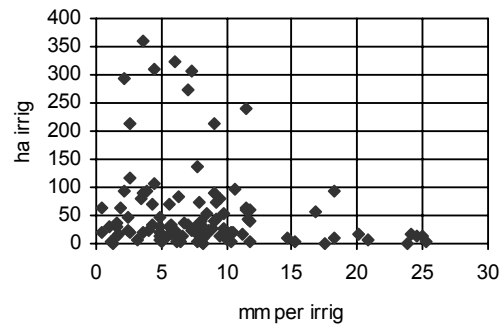


Chart 7(a)

Angas Bremer 2004-05
Irrigation mm per year
Lucerne

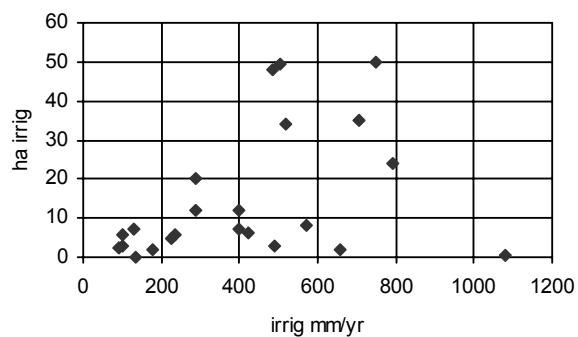


Chart 7(b)

Angas Bremer 2004-05
mm per Irrigation
Lucerne

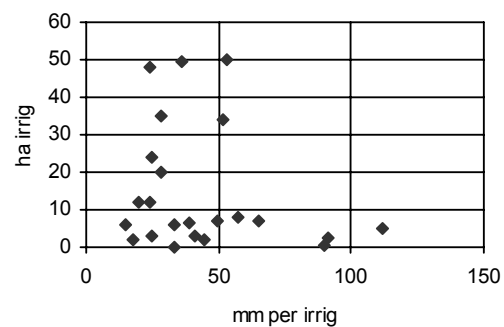
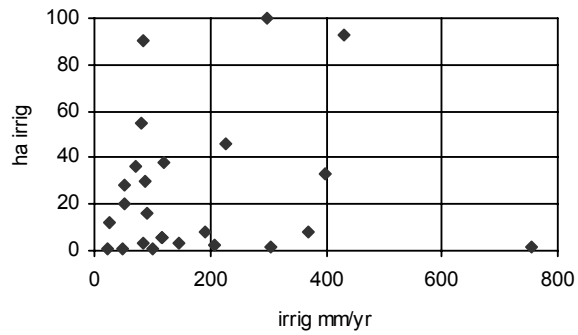
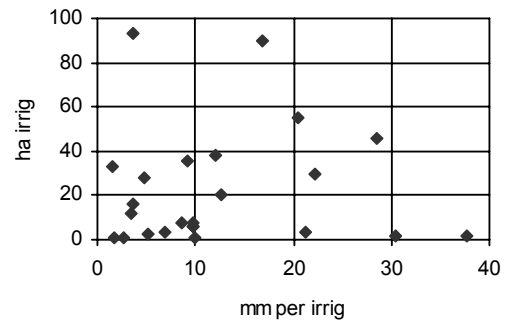


Chart 8(a)

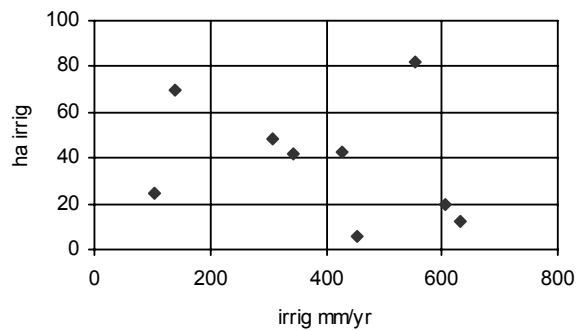
Angas Bremer 2004-05
Irrigation mm per year
Other

**Chart 8(b)**

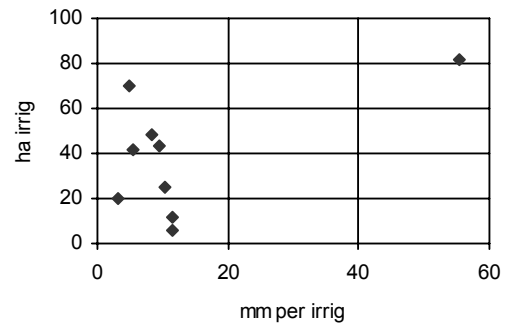
Angas Bremer 2004-05
mm per Irrigation
Other

**Chart 9(a)**

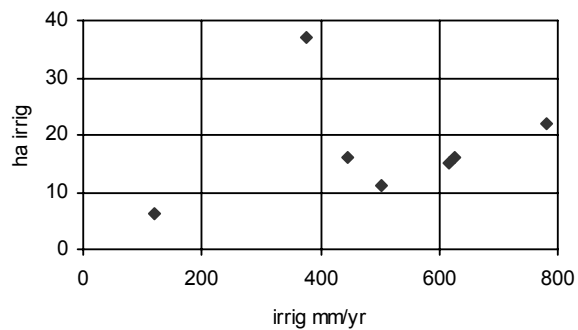
Angas Bremer 2004-05
Irrigation mm per year
Potatoes

**Chart 9(b)**

Angas Bremer 2004-05
mm per Irrigation
Potatoes

**Chart 10(a)**

Angas Bremer 2004-05
Irrigation mm per year
Vegetables

**Chart 10(b)**

Angas Bremer 2004-05
mm per Irrigation
Vegetables

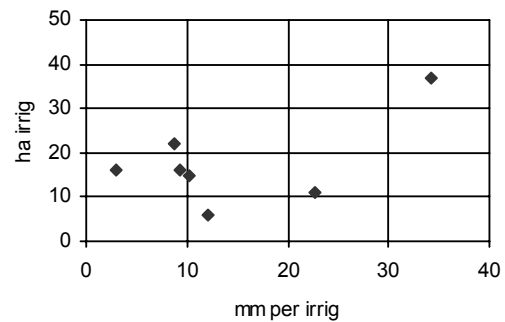
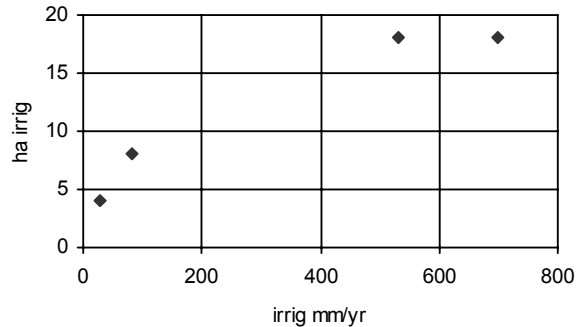
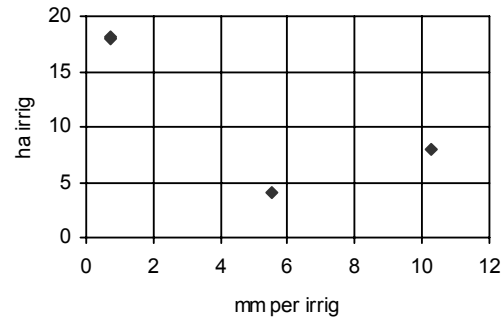


Chart 11(a)

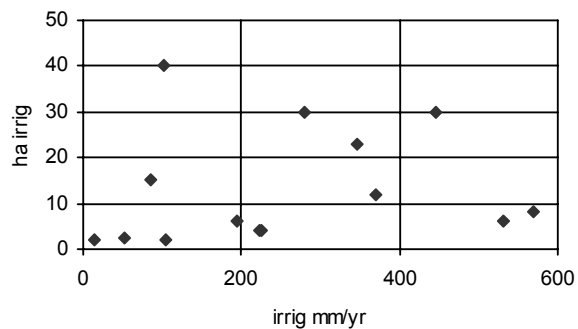
Angas Bremer 2004-05
Irrigation mm per year
Almonds

**Chart 11(b)**

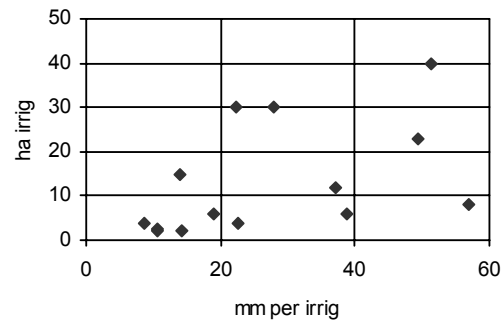
Angas Bremer 2004-05
mm per Irrigation
Almonds

**Chart 12(a)**

Angas Bremer 2004-05
Irrigation mm per year
Fodr/Pas

**Chart 12(b)**

Angas Bremer 2004-05
mm per Irrigation
Fodr/Pas



7. ML used per Hectare

Table 3 (below) illustrate the total volume of water applied to each of the major crop types for each of the years data has been collected.

Table 3

Year	Grape	Lucerne	Other	Vegetable	Potato	Pasture	Almond	All Crops
1996-7	2.0	3.4		4.0				2.7
1997-8	1.6	4.2	2.6	3.9		4.1	2.4	2.5
1998-9	2.2	5.1	1.3	4.5		3.8	2.0	2.7
1999-00	2.1	6.0	1.7	6.3	3.7	3.7	2.8	2.6
2000-01	2.1	4.8	2.4	5.7	3.6	4.7	3.1	2.6
2001-02	2.1	4.4	1.7	5.1	4.0	3.3	4.5	2.5
2002-03	2.2	6.8	2.4	6.0	3.8	4.3	4.0	2.61
2003-04	1.97	4.5	2.5	8.8	3.5	2.7	4.2	2.28
2004-05	1.99	5.22	1.69	5.18	3.67	2.74	4.79	2.25

8. Growers Monitoring Wells

With the installation of several new monitoring wells during the 2004-2005 year there are now a total of 182 growers monitoring wells in the ABIMZ. Of the 182 most are the standard 6 metre deep wells but there are several irrigators in the north of the management zone that have elected to put their monitoring wells down to 15 meters. 170 of the wells were reported on during the 2004-2005 season, Table 4 (below) shows what wells were reported on and the number of wells that were either dry or had water in at the time of measurement

Table 4

	Sept. 04	Dec. 04	March 05	June 05
Wells reported on	161	164	163	170
Wells dry	76	80	82	82
Wells with water in	85	84	81	88

The wells not reported on for the year were either not measured by the owners or an Irrigation Annual Report was not submitted.

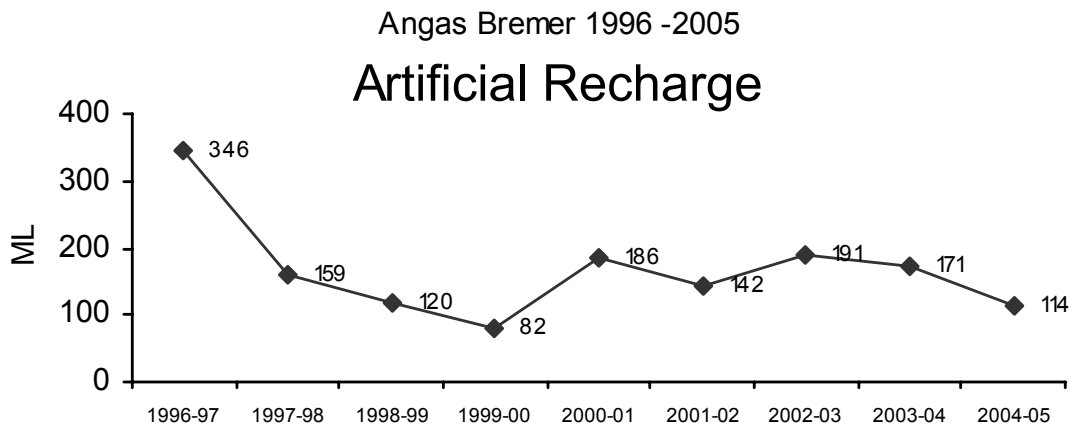
Water level data from the Growers Wells data can be found at Appendix "E" at the rear of this report.

9. Recharge Wells

From the Irrigation Annual Reports, 20 growers reported on their Recharge Wells, of the 20 a total of 113,646kL were recharged by 11 growers.

Chart 13 (below) shows the recharge over the past nine years.

Chart 13



10. Flooding in the Angas Bremer IMZ

56 flood events were recorded by individual growers using the 2004-2005 season. A total of 823ha of crop area and 164ha of non-crop areas were flooded for various periods during this time.

Table 5 (next page) shows what crops were flooded, the area and time flooded

Flood start dates were from 5/7/04 to 4/9/04 and the flood finish dates varied from 8/7/04 to 25/9/04. Another flood event occurred in June 2005 on the 2nd and 24th, both were for short periods

The Committee hope to have a map showing the areas flooded at the next public meeting.

Areas flooded in previous years are shown on the Angas Bremer map layers CD.

Table 5

Crop type	Ha flooded	Minimum hours	Maximum hours
Almond	27	4	960
Fodder & Pasture	160	15	100
Grape	575	3	168
Lucerne	5.5	24	720
Other	50		18

11. Salinity of Irrigation Water

(a) Groundwater: 34 users of groundwater reported on the salinity of their irrigation groundwater, salinity ranged from 850ppm (mg/L) to 4500ppm (mg/L) with the majority of the salinity levels being in the range of 1000 to 2000ppm.

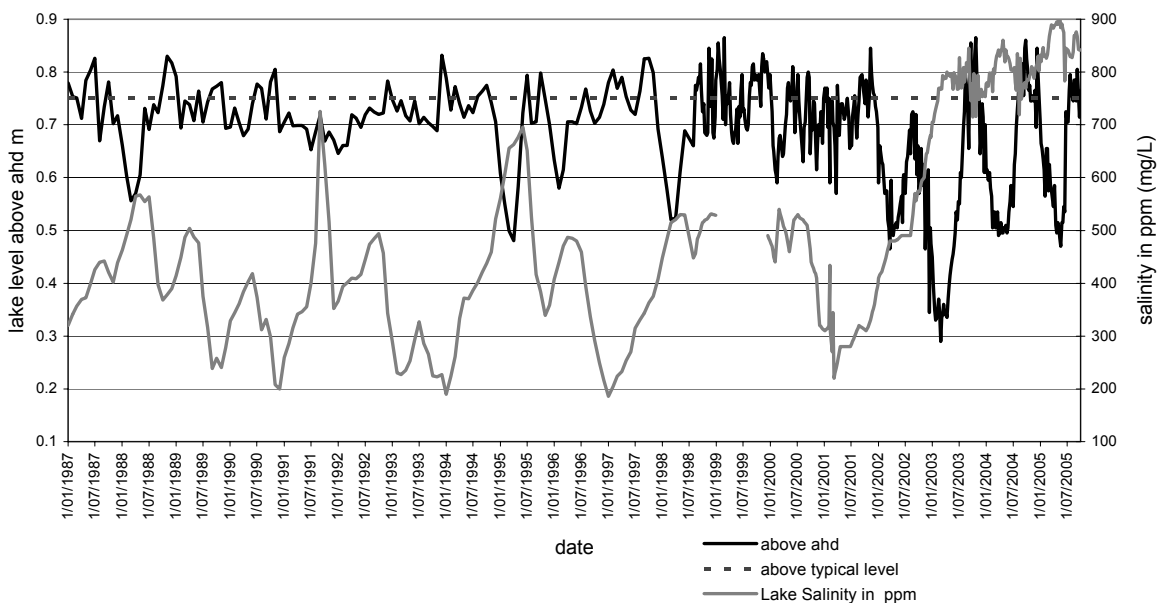
The Government Observation wells were all pumped and salinity tested in May / June 2005, salinity maps of the un-confined and confined aquifers can be found at appendix "G" and "H" respectively, at the rear of this report.

(b) River Murray Water: Chart 14 (below) shows Lake Alexandrina water levels and salinity levels from 1987 to present (30/6/2005), you will notice that salinity data from December 1998 to December 1999 is missing, should anybody have this data the Committee would appreciate it. The data used to make this graph is from a number of sources.

Historical district salinity data is provided on the Angas Bremer map layers CD.

Chart 14

Lake Alexandrina lake level 1987 to 2005

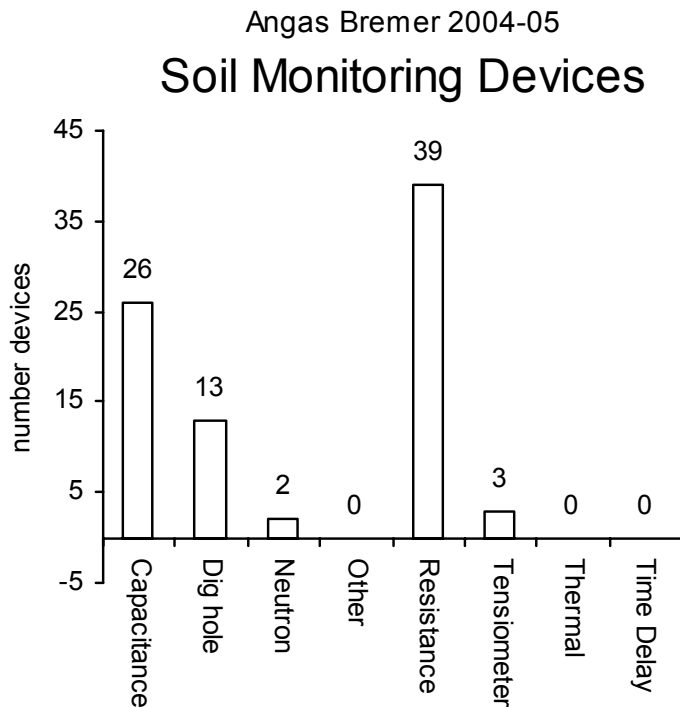


12. Soil Moisture monitoring

A total of 83 growers indicated they were using soil moisture monitoring devices, ranging from Dig Sticks to sophisticated electronic devices.

There are 3 types of Capacitance devices in use, Agrilink C-probe, Sentek Diviner and Sentek Enviroscan. Dig hole refers to a post hole digger, a spade or a dig stick. Neutron is a Neutron probe and the Resistance devices are Gypsum Blocks.

Chart 15



13. Revegetation in the Angas Bremer

In line with the Water Allocation Plans for the Angas Bremer area the revegetation is progressing well, most irrigators have the appropriate amount of revegetation for their water allocation and in some cases considerable more than that required.

From the collated individual Irrigation Annual Reports, for 04-05, a total of 1,424ha of revegetation (some of which was original vegetation) is reported, this figure is double of what is required at the present time.

The Community Revegetation scheme is a great success and a report from the Revegetation Committee can be found at appendix "D" of this report.

The Angas Bremer map layers CD shows the locations of all the remnant and new vegetation.

14. Aquifer water levels

Maps of the un-confined water tables can be found at appendix "E" of this report, there are 4 maps one for each of the quarters that growers measure the water level in their monitoring wells, added to this data is water table levels of the un-confined Government observation wells.

A map of the Government observation wells confined aquifer water levels can be found at appendix "F"

Appendix "A"

Angas Bremer Water Management Committee Inc.Minutes of the Annual Public Meeting held in the Langhorne Creek Football Clubrooms on Monday the 29th of August 2005

The Chairman (Mr. R. Giles) opened the meeting at 7.40pm and welcomed all those in attendance, with a special welcome to Guests David Wotton, Jacqui Symonds, Judy Goode and Jan Whittle. The Chairman called for apologies.

Apologies from: - K. Potts, L. Risby, J. Johnson, S. Weinart, Roger Follett, Len Case and Diane Davidson.

The Chairman presented and read the Chairman's annual report (attached to these minutes)

Mr David Wotton Presiding member of the SA MDB NRM Board was introduced by the Chairman and asked to speak to the meeting on the status of the SA MDB NRM Board.

With the aid of slides Mr. Wotton informed the meeting that there are 8 NRM regions in South Aust and they, generally, follow the catchment boundaries. 8 persons have been appointed to the Board by the Minister. The NRM Board will take over responsibilities from all the previous Soil Boards, Animal and Plant Control Boards and the Catchments Boards.

A Steering Committee was formed to make recommendations and they put together an options paper for the NRM Board to consider.

The Board will establish 4 NRM Groups / Sub regions in the SA MDB. These groups will be Riverland, Rangelands, Mallee and Coorong and Eastern Mt Lofty and Murray Plains. Each of the 4 Groups to have 7 members.

Community consultation on boundaries and the establishment of NRM Groups has commenced and written submissions are to be made to the Board by 15th September 2005. Formation of the NRM Groups will be made in consultation with the Minister.

The first meeting of the NRM Groups and the Board will be in December 2005 and the NRM Groups will commence their meetings in February.

All the Board meetings are open Public meetings and are held on the 3rd Thursday of each month at various venues throughout the Region.

The Board is to prepare a plan to bring together all the "players".

Board staff will be in place by the end of the year.

The changes will not affect the ABWMC greatly as the ABWMC already has plans / programs in place with the existing Boards.

The NRM act came into being on 1st July 2005.

Some of the finance to run the Board will come from the Commonwealth and income will include the water levy currently paid by irrigators. NRM Boards will deal directly with the Commonwealth and have a budget of \$24m.

Where does the ABWMC fit in? The Board will have advisory Committees and the ABWMC has already applied to the Board to be one of those. Once the NRM Groups are in place, decisions will be made as to which of the current Groups will be required as advisory Groups.

Mr. Wotton said he was happy to discuss any aspect of the NRM Boards at the conclusion of the meeting tonight.

As it was Rob Giles' last meeting Mr Wotton thanked Rob for his work with the Catchment Board and for his many valuable contributions in many different ways.

Chairman thanked Mr. Wotton for his presentation and kind words, he then asked Bruce Allnutt to present the interim Irrigation Annual Report data for 2004-05.

Bruce presented the 04-05 data as graphs mentioning that there were still 25 reports still to be submitted and that the graphs presented did not include the missing information from the un-received reports. Bruce also reminded irrigators that the Committee is asking irrigators to collect, to measure and to record salinity and volume of water samples from the 0.5m FullStop's.

Several questions were asked about the data presented.

Chairman thanked Bruce for the data presented and said he also was disappointed with the number of non-returned IAR's. Chairman told of an irrigator who after considering the FullStop data had changed his watering regime from twice a week to once a week using the same amount of water. This had helped moved the salt down deeper.

Chairman then introduced Judy Goode and Jackie Symonds from DWLBC. Judy is managing the River Murray Environmental -Flows project and the Lower Lakes Asset Water Plan.

Judy described the Living Murray Business Plan and Asset plan. A brief background told of 12,000km of open channels in the MDB and that too much extraction has caused a lot of problems. The main focus of the Plan is the health of the River Murray.

At the Commonwealth Heads of Government meeting in August 2003 an agreement between the C/Wealth NSW, Vic, ACT and SA (not Qld) was made to commit \$500m over 5 years to address the over-allocation of water in the MDB. Development of the Business plan is already 1 year behind.

The Living Murray Business Plan is for the recovery of water.

Eligible measures for water recovery.

Recovered water to be given statutory recognition and assigned as tradeable water. Some discussion took place with irrigators unhappy about this water being tradeable!

4 Water recovery Programs are being undertaken at present, they are, Goulburn Murray package, Lake Mokoan package, Innovative Water Products and the Anabranh Koraleigh pipeline Poon Boon.

\$321m still uncommitted.

Q - What about "irrigator donations"

A - Looking at formalising environmental donations of water, incentives being considered such as levee rebates, the earlier the donation the greater the rebate with a cut-off date of 1st April. An "E Water" register to be set up.

South Aust. is advocating a robust Water Accounting system including environmental use.

Q - How does SA compare with Vic and NSW?

A - SA is well in front.

Water Accounting - Living Murray Environmental Watering Plan is being considered by Ministerial Council on ? August 30th 2005.

Environmental Flows for the River Murray is out for consultation and recommendations will be considered, it is principally concerned with the delivery and Management of flows to priority ecological assets in SA.

Q - The 4 main projects approved, who put them up and is there a group looking at what is needed?

A - All 4 projects were put up by Govt., the MDB Commission looking at providing funding for private bodies.

Q - Is donated water tradeable?

A - It is being considered.

Q - Suggest not politically correct not to be tradeable!

A - Shares view; water recovered must be used for environmental projects.

Q - What are the views of people up stream?

A - SA has a hard job convincing up stream people that water going over the Barrages is a good thing.

Q - Is the role of the Living Murray to regain 500GL?

A - There is a huge resistance in some political circles against regaining the 500GL.

Q - Is SA Water buying more water?

A– Yes, but not getting the water from the Living Murray.

Q – What are the environmental indicators?

A – Jacqui will answer in her presentation.

A request was made to view the map showing where the 4 main sites are. Discussion followed.

The numbering sequence should increase moving upstream with the Murray being number 1

Q – Because the Coorong is in such a sad state, is that being considered?

A - Various things are being looked at including a channel from Lake Albert to the Coorong.

Judy then asked Jacqui Symonds to make her presentation on Asset Management.

Jacqui Symonds- Jacqui gave an outline of the Living Murray FSD (First Step Decisions) Objectives. A healthier Lower Lakes and Coorong estuarine environment and an open Murray Mouth.

Values- Ecological targets with approx 20 preliminary targets identified in the plan..

Key targets are the Murray Mouth open at all times and the maintenance of fish and vegetation species in the area.

Management Options- Delivery of water to the Asset.

- The upper South East drainage and the Eastern Mt. Lofty Ranges inflows.
- Operational changes up stream

Management- Barrage release, which barrage gives the best outcome.

- A barrage operating strategy draft plan is being considered by the MDBC
- Management of Lake levels, vary Lake level to provide enhanced bird

habitat.

Annual Operating Plan 05-06.

- Further investigations to be undertaken
- Monitoring and evaluation.
- Develop a monitoring framework of assets.
- Form a consultative/ reference Committee.

Q- What are the thought on a channel between Lake Albert and the Coorong?

A – Modelling at the moment, something to be considered.

Q – What is required to keep the Murray Mouth open at all times?

A – 3000ML per day required and better releases.

Chairman thanked Judy and Jacqui for their informative presentation and suggested that the new ABWM Committee consider the consultative/ reference Group that Jacqui referred to.

Chairman then introduced Tony Thomson and informed the meeting of Tony's work on the soils book and the. The Committee aims to give every irrigator a CD and a Soils book. Chairman asked Tony to present to the meeting the CD and Soils book.

Tony Thomson – Tony explained that the Angas Bremer CD and the Angas Bremer Soils Book are part of the ABWM Committee strategy to avoid repeating past mistakes and to avoid duplication of work that has already been done by collating and widely disseminating the information that has been collected over the last 30 years. The CD and the Soils Book are an interim step towards all the information being made available from the ABWMC website:

www.angasbremerwater.org.au

The CD will be provided to every irrigator and it contains an AB district map with more than 100 selectable layers so that irrigators can choose the combination of layers that they want to view or to print.

Tony gave a demonstration of what can be displayed using the CD and he emphasised the simplicity of operation. Each layer on the map can be switched on or off as required.

The Soils Book, included on the CD, can be printed from the CD and is the first DRAFT of the Soils Book, with the Soil Management sections to be included in the next version.

Chairman thanked Tony for his presentation, for his excellent work in producing the CD and the Soils book. The project has taken Tony a couple of years to complete and is a credit to him. Chairman noted that Tony had mentioned the Website which brings on the next speaker for the evening, Dominic James, who has designed and produced the AB Website. Chairman asked Dominic to demonstrate the Website to the meeting.

Dominic James- The criteria Dominic was given for the website was that it had to be fast, and easy to use.

Using the data from the Website Dominic was able to explain what all the available selections from the home page achieve. The home page explains what the ABWMC does and describes the AB region, the technology used in the area and gives access to what is happening in the area. The Website has easily understood instructions for downloading documents that include the history of the area complete with historic photos.

The Website also includes the Code of Practice, EMS project data, FullStop information (with a link to the CSIRO Website), a new Irrigation Annual Reporting form which is being developed (and which, when filled in, can be emailed), area maps, links to related Websites and an events page.

Chairman thanked Dominic for his presentation and the magnificent work he has put into it, and advised the meeting that the Website is all part of the Committee's plans.

Chairman then invited Guy Adams, ABWMC Treasurer, to present his financial report for 2004-05. Guy stated that he had been part of the team juggling the funds for the year with a lot of help from Barbara Blaser, Lyz Risby and Kerri Muller.

Guy asked if there were any questions on his report and then moved that his report be adopted, John Pargeter seconded, motion carried.

Dennis Elliott as Chairman of the Irrigators Committee asked to say a few words because it was Rob Giles last meeting as a Committee member.

Dennis informed the meeting that Rob has been involved with the ABWMC and the previous Committee for approx 26 years, including the period when the Water Resources Committee was disbanded and the ABWMC was formed and the problems encountered in establishing links with the RMCWMB. Rob got the Committee through these difficult times and what we have seen and heard at this meeting tonight is part of what Rob has achieved and we thank him for the work he has done.

In response Rob thanked Dennis and said that everything that has been achieved has been achieved as a team.

Election of Committee members- Chairman announced that there were 4 vacancies on the Committee and 4 nominations had been received, the 4 nominations being, Guy Adams, Terry McAnaney, Sarah Keough and Colin Cross.

N. McDonald moved that the nominations be accepted, seconded by Dennis Elliott, motion carried on a show of hands.

Chairman called for General business- L. Jaensch commented that the Website is fantastic and that the soils book and CD are probably a world first.

As there was no further business the Chairman thanked the Guests for their input to the meeting and thanked the irrigators for their attendance.

Chairman then declared the meeting closed at 10.00pm and invited all to partake of the supper provided.

Appendix "B"

A B Chairmans Report 04/05

As the AGM signals the end of another year of business for our committee and as I reflect on the years activities I am pleased to say that I believe we have had another year of good achievements and I hope that as a community you agree with that and you feel as though the committee has serviced the needs of the community and kept you informed of issues of importance to you. This is a very important point and the committee is relying on you to keep us doing the things that you believe are relevant and important to the resource management within the district because if the committee loses its focus then it will quickly loose the faith of the community and with that will go the loss of community support which is something that has been very strong in our district for a long time now.

We have continued to consolidate and collect information from a number of projects we currently have running and a major challenge for the new committee will be how best to store this information and make the best use of it to protect as much as possible the sustainability of our industries and our environment. I see this as a real challenge for the future because as long standing members of the committee retire and are replaced by new members, which has to happen, some valuable experience and lessons learned from mistakes made in the past could also be lost. I don't see this becoming a problem for our committee as long as all of the information we have gathered and the understanding we have on how our resources work and interact with each other are kept in a way that it is always easy to access by future committees. We are very lucky to be part of a community that would probably be one of the most studied and understood irrigation regions in Australia and we need to make the most of that good fortune.

One of the good new initiatives during the past year was to invite Lian Jaensch from the Wine Industry Council to attend the Angus Bremer Committee meetings. This will be very beneficial to the region as Lian brings the link between most of the industry committee's in the area and the projects or interests they have to the table and also allows her to report back to those groups the activities of A B and this will obviously bring about less duplication of effort and the best use of that limited resource, money.

Another new addition to the committee this year was Liz Risby. Liz has fitted in excellently to our community and I am sure she will continue the great work that Kerri has been doing for a number of years. The excellent support we have had in the past from the RMCWMB has continued with Liz' appointment and we are grateful for their ongoing and strong support. I would like to take this opportunity to publicly wish Kerri all the best in her new in devours and again thank her for her tremendous contribution to the resource management of our Region and I am sure it will continue in some capacity.

I see the future challenges for the new committee and the community as how to get the best from the new NRM legislation and model, managing the change and issues associated with the prescription of the Eastern Mt Lofty's and complacency. I see the last issue, that of complacency being the hardest to overcome if aloud to develop. Our community has shown excellent resilience and the ability to work together to overcome some serious environmental issues in the past and we are now in a more stable period with a little breathing space which has been achieve through a lot of hard work and persistence by many. It would be most unfortunate if the opportunity to keep working on what might be the next challenges for our Region and how we might prevent them from eventuating, or at least minimize their impact, was missed due to complacency within the community. The way to overcome this is for the community to attend general meetings, have your say and input into the direction you would like the committee to go and make sure that the very important issue of reporting back and keeping the community informed is continued.

In closing I again thank Barb for her tireless and continued professional work for our committee, all of the members for their efforts in the past, Bruce for his continuing interest and input and the support given to our district by the Catchment Board and the Govt. agencies involved.

Rob Giles.

Appendix "C" Contribution by Nick McDonald of Kayinga Vineyard

SUB-SURFACE DRAINAGE AT KAYINGA VINEYARD

PERFORMANCE UPDATE PRESENTED TO ANGUS BREMER WATER MANAGEMENT COMMITTEE

INTRODUCTION

Areas of Kayinga Vineyard are threatened by shallow water tables. Sub-surface drainage has been installed to lower the water table in order to sustain vine growth. Funding from the Angus Bremer Water Management Committee (ABWMC) via the Natural Heritage Trust allowed for a trial of varying drain spacing. The aim of the trial is to determine whether closer drain spacing increases their efficiency in dropping the water table. This is the third annual report.

BACKGROUND

Please refer to the 2003 report.

DESCRIPTION OF THE DRAINAGE SYSTEM

Please refer to the 2003 report.

THE ABWMC TRIAL

Please refer to the 2003 and 2004 reports.

The drainage trial continues to show that the narrower drain spacings are slightly more efficient at maintaining the water table at a deeper level than the wider drain spacings for both sites. There is a static difference of between 100 and 200mm of water table height between the two drain spacings during the growing season. The trial also continues to show the narrower drain spacings provide a slightly better buffer against rapid rises to water table by increasing water table depth more rapidly. In all drain spacings water table depth during most periods of the year was maintained at over one metre.

GENERAL RESULTS OF DRAINAGE

During the third week of June this year over 120mm of rain fell over the period of a few days. This was a rare occurrence in Langhorne Creek and was an opportune time to test the capabilities of the drainage system and also any differences between the 2 drain spaces.

Figure 1 gives a graph of depth to water table for the 3 different drain spacings for the 2 sites. Site 1 has soil with a higher clay content than site 2. Therefore it can be expected that site 1 will drain at a slower rate than site 2. The peaks in the graph coincide with rainfall events in early August 2004 and late June 2005 and again in early July. Both sites have drains spaced at 10m. As expected there is little difference between static water table depth for the drains spaced 10m as shown by the curves with triangles and diamonds. The graph shows the drains spaced at 5m are able to maintain the water table at a lower static depth of about 1600mm. The drains spaced 10m apart have a static depth of about 1500mm and the drains spaced 20m apart about 1200mm. The aim of the project was to have at least 1000mm of soil in which vines could grow. All of the drain spacings have dropped the water table below 1000mm of the soil surface.

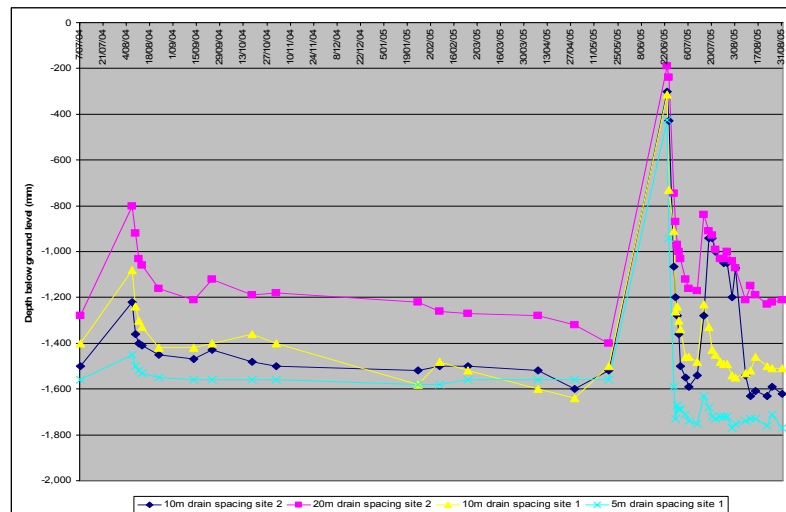


Figure 1. Graph summarising depth to water table over the past year for 10m and 20m drain spacings for site 2 and 10m and 5m drain spacings for site 1

The graph also shows that during periods of high rainfall all drain spacings struggle to maintain depth to water table below 1000mm in the short term. The consequences of the short periods when the water table is within 500mm of ground level are not yet fully understood. Soil samples taken after these periods show salinity levels within acceptable levels for vine growth suggesting that as the water table drops the salts are leached away at the same time. Salinity of the drainage water shortly after the rain event in late June was much lower than the usual water table salinity suggesting that the fresh rain had “perched” on the water table and was causing lower salinity measurements. For the past 3 years FABAL have used remote sensing techniques to generate vigour maps. These maps show areas of different levels of vine vigour. The maps show there is little or no difference in vine vigour between the 2 drain spacings for both sites. In fact the level of vine vigour within the drainage areas remains lower than desirable. There is no doubt the drainage system is providing some benefit to vine growth however the system is not providing enough benefit to achieve adequate vine growth and yields.

FUTURE DIRECTIONS

As mentioned in last years report it was suggested that the system would be expanded. This project has been difficult to justify and will not occur for the following reasons:

- The cash payback for this project would be at least 5 years. This rate of payback is not considered to be cost effective.
- There were major assumptions in the calculation of this unfavourable payback period. These included:
 - A significant improvement in soil conditions which in turn would lead to;
 - A significant improvement in vine growth that could adequately support and ripen an economically viable thereby allowing;
 - An increase in yield from 5T/ha to 7T/ha which represents a 40% increase in yield.

When reviewing these assumptions it is important to use the performance of the existing system as a benchmark. Currently the existing system is keeping the water table at a suitable depth below the root zone of the vines, even during periods of high pressure. This has been shown by monitoring wells positioned within the drainage system. Therefore, whilst an expansion of the drainage system is likely to further lower the depth of the water table it is unlikely to result in an improvement in vine growth due to the fact that the system in its current state is already maintaining the water table at a suitable depth.

CONCLUSIONS

The narrower drain spacing trial has increased the depth of the water table compared to the standard drain spacing. However there has been no difference to vine growth and yield between the narrow and wide drain spacings. Both drainage sites continue to yield at low levels.

Appendix "D"

Contribution by Simon Chinner for the ABIRA

Angus Bremer Irrigators Revegetation Association Inc.

ABIRA has come a long way from the "community scheme" first put forward by the water management committee.

There are eight members, from corporate bodies to family and individual irrigators. 37.16 Hectares of land, on four properties, have been planted to native vegetation with the involvement of numerous organisations, community groups, contractors and individuals.

First plantings were in 2004/05 and further plantings this year. Most areas have done very well, look out for the signs along the road to Wellington and along the lake road near the Bremer's mouth.

The legal process to tie the vegetation planted to individual water licenses is in its final stages of drafting. It will use a section of the recently enacted River Murray legislation to provide an agreement between the Minister for the Environment and the donor landholders, protecting the vegetation. There will be another agreement between ABIRA and the donor landholders and finally ABIRA members to the association.

This is the first time this has been done, another first by the Angus Bremer region!

The following are acknowledged for supporting ABIRA's work-

The Angus Bremer Water Management Committee, for the idea and financing the legal assistance in dealing with the Government bodies. The River Murray Catchment board.

The National action plan - Salinity, Goolwa – Wellington LAP, E-tree, Landcare for help with funding the work.

The landholders who have keenly offered land for the planting – The McAnaney family, Guy Adam's Metala, Dennis Elliot and Colin Wilson, Belvidere.

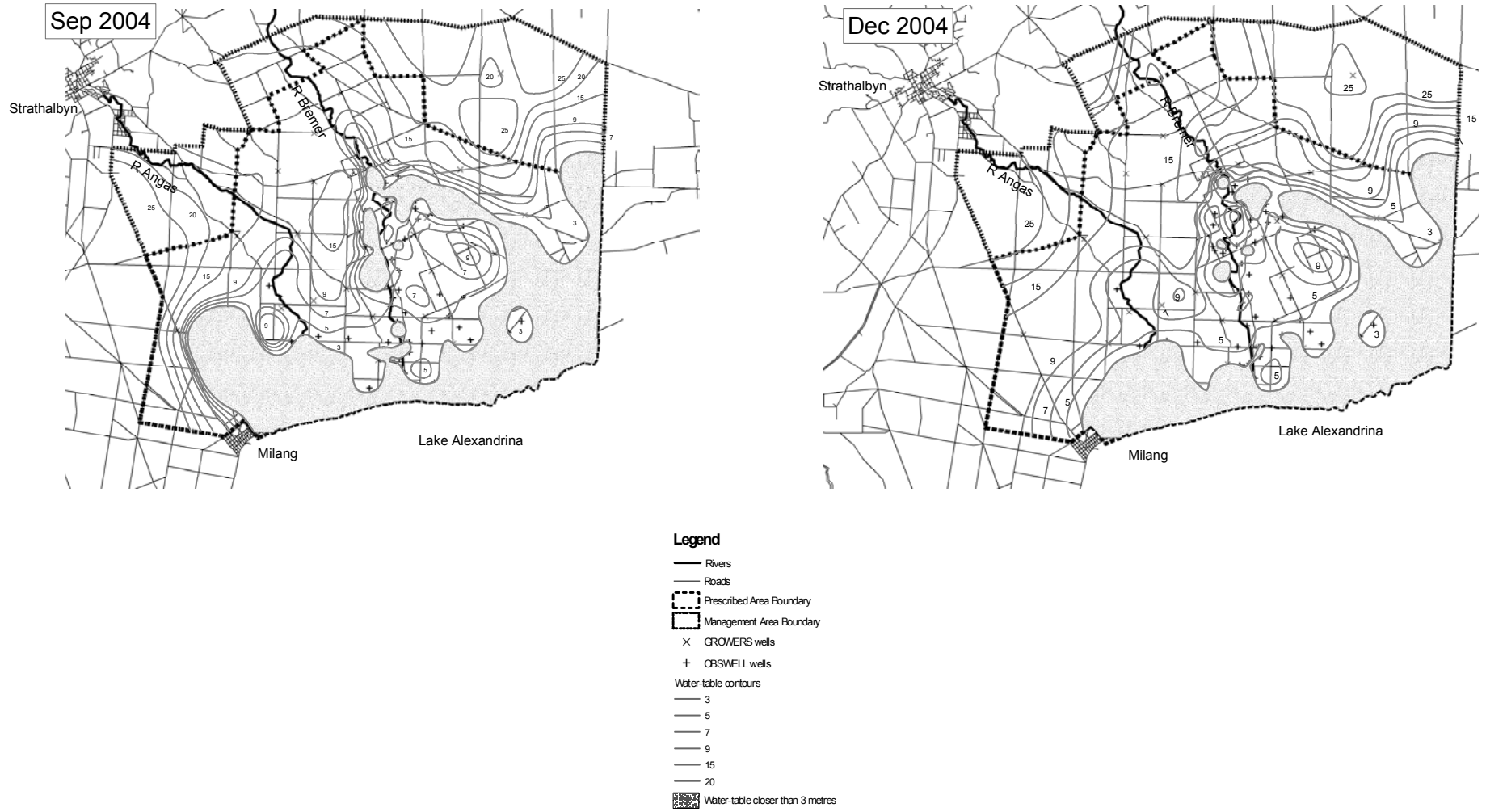
Community groups – Langhorne Creek & District Landcare, Langhorne Creek EFS R-6 Campus and Strathalbyn Scout Group.

Jeff Whittaker, our revegetation contractor, who has done a great job getting the plants in and growing.

Appendix "E"

Depth to Un-confined water –table Angas Bremer 2004-2005

Shaded area shows where the water table is less than 3m to the surface – Contours are in meters



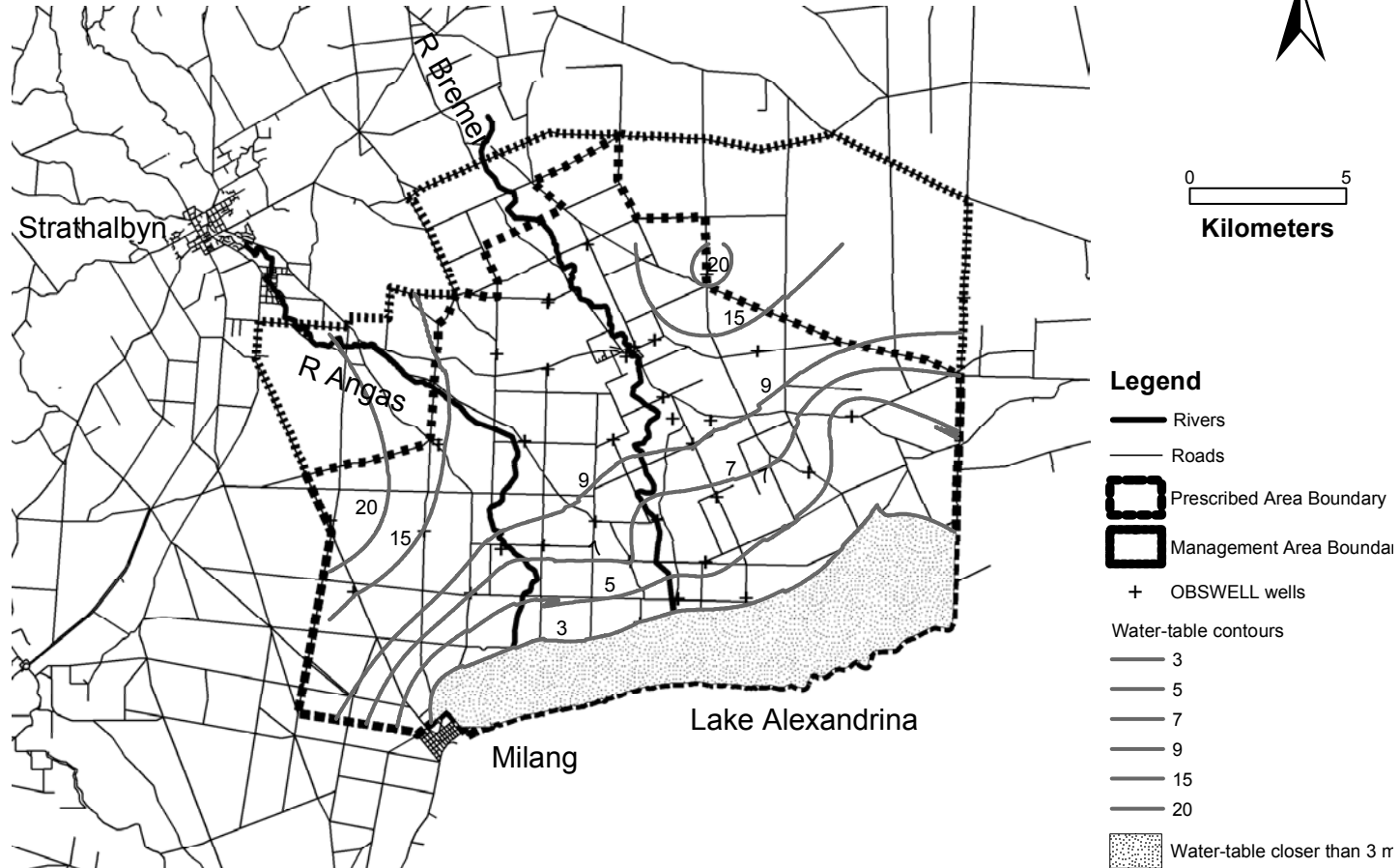
Depth to Un-confined water –table Angas Bremer 2004-2005

Shaded area shows where the water table is less than 3m to the surface – Contours are in meters



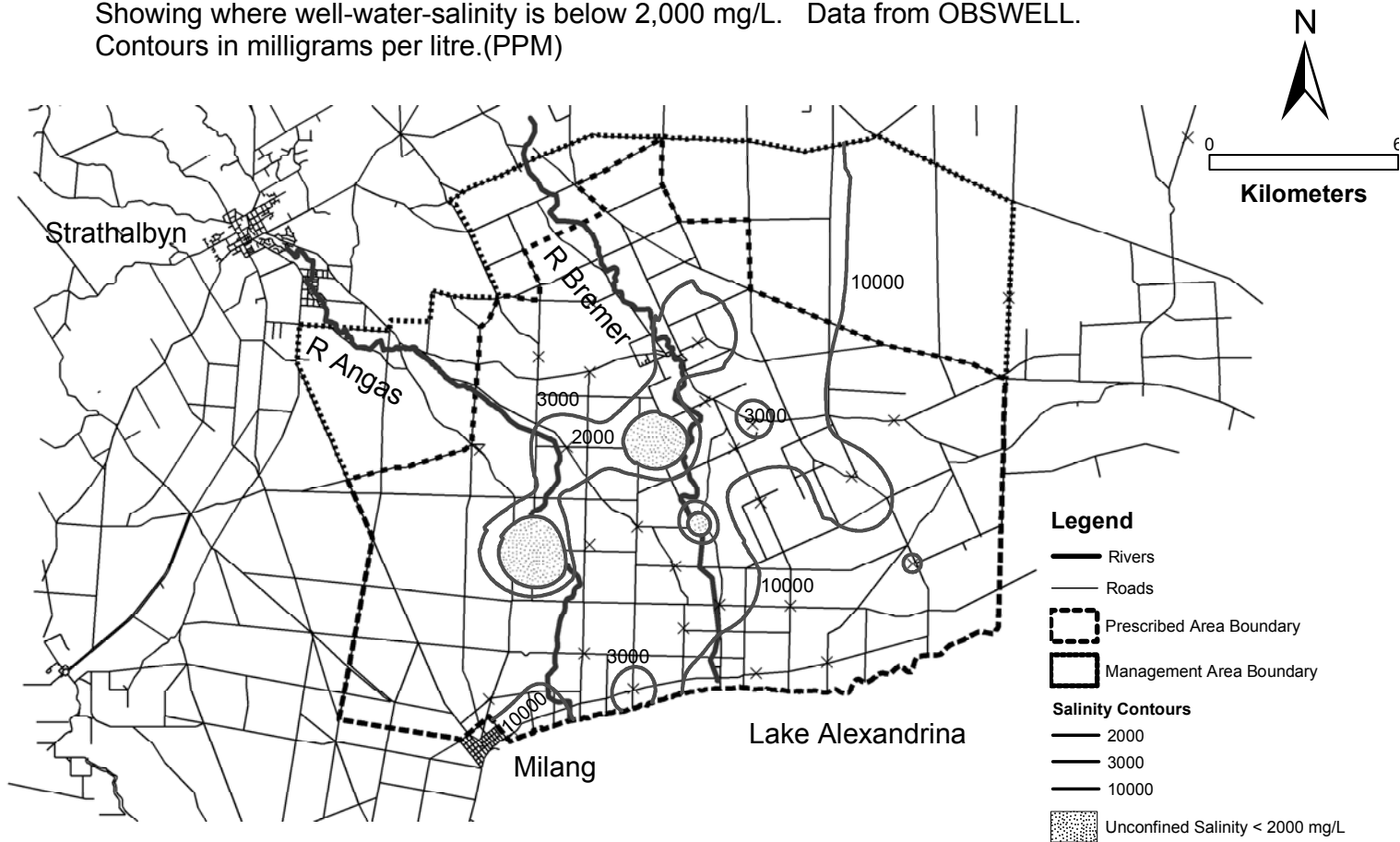
Depth to Water-table Confined (T1) Aquifer March 2005

Showing where well-water-table is below 3 metres. Data from OBSWELL.
Contours in metres.



Salinity of Unconfined (Q) Aquifer Angas Bremer 2005

Showing where well-water-salinity is below 2,000 mg/L. Data from OBSWELL.
Contours in milligrams per litre.(PPM)



Salinity of Confined (T1) Aquifer Angas Bremer 2005

Showing where well-water-salinity is below 2,000 mg/L. Data from OBSWELL.
Contours in milligrams per litre (ppm).

