Angas Bremer Irrigation Management Zone 2020 – 2021 Annual Report



Project Coordinator: Leah Hunter Angas Bremer Water Management Committee Inc

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2020-21 Annual Irrigation Report

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Angas Bremer Water Management Committee <u>Members 2020-2021</u>

Presiding Member – James Stacey Treasurer – Justin Cleggett

Committee Members

Barry Potts, George Borrett, Michael Clements, Ken 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 2020-2021

The Angas Bremer Water Management Committee has focussed on its core duties this year holding four committee meetings and an Annual Public Meeting during August. Unfortunately, due to Covid -19 lockdowns we needed to cancel our November 2020 meeting.

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.

Enquiries from the committee around the impact of urbanisation of the catchment around Mount Barker have been investigated and hydrological models created by the Department for Environment and Water, Science Department. These models showed some impact on the rate and timing of flows early in the season but the modelling suggests once catchments reach saturation point, run off rate and velocity is not much different to what has happened off farmland since it was cleared for agriculture. Clearly issues around water quality are still of concern and Mount Barker council have limited ability to deal with developers run off.

Several Committee members attended a meeting held by the Mount Barker District Council to discuss the issue of having too much waste water and nowhere for it to go. The Kanmantoo mine was using this water but are no longer using it. There will be a 500 ML water storage dam constructed at Callington to help ease the pressure. Currently 1300 ML is produced with an expectation of growing to 4500 ML over the next 30 years. Mount Barker District Council has a license approved to release excess waste water into Mount Barker Creek. Mount Barker District Council is looking for a customer to purchase their waste water off them. At this stage the Council is looking at possible solutions to this and will continue to discharge the waste water down the creek as necessary.

The Presiding Member of the committee attended a volunteer community forum for the Hills and Fleurieu Landscape Board region in February. It was surprising how many community groups are involved in managing native vegetation areas from the hills to the coast. Funding to the Landscape Board was discussed with reduced funding over the next few years due to a reduction in property levies.

The citizen science Bremer water monitoring programs findings were presented at the forum with some interesting data on water quality and turbidity being collected by volunteers. The Bremer water monitoring program is continuing and more data collected. Several of the ABWMC members are volunteering to help collect this data.

The final challenge for the year has been the ongoing funding of the annual water use report and after some robust discussions with the Hills and Fleurieu Landscape Board and the Murraylands and Riverland Landscape Board, the committee has secured two years of funding to gather data and collate the report.

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 other main focus for the committee this year was the annual irrigation reporting for the Angas Bremer Irrigation Management Zone. This year has seen a rise in returned reports which allows us to capture the true picture for the region.

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 130 irrigators who returned their completed forms to the Angas Bremer Water Management Committee on time have achieved "Accredited Irrigator" status. Online submissions were up this year with 104 irrigators reporting online, 4 irrigators did not respond/ provide data and did not achieve accreditation. The data from 130 irrigators (97%) has been collated and that data is presented in the following graphs and tables.

Flooding: Flooding by diversion or pumping was reported by 11 irrigators. Flooding was recorded in August 2020 on several days and in October 2020 on two days. 264 hectares of irrigated land was recorded as being flooded and 20 hectares of non-irrigated land this year, much higher than last 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: 120 Irrigators reported on the health of the red gums on their properties. Health, or otherwise, was rated from 0 to 5, 5 being healthy and 0 being dead. This year there has been a slight increase in the number of irrigators reporting that their Red Gums were healthy with 23 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, 3 irrigators listed their red gums as getting worse due to no significant flooding over the past few years. 6 irrigators listed their red gums as getting better.

Water Leasing: Table 1 below shows the amount of water leased in 2020-21 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 1923.2ML and the amount leased in from irrigators outside of the Angas Bremer Irrigation Management Zone decreased by 940.69ML. The volume of River Murray water leased to other irrigators within the Angas Bremer Irrigation Management Zone is lower than last year with one lease reported. For the last five years no reports of leased groundwater within the zone were received.

Type of Lease	Megalitres 2018-2019	Megalitres 2019-2020	Megalitres 2020-2021
RM water leased from ABIMZ to outside ABIMZ	1954.00	4541.70	2618.50
RM water leased from outside ABIMZ to inside ABIMZ	6502.68	3286.64	2345.95
RM water leased from inside ABIMZ to inside ABIMZ	289	260	25

Table 1: Water Leasing







Figure 2: River Murray Water Site Use Approval and Extraction 2014-2021: 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 in 2020-2021. Extraction (RivM Ext) is the volume of water that was used during the irrigation year. The total Site Use Approval volume for 2020-21 remained at 28,382 ML, and the recorded use was 21491.17ML, 3827.5ML more than last year.







Figure 4: Managed Aquifer Recharge (formerly termed Aquifer Storage and Recovery (ASR): This chart shows the total volume of water artificially recharged to the aquifer from 1991 to 2021. The **699 ML** recharged from the Angas, Bremer and Murray rivers in 2020-2021 was lower than last year's volume and substantially lower than the record levels achieved in 2010.



Figure 5: Total volume of water used 2020-2021: The total volume of water extracted from all sources within the region over the 2020-21 year was <u>23,236 ML</u>, which is more than the previous year, 2019-2020 = 21,060ML but less than 2018-2019 = 26,809ML.



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 16,767ML in 2020-2021, increasing slightly from last year's 16,702 ML.



Figure 7: Number of Irrigators for Each Crop Type: The number of irrigators growing each crop type in the region appears to have remained relatively stable with a decrease in the number of people irrigating grapes and cereals but an increase in lucerne, fodder and potatoes.



Figure 8: Area Irrigated by Crop Type: The area of each crop irrigated is shown in hectares. The area of grapes irrigated in 2019-20 was 5,821 ha, lower than the 5,920 ha recorded last year. The total area under irrigation in 2020-21 was 7,277 ha, which is higher than the 7,085 ha recorded last year.



Figure 9: Average total irrigation rate for the year by crop type: Irrigation is shown in mm for 2018-19, 2019-20 and 2020-21.



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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Figure 15: Number of growers using Soil Moisture Monitoring devices in 2020-21: "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 2021 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
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
1999-2000	2.1	6	6.3	3.7	3.7	2.8	2.6
1998-1999	2.2	5.1	4.5		3.8	2	2.7



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

	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	2000- 2001	1999- 2000
Total ML	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	17,467	16,961
Total ha	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	6,788	6,625
Grape ML	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	10,626	10,021
Grape ha	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	4,991	4,665
Lucerne ML	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	2,040	2,491
Lucerne ha	383	251	466	393	348	384	439	341	402	327	170	152	109	155	280	325	343	354	376	471	429	418
Veg ML	1,161	468	1,194	559	856	963	964	580	610	877	193	36	57	179	373	363	638	605	647	651	769	761
Veg ha	273	165	185	117	182	194	179	144	96	113	81	10	13	23	58	72	123	69	108	103	134	121
Potato ML	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	1,773	1,812
Potato ha	248	138	211	175	238	203	229	218	307	311	179	86	75	54	291	392	348	360	394	425	490	485
Fodder ML	165	120	141	79	21	76	109	107	90	78	22	47	32	53	222	144	505	399	752	316	742	358
Fodder ha	103	67	108	84	16	74	36	54	57	64	43	39	26	23	130	144	184	146	173	97	157	96
Almond ML	136	195	202	65	57	104	166	187	180	188	148	225	193	231	251	195	230	203	188	246	172	164
Almond ha	35	35	38	18	18	18	40	41	46	43	43	44	44	44	48	48	48	48	47	55	55	58
Other crops ML	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	1,259	1,354
Other crops ha	616	509	589	598	444	480	503	573	558.5	501	206	276	282	505	906	588	936	443	777	583	533	777

Table 3: ML used and ha irrigated comparison chart:

ANGAS BREMER GROUNDWATER RESOURCES 2021 CURRENT STATUS AND HISTORICAL TRENDS

30 November 2021

Murray Group Limestone aquifer water levels 2017-2021

The main aquifer used in the Angas Bremer PWA is the confined Murray Group Limestone (MGL) aquifer which is up to 100 m thickness. For the period 2017–2021, 25 of 33 monitoring wells show declining groundwater pressure levels and eight wells show a rising or stable five-year trend. The rate at which pressure levels in the 25 wells decreased over the five-year period ranged between 0.03 and 0.72 m/y with a median of 0.13 m/y. Although most wells show a declining trend, pressure levels in September 2021 are generally above the long-term average.



Figure 17: Murray Group Limestone aquifer water levels 2017-2021

Water levels for selected monitoring wells show a rising trend across the region and are at 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: Long-term water levels for selected monitoring wells in the Murray Group Limestone aquifer

Quaternary aquifer water levels (current)

The shallow Quaternary aquifer consists of a 10–20 m thick sequence of clays, silts and sands. This aquifer is generally highly saline with low yields and has limited use. Water level monitoring in September 2021 shows the watertable is deeper than 3 metres across the area with the exception of areas adjacent to Lake Alexandrina where the watertable is naturally shallower than 3 metres.



Figure 19: Current quaternary aquifer water levels (m)

MGL aquifer salinity (current)

The salinity distribution in the MGL aquifer shows low-salinity groundwater is limited to relatively narrow zones parallel to the Angas and Bremer Rivers. In 2021, from 40 water samples collected from irrigators across the area, 62% of salinity monitoring wells recorded salinities in the range of 1500 to 3000 mg/L which is typical of the MGL aquifer, but is generally greater than the salinity tolerance level for grapevines. Of the remaining salinity samples, 25% show salinities of less than 1500 mg/L.



Figure 20: 2020 Murray Group Limestone aquifer salinity distributions (mg/L)

MGL aquifer salinity 2017-2021

Salinity monitoring for the period 2017–21 shows stable or decreasing salinity in 10 of 17 wells. Wells with a salinity data record of at least five years length are generally located adjacent to the Angas and Bremer Rivers 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 encouraged to participate in the 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 2017-2021

Langhorne Creek Weather Station Statistics

Michael Cutting, Murraylands and Riverland Landscape Board

2020/21 Seasonal Summary:

As shown in Figure 22 387.0mm of **rainfall** was recorded during the 2020/21 water use year (July – June) at the Langhorne Creek Central but noting this was at the Post Office site as there was some erroneous rainfall data recorded at the Langhorne Creek Central weather station during the season.

The 2020/21 **evapotranspiration (ET)** figure of 1,065.8mm was very similar to the previous season noting this was an average across the Langhorne Creek central, West, North and South East weather stations.

Rainfall & ET figures produced an **evaporative deficit (ET - rainfall)** of 678.8mm for the 2020/21 season which was an increase from the previous season due to the lower rainfall received across the 2020/21 season.



Figure 22: Rainfall and Evapotranspiration – Langhorne Creek Central

The highest **daily maximum temperature** for 2020/21 of 43.7C was observed on the 25th January 2021. The **minimum daily temperature** of -3.7C was recorded on the 5th August 2020.

The **highest daily rainfall** total observed in 2020/21 was 30.2mm (as measured at Post Office) which was recorded on the 6th October 2020. This was one of only two days across the season when 25mm or more of rain was recorded.



Monthly rainfall distribution for the 2020/21 season is shown in Figure 23 below.

Figure 23: Monthly Rainfall Totals - Langhorne Creek Post Office

<u>The Twenty Third Annual Public Meeting of the</u> <u>Angas Bremer Water Management Committee</u> <u>Incorporated</u>

Wednesday 25th August, 2021 at 7:00pm.

The Langhorne Creek Bowling Club, Langhorne Creek.

Attendees: Paul Wainwright, Tom Mowbray, Peter Silver, James Stacey, Barry Potts, Michael Cutting, George Borrett, Jacqui Wilson, Sylvia Clarke, Trevor McLean, Geoff Warren, Melissa White, David Hender, David Eckert, Brett Cleggett, Justin Cleggett, Tim Follett, Dale Wenzel, Leah Hunter, Keren Stagg

Apologies: Keith Parkes, Ken Follett, Sarah Keough, Loene Furler

1. Opening Address

The meeting was opened at 7:15 pm by James Stacey, Presiding Member. James welcomed all attendees and guest speakers and thanked the committee for their ongoing contribution over the past year.

2. Minutes of the last Annual Public Meeting

A motion was raised that the minutes from last year's APM be accepted.

Moved: George Borrett Seconded: Barry Potts

3. Presiding Member Annual Report

The Presiding Member Annual Report was presented by James Stacey.

During 2020-21 the ABWMC continued to investigate the potential effects of increased water run-off from urban development in Mt Barker. Kumar Savadamuthu, Principal Hydrologist Water Science & Monitoring Branch, Dept of Environment & Water performed some hydrological modelling on this. The results showed that there is some effect on run-off from new houses in early autumn, but that the urban run-off ends up with a similar result to that from rural land later in the season.

James Stacey, Barry Potts and Michael Clements attended the RDA Waste-water workshop at Mt Barker. Kanmantoo is no longer taking waste-water so the EPA have given permission for it to be sent down Mt Barker Creek until an alternative solution can be found. Options being considered include a proposal to build a 5ML dam at Callington and to possibly send some Class A water to Langhorne Creek. Both options require an infrastructure upgrade. The RDA are looking to secure some Federal funding to assist with this, however none is forthcoming at this stage. The committee has questioned whether Class A water is OK to be used to top up Mt Barker Creek or if it should be used in a purple line as wastewater. Discussions are ongoing.

A Volunteer community forum was organised by H&FLB & GWLAP. A common concern between groups was around the level of funding support available now and in the future. The H&FLB indicated that revenues will decline in the future due to distribution of levies, therefore funding could become tighter.

Ongoing funding of the ABWMC continues to remain a challenge, however after some negotiation the H&FLB agreed to provide funding to support the IAR and Project Co-ordination costs for the next two years. The M&RLB also kindly offered to fund the administration and operations of the committee through the River Murray levies for the next two years. Combined Landscape Board funding received for the next two years is \$59,080. James highlighted that the IAR is a compulsory part of water licensing and is also included in the WAP, so it is important for the ABWMC to keep doing this report.

James thanked the committee members, Tom Mowbray (H&FLB), Michael Cutting (MRLB), Leah and Keren for their contributions.

4. Summary of 2020/2021 Irrigation Annual Report - Leah Hunter

Leah presented a summary of the 2020/2021 IAR.

Leah thanked everyone who submitted their reports online (77%) and said it was one of the best years yet. 93% of reports had been received by accreditation date.

Analysis of the online data received to date showed that there was an increase in River Murray water usage, a drop in the use of ground water and a slight decrease to recharge volumes. Overall water use was higher than last year due to River Murray water usage. There were five records of flooding during 2020-21 4 in August 2020 and 1 in September 2020. 202ha were flooded. The number of irrigators for different crops has not changed and the area of grapes was similar to that reported last year. No-one reported growing cereal this year.

The final IAR is due out late December 2021.

Leah thanked the committee for their efforts and also the H&FLB and MRLB for their funding support.

James thanked Leah for her presentation.

5. Financial Report – Justin Cleggett, Treasurer

The Annual Financial Report of the Angas Bremer Water Management Committee 2020-21 was presented by Justin Cleggett.

Justin thanked Keren for her efforts.

James thanked Justin for delivering the Treasurers report.

Bremer Waterwatch – Community Water Monitoring update, Jacqui Wilson, Community Engagement Officer, Goolwa to Wellington Local Action Planning Association

Jacqui Wilson, GWLAP delivered a presentation on the Bremer Waterwatch Citizen Science project which included the following points:

- Water monitoring is undertaken on the third weekend of the month by volunteers at over 30 sites within the Bremer Catchment.
- Sites include Bryce Creek, Dawesley Creek, Nairne Creek, Mt Barker Creek, Western Flat Creek, Rodwell Creek and Wanstead Road on the Bremer River. Some of the sites are adjacent to the Nairne and Mt Barker building developments.
- Samples are sent for salinity and turbidity testing.
- Volunteers have access to a database where they can enter weather and other site information.
- Between May 2020 & August 2020 salinity was variable, however in October 2020 was high at many sites except Mt Barker. Between May 2020 & August 2020 turbidity was generally low at all sites except for the one below the Nairne Development area which consistently recorded high turbidity. In October 2020 turbidity was low at most sites but was the highest at Langhorne Creek.
- More volunteers and sites are wanted, particularly upstream and downstream of developments. Contact Jacqui on 8536 5600 if you are interested in volunteering.

Jacqui thanked H&FLB for embracing the project and funding outside of the grant process this year.

James thanked Jacqui for her presentation.

7. Lower Angas Bremer Take Rules – Fact Sheet, Tom Mowbray, Senior Water Planner, Hills and Fleurieu Landscape Board

Tom Mowbray delivered a presentation on the Take Rules for Lower Angas and Bremer Flood Allocations which included the following points:

• The Lower Angas and Bremer (LAB) Take Rules have been put in place to balance the requirements of migrating fish and redgum swamps, with using flood water for irrigation. High flows trigger the movement of native

fish species both from the lake up the rivers and from the rivers down into the lakes, to their breeding sites. These rules give fish time to move up or down the river before weirs are activated and assist in providing a minimum depth of water allowing fish to move.

- The Take Rules for LAB allocations are shown as conditions on water licences that have a 'Taking LABA' allocation and are also detailed in the EMLR WAP. The rules are also explained in the information sheet *Take rules for Lower Angas and Bremer Flood Allocations* being prepared by Hills and Fleurieu Landscape Board.
- LABA allocations may only be taken during a 'flow event', and then only when the flow rate is above the 'threshold flow rate'. A 'flow event' commences once flow at Ballandown Rd reaches the 'trigger level' and ends when the flow rate has been below the 'threshold' flow rate for 20 consecutive days.
- An additional rule applies to LABA allocations taken using in-stream weirs. In-stream weirs may only be operated for a cumulative total of 48 hours during anyone 'flow event'.
- Different trigger levels and threshold flow rates apply to the Angas and the Bremer Rivers.
- The take rule trigger levels and threshold flow rates are based on the water depths at the two Ballandown Road monitoring stations.
- Flow rates are recorded at 5 minute intervals and are uploaded to the Water Connect website on an hourly basis. LABA water licence holders can log on to the Water Connect website to find out whether a flow event has been triggered.

Tom did a demonstration on how to access the Water Connect site to find the flow rates to determine whether the Take Rules can come into effect and also showed some examples as to when flood water could be taken during flow events.

(**NOTE**: subsequent to the meeting, DEW has agreed to create a new web page that specifically shows when LABA allocations may be taken.)

The following questions were raised:

- Could the flow rates be uploaded to Water Connect more often than hourly? Waiting to see the flow rates could reduce the amount of time a flood irrigator could take water.
- If Langhorne Creek receives 'Class A' water, will it affect the fish coming upstream?
 It is not known if nutrients will affect this however excess algal growth can occur where the river finishes. Mt Barker Council monitor nutrients at the Mt Barker end so some data may be available.

Action: Paul Wainwright (H&FLB) to investigate what information is available and report back to the committee.

The following issue was also raised:

- By the time the water gets to the Ballandown Road monitoring stations the flows upstream have often changed and are more of a pulse, reducing the amount of water available to flood irrigators. The further upstream the more exaggerated the pulse is.
 - Action: Tom to investigate this issue further and report back to the committee.

At the end of his presentation, Tom extended the ABWMC APM attendees the opportunity to provide feedback on the Take Rules Fact Sheet.

James highlighted that the discussion circles back to the Take Rules that are in the WAP. The Committee have asked for clarification on this as the WAP is due for review in the near future.

James thanked Tom for his presentation and for tackling some difficult issues. He then presented Tom and Jacqui with a small gift.

8. Election of 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 four positions.

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

Members electing to renominate are: George Borrett and Barry Potts.

There were no new written nominations received prior to the APM.

9. General Business

An email from Sarah Keough, Bleasdale Wines was tabled outlining concerns about the removal of the water monitoring station at the Langhorne Creek Bridge as water height information recorded at this monitoring station is considered valuable during flood events.

This was put to the floor for discussion and it appears that this monitoring station is still required. It would be useful if salinity could be measured as well as water height. The BOM also use this station so discussions are now in place between the BOM and DEW as to who will fund and maintain the monitoring station. Action: Paul Wainwright to follow up and report to the committee at the November 2021 meeting.

The meeting was closed at 8.25pm. Due to Covid19 constraints, no supper was provided this year.

Actions List

Issue	Reference (Meeting, Page No. and Date)	Action by	Status
Will the nutrients in 'Class A' water affect the fish coming upstream to breed?	APM23, p4, 25.8.21	A question was raised as to whether the nutrients present in 'Class A' water affect the native fish coming upstream to breed. Paul Wainwright to investigate what information is available on this and report back to the committee .	New
Take Rules trigger levels affect how much flood water can be taken upstream from Ballandown Road.	APM23, p4, 25.8.21	By the time the water gets to the Ballandown Road monitoring stations the flows upstream have often changed and are more of a pulse, reducing the amount of water available to flood irrigators. The further upstream the more exaggerated the pulse is. Tom Mowbray to investigate this issue and report back to the committee.	New
Reinstatement of water level monitoring station at Langhorne Creek Bridge	APM23, p4, 25.8.21	An email from Sarah Keough, Bleasdale Wines was tabled outlining concerns about the removal of the water monitoring station at the Langhorne Creek Bridge as water height information recorded at this monitoring station is considered valuable during flood events. The BOM also use this station so discussions are now in place between the BOM and DEW as to who will fund and maintain the monitoring station. It would be useful if this monitoring station could be reinstated and salinity could be measured as well as water height. Paul Wainwright to follow up and report back to the committee.	New

Financial Accounts 2020-21

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

FINANCIAL STATEMENTS

FOR THE YEAR ENDED JUNE 30, 2021

"STATEMENT OF FINANCIAL PERFORMANCE"

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 FINANCIAL PERFORMANCE

FOR THE YEAR ENDED JUNE 30, 2021

		:	2021	202	0
INCOME		\$	\$	\$	\$
Grants					
Grants (State) Op-Non Rec	2	20,000.00		0.00	
Total Grants			20,000.00		0.00
Fee for Service					
Fees and Charges - Unrestricted	2	0.00		16,845.00	
Total Fee for Service			0.00		16,845.00
Interest-Unrestricted			1.45	_	1.43
Total Income			20,001.45		16,846.43
EXPENSES					
Advertising & Promotion			212.00		212.00
Bank Fees			6.06		2.50
Client Support Services					
CSS Project Co-ord/Manag		18,090.00		16,362.50	
Total Client Support Services			18,090.00		16,362.50
Computer Expenses			500.00		1,000.00
Insurance			484.65		433.89
Legal Fees			0.00		800.00
Meetings Expense			339.40		319.63
Membership fees paid			45.45		45.45
Postage, Freight & Courier			125.89		207.27
Sundry Expenses			50.00		109.88
Telephone, Fax & Internet Exp			197.55		176.76
Total Expenses			20,051.00		19,669.88
Net Surplus / (Deficit)			(49.55)		(2,823.45)

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

STATEMENT OF FINANCIAL POSITION

FOR THE YEAR ENDED JUNE 30, 2021

	2021	2020
CURRENT ASSETS	\$	\$
Cash at Bank (Unrestricted)	10,460.06	12,426.98
Accounts Receivable	1,650.00	2,029.50
TOTAL CURRENT ASSETS	12,110.06	14,456.48
TOTAL ASSETS	12,110.06	14,456.48
CURRENT LIABILITIES		
Accounts Payable	3,631.24	6,365.75
Accrued Expenses	0.00	175.00
GST Payable	150.00	184.50
Less GST Receivable	(322.85)	(569.99)
GST Clearing	111.00	(289.00)
TOTAL CURRENT LIABILITES	3,569.39	5,866.26
NET ASSETS	8,540.67	8,590.22
EQUITY		
Unexpended Funds as at July 1, 2020	8,590.22	11,413.67
Current Year Surplus (Deficit)	(49.55)	(2,823.45)
Unexpended Funds as at June 30, 2021	8,540.67	8,590.22

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED JUNE 30, 2021

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.

NOTE 2: INCOME

Due to the change from SAMDB NRM Board to Murraylands & Riverland Landscape Board, income in 2021 reverted to being Grant based rather than Fee for Service Based as per 2020. The outputs required by the IAR funding remain unchanged.

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 30/6/21;
- (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 30/6/21;
- (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:

Signed

James Stacey, Chairperson

8/2| Date: Date:

Justin Cleggett, Treasurer 25/8

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, 2021:

- (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: 9 Map

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James Stacey, Chairperson

1917 Date:

Signed: Justin Cleggett, Treasur

Date:

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.											
PROJECT INCOME, EXPENDITURE AND BALANCES											
FOR THE YEAR ENDED JUNE 30, 2021											
Project Name	Balance at June 30, 2021										
ABIRA funds	7,570.30			7,570.30							
Angas Bremer Water Management Committee Funds	1,019.92	1.45	51.00	970.37							
Irrigation Annual Reporting Project	0.00	20,000.00	20,000.00	0.00							
Totals	8,590.22	20,001.45	20,051.00	8,540.67							

Appendix A – **Bremer Waterwatch Snapshot 2020**, Jacqui Wilson from Goolwa to Wellington Local Action Planning Association.



All sites since October 2019

- 30 sites
- Good spread across the catchment
- Some adjacent to development sites in Mt Barker & Nairne
- Also sites on tributaries of the Bremer; Bryce Creek, <u>Dawesley</u> Creek, Nairne Creek, Mount Barker Creek, Western Flat Creek & <u>Rodwell</u> Creek
- One downstream on the Bremer River at Wanstead Rd



May 2020

- 100mm rain in May, most before sampling weekend
- Some dry sites
- Salinity quite variable
 - Impacts of stormwater from urban areas and runoff at some sites lowering salinity
- Low turbidity at most sites
 - Highest at Nairne Creek below development



Nairne Creek: upstream and downstream of development





July 2020

- 100mm rain in June, 50mm in July, little rain in week before sampling weekend
- No dry sites
- Salinity quite variable
 - Impacts of stormwater from urban areas and runoff at some sites lowering EC
- Low turbidity at most sites
 - Highest at Nairne Creek below development & higher in tributaries (muddy puddles)



August 2020

- 119mm rain in August, 50mm before sampling weekend including 33mm one week before
- No dry sites
- Salinity quite variable
 - Impacts of stormwater from urban areas and runoff at some sites lowering EC
- Higher turbidity at many sites
 - Highest at Nairne Creek below development



October 2020

- 78mm of rain in September, 95mm in October,
- Rainfall events (26 and 18mm) a week prior to sampling but little rain in 7 days before
- Salinity high at many sites in catchment lowest in Mt Barker
 - Impacts of stormwater from urban areas
- Low turbidity across all sites
 - Highest at Langhorne Creek
 - No samples from Nairne Creek



Review of sites

- Would be great to have more sites monitored each month
- More sites upstream and downstream of developments
- At least one other site lower in the Bremer above Wanstead Rd, such as at <u>Ballandown</u> Rd



Appendix B – Take Rules for Lower Angas and Bremer Flood Allocations, Tom Mowbray, Senior Water Planner.





