

Angas Bremer Irrigation Management Zone 2018 – 2019 Annual Report



Project Coordinator: Leah Hunter
Angas Bremer Water Management Committee Inc

Supported by



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



Natural Resources
SA Murray-Darling Basin

2018-19 Annual Irrigation Report

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Angas Bremer Water Management Committee

Members 2018-2019

Presiding Member – David Kohl

Treasurer – Michael Clements

Committee Members

George Borrett, Justin Cleggett,
Barry Potts, Ken Follett, Trevor McLean, Michael Cutting,
Dave Hemmings

Non-elected members of the Committee

Secretary – Keren Stagg
Project Coordinator – Leah Hunter

Report of the Activities of the Committee 2018-2019

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 are having on the quality and quantity of the water in the watercourse. The committee raised these concerns with the Rangers to River NRM Group back in September 2018. The Rangers to River Group have agreed to help pursue the groups concern and facilitate a meeting between all involved parties.

In October 2019 the Rangers to River NRM Group held a Local Government Forum on Urban Growth and Catchment Health in the Eastern Mount Lofty Ranges with invited guests only. Three committee members along with the out-going Presiding Member attended the forum on behalf of the Angas Bremer Water Management Committee. Invited guests included representatives from Alexandrina Council, Mount Barker Council, NRM Board Members and Staff, Department for Environment and Water, Department for Planning, Transport and Infrastructure, Water Sensitive SA, Langhorne Creek Grape and Wine and Goolwa to Wellington Local Action Planning Association staff.

The purpose of the meeting was to foster a shared understanding and promote collaborative discussions across councils, NRM and key community stakeholders about:

- the nature and extent of urban development and associated controls in the Eastern Mount Lofty Ranges (EMLR) as they relate to catchment health;

- the state of knowledge re catchment health and the nature of current and future downstream impacts (including identification of knowledge gaps).
- Possible options (and constraints) for monitoring and improving stormwater management and catchment health in the EMLR.

David Kohl provided a short presentation on concerns that had been raised by irrigators and residents of the Langhorne Creek region. The Angas Bremer Water management Committee are waiting for the minutes and next steps to be passed on from the Forum.

The committee are still focussed on this issue and will continue to pursue the regions concerns and what steps can be taken to improve knowledge of possible causes and to help push solutions.

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.

The Angas Bremer Water Management Committee along with Langhorne Creek Grape and wine Inc. and NRM SAMDB held a Water and Climate free information Session in May 2019. The information presented included an update on the Status of the Angas Bremer Underground Resource and Climate Projections for the next 6 to 12 months. Guest presenters were Steve Barnett, Principal Hydrogeologist with the Science, Monitoring and Information Division of the SA Department for Environment and Water, Saeed Ghaderi, Hydrogeologist with the Water Science and Monitoring Branch of the SA Department for Environment and Water and Darren Ray, Senior Meteorologist from The Bureau of Meteorology.

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. 121 irrigators who returned their completed forms to the Angas Bremer Water Management Committee on time have achieved "Accredited Irrigator" status. Online submissions were back up this year with 98 irrigators reporting online, 13 irrigators did not respond/ provide data and did not achieve accreditation. The data from 121 irrigators (90 %) has been collated and that data is presented in the following graphs and tables.

Flooding: Flooding by diversion or pumping was reported by 3 irrigators. Flooding was recorded in August 2018. 278 hectares was recorded as being flooded this year, much lower 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: 110 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. Red gums were generally noted to be once again in relatively good health. 33 irrigators reported 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. 6 irrigators listed their red gums as getting worse this year and 6 irrigators listed their red gums as getting better.

Water Leasing: Table 1 below shows the amount of water leased in 2018-19 compared with water leased in previous years. Overall, more water was leased by irrigators this year than last. The amount of River Murray water leased out to Outside Irrigators decreased by only 9.6ML and the amount leased in from irrigators outside of the Angas Bremer Irrigation Management Zone increased dramatically by 4560ML. The volume of River Murray water leased to other irrigators within the Angas Bremer Irrigation Management Zone is lower than last year with eight leases reported. For the last five years no reports of leased groundwater within the zone were received.

Table 1: Water Leasing

Type of Lease	Megalitres 2016-2017	Megalitres 2017-2018	Megalitres 2018-2019
RM water leased from ABIMZ to outside ABIMZ	2187.00	1963.60	1954.00
RM water leased from outside ABIMZ to inside ABIMZ	1681.48	1943.00	6502.68
RM water leased from inside ABIMZ to inside ABIMZ	10.00	418	289

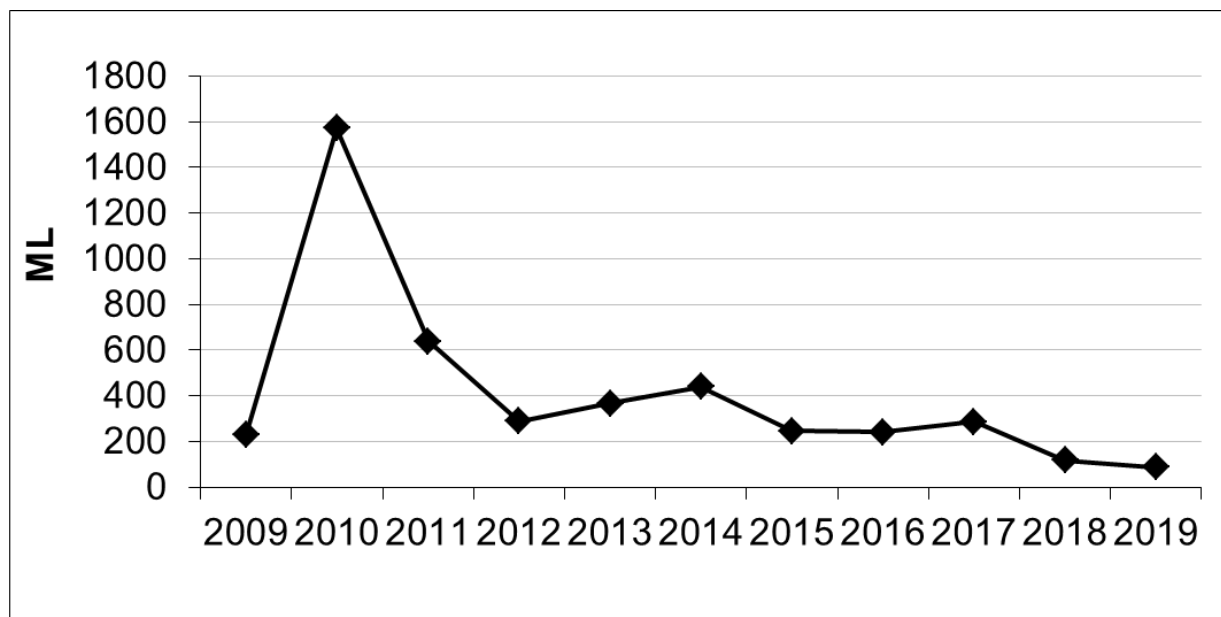


Figure 1: Angas and Bremer Rivers Water Extractions 2009-2019: Not all of the water taken from these rivers, such as the water diverted through weirs and sluices, is accounted for in this chart. The volumes on this graph are metered volumes from irrigators with meters installed, as well as the amount recharged into the aquifer from these rivers, as reported on the Irrigation Annual Reports. The amount of water that was recorded as having been extracted from these rivers is lower than previous years including 2009.

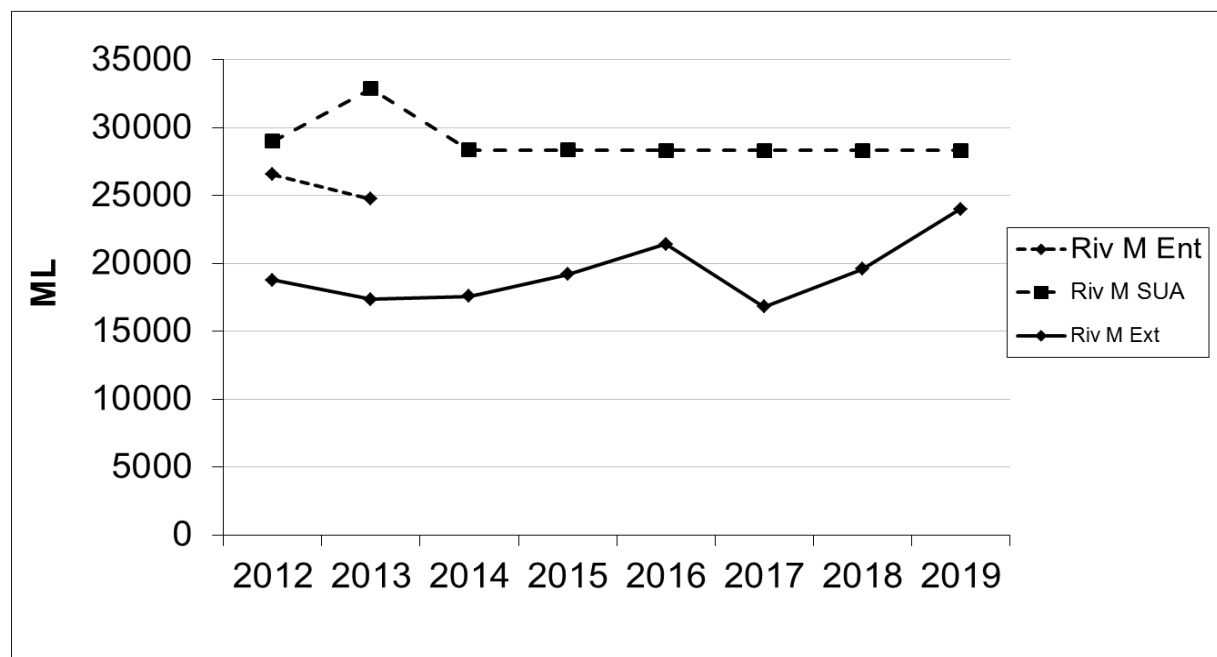


Figure 2: River Murray Water Entitlement, Site Use Approval and Extraction 2011-2019: Entitlement (RivM Ent) is the volume of water endorsed on licenses and does not include any credits for rollover, recharge etc. The River Murray Site Use Approval (RivM SUA) is the maximum quantity of River Murray water that can be used for irrigation on land identified as being in the Angas

Bremer Irrigation Management Zone in 2018-2019. Extraction (RivM Ext) is the volume of water that was used during the irrigation year. As Site Use Approval volumes give a more accurate description of the amount of water that could potentially be used in the region, it is now being recorded on the charts instead of the Entitlement volume. The total Site Use Approval volume for 2018-19 remained at 28,382 ML, and the recorded use was 24,019, higher than the 19,578 ML last year.

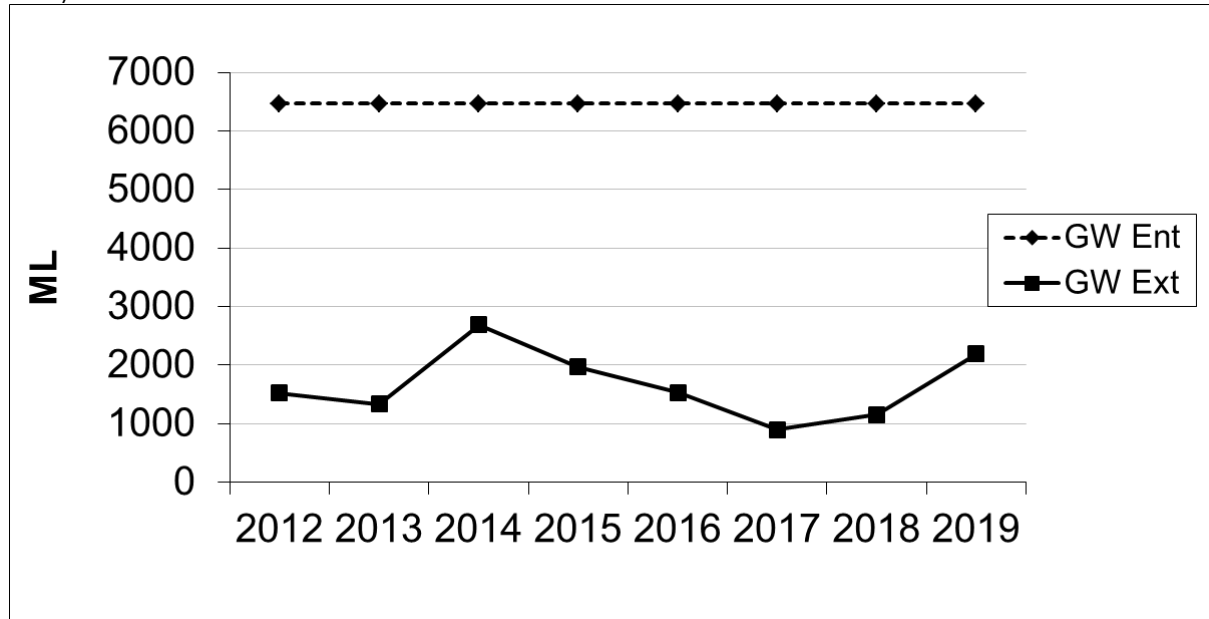


Figure 3: Groundwater Entitlement and Extraction 2012-2019: The maximum entitlement for 2018-19 was 6,500ML and the recorded use was 2,192 ML more than the volume of 1,154 ML used in the previous year. This is much lower than the 7,700 ML used during the “Millennium Drought”.

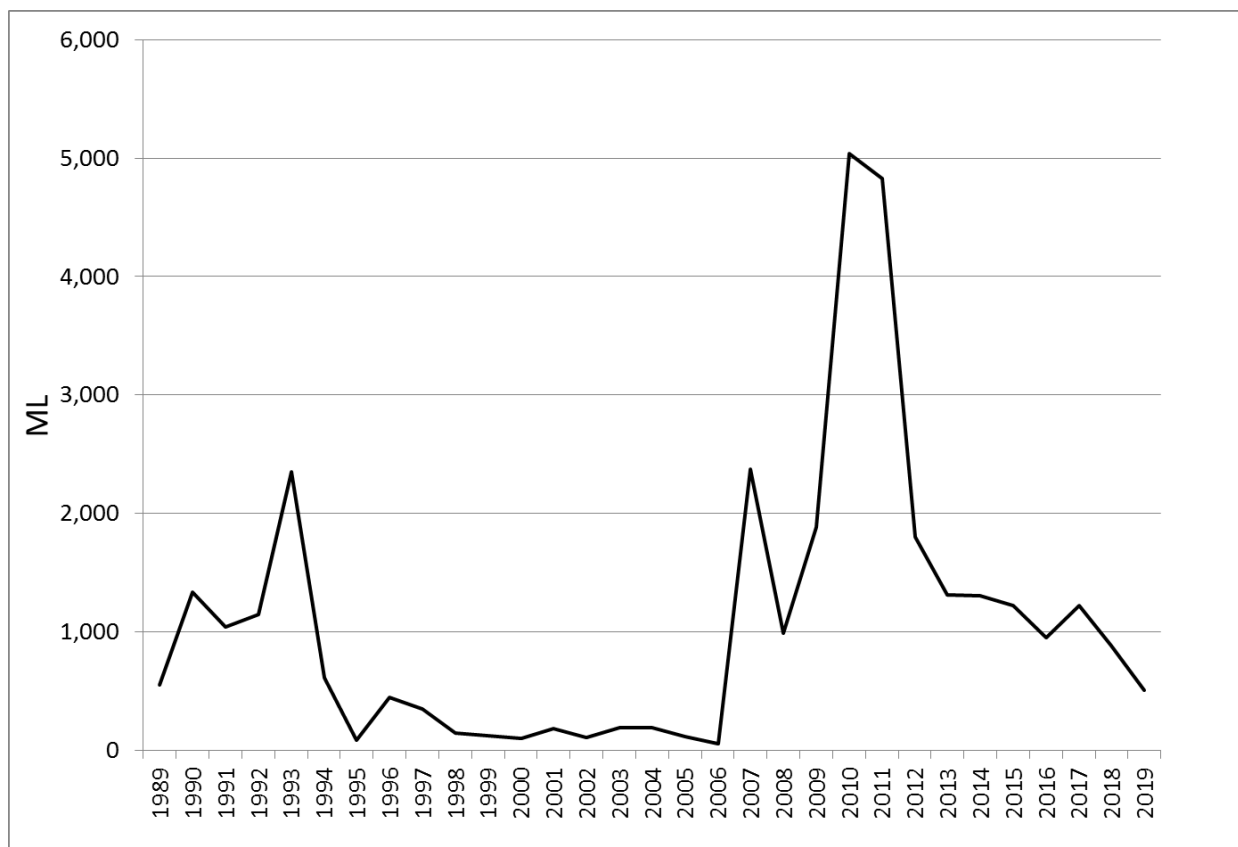


Figure 4: Managed Aquifer Recharge (formerly termed Aquifer Storage and Recovery (ASR)) : This chart shows the total volume of water artificially recharged to the aquifer from 1987 to 2019. The **510 ML** recharged from the Angas, Bremer and Murray rivers in 2018-2019 was lower than last year's volume and still substantially lower than the record levels achieved in 2010.

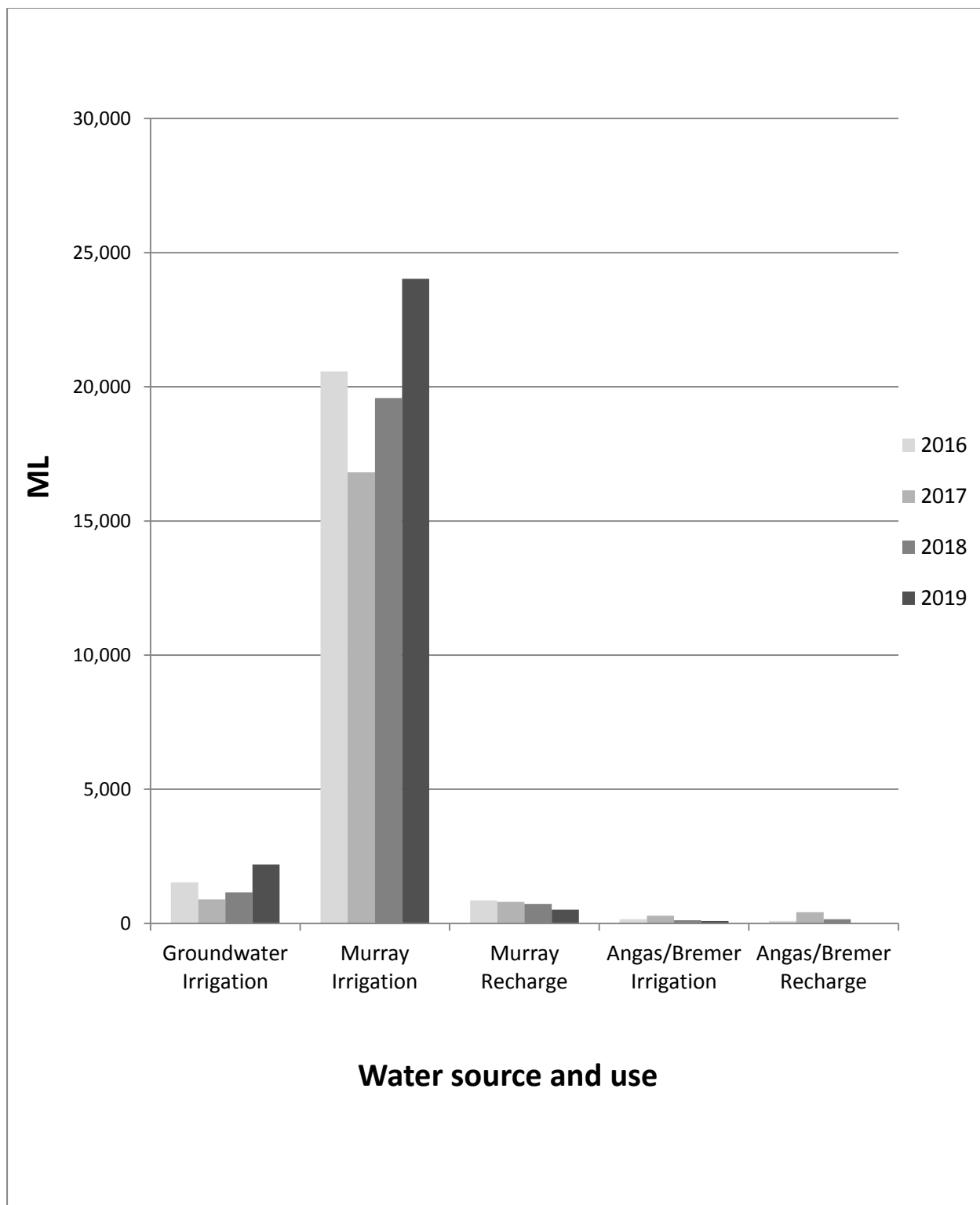


Figure 5: Total volume of water used 2018-2019: The total volume of water extracted from all sources within the region over the 2018-19 year was **26,809 ML**, which is higher than the previous year, 2017-2018 = 21,736, 2016-17 = 19,216ML , 2015-16 = 23,205 ML but this increase may also reflect the increase in reports received.

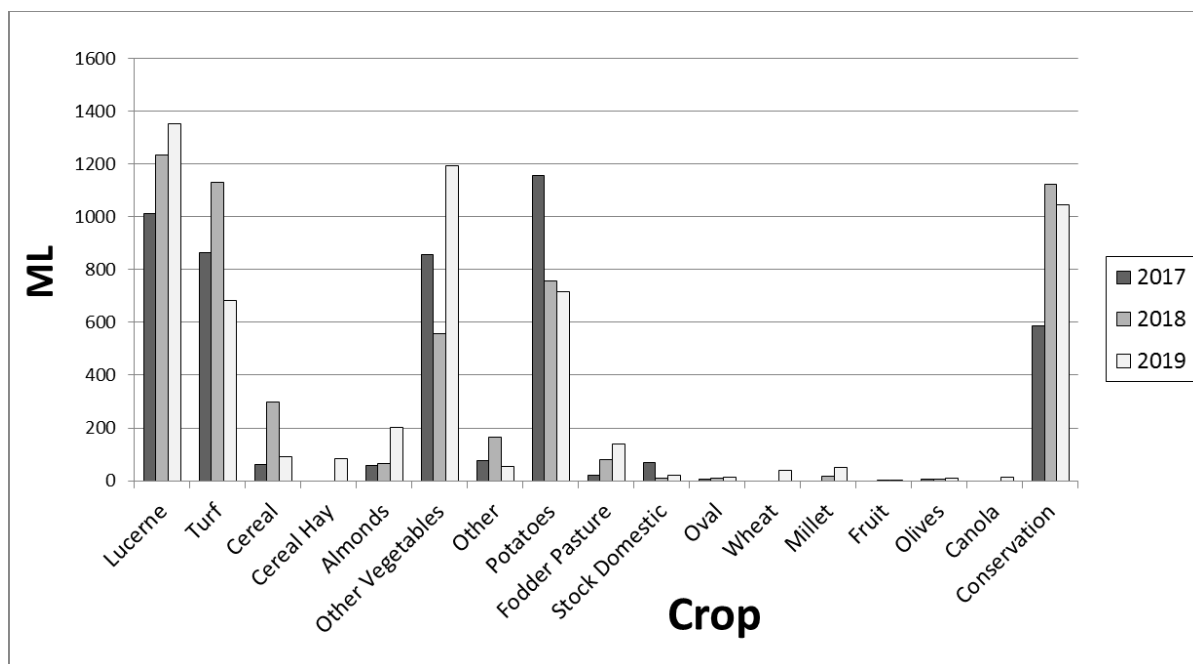


Figure 6: Total volume of water used for each crop type: This volume is the total used from all sources; groundwater, Angas/Bremer water and River Murray water that was applied to each crop type (grapes excluded). **The total volume of water applied to grapes was 16,418ML in 2018-2019, increasing from last year's 14,819 ML. This may also be due to increased reports received.**

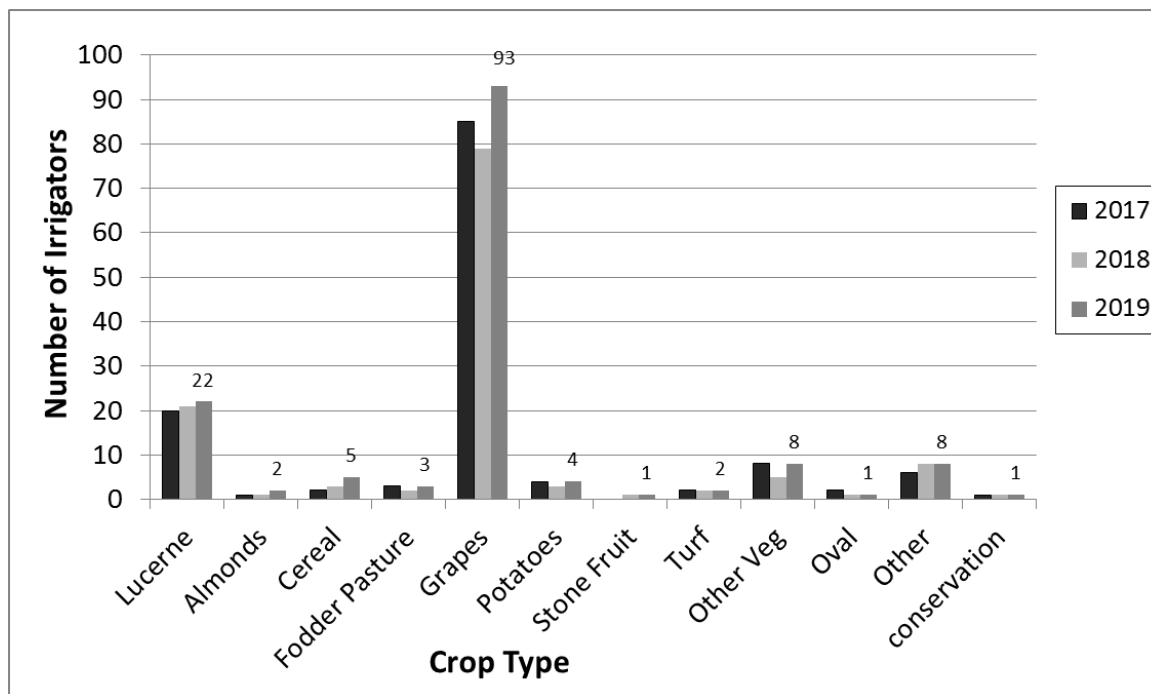


Figure 7: Number of Irrigators for Each Crop Type: The number of irrigators growing each crop type in the region appears to have remained relatively stable except for Other Vegetables, cereal and Grapes which have increased (This may be due to an increase in returned Annual Irrigation Reports).

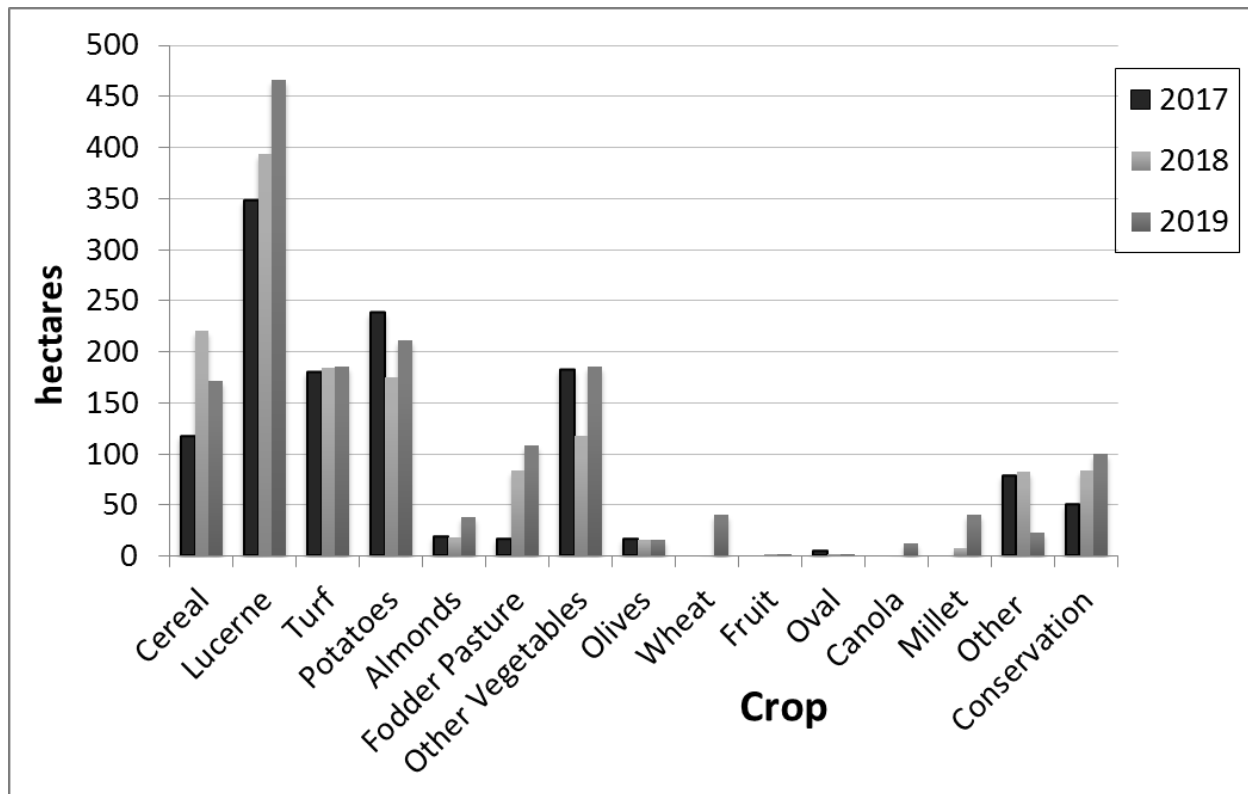


Figure 8: Area Irrigated by Crop Type: The area of each crop irrigated is shown in hectares. **The area of grapes irrigated in 2018-19 was 5,892 ha, higher than the 5,407 ha recorded last year.** The total area under irrigation in 2018-19 was 7,489 ha, which is higher than the 6,792 ha recorded last year.

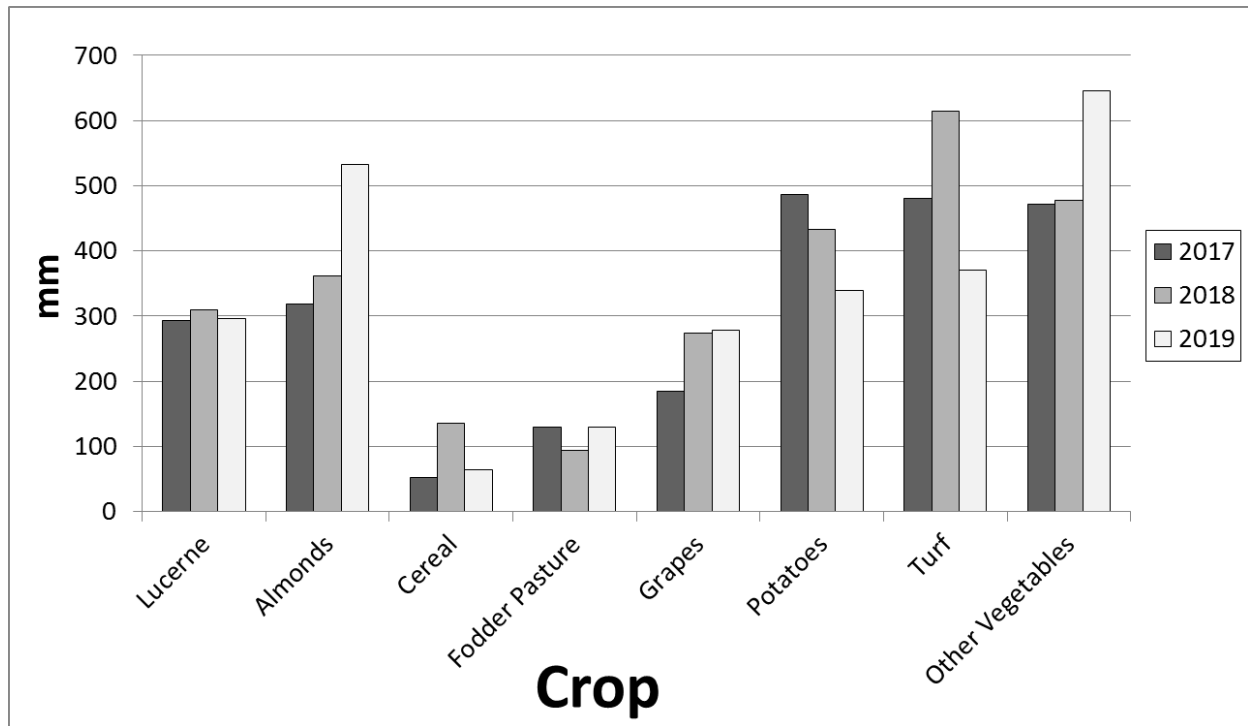


Figure 9: Average total irrigation rate for the year by crop type: Irrigation is shown in mm for 2016-17, 2017-18 and 2018-19.

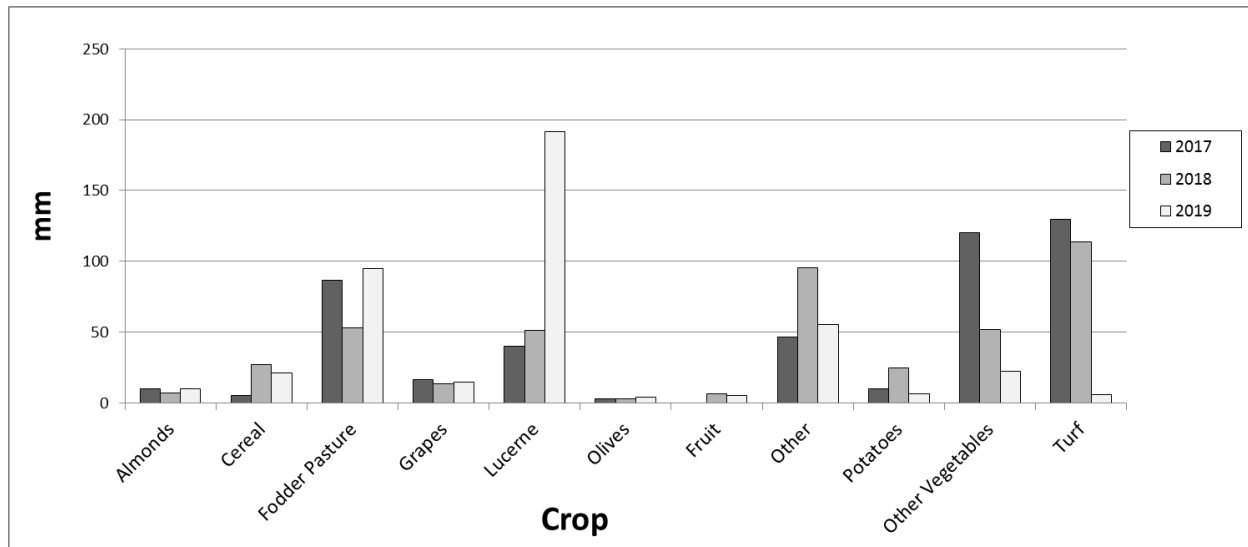
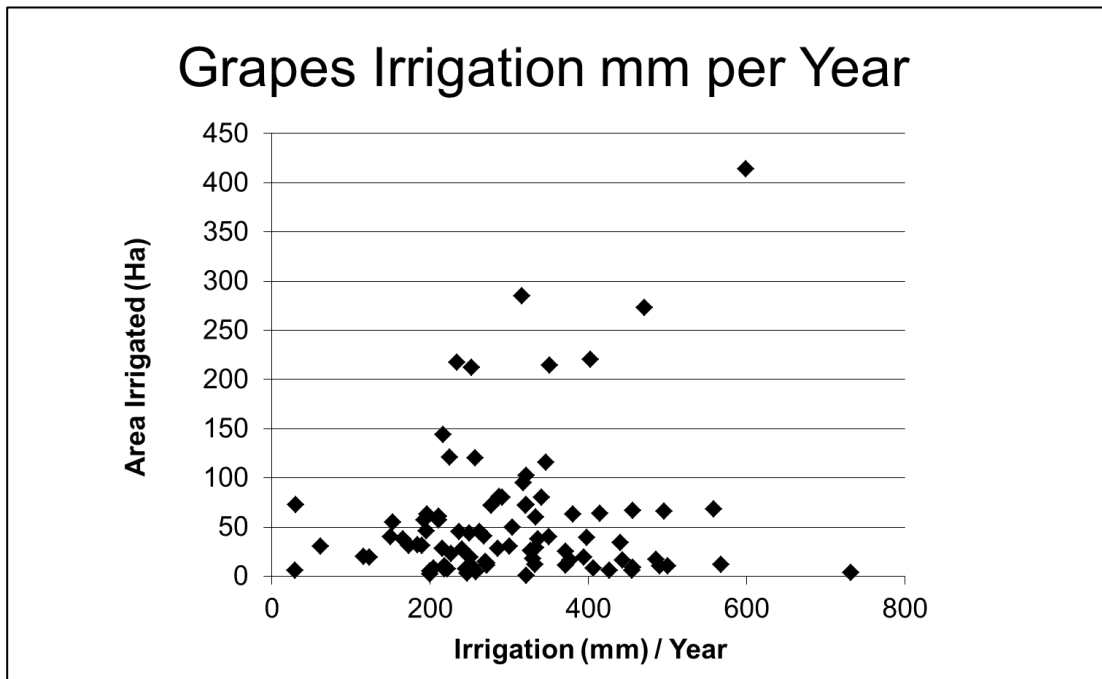
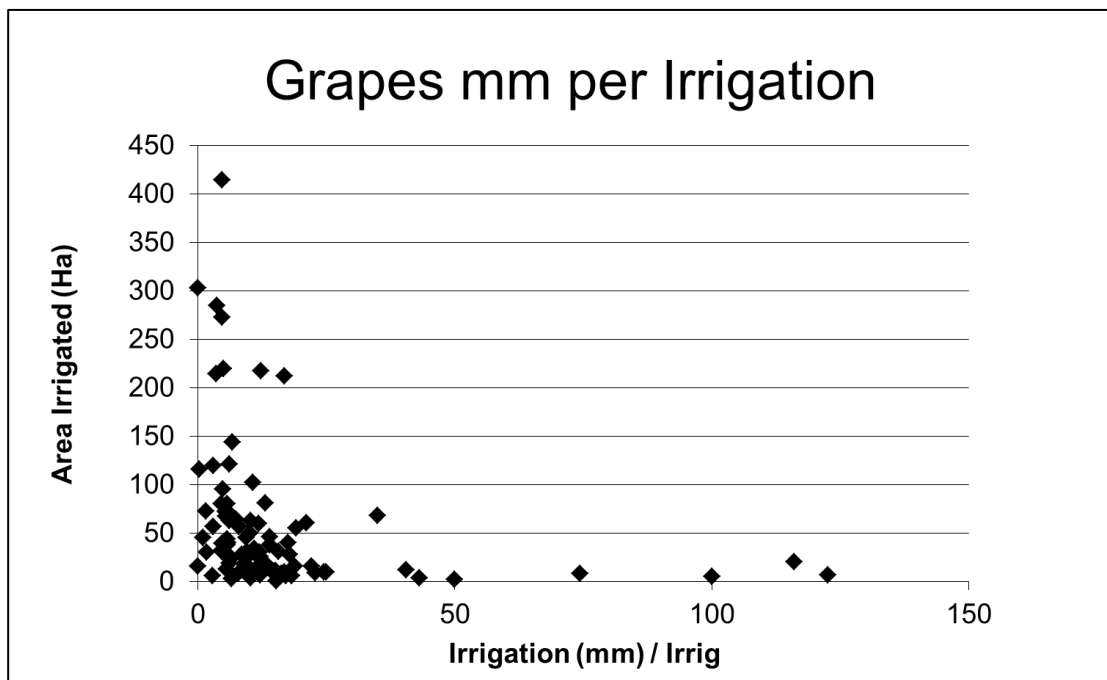


Figure 10: Average mm of water applied per irrigation for each crop type for the last three years.

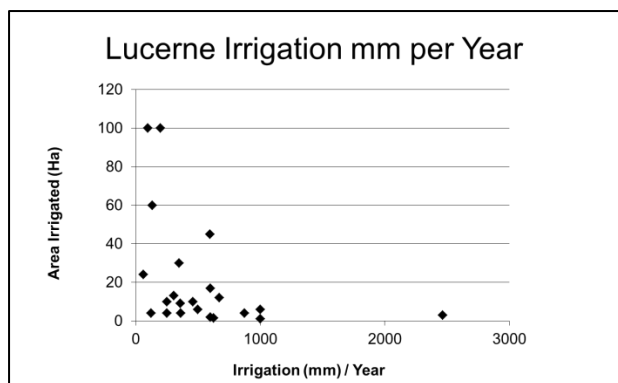
Figures 11-14: These charts show the irrigation rate per property for the more common crops. **For each crop one chart shows (a) the mm per year and (b) the mm per irrigation.**



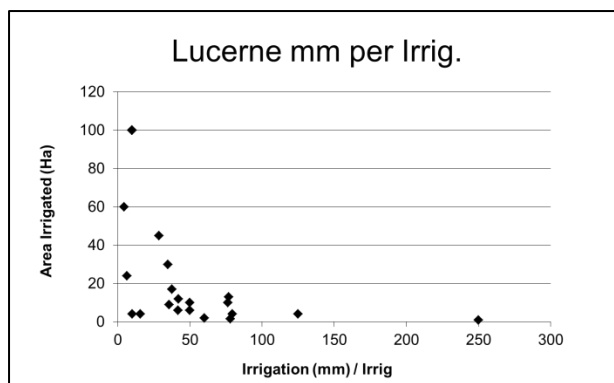
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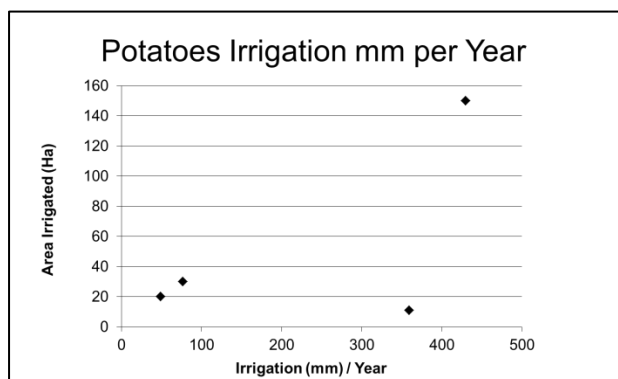
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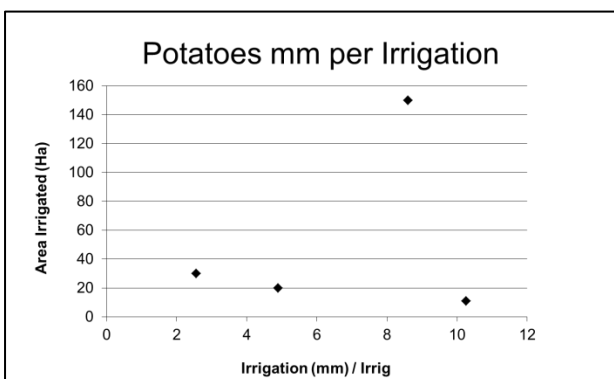
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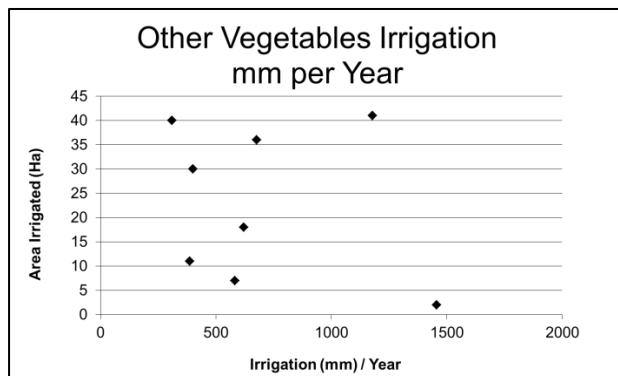
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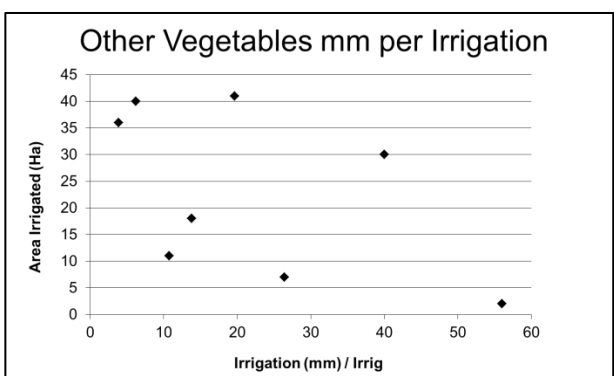
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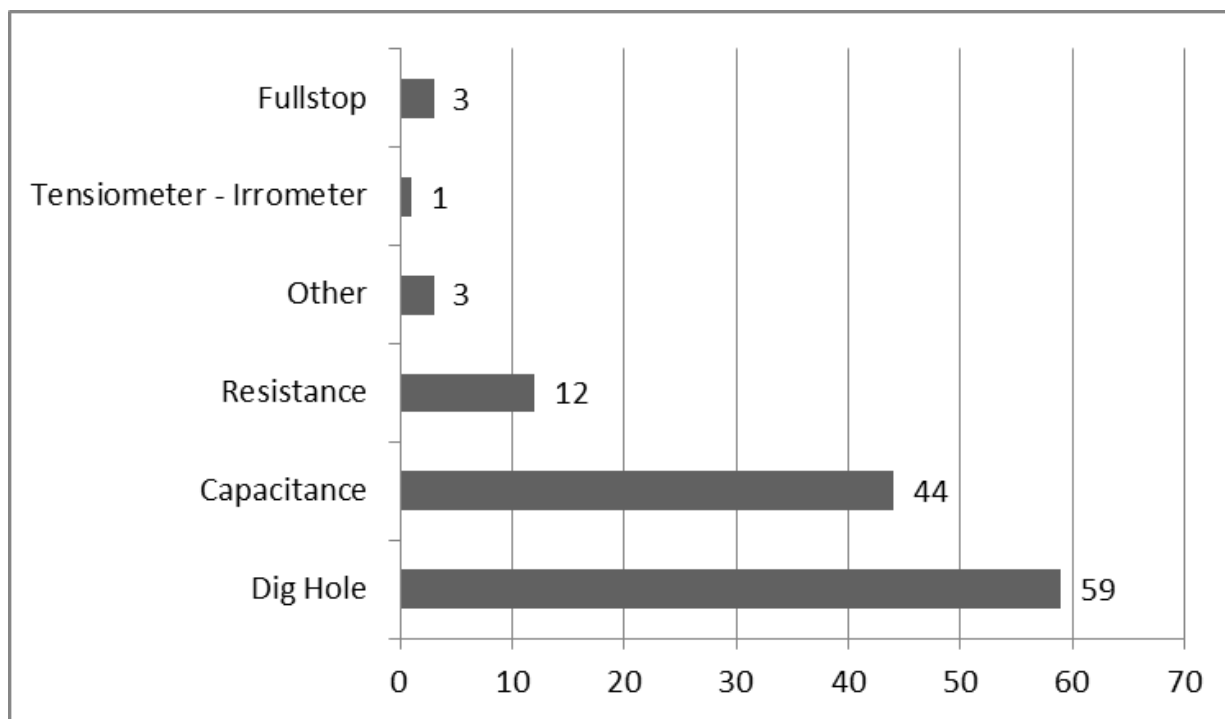


Figure 15: Number of growers using Soil Moisture Monitoring devices in 2018-19: "Resistance" includes Gypsum Blocks. "Capacitance" includes Agwise soil moisture probes, Agrilink C probe, Dataflow Gopher, Sentek Diviner and Sentek EnviroSCAN. "Dig hole" includes Dig stick, spade, auger and post hole digger.

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 2019 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
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

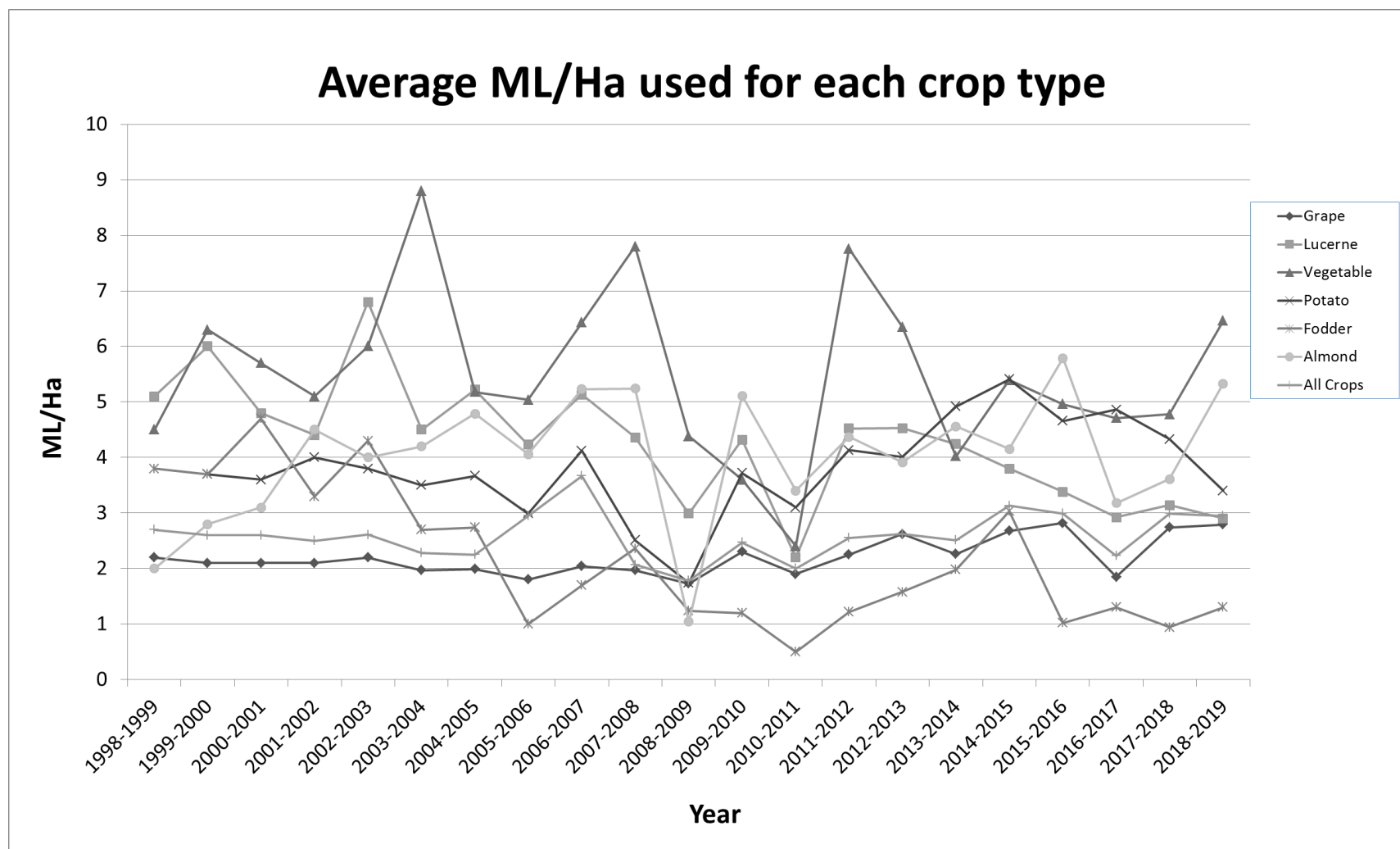


Figure 16: Average ML / ha used for each crop type

Table 3: ML used and ha irrigated comparison chart:

	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	22,125	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	7,489	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	16,418	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	5,892	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	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	466	393	348	384	439	341	402	327	170	152	109	155	280	325	343	354	376	471	429	418
Veg ML	1,194	559	856	963	964	580	610	877	193	36	57	179	373	363	638	605	647	651	769	761
Veg ha	185	117	182	194	179	144	96	113	81	10	13	23	58	72	123	69	108	103	134	121
Potato ML	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	211	175	238	203	229	218	307	311	179	86	75	54	291	392	348	360	394	425	490	485
Fodder ML	141	79	21	76	109	107	90	78	22	47	32	53	222	144	505	399	752	316	742	358
Fodder ha	108	84	16	74	36	54	57	64	43	39	26	23	130	144	184	146	173	97	157	96
Almond ML	202	65	57	104	166	187	180	188	148	225	193	231	251	195	230	203	188	246	172	164
Almond ha	38	18	18	18	40	41	46	43	43	44	44	44	48	48	48	48	47	55	55	58
Other crops ML	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	589	598	444	480	503	573	558.5	501	206	276	282	505	906	588	936	443	777	583	533	777

Charts of Standing Water Level and Salinity in Unconfined and Confined Aquifers

Figure 17: Murray Group Limestone aquifer water levels 2015-2019

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 2015–2019, 28 monitoring wells show rising and four show stable groundwater pressure levels. The rate at which pressure levels in the 28 wells increased over the five-year period ranged between 0.03 and 0.32 m/y with a median of 0.13 m/y.

Figure 18: Long-term water levels for selected monitoring wells

Graphs of long-term 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 increases in pressure levels are mainly attributed to managed aquifer recharge operations in the area. Additionally, since 1992, groundwater extractions have decreased significantly due to the increased use of alternative surface water sources.

Figure 19: 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 the groundwater resource has limited use. The latest water level monitoring in October 2019 shows the watertable is more than 3 m below ground surface across the area with the exception of areas adjacent to Lake Alexandrina where the watertable is naturally shallower than 3 metres.

Figure 20: MGL aquifer salinity distribution (2019)

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 2019, from 49 water samples collected from irrigators across the area, 59% of salinity monitoring wells recorded salinities in the range of 1500 to 3000 mg/L which is considered to be above the salinity tolerance level for grapevines. Of the remaining salinity samples, 31% recorded salinities of less than 1500 mg/L which is mainly the result of managed aquifer recharge operations.

Figure 21 & 22: MGL aquifer salinity 2015-2019

Salinity monitoring for the period 2015 – 2019 shows stable or decreasing salinity levels in the 8 wells with available data. The decreases in salinity are mainly due to aquifer freshening as a direct result of managed aquifer recharge operations. Wells that currently have five years of salinity data are generally located adjacent to Angas and Bremer Rivers where most of the groundwater extraction occurs. Irrigators from across the area are encouraged to participate in the annual groundwater sampling program, so the long-term status of the resource as a whole can be investigated.

Ground water data can also be accessed via the WaterConnect website located at www.waterconnect.sa.gov.au. This website will let you view and download groundwater level and salinity data in the Angas Bremer area.

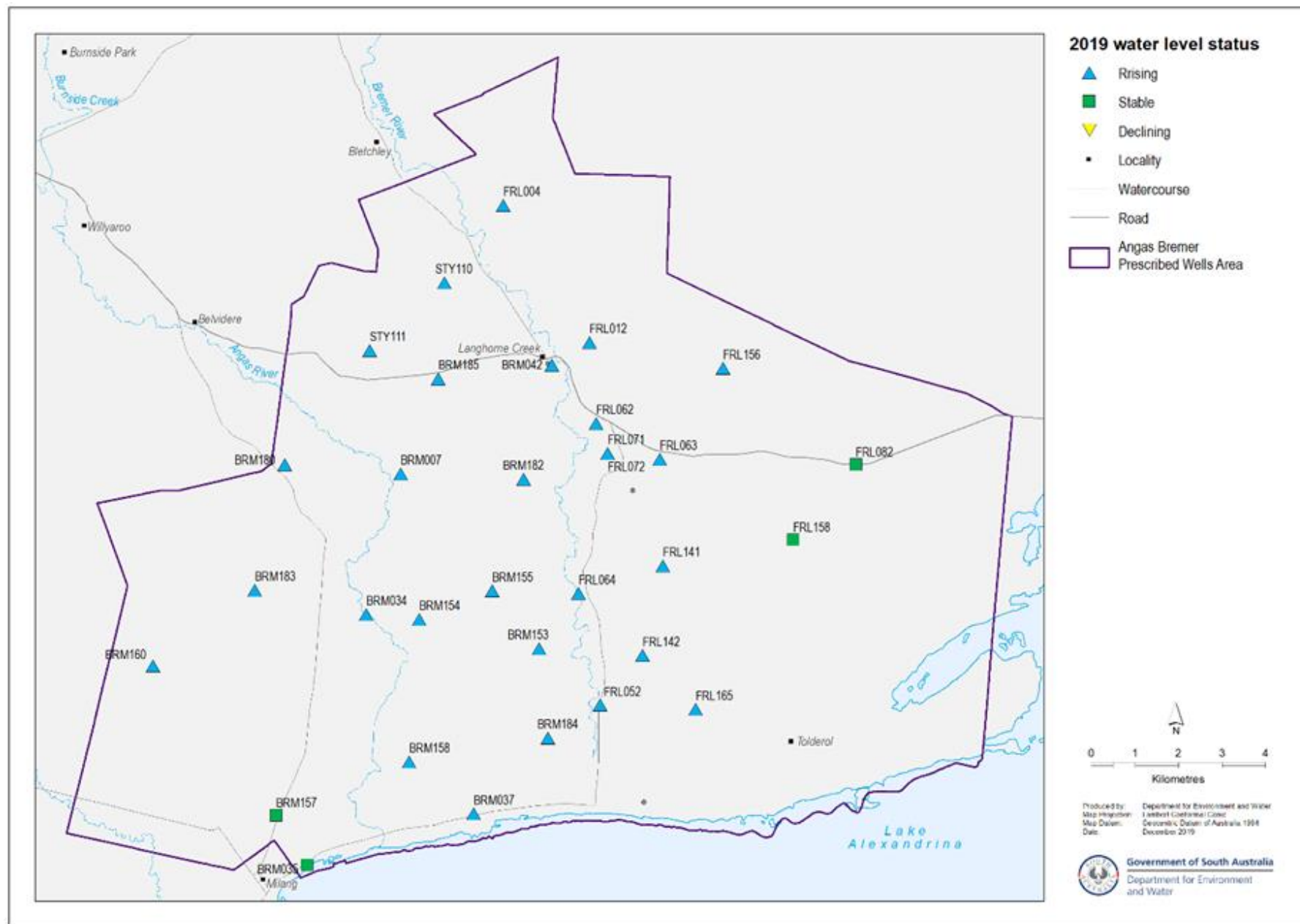


Figure 17: Murray Group Limestone aquifer water levels 2015-2019

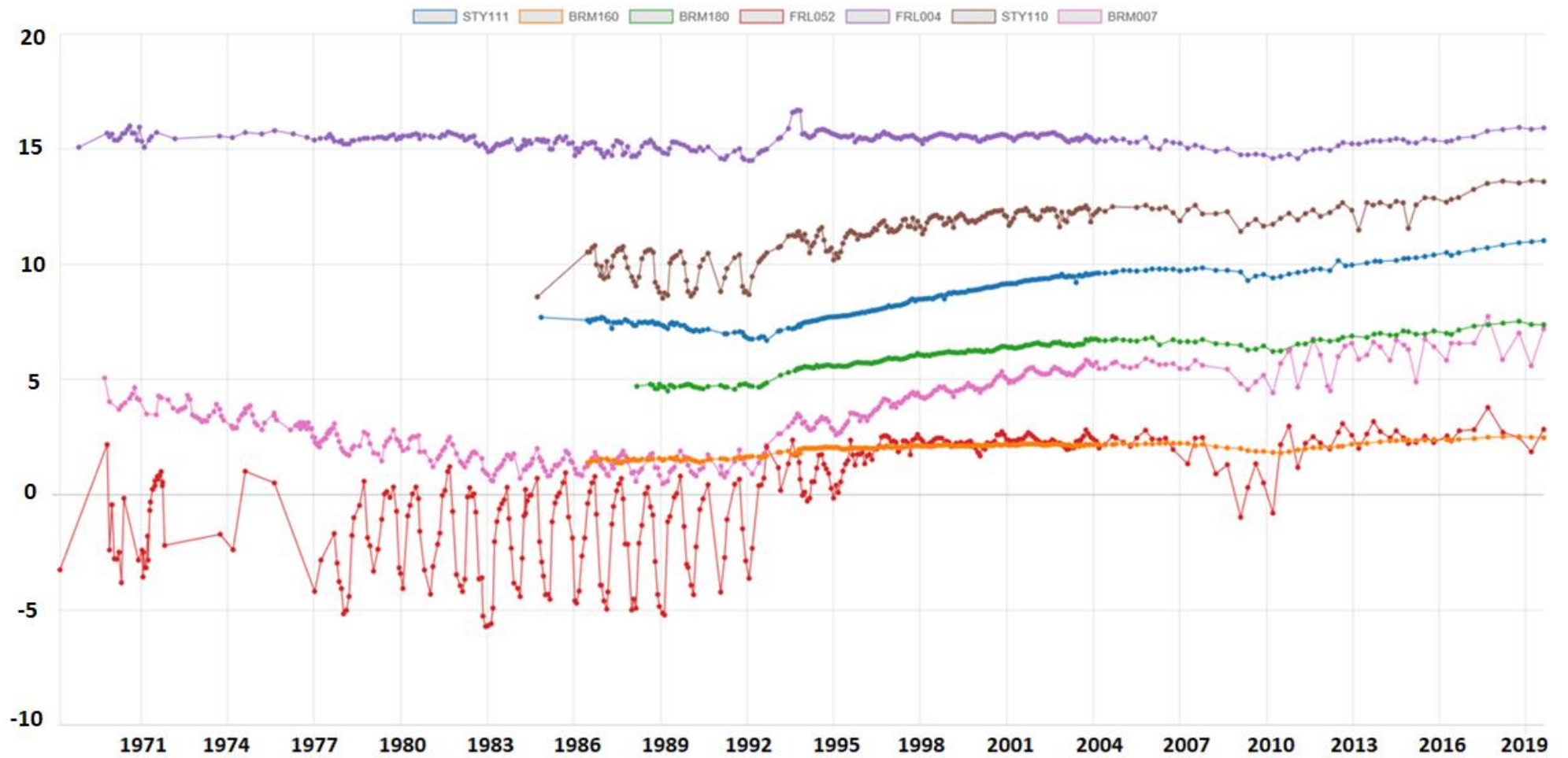


Figure 18: Long-term water levels for selected monitoring wells

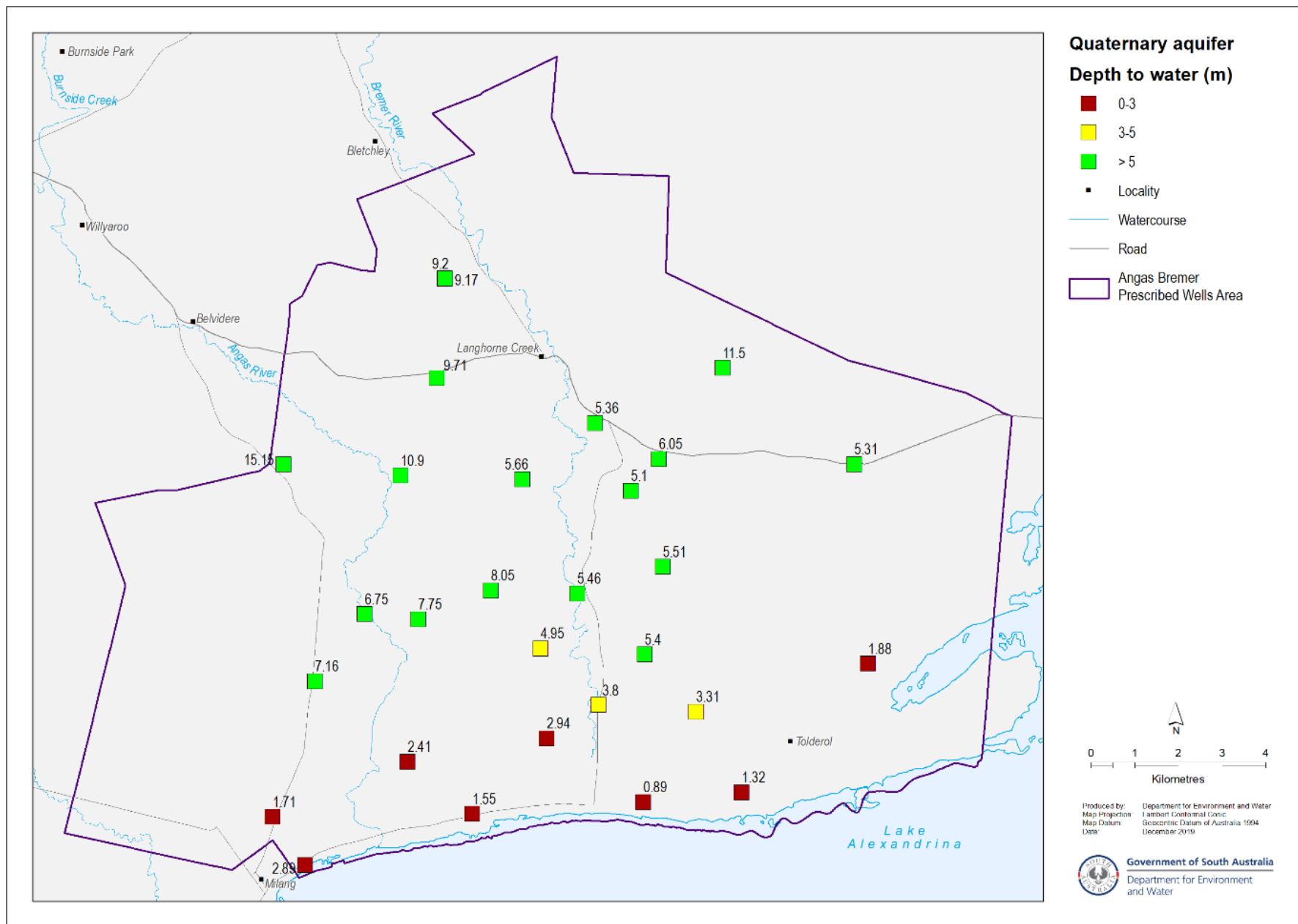


Figure 19: Current quaternary aquifer water levels (m)

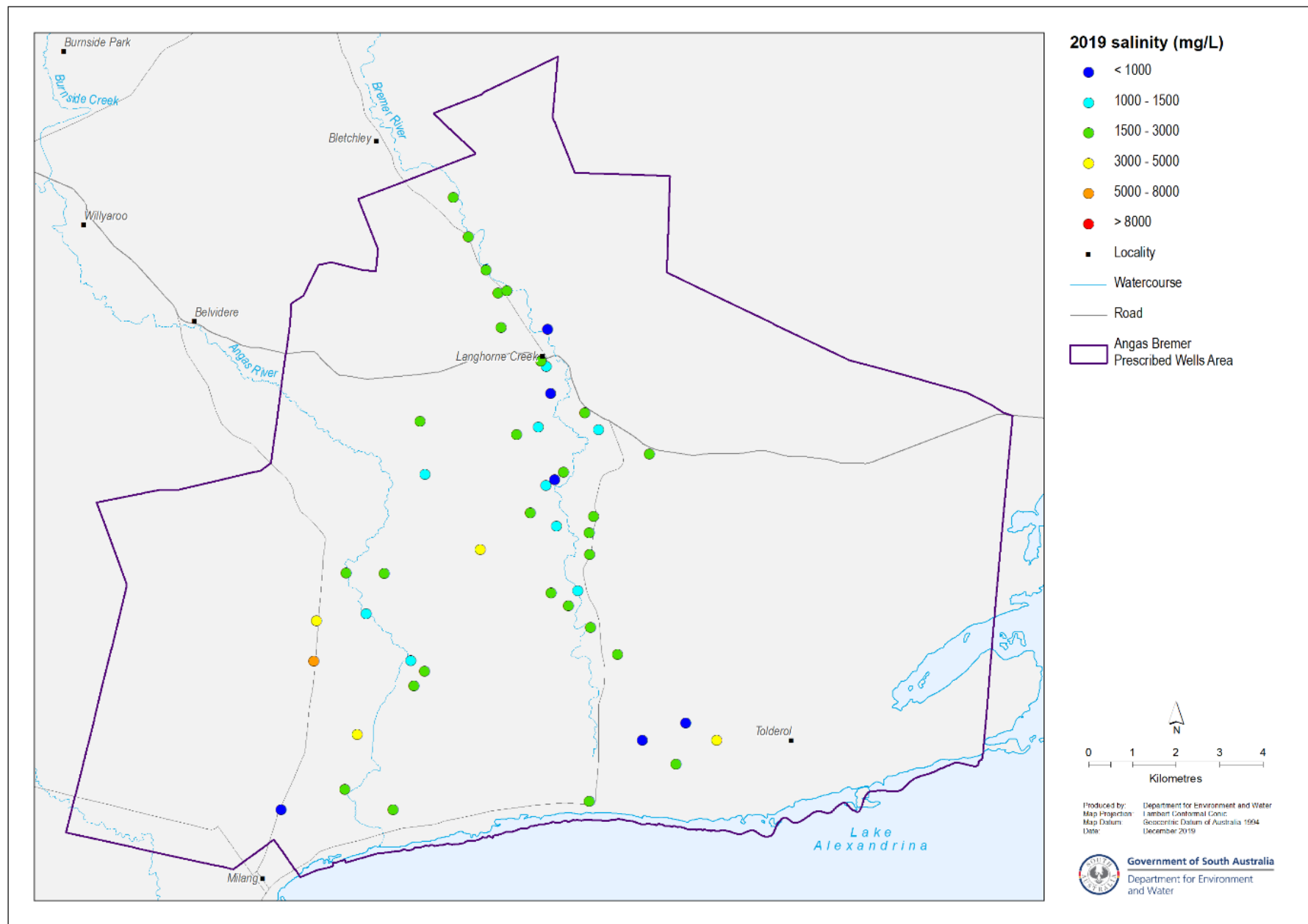


Figure 20: 2019 salinity distributions for Angas and Bremer Rivers (mg/L)

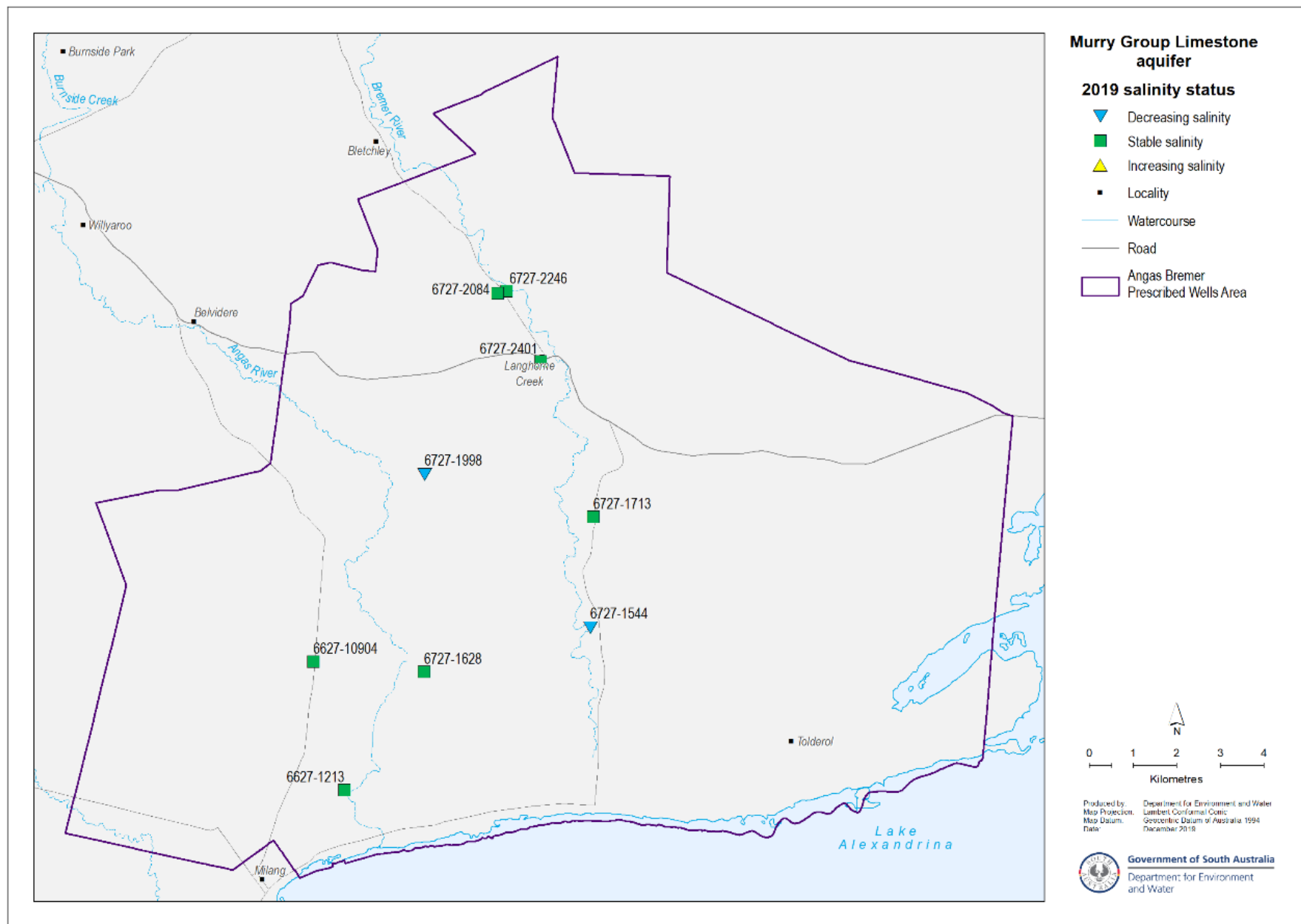


Figure 21: Murray Group Limestone aquifer salinity 2015-2019

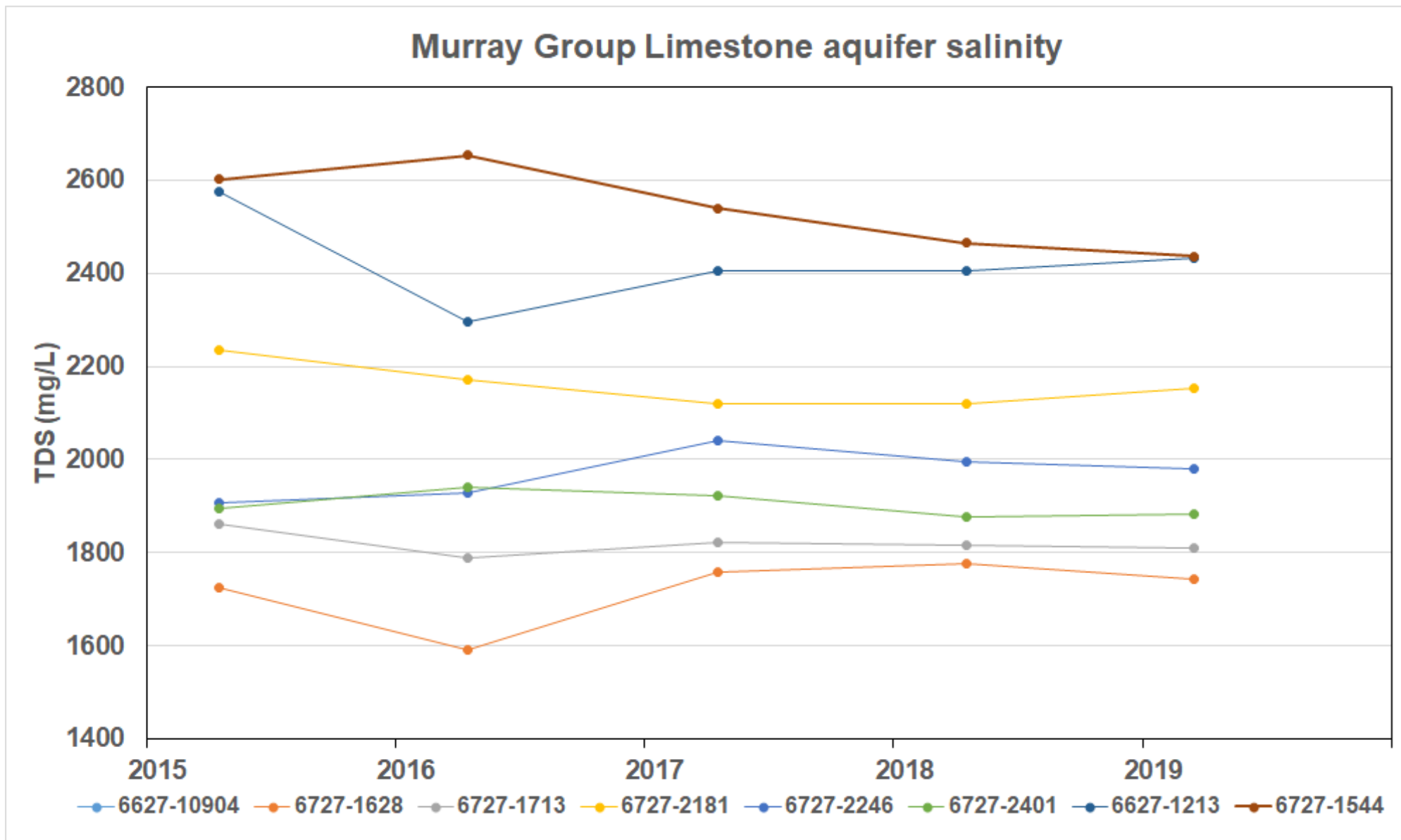


Figure 22: Murray Group Limestone aquifer salinity 2015-2019 including Total Dissolved Solids (mg/L)

Langhorne Creek Weather Station Statistics

Michael Cutting, Natural Resources SA Murray Darling Basin

2018/19 Seasonal Summary:

As shown in Figure 23 286.8mm of **rainfall** was recorded during the 2018/19 water use year (July – June) at the Langhorne Creek Central (Lake Breeze) weather station site which was less than the 339.6mm recorded in 2017/18.

The 2018/19 **evapotranspiration (ET)** figure of 1,127.5mm was higher than the 2017/18 total of 1,090.1mm.

While not presented here the average annual rainfall recorded at the Langhorne Creek Central site over the past 10 seasons has been 358.2mm and the average annual ET for the same period 1,157.3mm.

Rainfall & ET figures produced an **evaporative deficit (ET - rainfall)** of 840.7mm for the 2018/19 season which was an increase from the 2017/18 figure of 750.5mm.

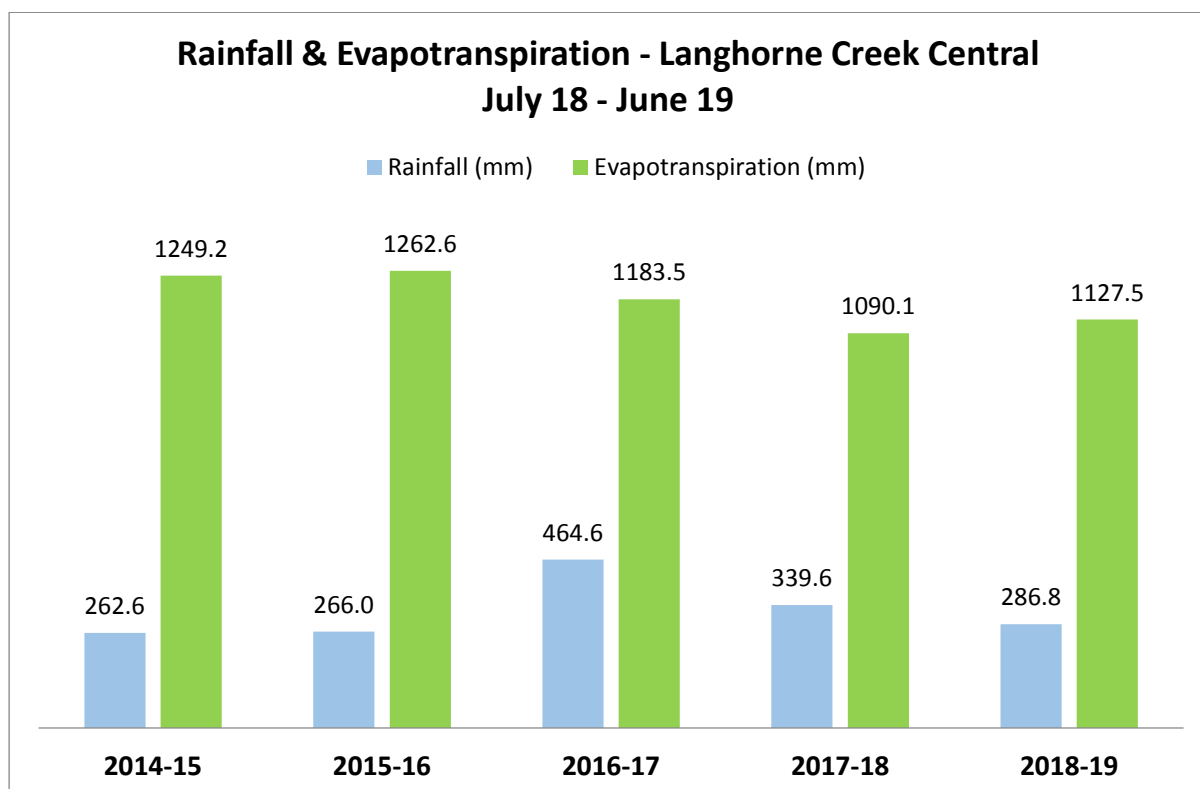


Figure 23: 2018/19 Rainfall and Evapotranspiration – Langhorne Creek Central

The highest **daily maximum temperature** for 2018/19 of 46.2C was observed on the 24th January 2019 which was a day on which many new maximum temperature records were recorded across SA. The **minimum daily temperature** of -3.7C was recorded on the 22nd June 2019.

The highest **daily evapotranspiration** figure occurred on the 24th January 2019 when 8.7mm was recorded which not surprisingly coincided with the maximum daily temperature observation.

The **highest daily rainfall** total observed in 2018/19 was 28.8mm which was recorded on the 10th May 2019. This was after the daily maximum rainfall figure had been recorded during Summer for the previous two seasons.

Monthly rainfall distribution for the 2018/19 season is shown in Figure 24 below. For comparison purposes mean monthly rainfall at the Langhorne Creek Post Office site (BoM) is presented in Figure 25 noting that this is a long term data record (commenced 1889). The average annual rainfall total over that period for the Post Office site is 388.1mm.

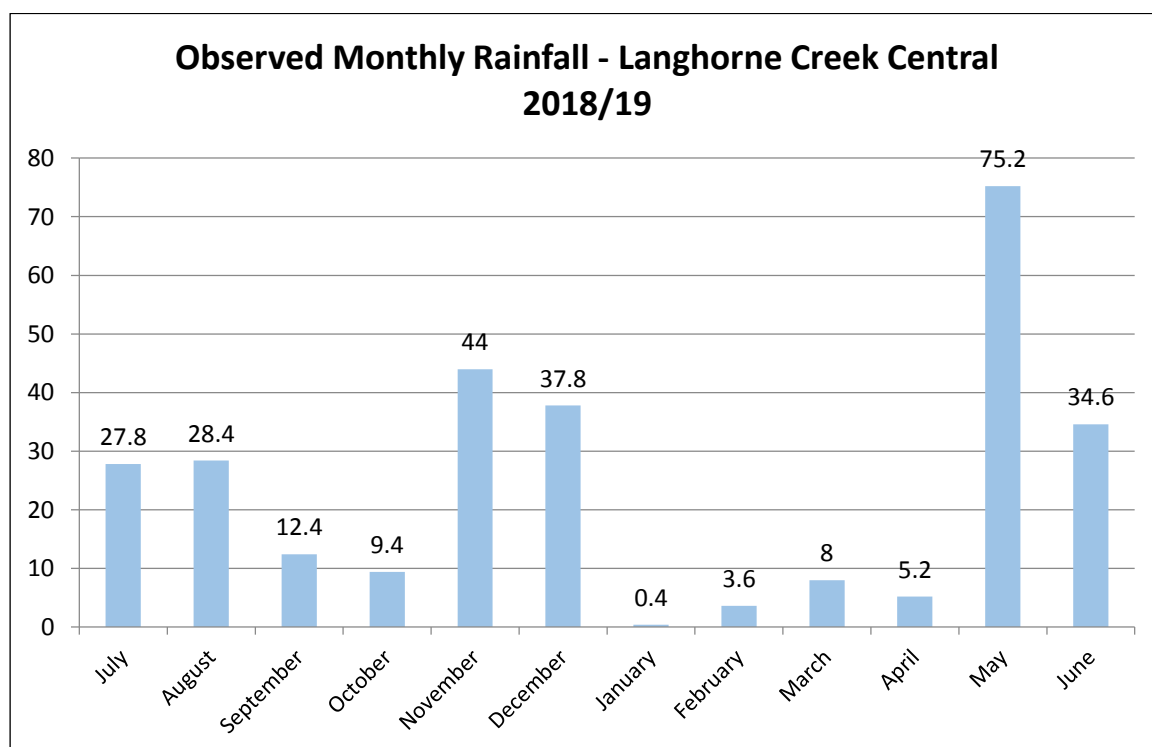


Figure 24: Monthly Rainfall Totals within the Langhorne Creek District

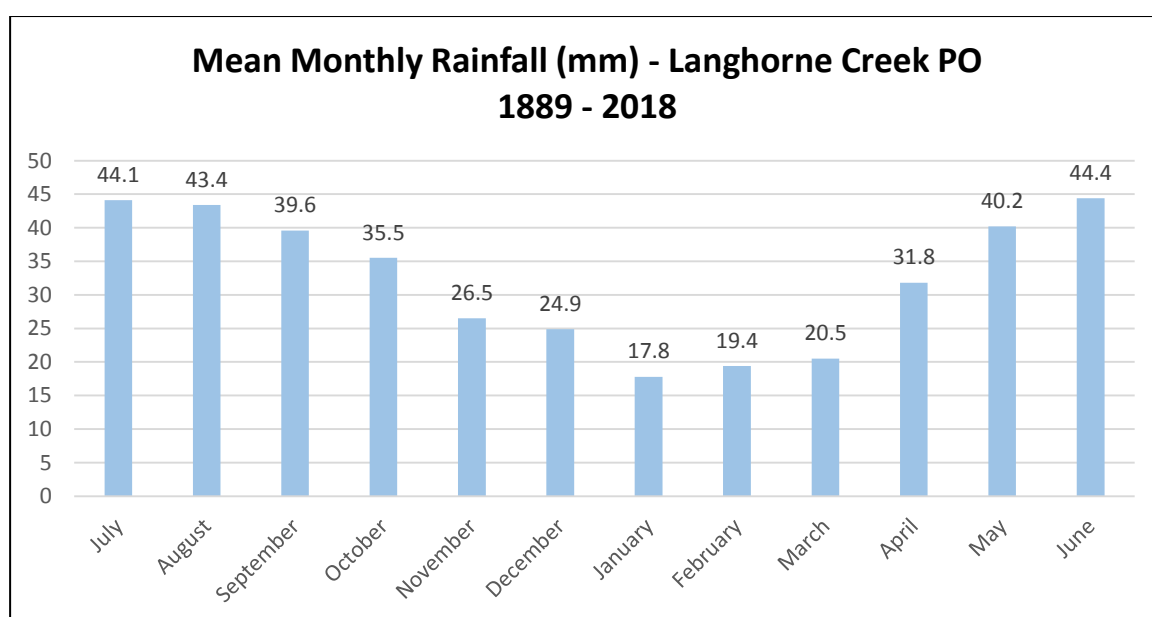


Figure 25: Mean Monthly Rainfall Totals – Langhorne Creek Post Office (BoM)

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

Wednesday 21st August, 2019 at 7:00pm.

The Hub, Langhorne Creek.

Attendees: David Kohl, Dave Hemmings, Keren Stagg, Leah Hunter, George Borrett, David Hender, Justin Cleggett, Ray McDonald, Trevor McLean, Geoff Warren, Lyz Risby, Barry Potts, Anne Scutchings.

Apologies: Philip Reilly

1. Opening Address

The meeting was opened at 7:05pm by David Kohl, Presiding Member who welcomed all attendees and guest speakers and thanked the committee for their contribution over the past 12 months.

2. Minutes of the last Annual Public Meeting

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

Moved: Justin Cleggett Seconded: Dave Hemmings

3. Annual Report

The Annual Report was presented by David Kohl.

During the past 12 months the Committee focussed on its core role, continuing to consult with multiple agencies regarding the changes to the Eastern Mt Lofty WAP, Flows for the Future and the Murray Darling Basin plan.

Ongoing funding challenges have necessitated the need for some plans to be put on hold, however funding was again received from DEW to support the IAR. The Committee continues to look for new funding opportunities from external sources to support future activities.

Feedback from irrigators and the wider community as to the challenges they are currently facing and the future direction that they would like the ABWMC to take has been limited over the past 12 months. Storm water run-off from Mount Barker developments which was raised during the 2018 APM is still an issue which the Committee is actively addressing.

David welcomed all attendees to attend future Committee meetings and to engage with ABWMC.

4. Water trade in the EMLR Prescribed Water Resources Area and the RM Prescribed Watercourse, Dave Hemmings/Lyz Risby – Natural Resources, SAMDB

Dave Hemmings delivered a presentation on water trading in the EMLR Prescribed Water Resources area which now includes the Angas Bremer Prescribed Wells area.

This presentation outlined the rules around trading into or between resource types (ie surface, watercourse, underground), high demand areas and specifically the Angas, Bremer and Tookayerta catchments.

In order to trade water, the rules relating to the above need to be satisfied, then the buyer and seller need to negotiate an in-principal agreement regarding the quantity and price of the water to be traded. DEW approves all water trades and any fees are to be paid to the Berri Licensing office. The history and value of trades can be found on the Water Connect website.

Lyz Risby then did a presentation on the 'Water Allocation Plan (WAP) unbundled' which explained the various forms of transfers with transfers of entitlement being a permanent transfer and transfers of allocations being a temporary transfer. Transfers can occur relatively easily provided works approvals and site use approval are in place. It covered which classes of water can be purchased, and also highlighted trade exemptions relating to Environmental Land Management Allocations ELMA (class 8) and Metro Adelaide class 6 water.

Lyz touched on the numerous types of trades that are available interstate and also on the pending ACCC inquiry in to water trading. An explanation the of DEW tools such as the flows report, minimum allocation announcements and probability analysis that are used to assist in the planning process was also provided.

David thanked Dave and Lyz for their presentations.

5. Water Efficiency Program – Michael Cutting, Natural Resources, SAMDB

A presentation on the Water Efficiency Program (WEP) compiled by Michael Cutting, Natural Resources, SA MDB was delivered on his behalf by David Kohl.

The WEP provides access to over \$1.5b of funding which can be used to upgrade water infrastructure in the Murray-Darling Basin. The aim of the program is to improve water use efficiency and to deliver 450GL to the environment by 2024. The program is to operate across the SA MDB in all surface water SDL units including the River Murray, Eastern Mt Lofty Ranges and Marne Saunders.

The WEP has 5 project themes: urban, industrial, off-farm, on-farm and water metering. Projects must be able to demonstrate a saving of at least 3ML and demonstrate a neutral or positive socio-economic impact for the community. All projects less than \$1m must be submitted through a business partner such as the

SA MDB NRM board. These delivery partners are available to assist in the design and delivery of projects.

6. Summary of 2018/2019 Irrigation Annual Report – Leah Hunter, Project Officer, ABWMC.

Leah presented a summary of the interim Irrigation Annual reporting for the 2018/19 irrigation year.

IAR submissions have been good so far with 94 reports (70%) being submitted on line and approximately 115 reports submitted overall. Improvements to the IAR website and extending the submission period have assisted in this process. An interim IAR summary will be done and sent around via email once enough submissions have been received so as not to skew the results. All in all it is looking like ABWMC will receive a better return than over the past 3 years or so.

Leah thanked SA MDB for their ongoing funding and also the Committee members for their continued support.

David thanked Leah for her hard work throughout the year.

7. Financial Report – David Kohl, Presiding Member

The Annual Financial Report of the Angas Bremer Water Management Board 2018-19 was presented by David Kohl.

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.

David Kohl thanked the Committee for their efforts over the past year and advised that, due to work commitments, he would not be able to continue as Presiding Member and ABWMC member.

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

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

There were no new nominations to join the Committee.

9. General Business

The Ranges to River meeting that is to be held to discuss the Mt Barker Council development surface water issue is expected to take place during October 2019. The ABWMC will communicate any further progress made in this area as it occurs.

Correspondence has been received from DEW regarding a Citizen Science project to hold a bioblitz on the Bremer (water quality, turbidity & bug monitoring). The aim is to sample and document results throughout the Bremer

catchment area. Given the current issues with Mount Barker developments, it is considered crucial to engage landholders where the Mt Barker Creek joins the Bremer.

Leah will forward this correspondence to all irrigators and interested community members. You don't have to be a landholder to volunteer as you can volunteer in public spaces. If interested in participating in this project, please let Leah know.

David thanked the Committee for their efforts and wished them all the best going forward.

Leah presented David with a gift and thanked him for his contribution over the past few years.

10. The meeting was closed at 8.55pm, followed by a light supper.

Financial Accounts 2018-19

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

FINANCIAL STATEMENTS

FOR THE YEAR ENDED JUNE 30, 2019

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, 2019

	2019		2018	
	\$	\$	\$	\$
INCOME				
Grants				
Grants (State) Op-Non Rec	<u>1,000.00</u>		<u>15,000.00</u>	
<i>Total Grants</i>		1,000.00		15,000.00
Fee for Service				
Fees and Charges - Unrestricted	<u>15,010.00</u>		<u>0.00</u>	
<i>Total Fee for Service</i>		15,010.00		0.00
Interest-Unrestricted		<u>1.74</u>		<u>1.95</u>
<i>Total Income</i>		<u>16,011.74</u>		<u>15,001.95</u>
EXPENSES				
Advertising & Promotion		208.40		340.10
Audit Fees		0.00		600.00
Bank Fees		1.11		4.21
Client Support Services				
CSS Community Engagement	164.33		863.64	
CSS Project Co-ord/Manag	16,030.00		12,977.27	
CSS Threat Abatement	<u>0.00</u>		<u>1,000.00</u>	
<i>Total Client Support Services</i>		16,194.33		14,840.91
Computer Expenses		1,029.05		
Insurance		386.46		2,689.46
Meetings Expense		150.00		162.00
Membership fees paid		45.45		
Postage, Freight & Courier		149.09		
Printing & Stationery		0.00		
Sundry Expenses		0.00		
Telephone, Fax & Internet Exp		154.13		
<i>Total Expenses</i>		<u>18,318.02</u>		<u>18,636.68</u>
Net Surplus / (Deficit)		<u>(2,306.28)</u>		<u>(3,634.73)</u>

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

STATEMENT OF FINANCIAL POSITION

FOR THE YEAR ENDED JUNE 30, 2019

	2019	2018
CURRENT ASSETS	\$	\$
Cash at Bank (Unrestricted)	13,413.16	13,419.95
Accounts Receivable	1,111.00	0.00
TOTAL CURRENT ASSETS	<u>14,524.16</u>	<u>13,419.95</u>
TOTAL ASSETS	<u>14,524.16</u>	<u>13,419.95</u>
CURRENT LIABILITIES		
Accounts Payable	3,348.54	0.00
GST Payable	101.00	0.00
Less GST Receivable	(304.42)	(300.00)
GST Clearing	(34.63)	0.00
TOTAL CURRENT LIABILITIES	<u>3,110.49</u>	<u>(300.00)</u>
Less TOTAL LIABILITIES	<u>3,110.49</u>	<u>(300.00)</u>
NET ASSETS	<u>11,413.67</u>	<u>13,719.95</u>
EQUITY		
Unexpended Funds as at July 1, 2018	13,719.95	17,354.68
Current Year Surplus (Deficit)	(2,306.28)	(3,634.73)
Unexpended Funds as at June 30, 2019	<u><u>11,413.67</u></u>	<u><u>13,719.95</u></u>

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED JUNE 30, 2019

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 (supersedes AASB1031 -

AASB 110 - Events after the Reporting Period

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 30/6/19;
- (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 30/6/19;
- (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: 

David Kohl, Chairperson

Date: 22/7/19

Signed: 

Michael Clements, Treasurer

Date: 22/7/19

**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, 2019:

- (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: _____

David Kohl, Chairperson

Date: _____

22/7/19

Signed: _____

Michael Clements, Treasurer

Date: _____

22/7/19

ANGAS BREMER WATER MANAGEMENT COMMITTEE INC.

PROJECT INCOME, EXPENDITURE AND BALANCES

FOR THE YEAR ENDED JUNE 30, 2019

Project Name	Balance at June 30, 2018	Total Income	Total Expenses	Balance at June 30, 2019
ABIRA funds	8,370.30	0.00	0.00	8,370.30
Angas Bremer Water Management Committee Funds	3,836.39	1.74	2,308.02	1,530.11
Cover Crops Grant	1,513.26	0.00	0.00	1,513.26
Irrigation Annual Reporting Project	0.00	15,010.00	15,010.00	0.00
Volunteer Small Grant 2019	0.00	1,000.00	1,000.00	0.00
Totals	13,719.95	16,011.74	18,318.02	11,413.67

Appendix A – Water Efficiency Program DEWNR, Natural Resources, SAMDB

Water Efficiency Program (WEP)

Angas Bremer Water Management Committee
Annual Public Meeting

21 August 2019

 Natural Resources
SA Murray-Darling Basin

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

Water Efficiency Program - Overview

- Funding to upgrade water infrastructure in the Murray–Darling Basin
- Over \$1.5b of funding is available to improve water use efficiency and deliver 450GL to the environment by 2024
- Water savings projects must demonstrate a neutral or positive socio-economic impact for the community. Participants will:
 - implement the project as agreed
 - return an agreed volume of saved water rights to the Australian Government
 - retain any additional water savings the project generates
- Project funding is up to 1.75 times the current market value of the water rights transferred

 Natural Resources
SA Murray-Darling Basin

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

Water Efficiency Program - Eligible Catchments

- The Water Efficiency Program will operate across the Murray-Darling Basin in all **surface water** SDL units:
- Surface water SDL units in the SA Murray-Darling Basin include:
 - River Murray
 - Eastern Mt Lofty Ranges (watercourse & surface water)
 - Marne Saunders (watercourse & surface water)
- All projects less than \$1m must be submitted through a Delivery Partner (SA MDB NRM Board locally)
- Delivery Partners are available to assist applicants to design and deliver projects

Water Efficiency Program - Eligible Projects

- The Water Efficiency Program contains 5 project themes:
 - Urban
 - Industrial
 - Off-Farm
 - On-Farm
 - Water Metering
- Projects submitted through the SA MDB NRM Board must achieve a minimum water saving of 3ML.
- A complete list of eligible activities is available at -
<http://www.agriculture.gov.au/water/mdb/programs/basin-wide/water-efficiency>
- **Projects must have neutral or positive socio-economic outcomes**

Water Efficiency Program - More Information

- <https://www.naturalresources.sa.gov.au/samurraydarlingbasin/get-involved/funding-opportunities/wep-program>
- <http://www.agriculture.gov.au/water/mdb/programs/basin-wide/water-efficiency>

Strathalbyn Office

6 Catherine Street

8536 5619 / 0429 093 779

michael.cutting@sa.gov.au

 **Natural Resources**
SA Murray-Darling Basin

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



Natural Resources
SA Murray-Darling Basin

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

Appendix B – Water Trade in the Eastern Mount Lofty Ranges Prescribed Water Resources Area and the River Murray Prescribed Watercourse. **DEWNR, Natural Resources, SAMDB**

Water trade in the Eastern Mount Lofty Ranges Prescribed Water Resources Area (EMLR) and the River Murray Prescribed Watercourse (RM).
EMLR now includes the Angas Bremer Prescribed Wells Area



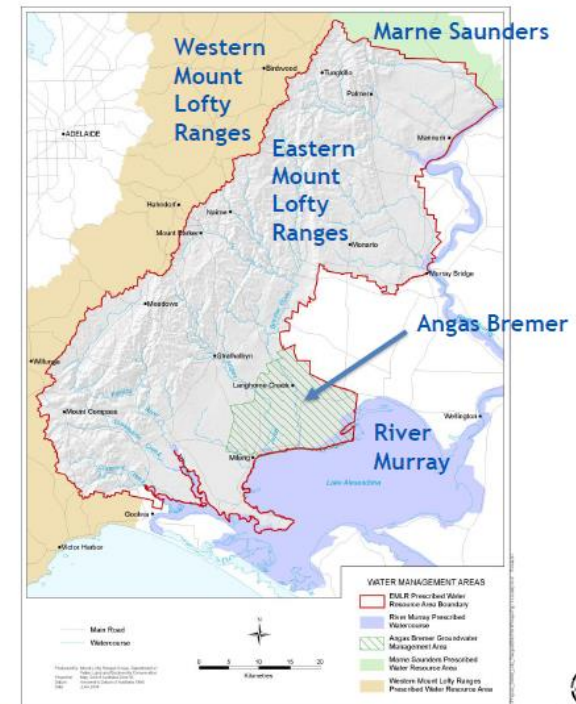
Natural Resources
SA Murray-Darling Basin



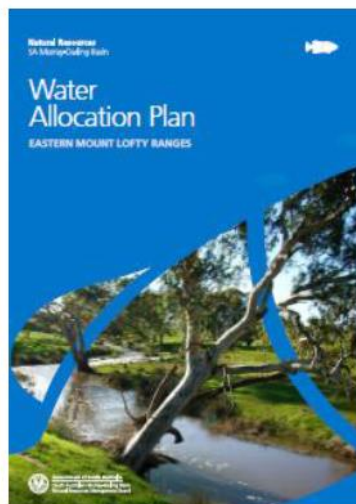
Government
of South Australia



Natural Resources
SA Murray-Darling Basin



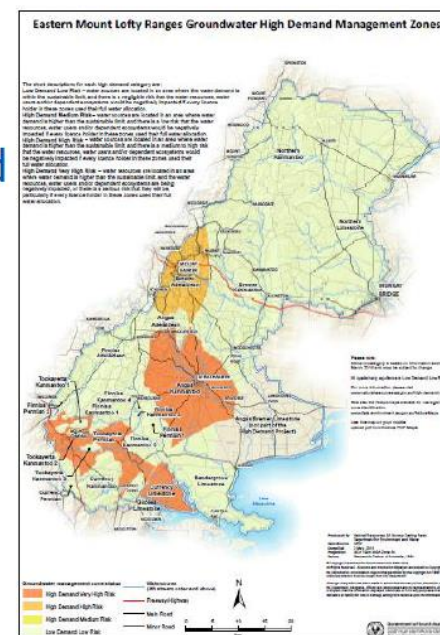
All trades must be consistent with the principles in Sections 5 and 6 of the EMLR water allocation plan, which promote sustainable water use and minimise detrimental effects on water resources, other users or the environment.



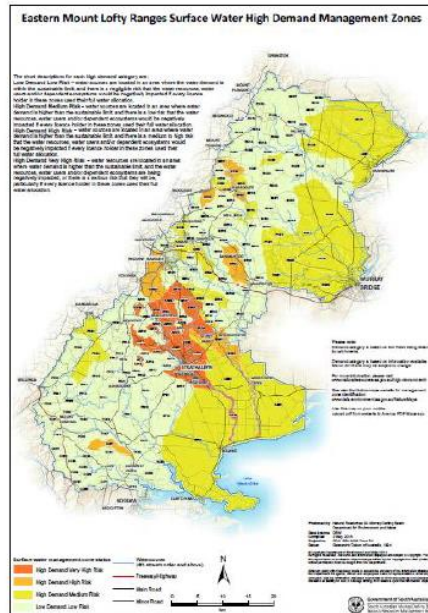
Water can only be traded between the same resource types (e.g. surface water to surface water) and not between different resource types (e.g. surface water to watercourse or underground water).

Water cannot be traded *into* a high demand zone (where demand exceeds the sustainable limit) however water may be traded *within* a high demand zone.

High
Demand
underground
water
manage-
ment zones



High Demand surface water management zones

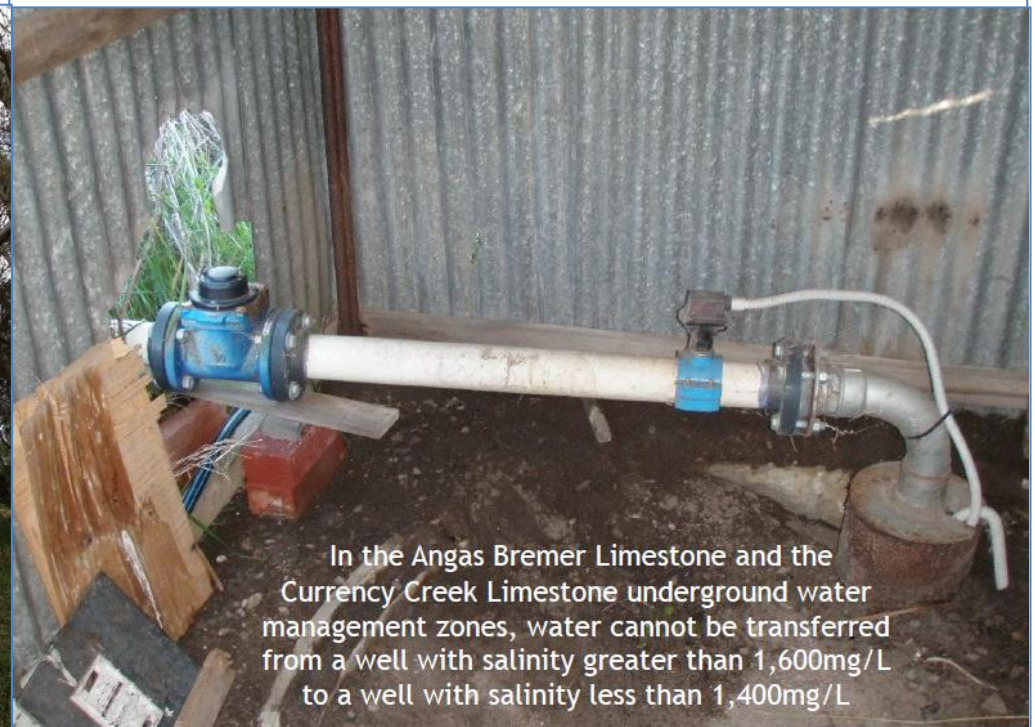


Surface water and watercourse water cannot be traded into the Angas, Bremer or Tookayerta catchments, but may be traded within each catchment.

Rollover and recharge allocations cannot be traded to a different location.



Lower Angas Bremer flood allocations cannot be traded to a different management zone, and cannot be traded to a different location if the allocation provides water to a red gum swamp directly or indirectly.



In the Angas Bremer Limestone and the Currency Creek Limestone underground water management zones, water cannot be transferred from a well with salinity greater than 1,600mg/L to a well with salinity less than 1,400mg/L



Construction of new wells or dams, or dam enlargement requires a separate application (Water Affecting Activity permit or Development Approval) and is not automatically granted as part of the trade process.

For a water trade, the buyer and seller negotiate an in-principle agreement regarding the quantity of water to be traded and the price of the water.



Natural Resources
SA Murray-Darling Basin



The Department for Environment and Water is the approval authority for trades. Application forms and fees should be submitted to the DEW Berri licensing office.

Government of South Australia
Department for Environment and Water

SEE \$ 775.00
GST exempt
01/07/19 - 30/06/20
Form No. DEW100

APPLICATION FOR VARIATION OF LICENCE ON ABSOLUTE (PERMANENT) OR LIMITED (TEMPORARY) TRANSFER OF ALLOCATION

Pursuant to Section 148 of the Natural Resources Management Act 2004

A person who furnishes information to the Minister or another authority under the Natural Resources Management Act 2004 (the Act) that is false or misleading in a material particular is guilty of an offence. Maximum penalty: 120 (100).

Please Tick:
☐ Eastern Mount Lofty Ranges PWRA ☐ Marine Saunders PWRA
☐ Barossa PWRA ☐ Clare Valley PWRA

SECTION 1: APPLICANT DETAILS - Transferor (Seller)

Full Name(s) of applicant(s)
 Full Name(s) of applicant(s)
 Full Name(s) of applicant(s)
 Full Name(s) of applicant(s)
 If Body Corporate, ACN Water Licence No.
 Contact Name
 Address
 Town/Suburb State Postcode
 Home Phone Work Phone Mobile Phone
 Email Fax

APPLICANT DETAILS - Transferee (Buyer)

Full Name(s) of applicant(s)
 Full Name(s) of applicant(s)
 Full Name(s) of applicant(s)
 Full Name(s) of applicant(s)
 If Body Corporate, ACN Water Licence No.
 Contact Name
 Address
 Town/Suburb State Postcode
 Home Phone Work Phone Mobile Phone
 Email Fax

For Office Use Only

Application No.	Transfer No.	Transfer No.	Transfer No.
Date Received:			
Amount Paid: \$			
Date:			

Page 1 of 5



Natural Resources
SA Murray-Darling Basin



The history and value of trades can be found on the WaterConnect website



Waterconnect



All



Maps



Videos



Shopping



News



More



Settings



Tools

About 143,000 results (0.30 seconds)

WaterConnect: Home

www.waterconnect.sa.gov.au/Pages/Home.aspx

Jan 23, 2017 - Welcome to **WaterConnect**, your portal to the latest information about South Australia's water resources, providing you with direct access to ...



Natural Resources
SA Murray-Darling Basin



Click on Data Systems > Water Allocation Data

The screenshot shows the WaterConnect website interface. The 'Data Systems' menu is open, and 'Water Allocation Data' is highlighted with a red circle. The website header includes 'WaterConnect' and 'Connect to Enviro Data SA'. The main navigation bar lists various categories: Water Management, Hazard Management, Water Resources, River Murray, Science and Research, Industry and Mining, and Data Systems. The 'Data Systems' dropdown menu includes options like Flood Data, Groundwater Data, Infrastructure Data, Spatial Data, Surface Water Data, and Water Allocation Data (highlighted). A search bar and a map of South Australia are also visible.

Click on Water Trading in SA

The screenshot shows the 'Water Allocation Data' page on the WaterConnect website. The 'Water Trading in SA' link is highlighted with a red circle. The page includes an introduction to water trading, a link to the 'Water Licence & Permit Register', and a link to the 'Water Resource Assessments Interactive Map'. The 'Water Trading in SA' section mentions that it lists approved water trade in the current water year (July 1st to June 30th) for each of the prescribed areas in South Australia, updated daily. Annual summaries of water trading activities in the prescribed areas are also provided.

A list of prescribed areas is then available

The screenshot shows the 'Water Trading in South Australia' page. The 'Eastern Mt Lofty Ranges PWRA' is highlighted with a red circle in the list of prescribed areas. The page provides information about water trading, including annual summaries and links to trade reports. The list of prescribed areas includes: Eastern Mt Lofty Ranges PWRA, Foresty Lower Limestone Coast PWA, Lower Limestone Coast PWA COM, Lower Limestone Coast PWA LDA, Lower Limestone Coast PWA NAR, Mallee PWA, Marine Sounders PWA, McLaren Vale PWA, Northern Adelaide Plains PWA, Padthaway PWA, River Murray PWA, Southern Basins PWA, Tatiara PWA, Tintinnaria Coalfields PWA, and Western Mt Lofty Ranges PWRA.

For the Eastern Mount Lofty Ranges:

Eastern Mt Lofty Ranges PWRA

Year: 2018/19 [SA]

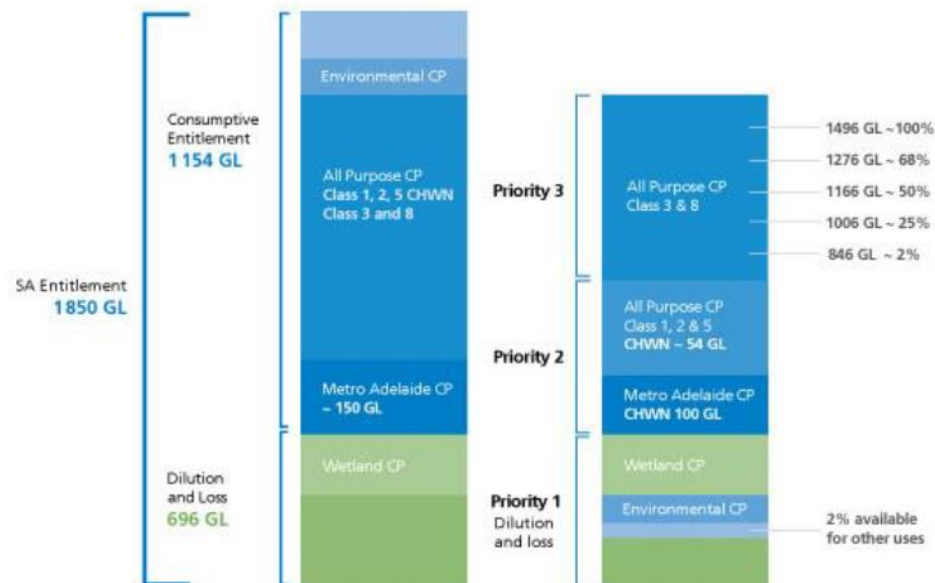
Date Transferred	Quantity	Unit of Measure	Allocation Type	Water Resource	Return Date	Cost	Price per ML (\$)
Term : Temporary							
28/06/2019	20	ML	Taking	Underground	30/06/2023	n/a	100.00
27/06/2019	3	ML	Taking	Underground	30/06/2019	300	200.00
24/06/2019	30	ML	Taking	Underground	30/06/2019	6000	150.00
17/06/2019	8	ML	Taking	Underground	30/06/2019	n/a	150.00
11/06/2019	100	ML	Taking	Underground	30/06/2019	15000	161.29
09/11/2018	55.8	ML	Taking	Underground	30/06/2021	9000	
Term : Permanent							
21/06/2019	20	ML	Taking	Underground		n/a	2500.00
21/06/2019	10	ML	Taking	Underground		25000	1800.00
02/06/2019	10	ML	Taking	Underground		18000	
31/05/2019	5	ML	Taking	Underground		n/a	
21/12/2018	80.4	ML	Taking	Underground		n/a	
04/12/2018	136	ML	Taking	Watercourse		n/a	
26/10/2018	58.2	ML	Taking	Underground		n/a	
05/10/2018	2.38	ML	Taking	Surface Water		6000	2521.01
05/10/2018	1.7	ML	Taking	Underground		6000	3529.41
04/10/2018	3,368	ML	Taking	Watercourse		10500	3117.58
04/10/2018	7	ML	Taking	Underground		13860	1980.00
Count: 17		Total: 550,848					

River Murray Trade

Water Allocation Plan -
Unbundled

Entitlement - Permanent
Allocation - Temporary
Works Approval
Site Use Approval

Water Allocation Framework



Trade

You can purchase water from any class (if available) in the same consumptive pool

Exceptions:

- ELMA – Class 8
- Metro Adelaide – Class 6

Interstate trades – numerous products

ACCC Inquiry into trade

DEW Tools to assist planning

- Flows report
- Minimum Allocation Announcements
- Probability analysis

Class 3 water allocation scenarios

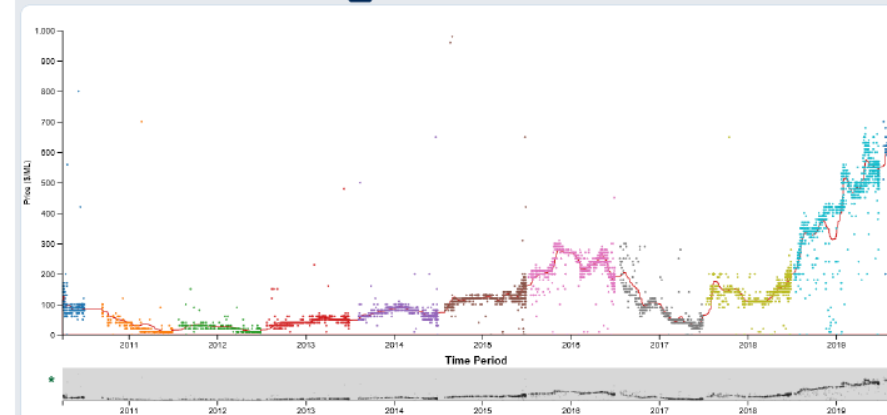
SA River Murray Irrigation Allocation Scenarios All Purpose - Class 3	Minimum Allocation	1 Sep	1 Nov	1 Jan	1 Apr
	Projected allocation as a percentage				
Exceptionally dry - 99 % likelihood allocation will be at least	68	68	77	90	100
Extreme dry conditions - 95% likelihood allocation will be at least	68	68	86	100	100
Very dry conditions - 90% likelihood allocation will be at least	68	70	94	100	100
Dry conditions - 75% likelihood allocation will be at least	68	73	100	100	100
Average conditions - 50% likelihood allocation will be at least	68	76	100	100	100
Wet conditions - 25% likelihood allocation will be at least	68	79	100	100	100

DISCLAIMER: This data is provided for information only. Historical performance is not necessarily an indicator of future outcomes. Projections are based on historical climate variability across the last 30 years. The Government of South Australia accepts no liability for any loss resulting from the use of or reliance on any of this data or information.



For River Murray allocations:

Price of River Murray Allocation Trades by Year

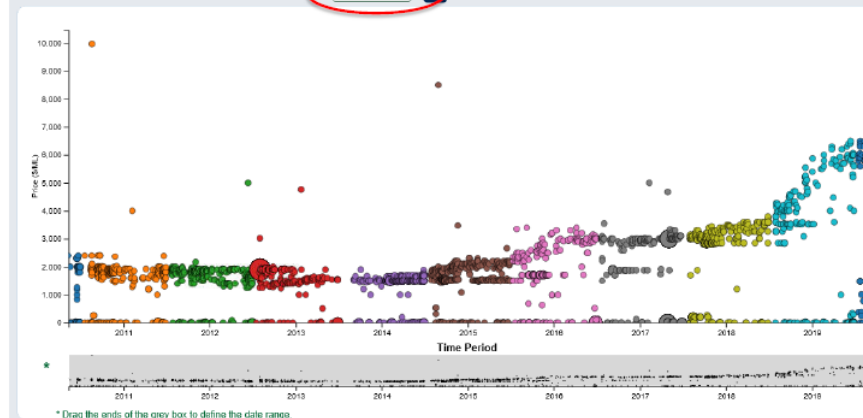


Natural Resources
SA Murray-Darling Basin



For River Murray entitlements:

Price of River Murray Entitlement Trades by Year



* Drag the ends of the grey box to define the date range.



Further information: NR SAMDB website



Natural Resources
SA Murray-Darling Basin



EMLR trade fact sheet

Water trading in the Eastern Mount Lofty Ranges

May 2018



Water in the Eastern Mount Lofty Ranges (EMLR) is precious, sustaining our landscapes, vineyards and businesses to thrive. Water trading together with the water allocation plan supports the regional food, fibre and wine production of the EMLR while ensuring that water resources remain viable in the future.

In the EMLR, all water from groundwater, surface (dam) water and surface water sources that is used for any purpose other than stock and domestic use and other exempted purposes such as firefighting, requires a licence and allocation.

A water licence is a personal asset that is separate from the land and can be sold or traded to others. Existing water allocations are currently protected, however an allocation can be acquired by trading (transferring) from someone with an existing licence and allocation.

What is water trade?

Water trading is the buying or selling of a water licence and/or allocation, usually in return for a monetary payment.

Trade can be undertaken on a permanent or temporary basis, and a licence may be used in whole or in part of their water allocation.

A trade can be a change in ownership of the licence and/or allocation only, for example along with sale of a property. Trade can also be a change in the location that water is taken along with a change in ownership of the allocation. Trade is not where water is moved physically from one property to another, for example through a pipe.

What are the benefits of water trade?

Selling water to another landholder may provide income and possibly a reduction in the annual water bill.

Purchase of water from another licence may allow new businesses to establish or existing businesses to expand.

Purchase of water from another licence may also allow flexibility in water use, including using water from a different licence type (e.g. bore water instead of dam water) or selling from water (e.g. city water) if the needs are greater than can be supported by the licence.



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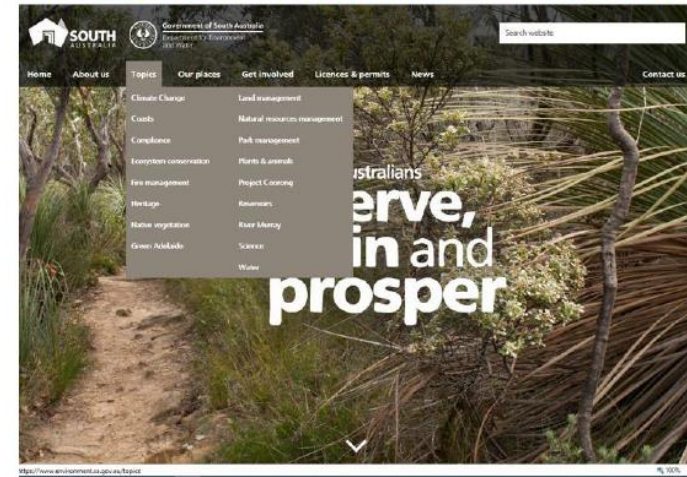


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Further information: DEW website

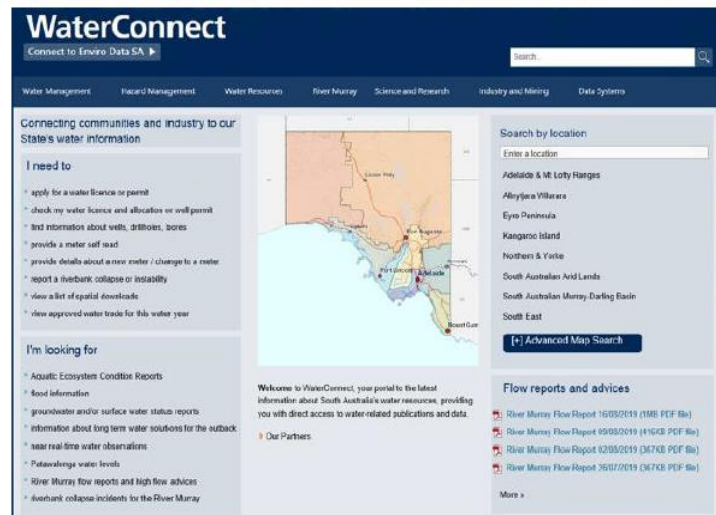


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Further information: WaterConnect



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