

Angas Bremer Irrigation Management Zone 2022 – 2023 Annual Report



Project Coordinator: Leah Hunter
Angas Bremer Water Management Committee Inc

Supported by



Government of South Australia

Department for Environment
and Water



2022-23 Annual Irrigation Report

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Angas Bremer Water Management Committee **Members 2022-2023**

Presiding Member – Barry Potts

Treasurer – Justin Cleggett

Committee Members

James Stacey, George Borrett, Michael Clements,
Tim Follett, Trevor McLean, Michael Cutting
and Tom Mowbray

Non-elected members of the Committee

Secretary – Keren Stagg

Project Coordinator – Leah Hunter

Report of the Activities of the Committee 2022-2023

The Angas Bremer Water Management Committee has focussed on its core duties this year holding five committee meetings and an Annual Public Meeting during August.

Throughout the year the committee have continued to raise concern from irrigators and residents of the Langhorne Creek area about the flow of the Bremer River and possible impacts the developments in Mount Barker and surrounding areas is having on the quality and quantity of the water in the watercourse.

The committee is still focused on this issue and will continue to pursue the region's concerns and the steps that can be taken to improve knowledge of possible causes, and to help push solutions.

Throughout the 2022 / 2023 season, the committee has kept in contact with the EPA and Mount Barker District Council with these parties' providing updates to the group on volumes of water released and the monitoring of water in the catchment. The committee will continue to work with these groups to follow the works to be undertaken on the wastewater treatment plant.

The committee continued to seek a simplified explanation of the Take Rules and the posting of alerts on the Water Connect website to assist irrigators in determining when they can take water. This will continue to be a focus in 2023 /

2024. The committee also worked with the Hills and Fleurieu Landscape Board to have the monitoring station reinstated at the Langhorne Creek Bridge.

During 2022 / 2023 the committee met with ABIRA to discuss the status of the landholder agreements and the implications that may arise when an ABIRA property is sold. Further meetings on the landholder agreements and offset revegetation will take place in the coming year.

The Presiding Member met with the Hills and Fleurieu Landscape Board Water Planning team and local industry representatives (Lian) to discuss the upcoming EMLR WAP review. The object of this meeting was to decipher areas of the WAP that needed to be included in the review and to provide input into how the WAP was working in a practical sense. Further meetings will occur with other committee members and local landholders in 2023 / 2024.

In December 2022 the Angas Bremer Water Management Committee held a tour looking at irrigation structures within the Angas Bremer Irrigation Management Zone. The tour looked at structures that were built many years ago, some still in operation and others not. We were provided with an in-depth history of the region by irrigators whose families have been in the area for generations, some of whom helped build these structures. We also discussed the Flows for the Future Program and looked at device solutions within the region. Thank you to all who attended the tour and a very special thank you to Trevor McLean for organising the event.





The committee continue to work closely with the staff and Board from both Hills and Fleurieu and Murraylands and Riverland Landscape Boards and are very thankful for the support received so far. The Hills and Fleurieu and Murraylands and Riverland Landscape Boards have committed funding until June 2025.

In August 2023 the committee held its 25th Annual Public Meeting, celebrating 25 years of incorporation under the current format.



The other main focus for the committee this year was the annual irrigation reporting for the Angas Bremer Irrigation Management Zone. Please read the following report that summarises the data for the 2022 / 2023 irrigation season.

Irrigation Annual Report Forms: Data Summary and Comment

Irrigation Annual Report forms (IARs) were mailed to 134 irrigators within the Angas Bremer Irrigation Management Zone. The 124 irrigators who returned their completed forms to the Angas Bremer Water Management Committee on time have achieved “Accredited Irrigator” status. Online submissions were down this year with 100 irrigators reporting online, 10 irrigators did not respond/ provide data and did not achieve accreditation. The data from 124 irrigators (93%) have been collated and are presented in the following graphs and tables.

Flooding: Flooding by diversion or pumping was reported by 14 irrigators. Flooding was recorded in July 2022 (2 events), August 2022 (three events), September 2022 (16 events) and November 2022 (three events). 362 hectares of irrigated land was recorded as being flooded and 123 hectares of non-irrigated land this year.

Revegetation: The total area of revegetation reported in the Irrigation Annual Reports is around 1,890 ha. This includes 40 hectares revegetated during the Biodiversity Landcare Projects.

Red Gum Health: 115 Irrigators reported on the health of the Red Gums on their properties. Health, or otherwise, was rated from 0 to 5, with 0 being dead and 5 being healthy. This year there has been a slight increase in the number of irrigators reporting that their red gums were healthy with 28 irrigators reporting that their red gums were all 100% healthy. While most of the remainder listed the majority of their trees to be in relatively good health with no changes in health direction, one irrigator listed their red gums as getting worse. Ten irrigators listed their red gums as getting better.

Water Leasing: Table 1 below shows the amount of water leased in 2022-23 compared with water leased in previous years. Overall, less water was leased out by irrigators this year than last. The amount of River Murray water leased out to Outside Irrigators decreased by 3151.5ML and the amount leased in from irrigators outside of the Angas Bremer Irrigation Management Zone (ABIMZ) decreased by 4592.05ML. The volume of River Murray water leased to other irrigators within the Angas Bremer Irrigation Management Zone is lower than last year with seven leases reported. For the first time in many years a Ground Water Transfer was recorded with 75ML permanently transferred.

Table 1: Water Leasing

Type of Lease	Megalitres 2020-2021	Megalitres 2021-2022	Megalitres 2022-2023
RM water leased from ABIMZ to outside ABIMZ	2618.50	3833.50	682.00
RM water leased from outside ABIMZ to inside ABIMZ	2345.95	9974.05	5382
RM water leased from inside ABIMZ to inside ABIMZ	25	484	283.28

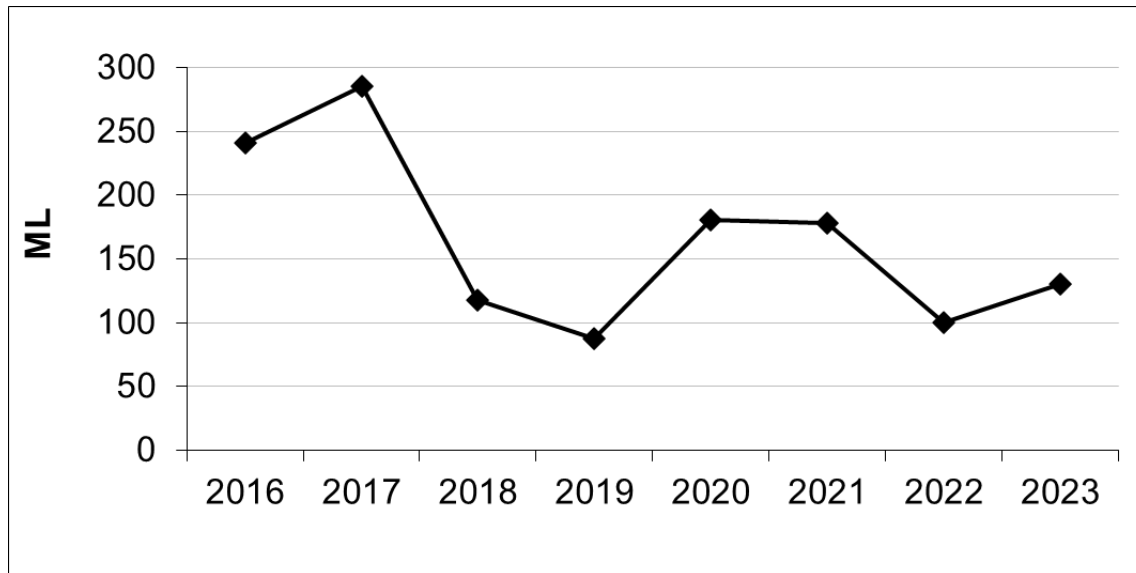


Figure 1: Angas and Bremer Rivers Water Extractions 2016-2023: Not all of the water taken from these rivers, such as the water diverted through weirs and sluices, is accounted for in this chart. The volumes on this graph are metered volumes from irrigators with meters installed, as well as the amount recharged into the aquifer from these rivers, as reported in the Irrigation Annual Reports. The amount of water that was recorded as having been extracted from these rivers is higher than last year with a increase of 30ML (130.52ML used this year)

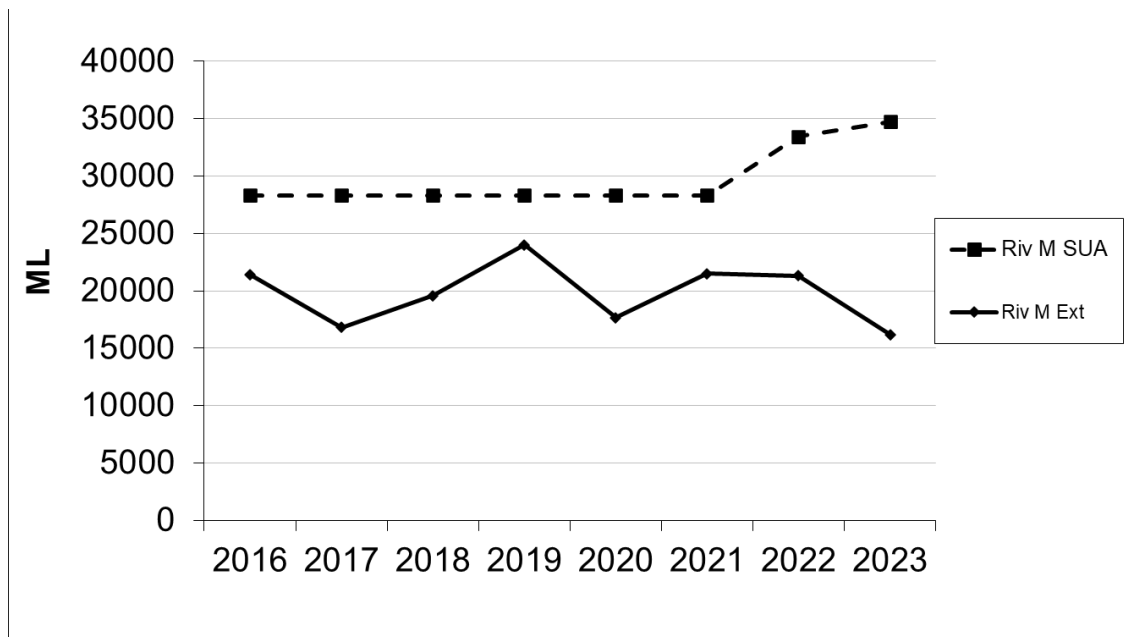


Figure 2: River Murray Water Site Use Approval and Extraction 2016-2023: The River Murray Site Use Approval (RivM SUA) is the maximum quantity of River Murray water that can be used for irrigation on land identified as being in the Angas Bremer Irrigation Management Zone. Extraction (RivM Ext) is the volume of water that was used during the irrigation year. The total Site Use Approval volume for 2022-23 volume has increased to 34736.42ML, and the recorded use was 16192.58, 5111.74ML less than last year.

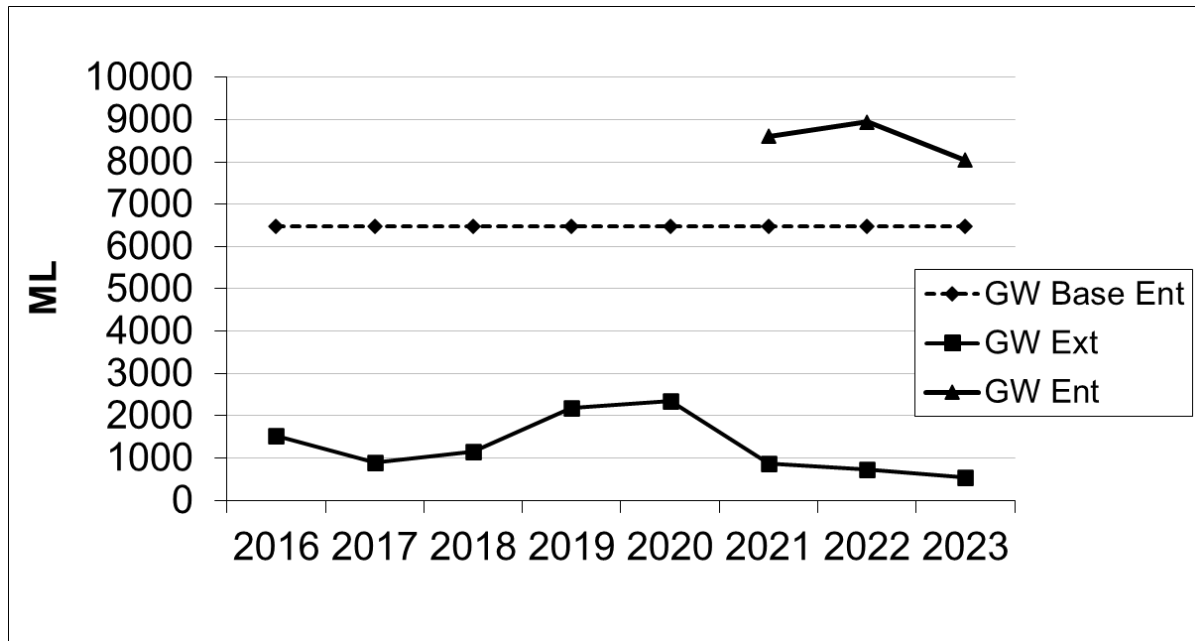


Figure 3: Groundwater Entitlement and Extraction 2016-2023: The maximum entitlement for 2022-23 was 8039ML (Including rollover, drain and discharge volumes on top of the base allocations) and the recorded use was 533ML, less than the volume of 740ML used in the previous year. This is much lower than the 7,700 ML used during the “Millennium Drought”.

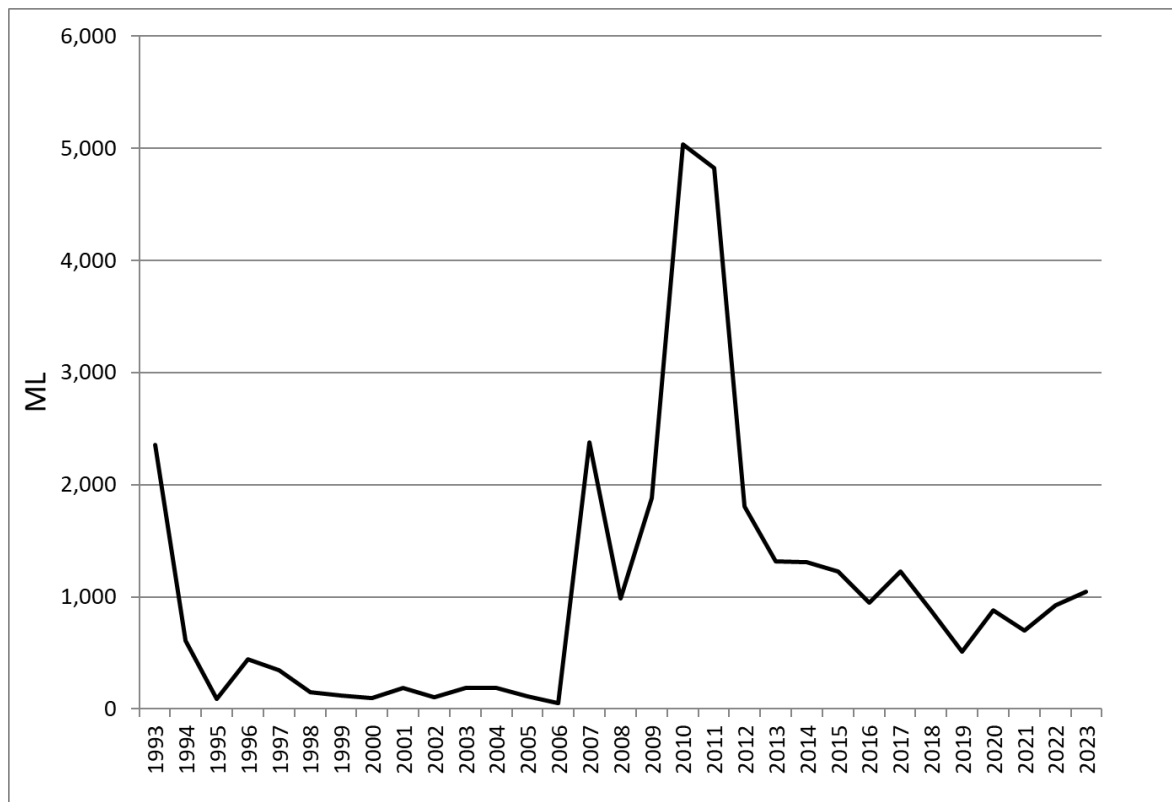


Figure 4: Managed Aquifer Recharge (MAR) (formerly termed Aquifer Storage and Recovery (ASR)): This chart shows the total volume of water artificially recharged to the aquifer from 1993 to 2023. The **1043 ML** recharged from the Angas, Bremer and Murray Rivers in 2022-2023 was higher than last year’s volume but substantially lower than the record levels achieved in 2010.

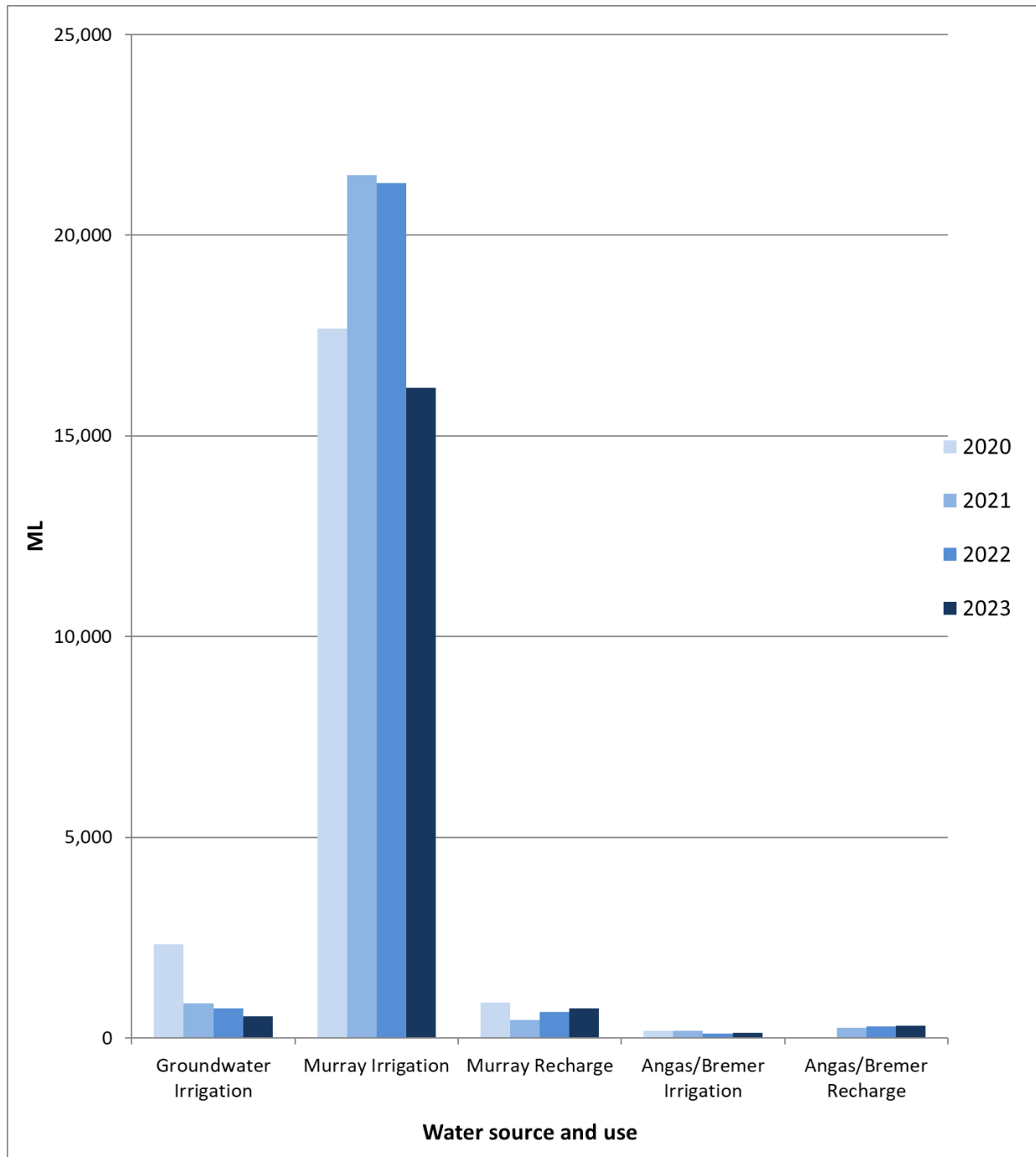


Figure 5: Total volume of water used 2022-2023: The total volume of water extracted from all sources within the region over the 2022-23 year was **17,897ML**, which is much lower than the previous year, 2021-2022 = 23,069ML and the lowest since 2011 when it dropped to 15,985ML (not shown in graph).

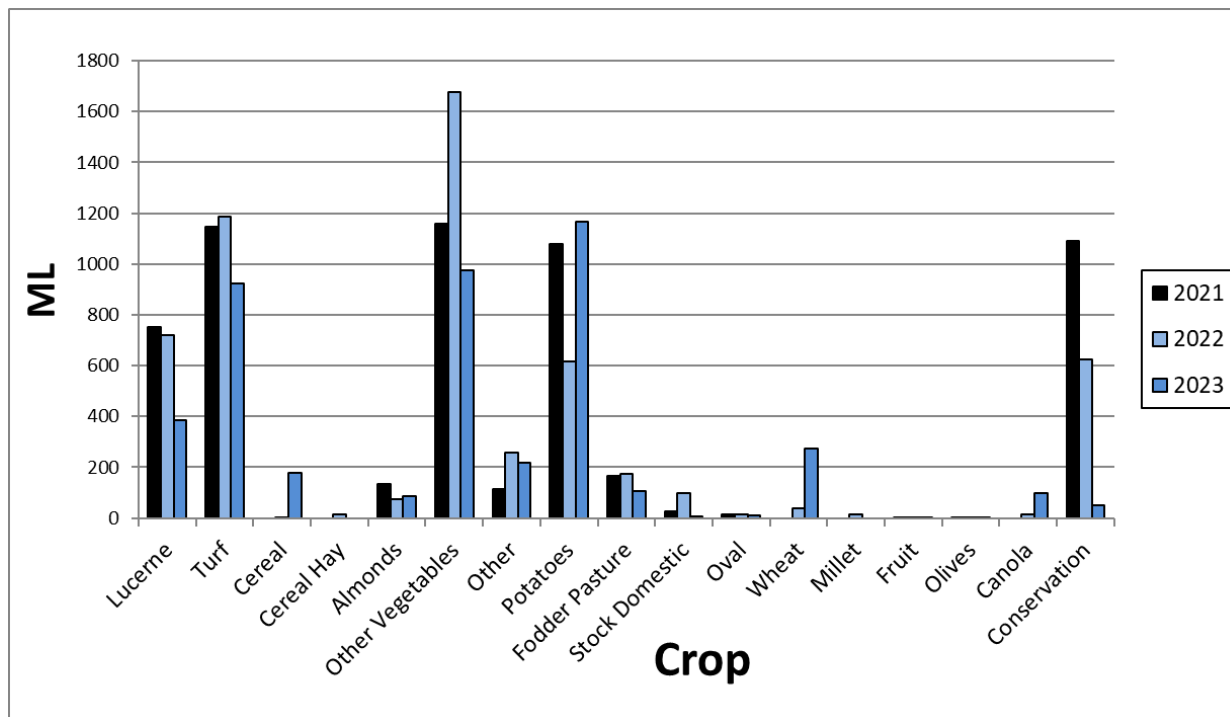


Figure 6: Total volume of water used for each crop type: This volume is the total used from all sources; groundwater, Angas/Bremer water and River Murray water that was applied to each crop type (grapes excluded). **The total volume of water applied to grapes was 11,943ML in 2022-2023, decreasing from last year's 16,118ML.**

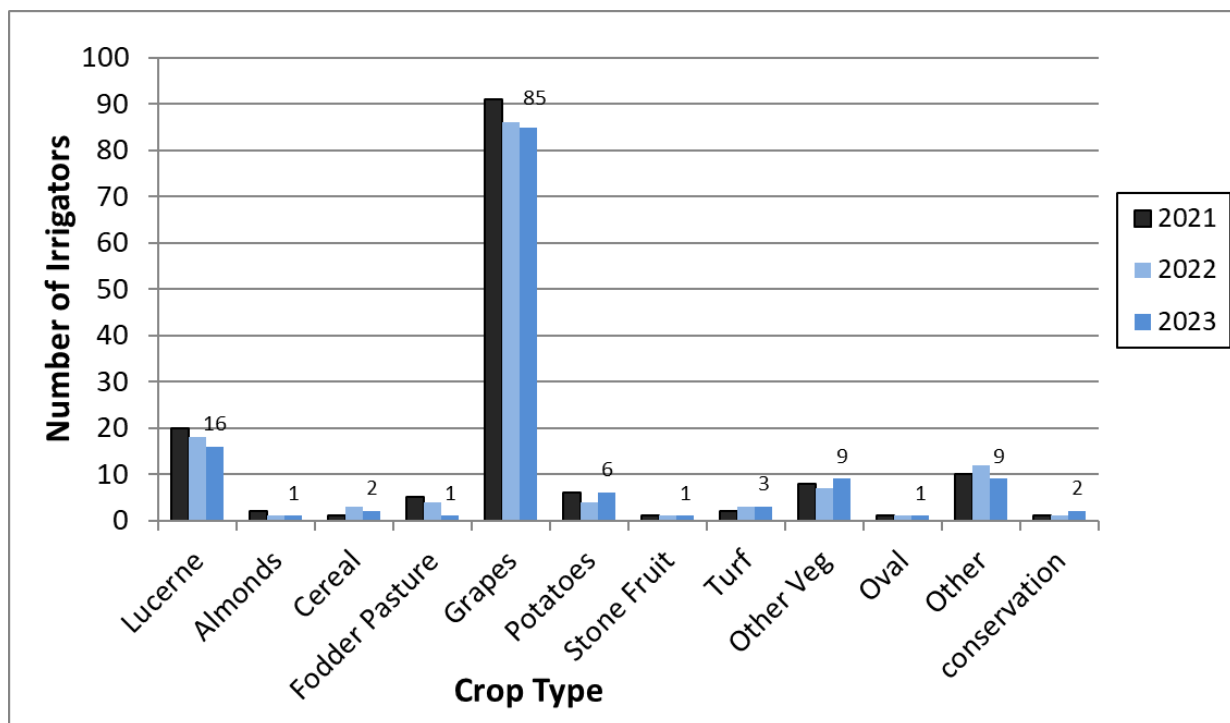


Figure 7: Number of Irrigators for Each Crop Type: The number of irrigators growing each crop type in the region appears to have changed slightly with a decrease in lucerne from 20 in 2021 to 16 in 2023 - a 20% reduction, and a decrease in grapes from 91 in 2021 to 85 in 2023 - a 5.5% reduction.

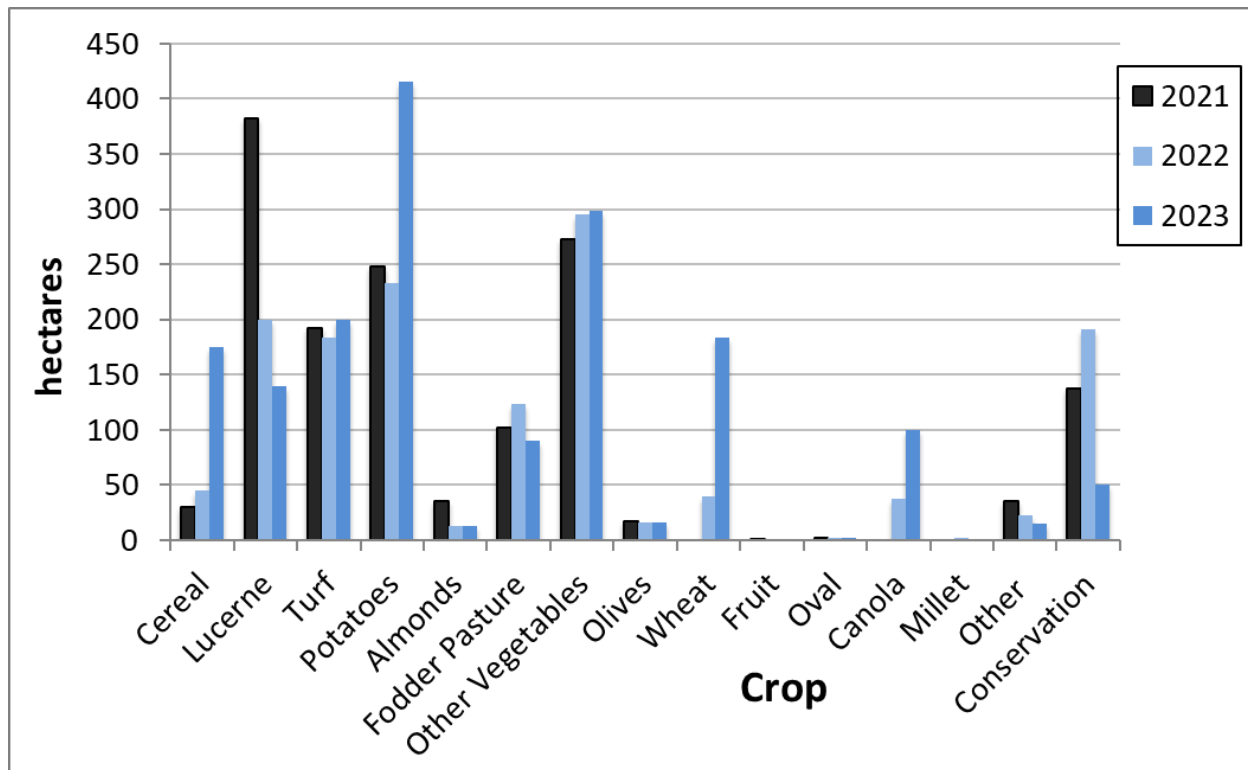


Figure 8: Area Irrigated by Crop Type: The area of each crop irrigated is shown in hectares. **The area of grapes irrigated in 2022-23 was 5,195 ha, lower than the 5,799 ha recorded last year (not shown in graph).** The total area under irrigation in 2022-23 was 6,894 ha, which is less than the 7,206 ha recorded last year. There is a significant decrease in lucerne area which aligns with the data from Figure 7.

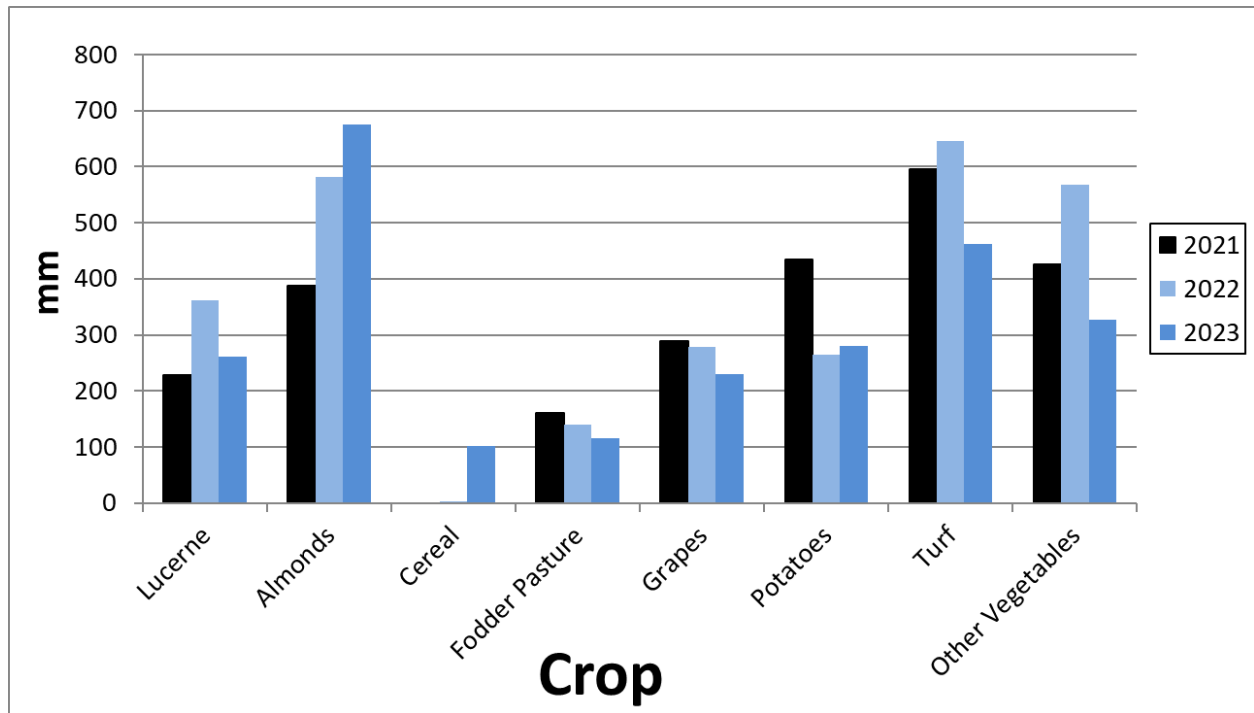


Figure 9: Average total irrigation rate for the year by crop type: Irrigation is shown in mm for 2020-21, 2021-22 and 2022-23.

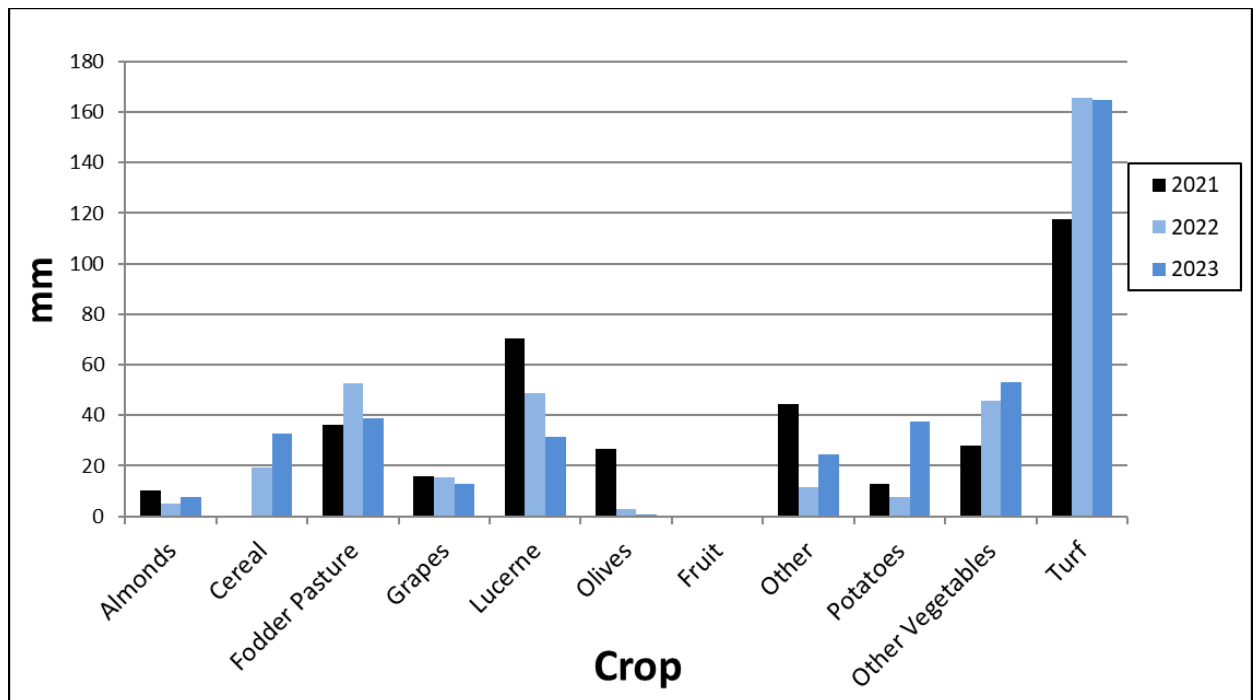
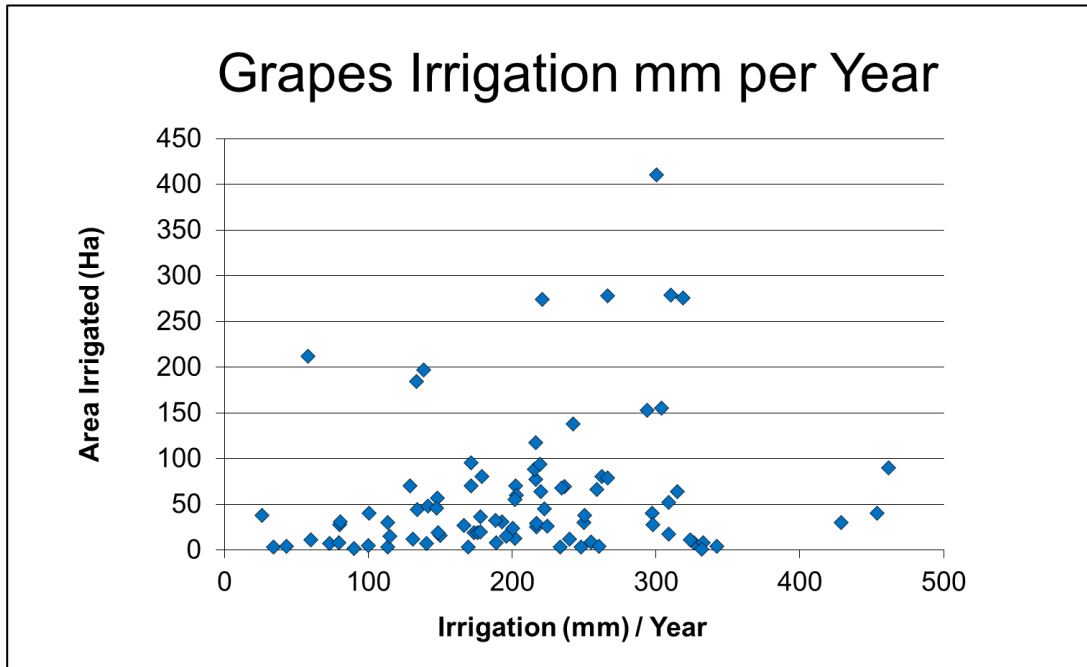
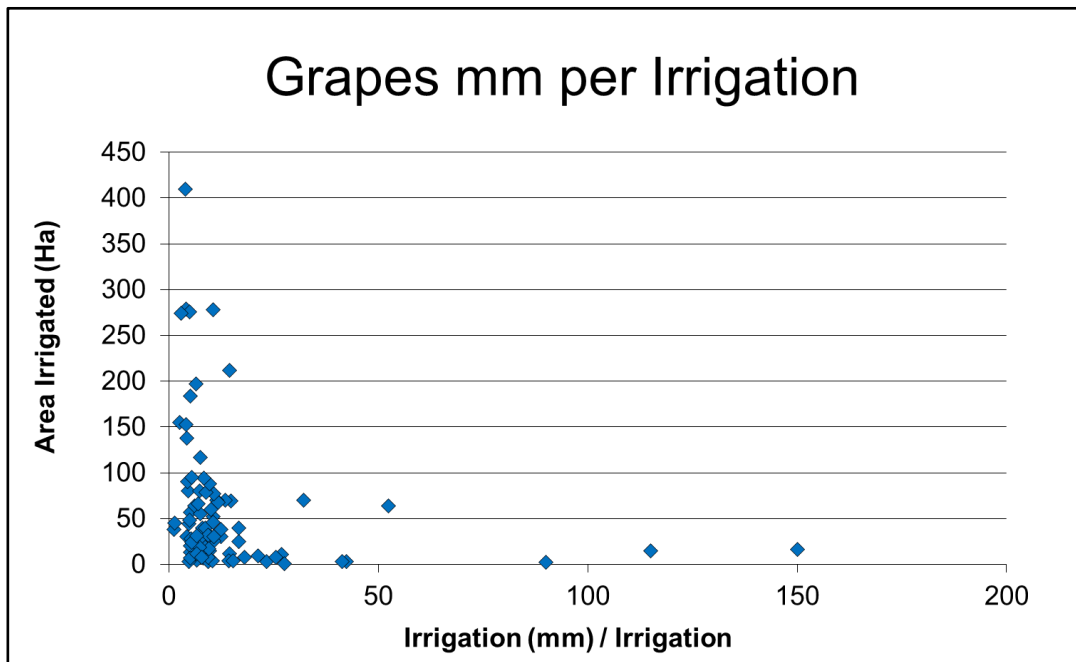


Figure 10: Average mm of water applied per irrigation for each crop type for the last three years.

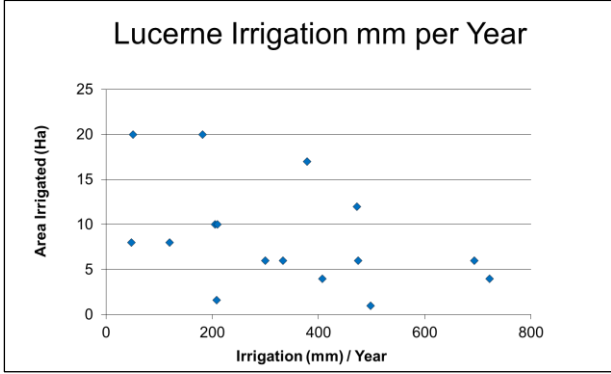
Figures 11-14: These charts show the irrigation rate per property for the more common crops. For each crop one chart shows (a) the mm per year and (b) the mm per irrigation.



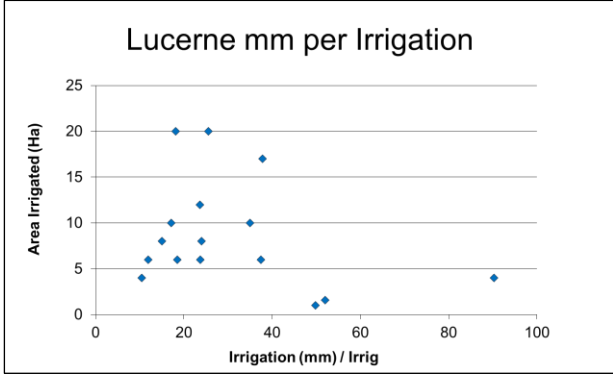
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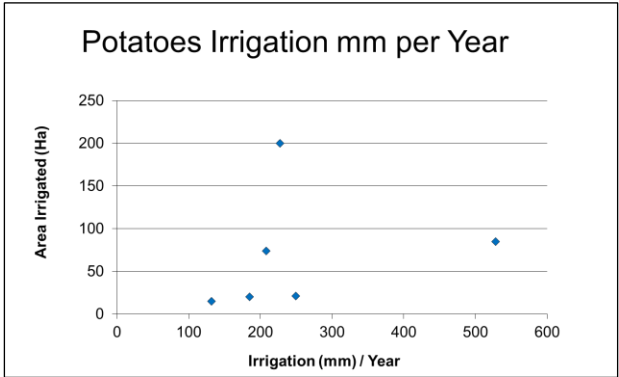
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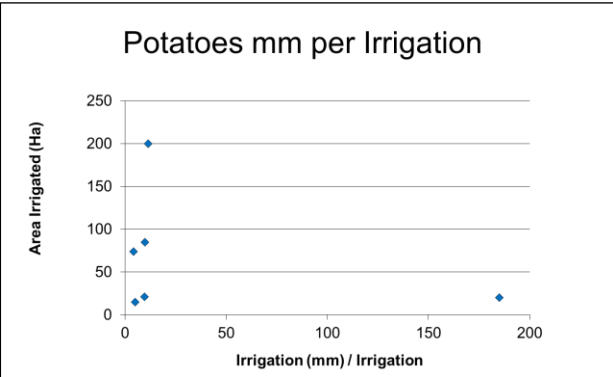
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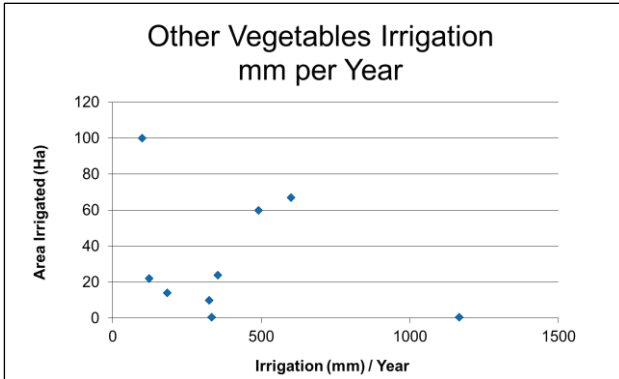
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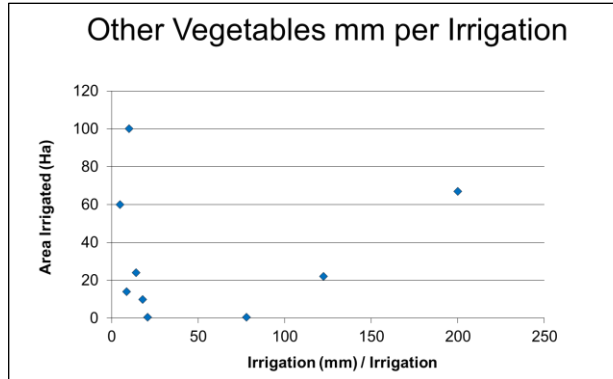
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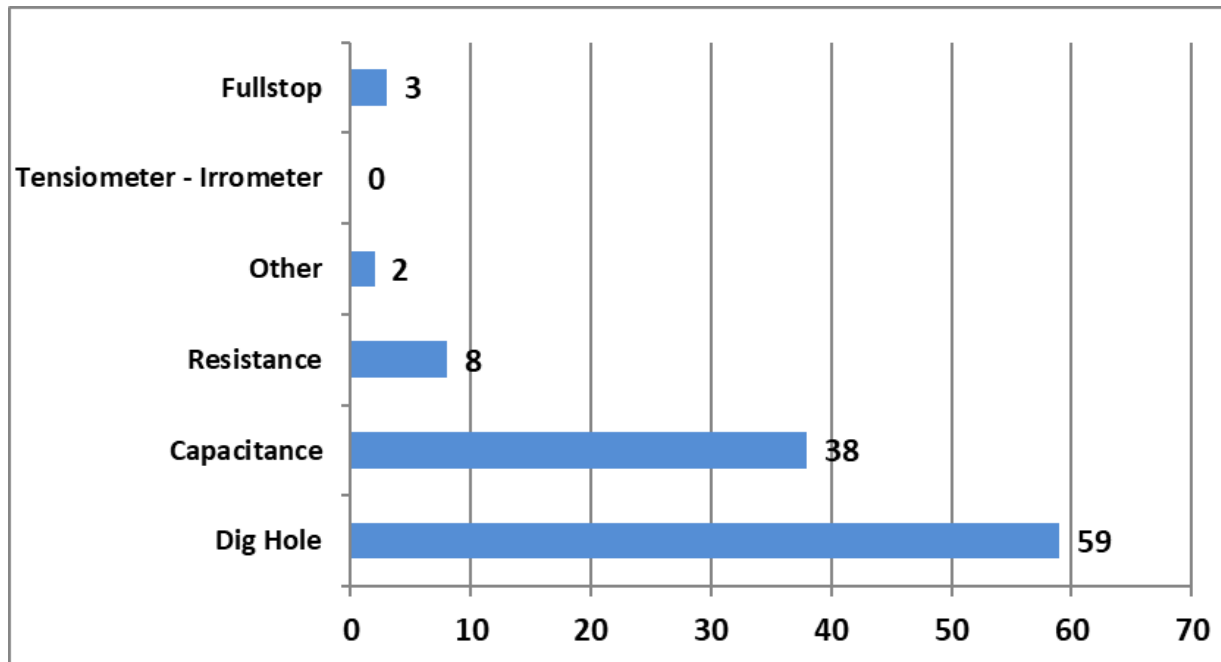


Figure 15: Number of growers using Soil Moisture Monitoring devices in 2022-23: “Resistance” includes Gypsum Blocks. “Capacitance” includes Agwise soil moisture probes, Agrilink C probe, Dataflow Gopher, Sentek Diviner and Sentek EnviroSCAN. “Dig hole” includes Dig stick, spade, auger and post hole digger.

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 2023 with previous years. This information is also displayed in the following Figure 16. Note: 1ML/ha is equivalent to 100mm of irrigation.

Year	Grape	Lucerne	Vegetable	Potato	Fodder	Almond	All Crops
2022-2023	2.30	2.75	3.27	2.81	1.16	6.76	2.38
2021-2022	2.78	3.62	5.68	2.65	1.4	5.81	2.98
2020-2021	2.88	1.96	4.25	4.35	1.6	3.88	3
2019-2020	2.82	2.43	2.84	3.51	1.8	5.56	2.8
2018-2019	2.79	2.9	6.46	3.4	1.3	5.33	2.95
2017-2018	2.74	3.14	4.78	4.33	0.9	3.61	2.99
2016-2017	1.85	2.92	4.71	4.86	1.3	3.18	2.23
2015-2016	2.82	3.38	4.96	4.66	1.02	5.79	2.99
2014-2015	2.68	3.8	5.39	5.41	3.03	4.15	3.13
2013-2014	2.26	4.24	4.02	4.92	1.98	4.56	2.51
2012-2013	2.62	4.53	6.35	4.01	1.58	3.91	2.62
2011-2012	2.25	4.52	7.76	4.13	1.22	4.37	2.55
2010-2011	1.9	2.2	2.4	3.1	0.5	3.4	2
2009-2010	2.3	4.32	3.6	3.72	1.2	5.11	2.47
2008-2009	1.73	2.99	4.38	1.74	1.24	1.04	1.78
2007-2008	1.97	4.36	7.8	2.51	2.36	5.24	2.07
2006-2007	2.04	5.13	6.43	4.12	1.7	5.23	3.67
2005-2006	1.8	4.23	5.04	2.99	1	4.06	2.95
2004-2005	1.99	5.22	5.18	3.67	2.74	4.79	2.25
2003-2004	1.97	4.5	8.8	3.5	2.7	4.2	2.28
2002-2003	2.2	6.8	6	3.8	4.3	4	2.61
2001-2002	2.1	4.4	5.1	4	3.3	4.5	2.5
2000-2001	2.1	4.8	5.7	3.6	4.7	3.1	2.6

Average ML/ha used for each crop type

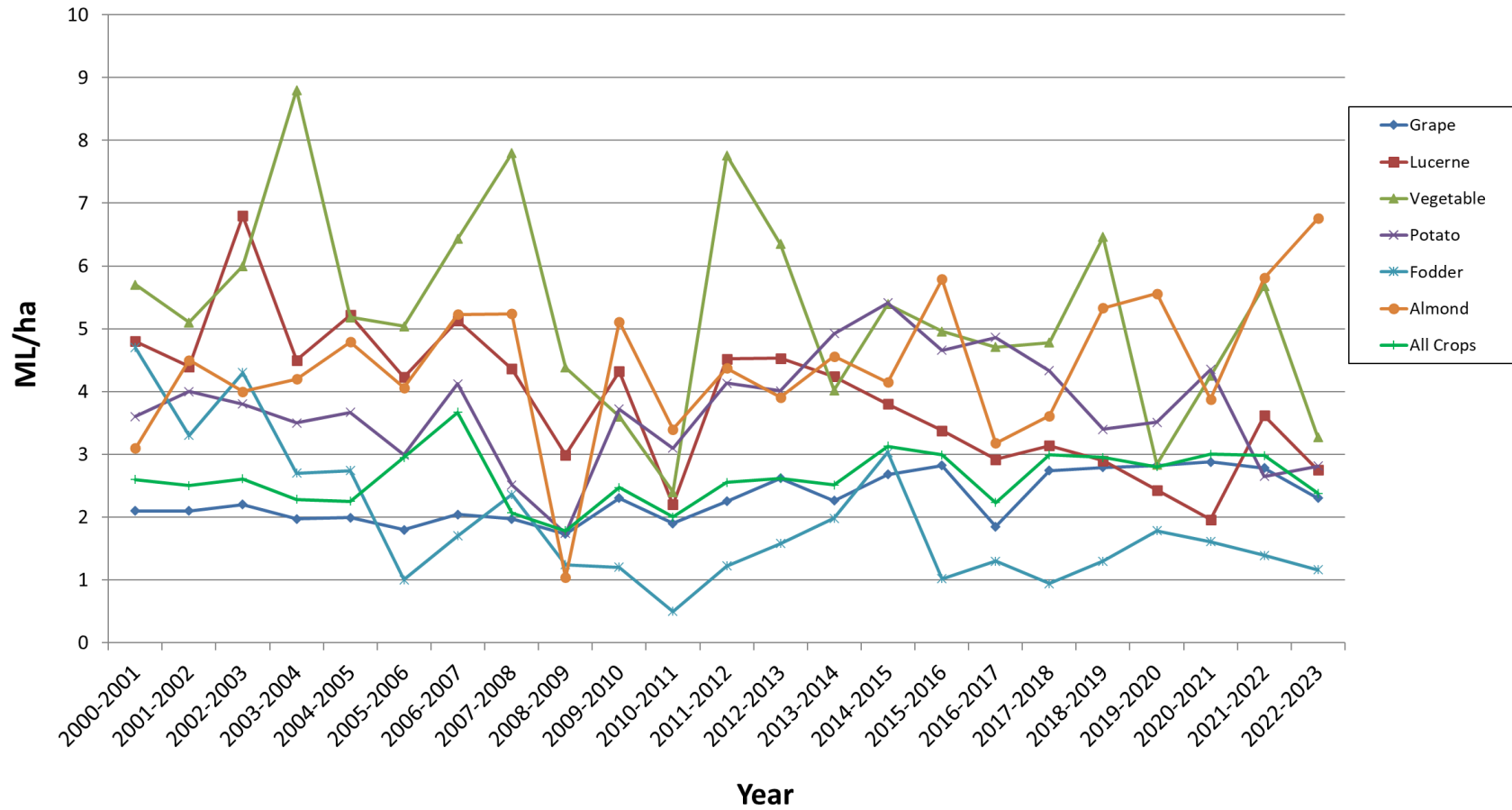


Figure 16: Average ML / ha used for each crop type

Table 3: ML used and ha irrigated comparison chart:

	2022-2023	2021-2022	2020-2021	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013	2011-2012	2010-2011	2009-2010	2008-2009	2007-2008	2006-2007	2005-2006	2004-2005	2003-2004	2002-2003	2001-2002
Total ML	16,419	21,652	22,456	19,839	22,125	20,279	14,772	20,932	20,408	18,605	18,617	17,056	13,346	16,241	12,001	14,743	20,911	15,811	17,719	17,154	20,715	17,428
Total ha	6,894	7,212	7,479	7,085	7,489	6,792	6,637	7,011	7,380	7,406	7,107	6,687	6,687	6,578	6,748	7,049	8,370	7,739	7,869	7,509	7,934	7,089
Grape ML	11,943	16,118	16,767	16,702	16,418	14,819	9,998	15,961	15,972	13,230	13,129	11,990	11,275	13,718	10,738	12,330	12,827	11,293	11,688	11,927	13,165	11,159
Grape ha	5,195	5,799	5,821	5,920	5,892	5,407	5,391	5,658	5,954	5,850	5,641	5,323	5,965	5,971	6,199	6,245	6,271	6,170	5,876	6,059	6,059	5,357
Lucerne ML	384	719	751	608	1,352	1,236	1,013	1,300	1,668	1,446	1,820	1,477	376	657	326	675	1,437	1,378	1,791	1,608	2,560	2,051
Lucerne ha	140	200	383	251	466	393	348	384	439	341	402	327	170	152	109	155	280	325	343	354	376	471
Veg ML	975	1,679	1,161	468	1,194	559	856	963	964	580	610	877	193	36	57	179	373	363	638	605	647	651
Veg ha	298	296	273	165	185	117	182	194	179	144	96	113	81	10	13	23	58	72	123	69	108	103
Potato ML	1,167	617	1,079	485	717	758	1,156	947	1,238	1,073	1,232	1,283	555	320	131	136	1,200	1,171	1,278	1,280	1,504	1,719
Potato ha	415	233	248	138	211	175	238	203	229	218	307	311	179	86	75	54	291	392	348	360	394	425
Fodder ML	105	173	165	120	141	79	21	76	109	107	90	78	22	47	32	53	222	144	505	399	752	316
Fodder ha	90	124	103	67	108	84	16	74	36	54	57	64	43	39	26	23	130	144	184	146	173	97
Almond ML	88	75	136	195	202	65	57	104	166	187	180	188	148	225	193	231	251	195	230	203	188	246
Almond ha	13	13	35	35	38	18	18	18	40	41	46	43	43	44	44	44	48	48	48	48	47	55
Other crops ML	1,757	2,271	2,397	1,261	2,100	2,763	1,671	1,581	2,069	1,935	1,556	1,094	777	1,238	524	795	2,004	900	1,589	1,132	1,899	1,286
Other crops ha	743	547	616	509	589	598	444	480	503	573	558.5	501	206	276	282	505	906	588	936	443	777	583

Angas Bremer Groundwater Resources 2023

Current status and historical trends

December 2023

Murray Group Limestone aquifer water levels (2019–2023)

The main aquifer used in the Angas Bremer PWA is the confined Murray Group Limestone (MGL) aquifer which is up to 100 m thick. For the period 2019 to 2023, 30 out of 32 monitoring wells show rising five-year trends in groundwater pressure levels at rates between 0.03 m/year and 0.27 m/year (median rise of 0.12 m/year). DEW uses a ranking system as a way of evaluating current groundwater levels in comparison to historic data. In 2023, seasonally recovered pressure levels are 'above average' in all wells and 'highest on record' in 28% of wells.

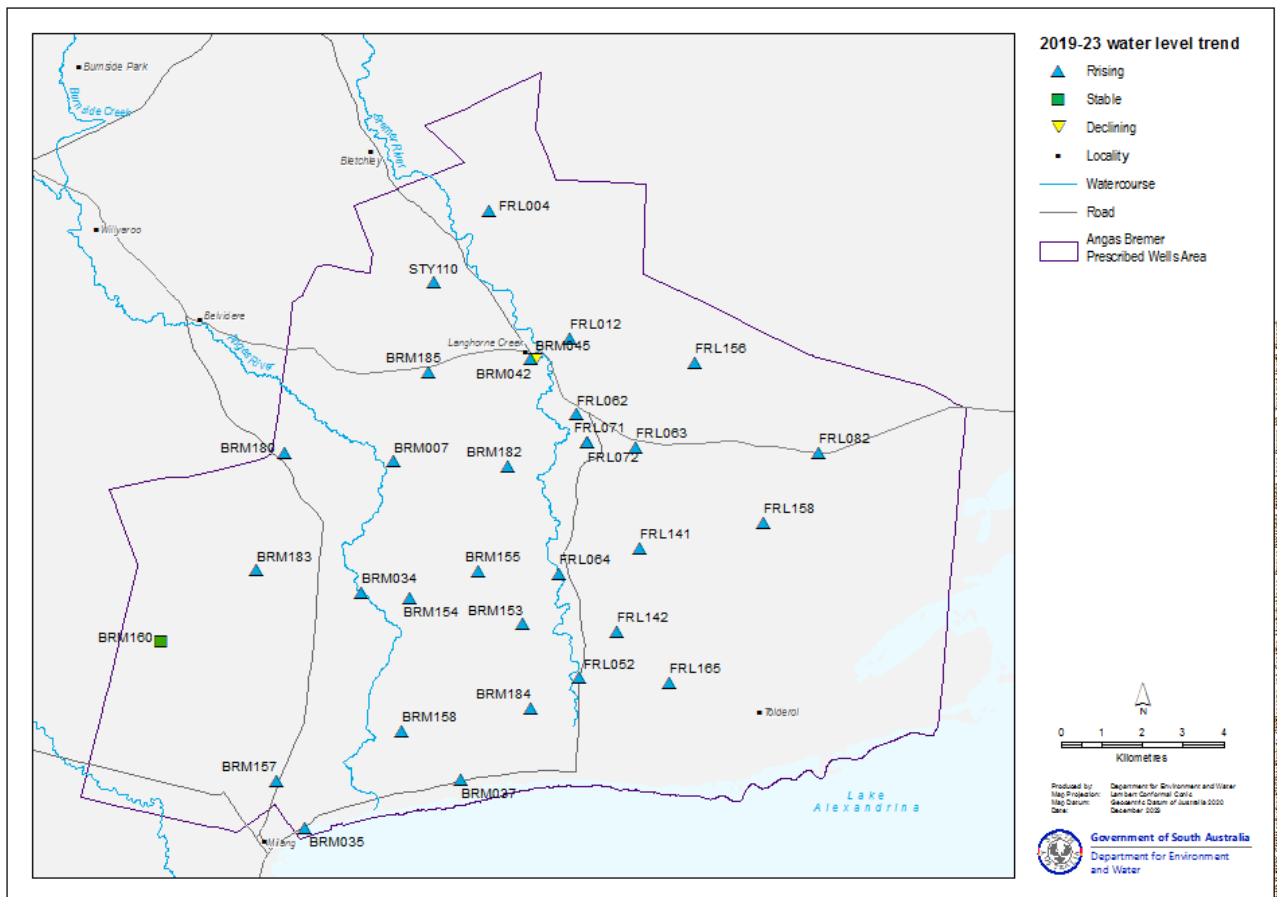


Figure 17: Murray Group Limestone aquifer water level trend 2019 to 2023

The hydrographs presented below were selected to illustrate important and/or representative trends. Hydrographs show a long-term rising trend across the region – groundwater pressure levels are currently close to the highest levels recorded since monitoring began in the 1970s. The long-term increases in pressure levels are mainly attributed to managed aquifer recharge operations in the area. Additionally, since 1992, groundwater extractions have decreased markedly due to the increased use of alternative water sources.

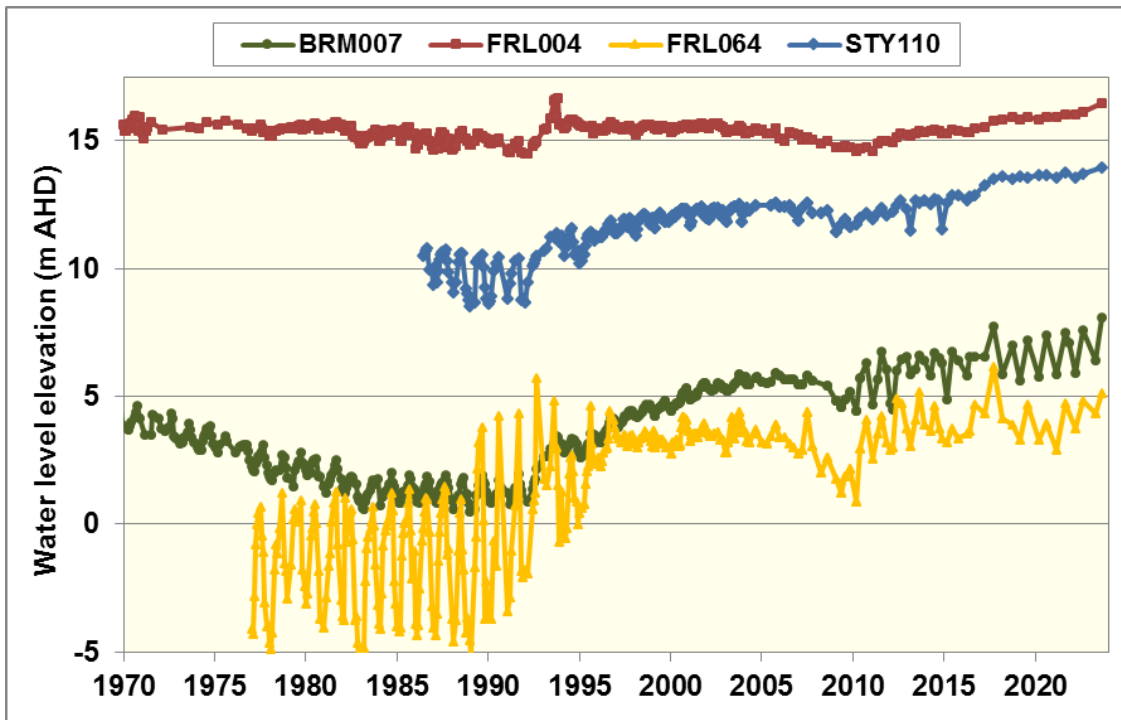


Figure 18: Selected hydrographs for the Murray Group Limestone aquifer

Quaternary aquifer water levels (current)

The shallow Quaternary aquifer consists of a sequence of clays, silts and sands of around 10–20 m thickness. This aquifer is generally highly saline with low yields and consequently has limited use. Groundwater level monitoring in August and September 2023 shows that the watertable is deeper than three metres across most of the area, with the exception of adjacent Lake Alexandrina, where the watertable is naturally shallower than three metres.

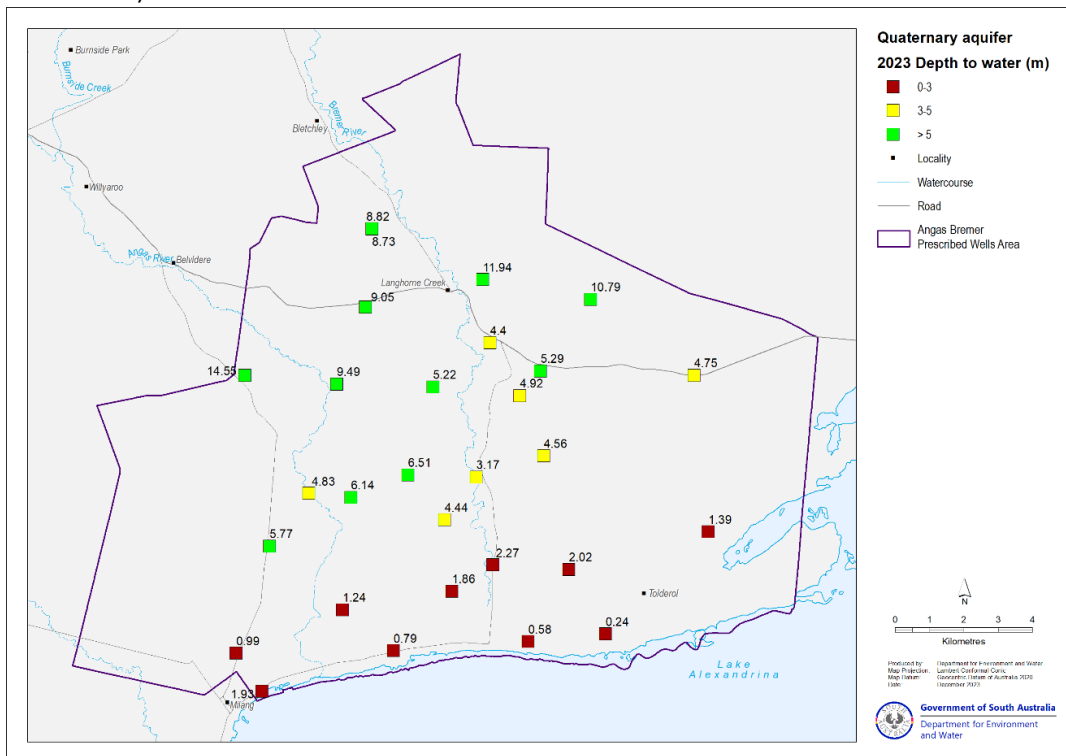


Figure 19: Quaternary aquifer water levels 2023

MGL aquifer salinity (current)

The salinity distribution in the MGL aquifer shows low-salinity groundwater is available in limited areas, traditionally within narrow zones parallel the Angas and Bremer Rivers. In 2023, irrigators provided groundwater samples from 31 wells – 65% of wells have salinity in the range 1,500 to 3,000 mg/L while 23% of wells have salinity less than 1,500 mg/L. Groundwater salinity greater than 1,500 mg/L is typical of the MGL aquifer but is generally greater than the salinity tolerance level for grapevines.

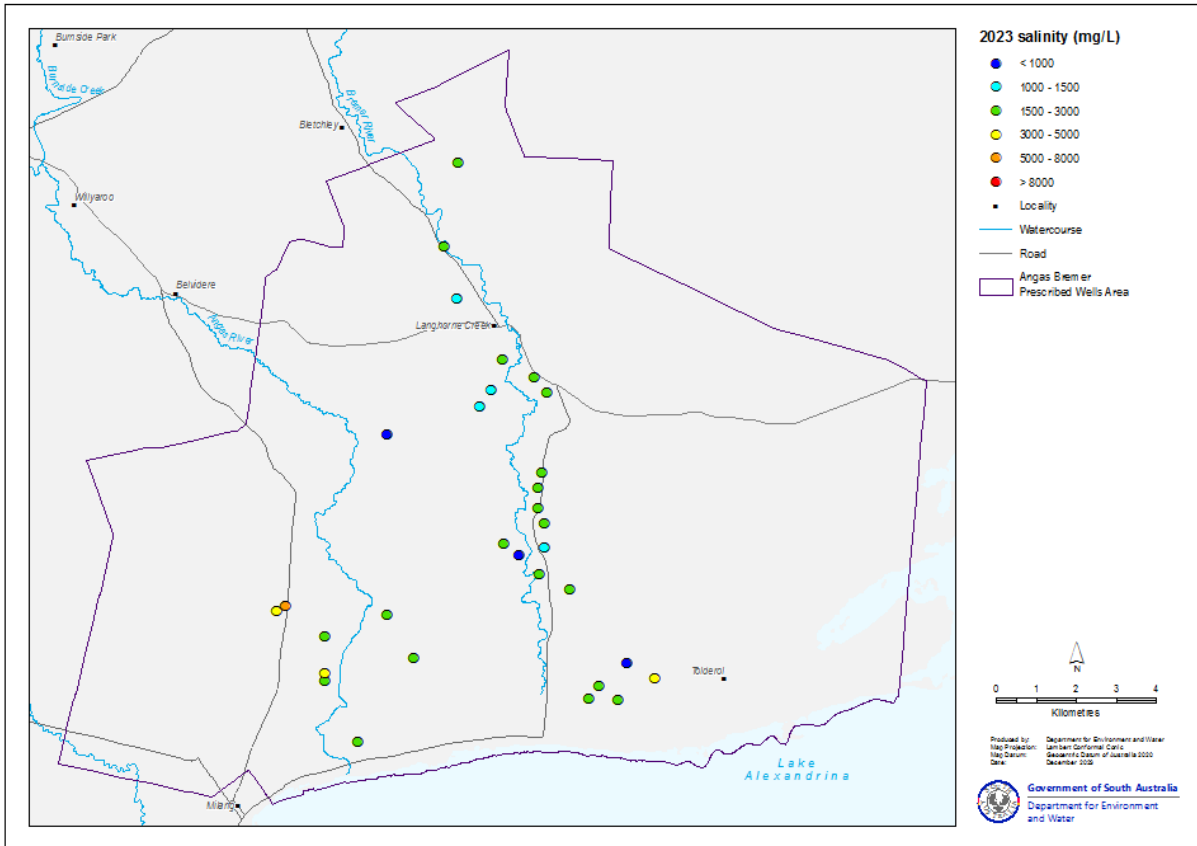


Figure 20: Murray Group Limestone aquifer salinity 2023

MGL aquifer salinity (2019–2023)

Salinity monitoring for the period 2019–23 shows variable 5-year trends – 6 wells have an increasing trend; six wells have a stable trend and two wells have a decreasing trend. Wells with a salinity record of at least five years' length are generally located adjacent to the Bremer River where most of the groundwater extraction occurs. Short-term fluctuations in groundwater salinity are mainly due to managed aquifer recharge operations.

Irrigators from across the area are actively encouraged to participate in the Department for Environment and Water's (DEW's) annual groundwater sampling program. Groundwater data submitted by irrigators augment DEW's groundwater monitoring network, all of which support planning and management of the region's water resources.

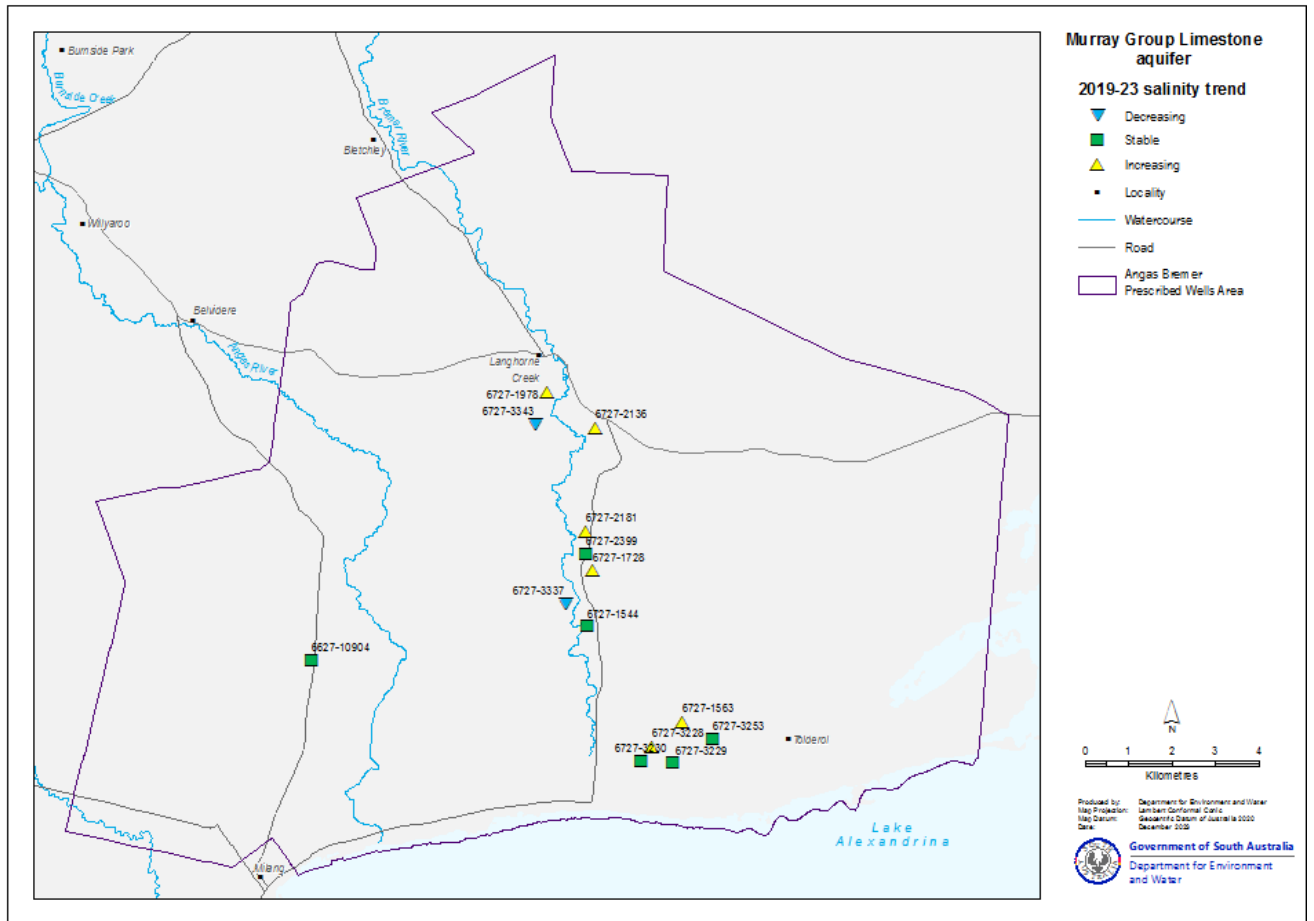


Figure 21: Murray Group Limestone aquifer salinity trend 2019 to 2023

Langhorne Creek Weather Station Statistics

Michael Cutting, Murraylands and Riverland Landscape Board

2022/23 Seasonal Summary:

As shown in Figure 22 518.6 of **rainfall** was recorded during the 2022/23 water use year (July – June) at the Langhorne Creek Central weather station which was a significant increase on the 323.2mm recorded in 2021/22. Well above average rainfall in October (87.6mm) and November (91.0mm) contributing to the annual rainfall total.

The 2022/23 **evapotranspiration (ET)** figure of 1,193.9mm was greater than the previous season and was the highest ET total recorded since 2015/16.

Rainfall & ET figures produced an **evaporative deficit (ET - rainfall)** of 675.3mm for the 2022/23 season which was remarkably similar to the 2021/22 figure of 674.2mm with the increase in ET offset by an increase in rainfall.

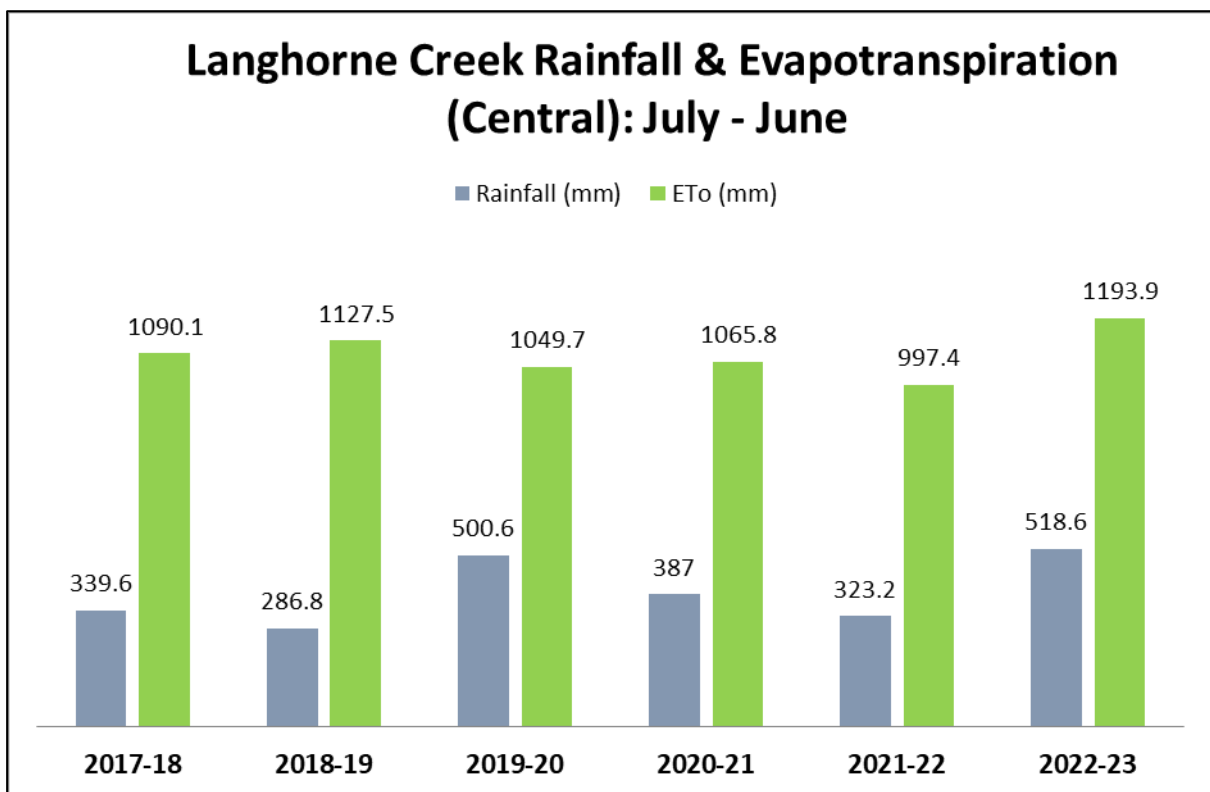


Figure 22: Rainfall and Evapotranspiration – Langhorne Creek Central

The highest **daily maximum temperature** for 2022/23 of 41.9°C was observed on the 27th December 2022 and was one of three days across the season where a maximum temperature of 40.0°C or above was observed. The **minimum daily temperature** of -1.0°C was recorded on the 6th July 2022 and was one of four days over the 2022/23 season where a minimum temperature of 0°C or below was recorded.

The **highest daily rainfall** total observed in 2022/23 was 56.6mm which was recorded on the 11th November 2022.

The monthly rainfall distribution for the 2022/23 season is shown in Figure 23 below.

The 518.6mm recorded over the 2022/23 season was the highest (July - June) rainfall total recorded since the Langhorne Creek Central station was installed in 2005.

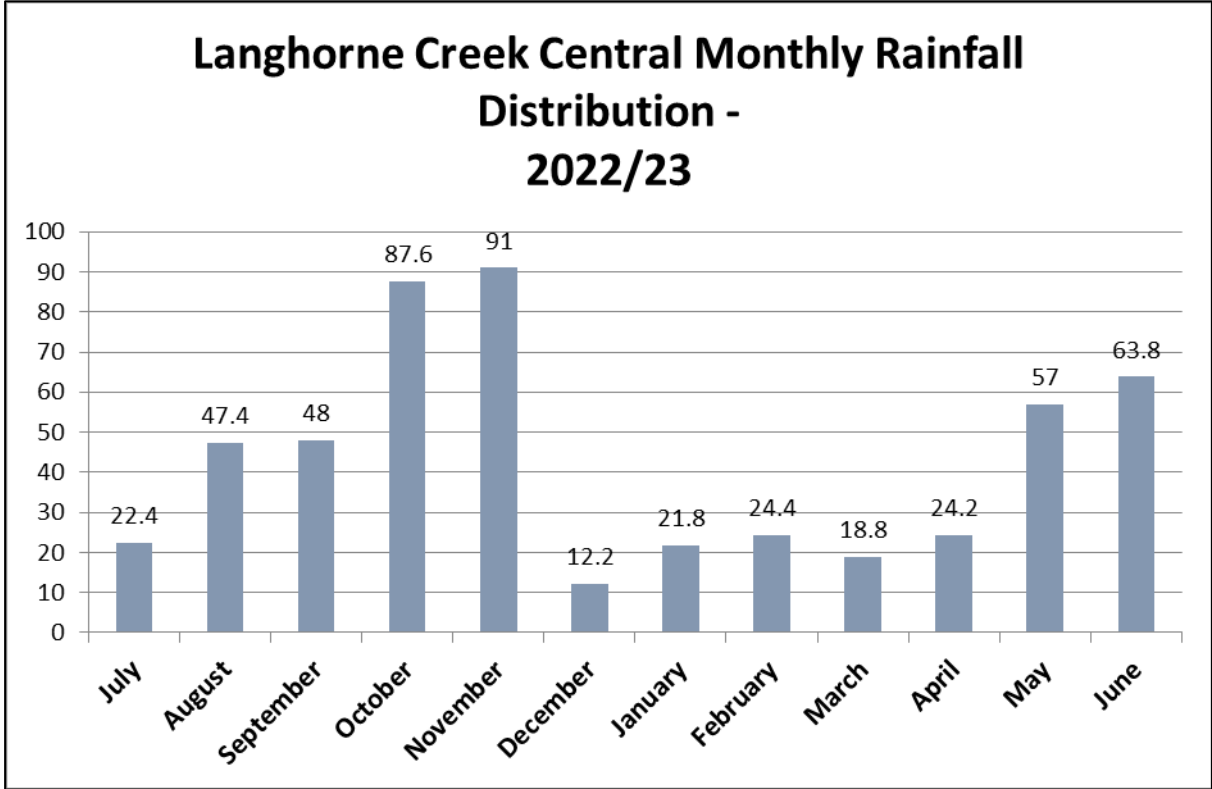


Figure 23: Monthly Rainfall Totals - Langhorne Creek Central

The Twenty Fifth Annual Public Meeting of the Angas Bremer Water Management Committee Incorporated

Wednesday 23rd August, 2023 at 7:00pm.

The Langhorne Creek Bowling Club, Langhorne Creek.

Attendees: Barry Potts, Justin Cleggett, Doug Green (speaker), Tom Mowbray, Paul Wainwright, Kahli Gifford, Michael Cutting, Loene Furler, David Hender, George Borrett, Tim Follett, David Eckert, Brett Cleggett, Trevor McLean, Dale Wenzel, Leah Hunter, Keren Stagg, Geoff Warren, James Stacey, Jenny Venus

Apologies: Melissa White, Sarah Keough, Nicole Clark, Brian Meakins, Cr Sue Miller, Lian Jaensch, Don Rejero, Ken Follett, Robert Cranwell, Kym Walton

1. Opening Address

The meeting was opened at 7:16pm by Barry Potts, Presiding Member who welcomed all attendees and guest speakers Doug Green, Michael Cutting and Tom Mowbray to the meeting. Barry then thanked the Committee for their contribution over the past year.

2. Minutes of the last Annual Public Meeting

A motion was raised that the minutes from the 2022 APM be accepted.

Moved: James Stacey

Seconded: George Borrett

3. Presiding Member Annual Report

The 2022-23 Presiding Member Annual Report was presented by Barry Potts which included the following activities undertaken by the committee:

- \$27,609 funding was secured from the Hills & Fleurieu Landscape Board and Murraylands & Riverland Landscape Board in 2022-23. Both Landscape Boards will continue to support the committee and the IAR in 2023-24, and 2024-25.
- The ABWMC met with the EPA and Mt Barker Council regarding the quality of wastewater being released into the Mt Barker Creek and the future treatment of wastewater from the new Mt Barker developments. Historic data, including nutrient levels, has been reviewed by the committee who will continue to follow this issue up in 2023-24.

- The ABWMC continues to seek a more simplified explanation of the Take Rules and the possibility of including notifications on the Water Connect website that alert irrigators to when pumping can take place.
- A self-driven tour took place to see the historic flood gates and weirs within the Langhorne Creek region.
- The ABWMC is continuing to follow up the status of the ABIRA SEB Landholder agreements. Several of the ABIRA SEB properties have been sold and the impact of these sales on future SEB offsets needs to be discussed.

4. Summary of 2022/2023 Irrigation Annual Report - Leah Hunter

Leah Hunter presented a summary of the 2022/2023 IAR data received so far.

124 reports (93% of total reports due) were received by accreditation date of which 103 reports (77% of total reports due) were received online. Leah thanked everyone who submitted their reports online and on time and will be chasing up any outstanding reports.

Reported data as of 23 August 2023 included the following:

- River Murray usage has decreased since last year (15,624ML vs 20,565ML reported in 2022). This is the lowest usage since 2017.
- Site use approval volumes are now included in the IAR. Water Licensing has provided data for the past 3 years.
- 5,210ML of groundwater was extracted which is the lowest since reporting began.
- Volume recharge decreased slightly compared to last year.
- Surface water usage increased by 30ML compared to last year.
- Overall, there was a drop in River Murray water usage (17,281ML vs 22,327 last year).
- There were 13 records of flooding during 2022-23, 2 in July 2021, 3 in August 2021, 6 in September 2021 and 2 in November 2021. A total of 296Ha were flooded.
- Data received so far is showing average irrigation of between 0-30mm. There has been an increase in the number of people irrigating vegetables and potatoes and a decrease in the number of people irrigating grapes.
- Total area of grapes has decreased from 5,682Ha to 4,969Ha.
- Once the 2021-22 IAR has been completed it will be posted on the ABWMC website and a link will be sent to all irrigators.

Leah thanked the committee for their volunteer efforts throughout the year and the Hills & Fleurieu Landscape Board for consulting with the committee.

Barry thanked Leah for her presentation.

5. Financial Report – Justin Cleggett, Treasurer

The Annual Financial Report of the Angas Bremer Water Management Committee 2022-23 was presented by Justin Cleggett.

Justin thanked Keren and Leah for their efforts.

Barry thanked Justin for delivering the Treasurer's report.

6. Summarising what we know about the ecological condition of the Angas and Bremer Catchments - Douglas Green, Senior Ecologist, Department for Environment and Water

Barry introduced Doug Green who delivered a summary of the ecological condition of the Angas and Bremer Catchments. His presentation included the following points:

- There are 3 distinctive aquatic ecosystem types across the Angas and Bremer Catchments. The upper catchments generally have little or no permanent water, the land is cleared, and flows occur after rain. The middle of the catchments tends to consist of pool and riffle sequences whereas the low-land rivers contain larger watercourses and permanent pools.
- Doug's presentation focussed on the middle catchment pool/riffle sequences within the Angas and Bremer Catchments as that is where most of the monitoring data comes from.
- Monitoring within these areas mainly looks at flow, macroinvertebrates, and fish. The flow data provides an insight to the ecological condition of the aquatic ecosystems and are used by the WAP to assess the effect of water resource development. The macroinvertebrate and fish species present at each monitoring time provide good information as to the condition of the pool. Bugs are always present regardless of the water conditions, however the species change.
- The historic data shows that, over time, the systems within the Angas and Bremer Catchments have become degraded and are worsening.
- Last year the flow information obtained from Angas and Bremer Water monitoring was good. All monitoring sites except for Quarry Road at Macclesfield recorded average to highest on record flows and water conditions ranged from good to very good. Quarry Road recorded lowest ever recorded flows and poor water conditions.
- The bugs present in the Angas River are showing that the Paris Creek monitoring sites are improving. The installation of Flows for the Future devices at Paris Creek are also showing a measurable change in flow at that location.
- Fish monitoring is very important and several species within the Angas Bremer Catchment are considered threatened. The SAMDB runs an excellent fish monitoring program within the region.

Barry thanked Doug for his presentation.

7. One Basin CRC Update, Michael Cutting, Team Leader - Land and Water Management, Murraylands and Riverland Landscape Board on behalf of Kym Walton, One Basin CRC - Lower Basin Hub

Barry introduced Michael Cutting who presented a One Basin CRC update on behalf of Kym Walton. His presentation included the following points:

- The One Basin CRC partners with Universities, the Murraylands & Riverland Landscape Board, First Nations representatives and other industry partners to develop policy, technical and financial solutions to support and reduce exposure to climate, water, and environmental threats in the Murray-Darling Basin. It is a 10-year investment which is funded through a \$50m Commonwealth Gov't grant, \$30m State Government funding and significant in-kind contributions. 2023 is the first year of the collaboration.
- There are 4 regional hubs located at Loxton, Mildura, Griffith and Goondawindi. Loxton is known as the lower hub. The Murraylands & Riverland Landscape Board aims to keep the Lower Murray area in focus.
- Projects are starting to form and a list of 3-year projects will be communicated on 16.9.23. Each project will have an industry lead who is not a researcher, and you don't necessarily have to be a partner in the CRC to be involved.
- Michael Cutting suggested that it may be useful for Kym Walton to attend a ABWMC meeting once projects have been announced.
- Any queries can be directed to admin@onebasin.com.au

Barry thanked Michael for his presentation.

8. Review of the Eastern Mount Lofty Ranges Water Allocation Plan, Tom Mowbray, Senior Water Planner, Hills & Fleurieu Landscape Board

Barry introduced Tom Mowbray who provided an overview of the EMLR WAP review which included the following points:

- Water Allocation Plans (WAPs) manage native water resources, not pipeline water.
- The ABWMC has a good working knowledge of the WAP so is assisting in the consultation phase.
- Every 10 years there is a review of the Water Allocation Plan (WAP) which consists of an evaluation and amendment phase. The current WAP evaluation is due in February 2024, after which the EMLR and WMLR should enter an amendment phase. During the amendment phase policies will be created and draft changes communicated to licence holders.
- The EMLR WAP sets the limits and rules for using groundwater, managed aquifer recharge (MAR), direct extraction from rivers such as the Angas & Bremer Rivers, and water captured in dams. A delicate balance needs to be struck between surface water allocations, low flows, high demand/over allocation of water resources, declining ecosystem health, climate change

and economic needs. Flood irrigation rules and the requirement for revegetation will also be looked at.

- Engagement of Angas Bremer water users has commenced, and meetings have already been held with local leaders. Surveys have been sent out to all licence holders and drop-in sessions are being held. The nearest drop-in session to Langhorne Creek is being held at Macclesfield on 29 August 2023.
- Members discussed whether there was an ongoing need for the revegetation rules, and whether there was still a risk from rising groundwater salinity.
 - Action: Tom to include the revegetation requirement on the list of matters to be examined during WAP Amendment and to include an investigation into the level of risk from rising groundwater salinity in the science tasks for the WAP Amendment.

Barry thanked Tom for his presentation.

9. Election of ABWMC members

The constitution of the Angas Bremer Water Management Committee requires that a minimum of 5 members and a maximum of 10 members be elected. Six positions have been carried over from the previous committee, and nominations were called for up to three positions.

Members mid-way through their term and continuing are: Michael Clements, Trevor McLean, Justin Cleggett, Tom Mowbray, James Stacey and Michael Cutting.

Members electing to renominate are: Barry Potts, George Borrett and Tim Follett. There were no new written nominations received prior to the APM.

A motion was made to accept the renominating members.

Moved: Justin Cleggett Seconded: Loene Furler

All were in favour.

10. General Business

None recorded.

11. Meeting Close

Barry thanked all for attending the meeting which closed at 9:15pm. All who were present were invited to stay for a light supper.

Financial Accounts 2022-23

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

FINANCIAL STATEMENTS

FOR THE YEAR ENDED JUNE 30, 2023

"STATEMENT OF PROFIT OR LOSS"

STATEMENT OF FINANCIAL POSITION

NOTES TO THE FINANCIAL STATEMENTS

STATEMENT BY THE MANAGEMENT COMMITTEE

REPORT BY THE MANAGEMENT COMMITTEE

SUMMARY OF PROJECT FINANCIAL PERFORMANCE

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

STATEMENT OF PROFIT OR LOSS

FOR THE YEAR ENDED JUNE 30, 2023

	2023	2022
	\$	\$
INCOME		
Grants		
Grants (State) Op-Non Rec	<u>27,609.00</u>	<u>31,191.00</u>
<i>Total Grants</i>	27,609.00	31,191.00
Interest-Unrestricted	<u>98.84</u>	<u>10.80</u>
Total Income	<u>27,707.84</u>	<u>31,201.80</u>
EXPENSES		
Advertising & Promotion	263.64	258.18
Assets Purchased	0.00	1,582.00
Client Support Services		
CSS Project Co-ord/Manag	25,783.25	25,264.00
<i>Total Client Support Services</i>	25,783.25	25,264.00
Computer Expenses	327.45	2,925.00
Insurance	623.41	547.96
Meetings Expense	349.54	300.00
Postage, Freight & Courier	97.68	145.00
Printing & Stationery	12.27	16.82
Sundry Expenses	0.00	(0.35)
Telephone, Fax & Internet Exp	<u>151.76</u>	<u>151.76</u>
Total Expenses	<u>27,609.00</u>	<u>31,190.37</u>
Net Surplus / (Deficit)	<u>98.84</u>	<u>11.43</u>

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

STATEMENT OF FINANCIAL POSITION

FOR THE YEAR ENDED JUNE 30, 2023

	2023	2022
CURRENT ASSETS	\$	\$
Cash at Bank (Unrestricted)	10,345.38	12,347.34
Accounts Receivable	25,616.48	0.00
Prepayments	196.76	151.76
TOTAL CURRENT ASSETS	36,158.62	12,499.10
TOTAL ASSETS	36,158.62	12,499.10
CURRENT LIABILITIES		
Accounts Payable	6,024.55	3,627.99
Deferred Revenue	20,526.81	0.00
Accrued Expenses	60.00	1,317.92
GST Payable	2,329.00	0.00
Less GST Receivable	(547.68)	(318.91)
GST Clearing	(885.00)	(680.00)
TOTAL CURRENT LIABILITES	27,507.68	3,947.00
NET ASSETS	8,650.94	8,552.10
EQUITY		
Unexpended Funds as at July 1, 2022	8,552.10	8,540.67
Current Year Surplus (Deficit)	98.84	11.43
Unexpended Funds as at June 30, 2022	8,650.94	8,552.10

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED JUNE 30, 2023

NOTE 1: STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

This financial report is a special purpose financial report prepared in order to satisfy the financial reporting requirements of the Associations Incorporation Act 1985 (SA). The Committee have determined that the Association is not a reporting entity.

This financial report has been prepared in accordance with the requirements of the Associations Incorporation Act 1985 (SA) and the following Australian Accounting Standards:

AASB 101 - Presentation of Financial Statements

AASB 108 - Accounting Policies, changes in accounting estimates and errors

AASB 110 - Events after the Reporting Period

AASB 1058 - Income of Not for profit entities

No other applicable Accounting Standards, Urgent Issues Group Consensus Views or other authoritative pronouncements of the Australian Accounting Standards Board have been applied.

The following material accounting policies, which are consistent with the previous period unless otherwise stated, have been adopted in the preparation of this financial report.

- a) **Accounting Method** - Accrual Accounting
- b) **Currency** - All values are presented in Australian Dollars
- c) **Measurement Basis** - The financial report is based on historical costs. It does not take into account changing money values, or, except where specifically stated, current valuations of non-current assets
- d) **Goods & Services Tax** - Revenue and expenses are recognised exclusive of the amount of GST
- e) **Plant & Equipment** - Plant and equipment is recorded as an expense for the reporting period.

**STATEMENT OF THE MANAGEMENT COMMITTEE OF
ANGAS BREMER WATER MANAGEMENT COMMITTEE**

In accordance with Section 35(2)(c) of the Associations Incorporations Act 1985, it is the opinion of the Members of the Committee that,

- (a) The accompanying Statement of Financial Performance is drawn up so as to give a true and fair view of the operations of the Association for the year ended 30/6/23;
- (b) The accompanying Statement of Financial Position is drawn up so as to give a true and fair view of the state of affairs of the Association as at 30/6/23;
- (c) At the date of this Statement there are reasonable grounds to believe that the Association will be able to pay its debts as and when they fall due.

Signed in accordance with a resolution of the Committee

Signed: *BSP*

Barry Potts, Chairperson

Date: 22/8/23

Signed: *J R Clegg*

Justin Clegg, Treasurer

Date: 22/8/23

**REPORT OF THE MANAGEMENT COMMITTEE OF
ANGAS BREMER WATER MANAGEMENT COMMITTEE**

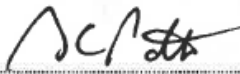
In accordance with section 35 (5) of the Associations Incorporations Act, 1985 the Committee hereby states that during the financial year ended June 30, 2023:

- (a) (1) no officer of the association;
- (2) no firm of which an officer is a member; and
- (3) no body corporate in which an officer has a substantial interest,

has received or become entitled to receive a benefit as a result of a contract between the officer, firm or body corporate and the association.

- (b) no officer of the association has received directly or indirectly from the association any payment or other benefit of a pecuniary nature.

Signed in accordance with a resolution of the Committee.

Signed: 

Barry Potts, Chairperson

Date: 22/8/23

Signed: 

Justin Cleggett, Treasurer

Date: 22/8/23


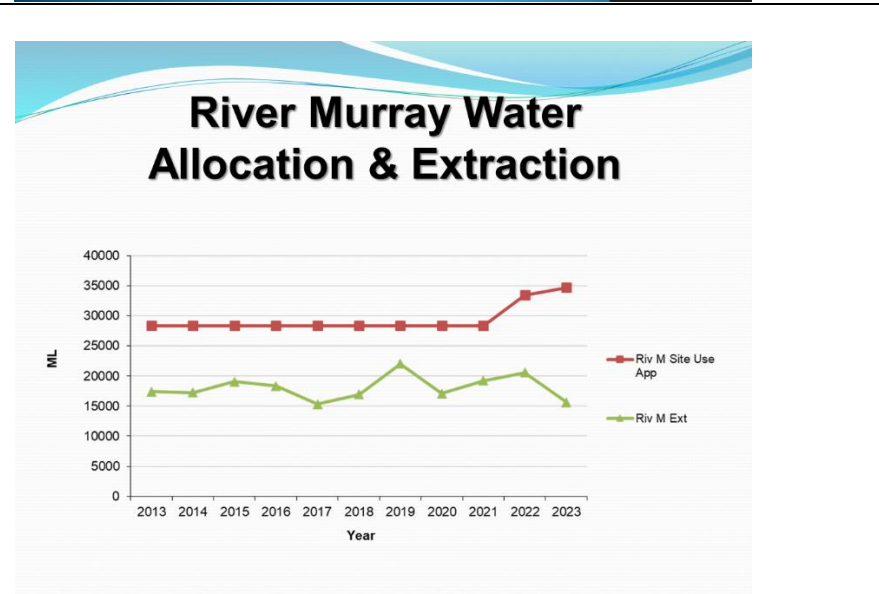
ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.				
PROJECT INCOME, EXPENDITURE AND BALANCES				
FOR THE YEAR ENDED JUNE 30, 2023				
Project Name	Balance at June 30, 2022	Total Income	Total Expenses	Balance at June 30, 2023
ABIRA funds	7,570.30	0.00	0.00	7,570.30
Angas Bremer Water Management Committee Funds	981.80	98.84	0.00	1,080.64
Irrigation Annual Reporting Project - 2022-23 funding	0.00	27,609.00	27,609.00	0.00
Totals	8,552.10	27,707.84	27,609.00	8,650.94

Appendix A – Angas Bremer Irrigation Management Zone 2022-2023 Interim Annual Report, Leah Hunter.

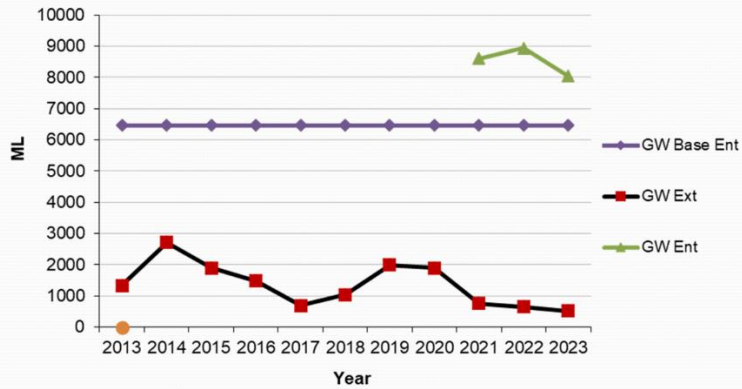


On Line Reporting

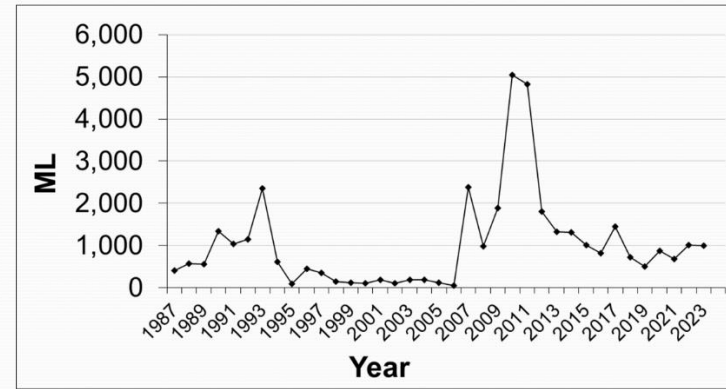
- Thank you again to everyone who submitted their reports online and on time
- 103 reports submitted online (77%) of total reports due
- 124 (93%) reports received by accreditation date

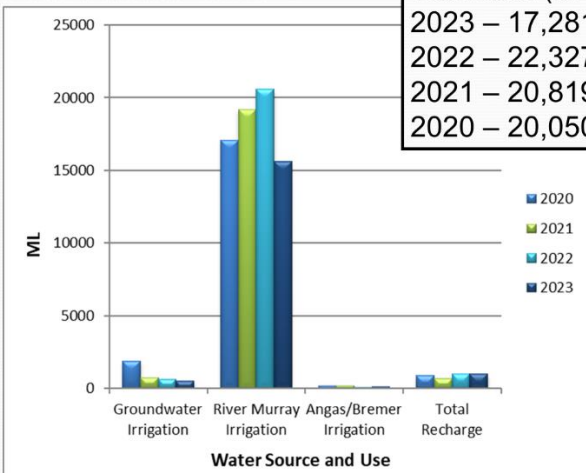
Groundwater Allocation & Extraction



Volume Recharged to Aquifer 1987-2023

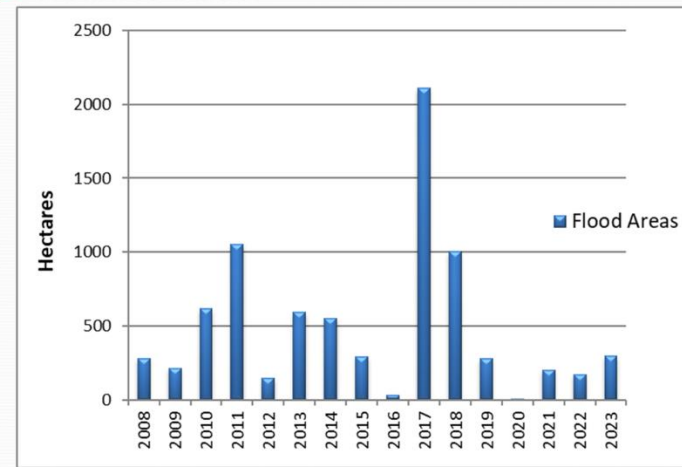


Total Water Use

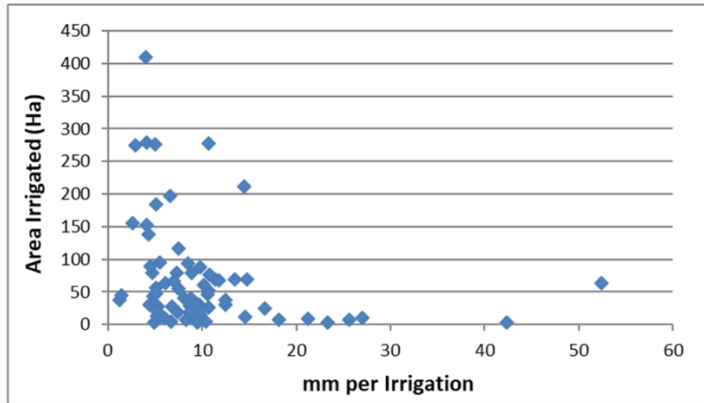


Total use: (ML)
 2023 – 17,281
 2022 – 22,327
 2021 – 20,819
 2020 – 20,050

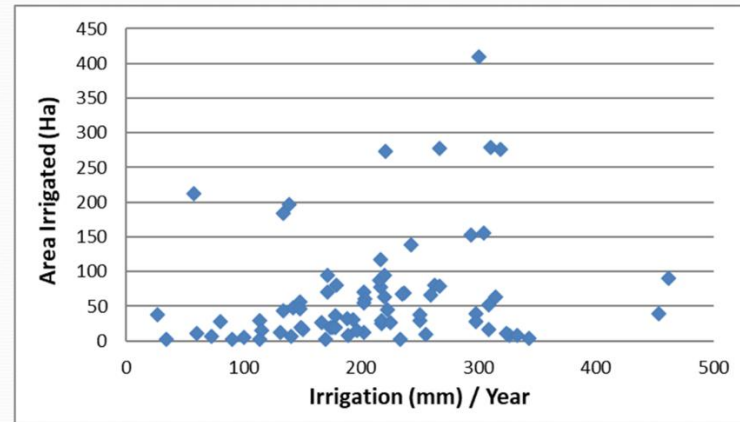
Area Flooded



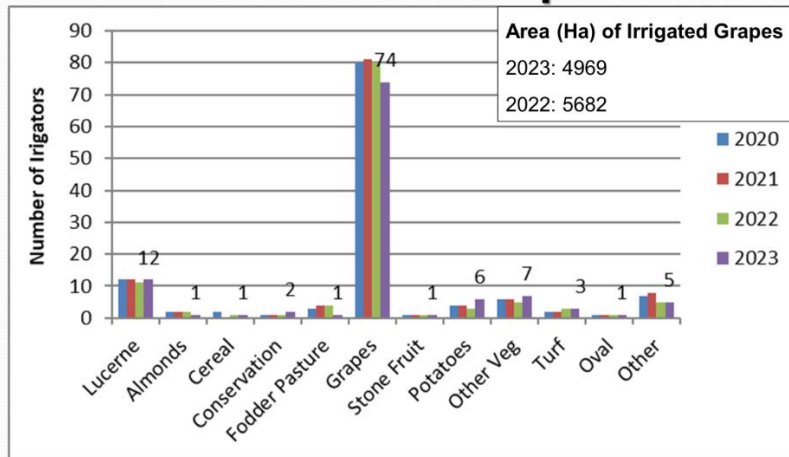
Average mm per Irrigation for Grapes



Total Yearly Irrigation for Grapes



Number of Irrigators for Different Crops



Full Annual Report

- All final graphs and further explanation in Annual Report due late December.
- Email will be sent out with a link to the report on the Angas Bremer Water Management Committee Website angasbremerwater.org.au



- Thank you to all the Angas Bremer Water Management Committee members.
- Thank you to both the Hills and Fleurieu and the Murraylands and Riverland Landscape Boards for continuing to fund the Annual Irrigation reporting process and for providing technical information to the committee.



Financial Report

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

STATEMENT OF PROFIT OR LOSS

FOR THE YEAR ENDED JUNE 30, 2023

	2023		2022	
	\$	\$	\$	\$
INCOME				
Grants				
Grants (State) Op-Non Rec	<u>27,609.00</u>		<u>31,191.00</u>	31,191.00
Total Grants		27,609.00		31,191.00
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Total Income		<u>27,707.84</u>		<u>31,201.80</u>
EXPENSES				
Advertising & Promotion		263.64		258.18
Assets Purchased		0.00		1,582.00
Client Support Services				
CSS Project Co-ord/Manag	25,783.25		25,264.00	
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Meetings Expense		349.54		300.00
Postage, Freight & Courier		97.68		145.00
Printing & Stationery		12.27		16.82
Sundry Expenses		0.00		(0.35)
Telephone, Fax & Internet Exp		<u>151.76</u>		<u>151.76</u>
Total Expenses		<u>27,609.00</u>		<u>31,190.37</u>
Net Surplus / (Deficit)		<u>98.84</u>		<u>11.43</u>

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

STATEMENT OF FINANCIAL POSITION

FOR THE YEAR ENDED JUNE 30, 2023

	2023	2022
CURRENT ASSETS	\$	\$
Cash at Bank (Unrestricted)	10,345.38	12,347.34
Accounts Receivable	25,616.48	0.00
Prepayments	<u>196.76</u>	<u>151.76</u>
TOTAL CURRENT ASSETS	<u>36,158.62</u>	<u>12,499.10</u>
TOTAL ASSETS	<u>36,158.62</u>	<u>12,499.10</u>
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Accounts Payable	6,024.55	3,627.99
Deferred Revenue	20,526.81	0.00
Accrued Expenses	60.00	1,317.92
GST Payable	2,329.00	0.00
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NET ASSETS	<u>8,650.94</u>	<u>8,552.10</u>
EQUITY		
Unexpended Funds as at July 1, 2022	8,552.10	8,540.67
Current Year Surplus (Deficit)	<u>98.84</u>	<u>11.43</u>
Unexpended Funds as at June 30, 2023	<u>8,650.94</u>	<u>8,552.10</u>

Appendix B – Summarising what we know about the ecological condition of the Angas and Bremer Catchments, **Douglas Green**, Senior Ecologist, Department for Environment and Water.

Acknowledgment of Country

Before we start, I acknowledge the Ngarrindjeri people, Traditional Custodians of the land on which we meet and gather today. I would also like to acknowledge that the work presented here today was undertaken on Peramangk and Kurna Country.

I pay my respects to their Elders past, present and emerging. I extend that respect to all Aboriginal and Torres Strait Islander peoples, especially those here today.



Summarising what we know about the ecological condition of the Angas and Bremer Catchments

Doug Green

Senior ecologist

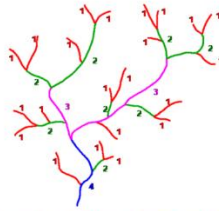
Freshwater, River Murray and Coorong Science Team

Department for Environment and Water



Conceptually – what is there?

- Three distinct aquatic ecosystem types across the Angas and Bremer Catchments
 - Upper catchments: No permanent water, flows following rainfall, mostly cleared land
 - Mid pool-riffle sequence: Permanent pools, larger water courses, generally cleared land with remnant river red gums
 - Low-land rivers: large watercourses traversing the plains, permanent pools, generally needs larger flows out of the catchment to produce flow through these reaches



What we monitor

- Monitoring is mainly focused on the mid pool-riffle sequence
- Three key things monitored
 - Flow
 - Macroinvertebrates
 - Fish
- Additional River Red Gum monitoring undertaken by community members to inform on specific ecosystems in the lower Angas and Bremer.

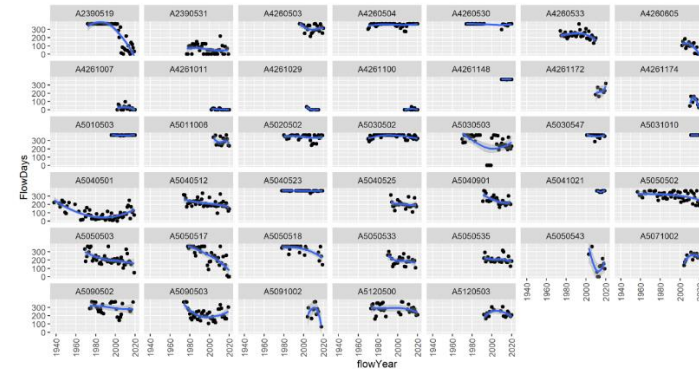


Flow monitoring

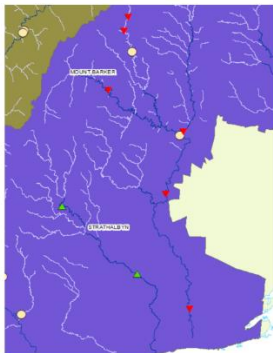
- How does flow inform ecology?
 - The way a river flows is one of the key drivers for ecological condition
 - For seasonal rivers, the cease-to-flow period is considered the 'master' variable
 - Looking at key parts of the flow regime can provide good insights into the likely condition of the aquatic ecosystems
 - Current WAPs use a series of 56 flow metrics to assess the impacts of water resource development
 - Really good for looking at longer term trend as flow monitoring provides annual data and often has longer time series



Flow assessment



Flow assessment

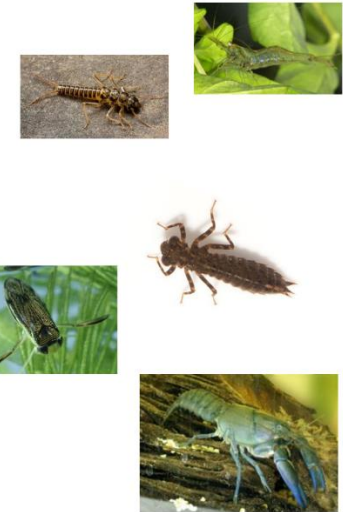


Site	Asset	SITENAME	Description	Condition
A4260503	Angas River	Angas River at Angas Weir	Very much above average	Very good
A4261144	Angas River	Quarry Road Cl us Macclesfield Flaxley/Quarry Rds	Lowest on record	Poor
A4261101	Angas River	Angas River downstream Willyaroo	Highest on record	Very good
A4261416	Angas River	Whites Road Impact Site	Highest on record	Very good
A4261417	Angas River	Whites Road Control Site	Highest on record	Very good
A4260558	Bremer River	Dawesley Creek at Dawesley	Average	Good
A4260679	Bremer River	Mount Barker Creek upstream Bremer River Confluence	Above average	Good
A4260688	Bremer River	Bremer River upstream Mount Barker Confluence	Highest on record	Very good
A4261222	Bremer River	Bremer River at Harrogate (opposite tennis court)	Above average	Good
A4261403	Bremer River	Upper Rodwell Creek at Bunnetts Road	Highest on record	Very good



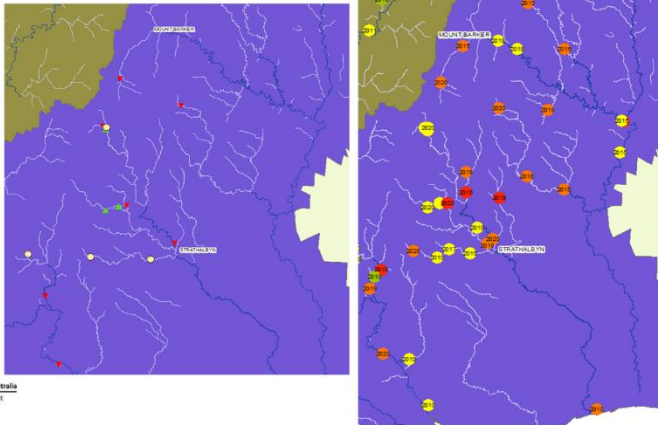
Macroinvertebrates

- Macroinvertebrates are considered to be the best overall indicator for aquatic ecosystem condition
- So many different types and different likes/dislikes that there is ALWAYS a waterbug to be found
- What type and the relative numbers of bugs can tell us a lot about the current condition of the system
- Monitoring started in 2008 - important



Macroinvertebrate condition

- Mixed trends
- Condition generally fair or poor



Fish

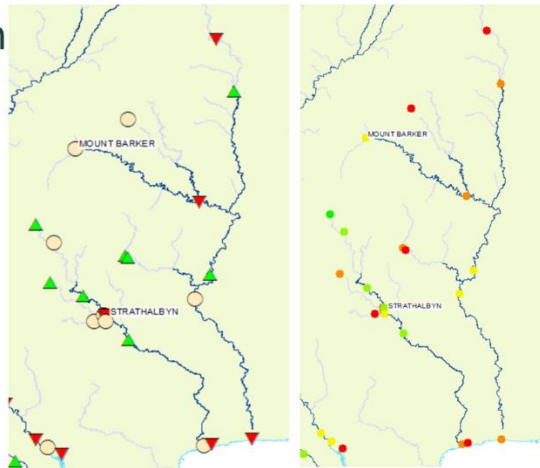


- Fish are the aquatic organism that most people associate with rivers – this makes them important
- Ecologically they are often the apex predator within the aquatic system so this also makes them important
- Several species of fish are regionally, State or Federally listed as species of concern. Several alien species of significant concern
- Excellent fish monitoring program covering the Region



Fish condition

- Mixed trends
- Mixed conditions




In summary

- We actively monitor three key parts of the aquatic ecosystems of the Angas and Bremer Catchments
- Results tell us that these systems are generally considered degraded and are generally getting worse
- Recent wet years have helped in recovery from 2018 and 2019 dry years but long term trend are of concern
- Management actions appear to be helping but limited implementation
- Opportunities for getting involved with the Bioblitz Program



Appendix C – One Basin CRC Update, Michael Cutting, Team Leader - Land and Water Management, Murraylands and Riverland Landscape Board on behalf of Kym Walton, One Basin CRC - Lower Basin Hub Leader



We acknowledge the Traditional Owners of the lands in the Murray-Darling Basin and pay respect to their Elders, past, present and emerging.

Michael Cutting

ABWRC AGM
23 August 2023

ONE BASIN CRC

Productive, resilient, and sustainable irrigation regions



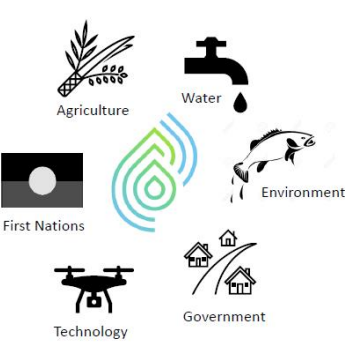
ONE BASIN CRC

OUR VISION: Australia's irrigation basins are the most productive, resilient and sustainable in the world


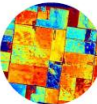

OUR MISSION: We work together to grow value from water in a changing world

PRODUCTIVE, RESILIENT, AND SUSTAINABLE IRRIGATION REGIONS **ONE BASIN CRC**

A partnership across sectors



... realizing shared opportunities

-  **Diversify opportunities for water scarce communities**
-  **Transition irrigated agriculture for a drier future**
-  **Design Smart Connected water Infrastructure**

STRENGTHS OF THE ONE BASIN CRC **ONE BASIN CRC**



- **Independently-governed science-based organization:** communicate trusted science perspectives.
- **Broad public-private sector partnership:** We can get stakeholders around a table
- **Longevity.** This allows us to think longer-term about the R&D needs
- **Regionally-based** a unique position to support collaborative cross-sectoral efforts in regions

REGIONAL HUB ESTABLISHMENT



FIRST NATIONS INCLUSION



- Governance
- Management
- Regional Hubs
- Projects

We aim to normalize participation of First Nation in basin science.



ONE BASIN CRC PARTNERSHIP

85 partners
\$50m government grant over ten years
\$35m cash and \$60m in-kind from partners



END-USER ORGANISATIONS



COMMERCIALISATION PARTNERS



KNOWLEDGE AGENCIES



COLLABORATIVE PROGRAM PLANNING



CHALLENGES - OUR APPROACH



- Developed during august-December 2022
- Two-day workshop at each of our four Regional Hubs
- Online workshop
- On-line survey
- Feedback on draft challenges
- Final challenges approved by steering committee and board

OUR CHALLENGES



BUILDING CAPACITY TO RESPOND TO CLIMATE CHANGE TOGETHER



CREATING VALUE FROM DIGITAL TECHNOLOGIES TO SUPPORT THE IRRIGATED AGRICULTURE SECTOR

ENHANCING WATER SUPPLY SYSTEMS TO DELIVER FOR MULTIPLE USES



REALISING VALUE FROM AND WITHIN RURAL INDUSTRIES AND COMMUNITIES

FOCUS AREAS



BUILDING CAPACITY TO CONFRONT CLIMATE CHANGE TOGETHER

Challenge 1: Co-develop, demonstrate and scale the tools and processes for partners and communities to confront climate change projections of a hotter, more variable future and co-design transition options that support productive, resilient and sustainable regions.

Proposed Research

- SECURITY: Building community water security foresight capability
- DELIVERY: Stress testing integrated water delivery operations
- TRANSFORM: Anticipating transformation for communities, agriculture and the environment
- ECOSYSTEM: Building community understanding of healthy waterways in the face of climate change
- INVESTMENT: Opportunities to mobilise investment for climate change adaptation and build resilience through community wealth
- FIRST NATIONS: Supporting First Nations-led research to address climate change
- LEADERSHIP: Understanding future leadership needs

CAPTURING VALUE FROM DIGITAL TECHNOLOGIES TO SUPPORT THE IRRIGATED AGRICULTURE SECTOR

Challenge 2: Enhance the value and adoption of digital technologies on farm and across the value chain to enable end-users to capture value from those technologies and boost profitability, sustainability and resilience of their businesses.

Proposed Research

- ADOPTION: Identify pathways to define and implement effective digital solutions
- VALIDATION and SCALING: Protocols and pilots to demonstrate application from whole farm to basin scale
- DIGITAL SYSTEMS FRAMEWORK: Value chain approach with co-benefits (agriculture, environment, community)
- EDUCATION AND TRAINING: What skills are needed across stakeholders within the Basin that will enhance development, implementation and support of next generation digital technologies
- SUSTAINABLE SOLUTIONS: Framework for determining the financial viability of different technologies and/or a suite of integrated technologies in various regions and at multiple scales
- SHARING: Frameworks, protocols and knowledge systems to connect people, data and models

ENHANCING WATER SUPPLY SYSTEM TO DELIVER FOR MULTIPLE USES

Challenge 3: Develop water infrastructure policy, design and operation options that allow water supply operators to increase the capacity of their water supplies to meet multiple water uses.

Proposed Research

- ALTERNATE WATER: Increasing access to alternative water sources for industries and communities
- WATER BANKING: Water banking to enhance drought resilience
- UNACCOUNTED WATER: Loss minimisation and the management of unaccounted water
- PUMPED SYSTEMS: Interventions to improve pumped water systems
- MULTIPLE BENEFITS: Enhancing information systems to support multiple productive, environmental, and cultural benefits
- INTEGRATED OPERATIONS: Integrated operational management of water delivery operations

REALISING VALUE FROM AND WITHIN RURAL INDUSTRIES AND COMMUNITIES

Challenge 4: Increasing value from the implementation of sustainable, resilient and inclusive strategies and innovations, through development of innovation knowledge and networks, market awareness, design, access and development and strengthening social licenses.

Proposed Research

- ADAPTATION and TRANSITION: of agricultural and environmental systems and rural communities
- VALUING First Nations knowledge in Basin science and management
- INCENTIVES for the sustainable management of Basin resources
- EVALUATING the impacts of policies and programs on people, economy and environmental condition
- APPROACHES to GOVERNANCE, engagement and collaboration to support management and care of the Basin

INITIAL (QUICKSTART) PROJECTS



QS Project Title	Lead Partner	Hub	Timeframe
Integrating irrigation technologies in the Mallee Hub	Sensand Technologies	Mildura	12 months
Irrigation demand forecasting for multi-scale multi-objective system storage control optimisation	ANU	Griffith	12 months
Producing novel biological products to increase production and reduce environmental impacts	Western Murray Land Improvement Group	Griffith	12 months
Shifting water availability and demand - the implications of climate change	Uni of Melbourne	Mildura	18 months
Water Infrastructure Critical Component Anomaly Detection & Health Prediction Prototype	ANU	Griffith	12 months
Opportunities and risks associated with identifying, sourcing and treating brackish groundwater	Uni of Adelaide	Loxton	12 months
Predicting the impact of climate change on irrigation demand across the One Basin	SA Government	Loxton	12 months
Equity and Vulnerability in a drying basin: water sharing policy and quality of life in towns	Alluvium	Northern	12 months
Citizen Science: Integrating community groups into basin-scale fish tagging and recovery programs	Charles Sturt Uni	tbd	12 months
Our Changing Water Future - "Adapting to change together"	Uni of Melbourne	Griffith	18 months

PROJECT CO-DESIGN AND APPROVAL



1 August Briefing: Proposal submission deadline and Briefing for Board, Partner Forum and RAC Chairs

Mid-August Partner Forum: feedback on proposals and identify project ready to proceed for approval

Project Co-Design
(divergent and convergent phases)

Ready to proceed



Revisions needed



OUR INVESTMENT PRIORITIES



BUILDING CAPACITY TO RESPOND TO CLIMATE CHANGE TOGETHER



27%

CREATING VALUE FROM DIGITAL TECHNOLOGIES TO SUPPORT THE IRRIGATED AGRICULTURE SECTOR



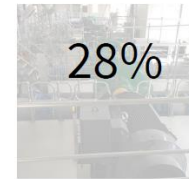
34%

ENHANCING WATER SUPPLY SYSTEMS TO DELIVER FOR MULTIPLE USES



11%

REALISING VALUE FROM AND WITHIN RURAL INDUSTRIES AND COMMUNITIES



28%

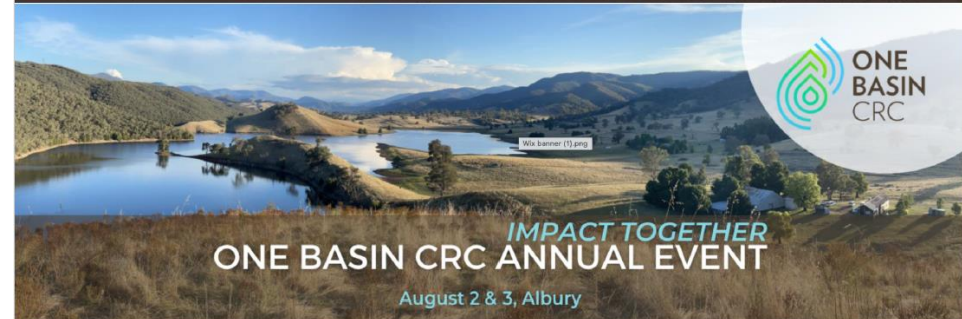
THIS IS THE TIME TO GET INVOLVED



1. Make sure your organization is involved with at least one of the Focus Areas
2. Find alignment with other partners involved with this Focus Area
3. Negotiate a contribution to projects within this area, aligned with your strengths

Send questions to:
admin@onebasin.com.au

ONE BASIN CRC ANNUAL EVENT - IMPACT TOGETHER



<https://www.onebasinrcrcevents.com.au>

EVENT DESIGN



- Two day event: 9 am Wednesday 2nd August to 3pm Thursday 3rd
- First event focused on our Partners
- Two themes
 - *Building our strategic agenda and our connections with each other'*
 - *'Strengthening our collaboration for greater impact'*

THE ONE BASIN CRC - A MODERN R&D PLATFORM FOR A RESILIENT BASIN



- Collaborative
 - Broad R&D capability (water-ag-env, STEM-HESS, multi-state)
 - Diverse industry and community partnership
 - Skills in co-design and participatory processes
- Capable
 - Good governance (incorporated NFP, partners are our members)
 - A robust project management system (discipline)
 - Multi-skilled and diverse leadership team
- Connected
 - Communications processes and networks
 - Regional Hub Offices (networked in regional areas)
 - A collaborative culture (trust)



OPPORTUNITY FOR PARTNERSHIP

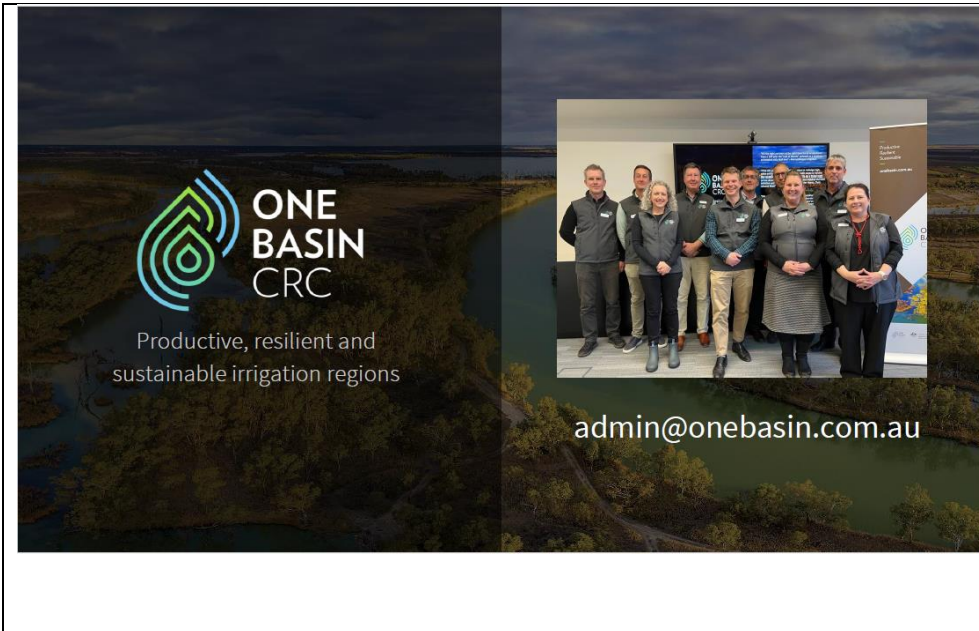



DO YOU NEED MORE INFORMATION




- What are the focus areas?
- How is my organization involved?
- How do I get included in a focus area?
- Who do I get in contact with, to get more information?
- and any other questions about the project co-design phase ...

- Send questions to: kym.walton@onebasin.com.au



 **ONE
BASIN
CRC**

Productive, resilient and
sustainable irrigation regions



admin@onebasin.com.au

Appendix D – Review of the Eastern Mount Lofty Ranges Water Allocation Plan, Tom Mowbray, Senior Water Planner, Hills & Fleurieu Landscape Board

Evaluation of the Eastern Mount Lofty Ranges Water Allocation Plan



LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

Water Allocation Plans – what they do

- Manage native water resources – groundwater and surface water
- Set limits for water take – main tool
- Trade rules
- Water affecting activity rules – e.g. rules around dams and new bores
- Monitoring plan

LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

Water Allocation Plans – why have them?

- Makes sure that people leave some water for their neighbours, and downstream
- So that the environment gets a share – native fish tell us how healthy the creeks and rivers are
- Protect from impacts of new dams, bores, MAR and other things that affect water resources
- Part of the licensing system which protects water rights (an asset)

LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

Evaluation vs Amendment

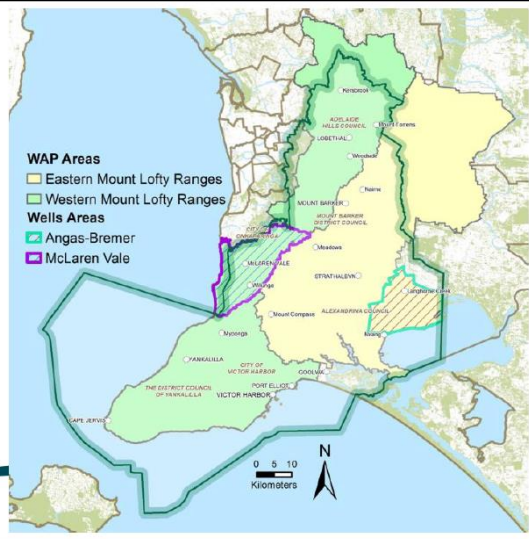
Evaluation (Review)

- Due Feb 2024
- Informing people
- How are things going?
- Are there things that need to be better, if so **what are they?**

AMENDMENT (Making changes)

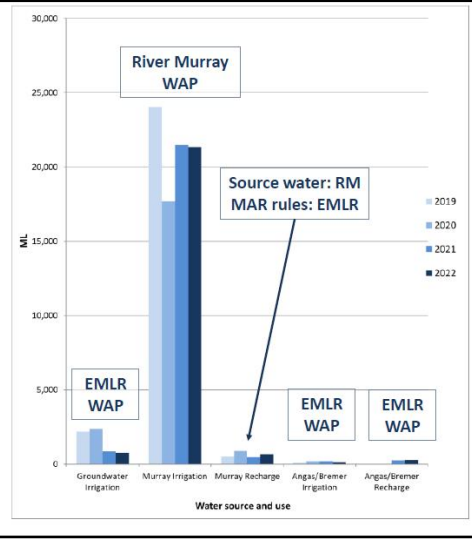
- Starts after evaluation
- This is where we work out what needs to be done to manage the issues identified in the Evaluation
- A lot of science and engagement to make sure we get the balance right
- Any changes take effect at least 2 ½ years away

Hills and Fleurieu Region



Water resources used in the Angas Bremer

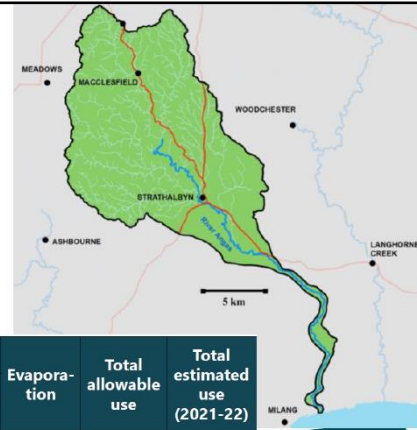
- EMLR evaluation due early 2024,
 - engagement June – mid-Oct 2023
- EMLR amendment – commence first half of 2024, at least two years
- River Murray review due 2027



LANDSCAPE SOUTH AUSTRALIA HILLS AND FLEURIEU

Angas Catchment

- Allowable use** (allocations + stock & domestic + evaporation): 2,657 ML – **158%** of limit
- Estimated use** (2021-22) was **102%** of limit

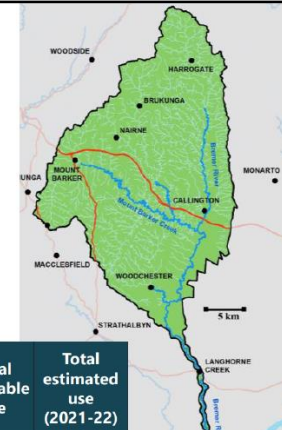


Measure	Take limit	Licenced		Non-licenced		Evapora-tion	Total allowable use	Total estimated use (2021-22)
		Allocations	Stock and domestic	Stock and domestic	Forestry			
Angas River Catchment	Volume (ML)	1,682	1,643	523	0	491	2,657	1,719
	as % limit		98%	31%	0%	29%	158%	102%

LANDSCAPE SOUTH AUSTRALIA HILLS AND FLEURIEU

Bremer Catchment

- Allowable use** (allocations + stock and domestic + forestry + evaporation): 5,412 ML - **151%** of limit.
- Estimated use** (2021-22) was **101%** of limit

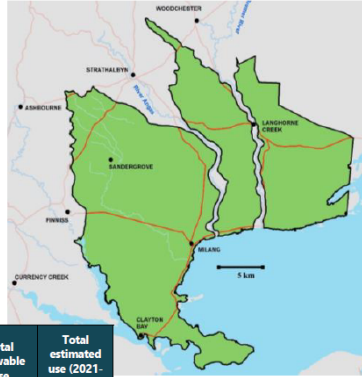


Measure	Take limit	Licenced		Non-licenced		Evapora-tion	Total allowable use	Total estimated use (2021-22)
		Allocations	Stock and domestic	Stock and domestic	Forestry			
Bremer River Catchment	Volume (ML)	3,583	3,221	1,127	51	1,012	5,412	3,628
	as % limit		90%	31%	1%	28%	151%	101%

LANDSCAPE SOUTH AUSTRALIA HILLS AND FLEURIEU

'Southern Plains' Catchment

- **Allowable use** (allocations + stock and domestic + forestry + evaporation): 288 ML - **171%** of limit.
- **Estimated use** (2021-22) was **170%** of limit
- Very little licenced use (14ML)

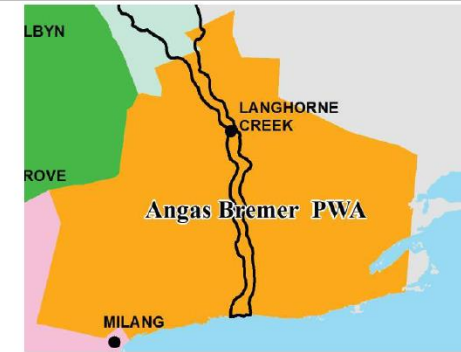


	Measure	Take limit	Licenced			Non-licenced		Evaporation	Total allowable use	Total estimated use (2021-22)
			Allocations	Stock and domestic	Forestry	Stock and domestic	Forestry			
Southern Plains Catchment	Volume (ML)	288	14	198	1		277	490	490	
	as % limit		5%	69%	0%		96%	170%	170%	

LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

Angas Bremer Prescribed Wells Area (groundwater)

- **Allowable use** (allocations + stock and domestic + forestry + evaporation): 6,826 ML - **96%** of limit.
- **Estimated use** (2021-22) was **19%** of limit – mainly due to preference to use the pipeline



Zone	Unit	Take limit	Licenced			Non-licenced		Total allowable use	Total estimated use (2021-2022)
			Allocations	Stock and domestic	Forestry	Stock and domestic	Forestry		
Angas Bremer PWA	ML	6,826	6,507	76	0		6,583	1,322	
	% of limit		95%	1%	0%		96%	19%	

LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

EMLR WAP Issues

- **Surface water allocations / low flows**
 - limits assume full roll-out of low flows (Flows for the Future)
 - sustainable level of take with low flows is four times the sustainable level without low flows
 - low level of implementation
- **High demand / over-allocation**
- **Climate change**
- **Declining ecosystem health**
- **Economic needs**

LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

Further Engagement with Angas Bremer?

- **Already:**
 - Local leaders – Lian Jaensch, Barry Potts, James Stacey, Warren Jacobs
 - Survey – all licence holders
 - Drop-in sessions – Macclesfield Tue 29th, 2-7pm
 - GWLAP catchment groups – late September(?)
- Stakeholder meeting for Angas Bremer?

LANDSCAPE
SOUTH AUSTRALIA
HILLS AND FLEURIEU

Questions for you

- What are the important issues we need to include in the amendment?

