

Annual Bulk Entitlement Report

**Anglesea groundwater
2025-2026**

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1. Introduction

The Anglesea Borefield is one of several water sources that can supplement the existing Greater Geelong water supply system when storages are low. Our diverse water supply mix is part of a balanced approach to managing the region's water resources and providing greater water security.

Our access to groundwater from the Anglesea borefield is governed by a Bulk Entitlement, issued by the Victorian Government in 2009. The bulk entitlement continues to be reviewed and updated in line with the conditions stipulated in the bulk entitlement with the most recent review having been completed in December 2024.

When in use, groundwater from the Anglesea Borefield is pre-treated at the Anglesea Pre-Treatment Plant before it is transferred to Wurdee Boluc Reservoir, where it is mixed with surface water from the Otway Ranges. Water from Wurdee Boluc reservoir is then filtered, chlorinated and fluoridated, before it is piped to smaller storage basins and tanks, and then delivered to homes and businesses in Anglesea, Aireys Inlet, Torquay, the Bellarine Peninsula and suburbs in the greater Geelong region.

Despite only being used a handful of times since its operation commenced, the Anglesea borefield remains an additional source of water for the Greater Geelong region when storages are low.

During 2025-26, the following key activities and insights were observed:

- Following two years of below average rainfall and dry climatic conditions, and low water storage levels, the Anglesea Borefield was activated in late July 2025.
- Approximately 3,205 ML was extracted from the Anglesea borefield in 2025/2026 to supplement water supplies for the Greater Geelong region.
- Routine monitoring continued in accordance with the Monitoring and Assessment Program (MAP). Noting that due to the dry conditions some surface waters were unable to be sampled as there was no water present during the monitoring events.
- Throughout this period of pumping, groundwater levels have remained above the groundwater trigger levels.
- Barwon Water also continues to work towards implementing the recommendations from the 2024 Bulk Entitlement Review, which will require a Bulk Entitlement Amendment to be submitted to the Minister for Water.
- On 28 June 2022, Barwon Water submitted a request to Parks Victoria under Section 27 of the National Parks Act 1975 to replace observation bore 115868, which is located in the Great Otway National Park and has known integrity issues impacting data quality. Barwon Water continue to work with Parks Victoria to gain the approvals required in order to construct a new observation bore at this same location.
- Key monitoring observations included:
 - **Salinity:** groundwater quality results indicate stable salinity trends and no evidence of saline intrusion at coastal bore P14.
 - **pH:** groundwater results were slightly acidic to neutral with shallow observation bores showing more variability than deep observation bores. Surface water was also acidic over the monitoring period with the lowest pH recorded in the Anglesea River.
 - **Groundwater levels:** the trigger was not exceeded in 2025–26.
- During 2025-26, groundwater and surface water quality reflected prevailing dry climatic conditions and variability remained consistent with historic and expected trends. Trigger levels were not exceeded, and the data do not suggest any change in environmental condition due to borefield operation. Increasing variability and intensity of rainfall and drought due to climate change, and the corresponding increase to the variability of water quality results will likely result in challenges to determining whether environmental changes are due to climate or groundwater pumping, cautious interpretation will continue to be of high importance.

2. Report Scope

In accordance with the Bulk Entitlement Order, Barwon Water must prepare an annual report, to be called an Annual Bulk Entitlement Report (Anglesea Groundwater) which must include the following information in respect of the 12-month period, 1 July 2025 to 30 June 2026:

- a) the daily amount of groundwater taken under the Order;
- b) the monthly amount of groundwater taken under the Order;
- c) the annual amount of groundwater taken under the Order and from each bore;
- d) the results of the water quality sampling carried out under the monitoring and assessment program;
- e) any period or periods of greater than 30 days during which the average of the daily groundwater levels in an observation bore was below a trigger level as provided for in clause 9 of the Order;
- f) any issues or difficulties experienced or anticipated by Barwon Water in implementing an approved program or restoring groundwater levels as provided for in clause 9 of the Order;
- g) any arrangements entered into with an existing groundwater user under clause 7 of the Order;
- h) the results of any independent arbitration under clause 18 of the Order to which Barwon Water is a party; and
- i) any difficulties experienced or anticipated by Barwon Water in complying with the Order and any remedial action taken or proposed by it.

3. Climate conditions leading to borefield activation

During the two years preceding the 2025-26 reporting year, rainfall in Barwon Water catchments was very much below average as shown in Figure 1. Figure 2 shows the resulting decline in water storage levels over that period. In July 2025, total Geelong System storage dropped to approximately 35%, and in response, the Anglesea borefield was activated in late July 2025.

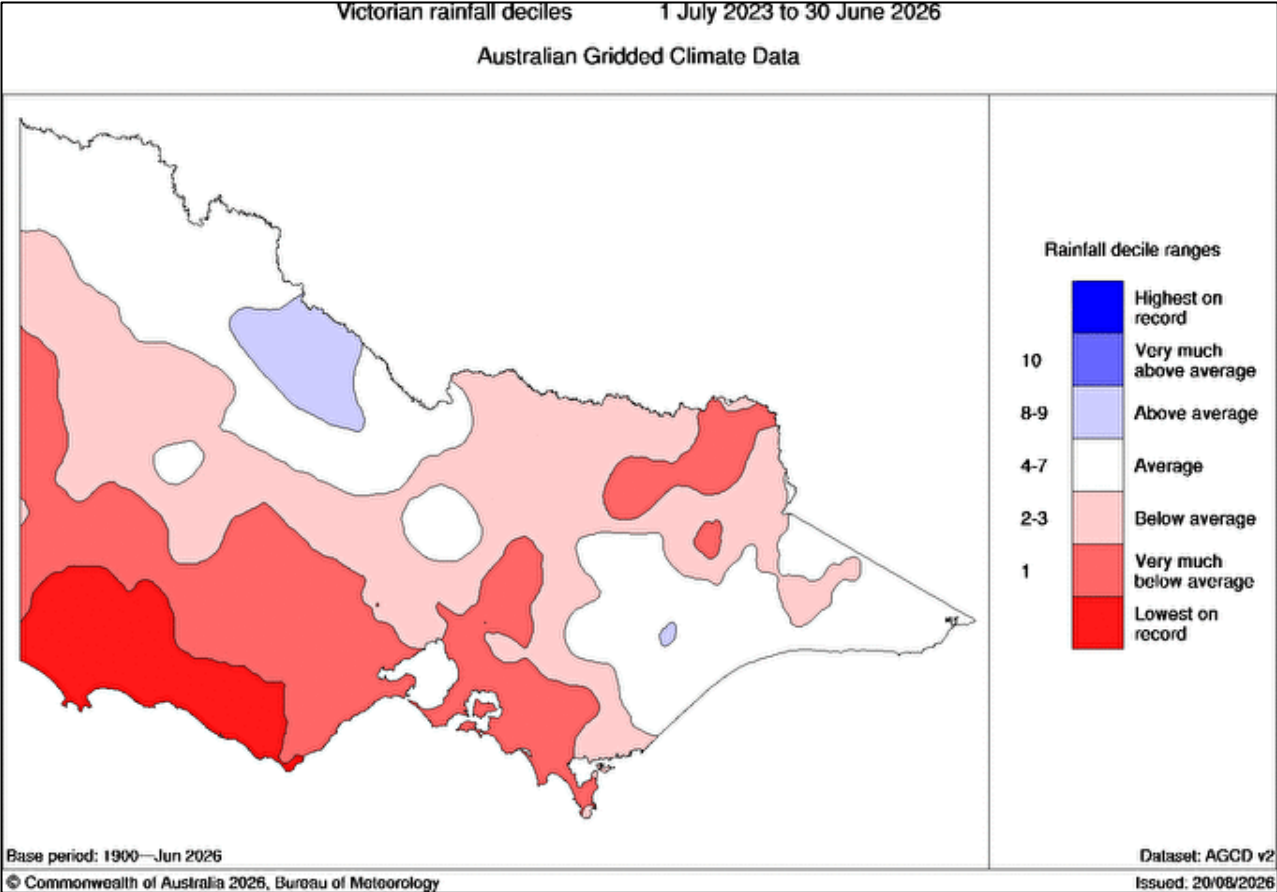


Figure 1: BoM rainfall deciles July 2023-June 2026

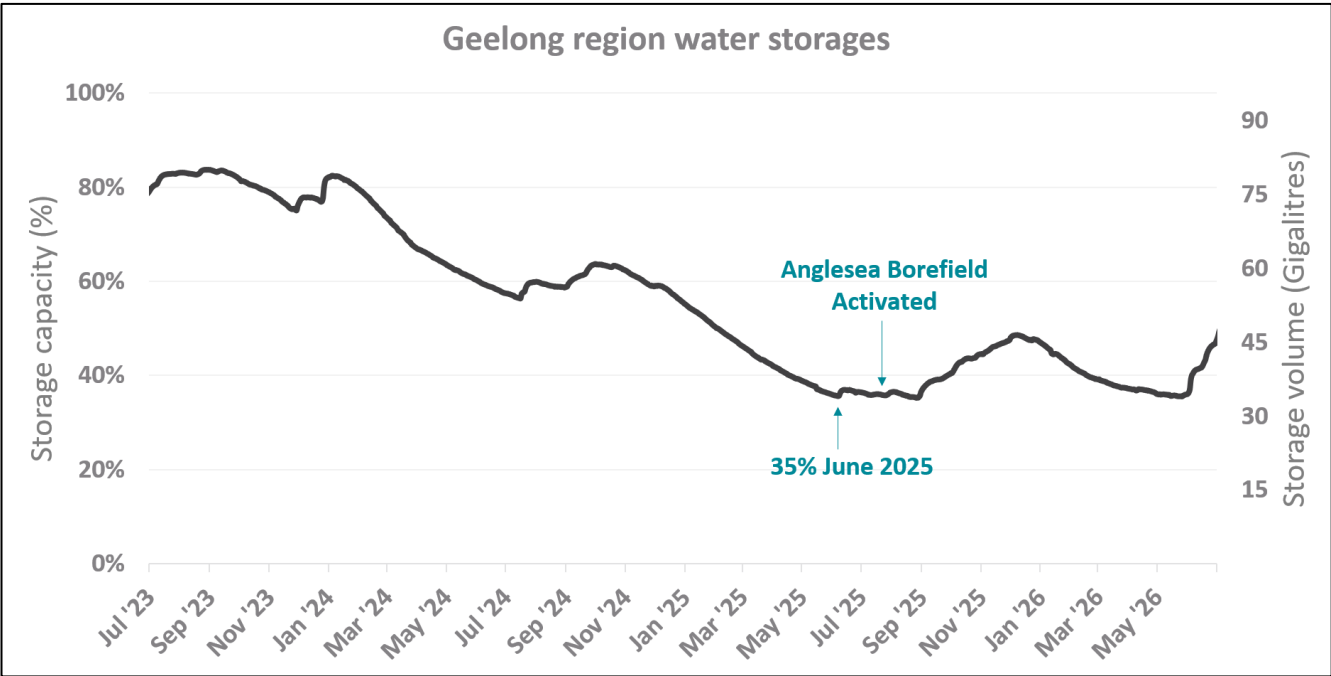


Figure 2: Geelong region water storages July 2023-June 2026

4. Community engagement

Barwon Water continues to keep the community and key stakeholders updated on Anglesea borefield operations and environmental monitoring outcomes. We also continue to provide regular updates to

our communities via print and digital media. We also meet with and liaise with local Landcare groups on an as needs basis and attend local events such as the Angair Annual Wildflower and Arts weekend. Our dedicated Your Say webpage, provides regular updates to local community and Landcare groups to share with their members.

In August 2025 we also held a community information drop-in session about the Anglesea borefield and the proposed amendments to our Bulk Entitlement to implement the recommendations from the 2024 Bulk Entitlement Review.

Barwon Water also continues to engage with other agencies (e.g., Corangamite Catchment Management Authority (CCMA), Department of Energy, Environment and Climate Action (DEECA), Great Ocean Road Coasts and Parks Authority (GORCAPA), Surf Coast Shire, Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC) and community representatives through various Anglesea River working groups, such as:

- Surf Coast Shire's Anglesea River Advisory Group, and
- CCMA's Reimagining the Anglesea River and Estuary (RARE) Working Group

5. Groundwater extraction (Clauses 16.1 A, 16.2 A, 16.2 B and 16.2 C)

The bulk entitlement stipulates the **maximum amount** of groundwater we're able to extract from the Anglesea borefield. Under the bulk entitlement Barwon Water is entitled to extract:

- 40 ML per day
- 10,000 ML in any year
- 35,000 ML in any 5-year period

During the 2025-26 reporting period, approximately 3,205 ML was extracted from the Anglesea Borefield to supplement water supplies for the Greater Geelong region. The daily extraction rates and total volumes obtained from each bore are outlined in Table 1 and Table 2, respectively.

Table 1: Total daily/monthly groundwater extraction 2025-26

Date	Groundwater extraction rates (ML)											
	Jul 2025	Aug 2025	Sept 2025	Oct 2025	Nov 2025	Dec 2025	Jan 2026	Feb 2026	Mar 2026	Apr 2026	May 2026	June 2026
1	0.0	5.7	6.3	6.2	12.0	12.9	12.3	0.0	12.6	10.8	0.0	11.9
2	0.0	5.8	6.3	5.8	11.9	12.8	12.3	6.7	11.3	10.8	0.0	12.4
3	0.0	5.6	6.3	6.0	11.3	12.8	12.2	11.9	10.9	10.8	0.0	12.7
4	0.0	5.6	6.4	5.9	11.5	12.9	12.2	12.2	11.1	10.8	2.5	12.7
5	0.0	5.8	6.5	5.9	12.2	13.0	12.2	11.5	11.1	10.8	7.8	12.6
6	0.0	6.1	6.5	5.9	12.1	13.0	12.2	11.2	11.1	10.7	11.5	12.6
7	0.0	6.0	6.5	5.9	12.0	12.9	12.2	11.5	11.0	10.7	13.0	12.5
8	0.0	6.4	6.4	5.9	12.0	12.9	12.4	11.4	11.0	10.7	9.6	12.5
9	0.0	6.7	6.4	6.0	11.9	12.8	12.7	11.0	11.0	10.7	9.5	12.5
10	0.0	6.6	6.4	6.0	11.9	12.8	12.6	11.8	8.8	10.7	9.5	11.0
11	0.0	6.6	6.4	6.0	11.8	12.8	12.6	13.2	9.2	10.2	9.5	9.8
12	0.0	6.5	6.4	6.0	12.3	12.8	12.6	13.1	11.1	7.4	10.6	9.9
13	0.0	6.5	6.4	6.1	12.6	12.7	12.5	13.1	11.0	9.6	10.2	9.9
14	0.0	6.4	6.3	6.2	12.5	12.7	12.5	13.0	11.0	10.6	9.4	9.9
15	0.0	6.4	6.3	6.2	12.5	12.7	7.0	13.0	11.0	10.6	9.3	9.9

16	0.0	6.4	6.3	6.2	12.4	12.7	6.5	13.0	11.0	4.0	9.3	9.9
17	0.0	6.3	6.3	6.2	12.3	12.6	12.8	12.9	10.9	9.1	9.3	9.9
18	0.0	6.3	6.3	6.2	12.3	12.6	12.6	12.9	10.9	10.8	10.1	9.9
19	0.0	6.4	6.3	6.2	12.3	12.6	11.4	12.8	10.9	12.4	11.2	9.9
20	0.0	6.5	6.3	6.2	12.3	12.6	10.7	12.8	10.9	10.8	11.1	9.9
21	0.0	6.5	6.3	9.0	8.5	12.5	10.0	12.8	10.9	11.1	11.1	9.9
22	0.0	6.5	6.3	10.8	6.3	12.5	5.9	8.5	10.9	10.1	11.0	7.6
23	0.0	6.5	6.2	11.1	7.0	12.5	12.3	5.4	10.9	10.5	11.0	9.3
24	0.0	6.4	6.2	11.9	7.0	12.4	12.2	5.6	10.9	9.8	11.0	9.4
25	0.1	6.4	6.2	11.7	12.7	12.4	12.1	5.8	10.8	9.8	10.9	9.4
26	0.0	6.4	6.2	5.1	12.4	12.4	12.1	12.4	10.8	9.8	9.1	9.6
27	0.0	5.6	6.2	4.2	12.7	12.4	3.3	12.8	10.9	6.4	11.3	9.8
28	0.0	6.4	6.2	10.4	13.1	12.4	4.6	12.7	10.8	0.0	11.6	9.8
29	0.6	6.3	6.2	12.1	13.0	12.4	8.7	0.0	10.8	0.0	12.1	9.8
30	3.1	3.5	6.2	12.3	12.9	12.3	11.9		10.8	0.0	12.0	9.8
31	5.0	6.4		11.5		12.3	0.9		10.8		11.9	
Total	8.7	191.5	189.7	231.2	347.6	392.0	328.2	305.0	337.2	270.4	286.5	316.5
Prog. Total	8.7	200.2	390.0	621.1	968.8	1360.8	1689.0	1994.0	2331.1	2601.5	2888.0	3204.5
Max. Flow	5.0	6.7	6.5	12.3	13.1	13.0	12.8	13.2	12.6	12.4	13.0	12.7
Min. Flow	0.0	3.5	6.2	4.2	6.3	12.3	0.9	0.0	8.8	0.0	0.0	7.6
Ave. Flow	0.3	6.2	6.3	7.5	11.6	12.6	10.6	10.5	10.9	9.0	9.2	10.5

Table 2: Annual groundwater extraction by bore 2025-26

Production bores		Volume Extracted (ML)
MAP. ID	BE. ID	
GW1	(SPB1)	1084.3
GW2	N/A	716.1
GW3	(SPB3)	397.7
GW4	(SPB4)	248.7
GW5	N/A	757.7
GW6	(NPB6)	0.0
GW7	(NPB7)	0.0
Annual total		3204.5

6. Water quality sampling (Clause 16.2 D)

6.1 Groundwater quality

The Bulk Entitlement's supporting MAP stipulates that groundwater salinity is to be measured twice a year at five deep observation bores (between 165 – 490m deep) as well as 11 shallow observation bores (less than 80m deep). The deep observation bores monitor the Upper Eastern View Formation (UEVF) and the Lower Eastern View Formation (LEVF), while the shallow observation bores monitor the alluvial swamp aquifer (ASA, previously referred to as the perched water table) as well as the UEVF and LEVF. The monitoring under the MAP utilises observation bores managed by Barwon Water, the State Government, and Alcoa. The results from this sampling are summarized below.

There are two bores identified in the MAP that monitor for saline intrusion, bore P14 in the LEVF and Coastal Bore 119349 in the UEVF. In 2020, DEECA advised that Coastal Bore 119349 was in poor condition and scheduled for decommissioning. In 2021/2022 bore 119349 was replaced with Bore P21 which is now monitored for saline intrusion. Noting this bore is only required to be monitored if Alcoa are extracting water which did not occur during 2025-26.

Production bores

In line with the MAP, weekly monitoring of field salinity and temperature was undertaken at each operational production bore. As bores GW1, GW2, GW3, GW4 and GW5 were rotated in and out of operation during 2025-26, only the bores operating each week were monitored. As bores GW6 and GW7 were not operated during 2025-26, no monitoring was required to be undertaken on these bores.

Figure 3 and Figure 4 below show weekly results of monitoring for temperature and electrical conductivity (EC) taken from telemetry on each bore while in operation.

The data shows that EC remained relatively stable during the 2025-26 FY, with the highest EC being recorded in bore GW1. Overall, temperature readings indicated a slight decline since operation started in July 2025, with the highest temperature recorded in GW1.

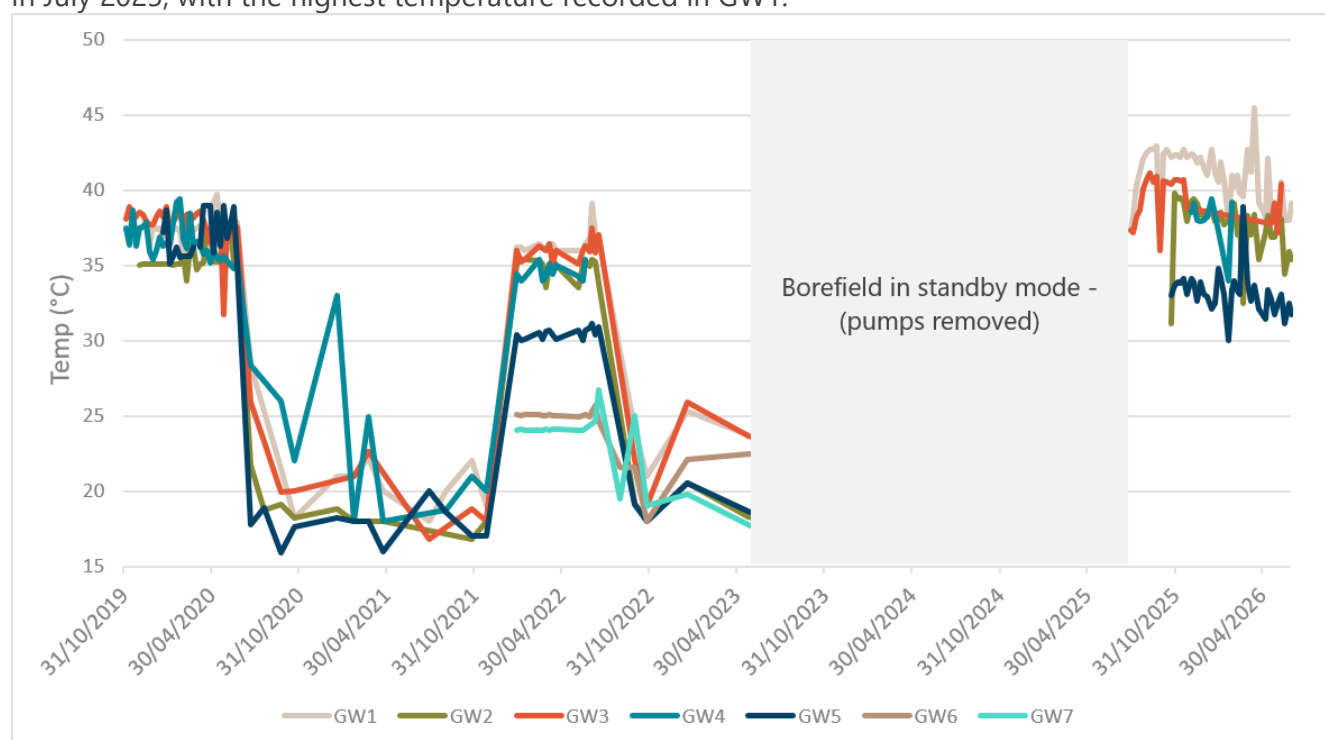


Figure 3: Groundwater quality results for temperature – production bores

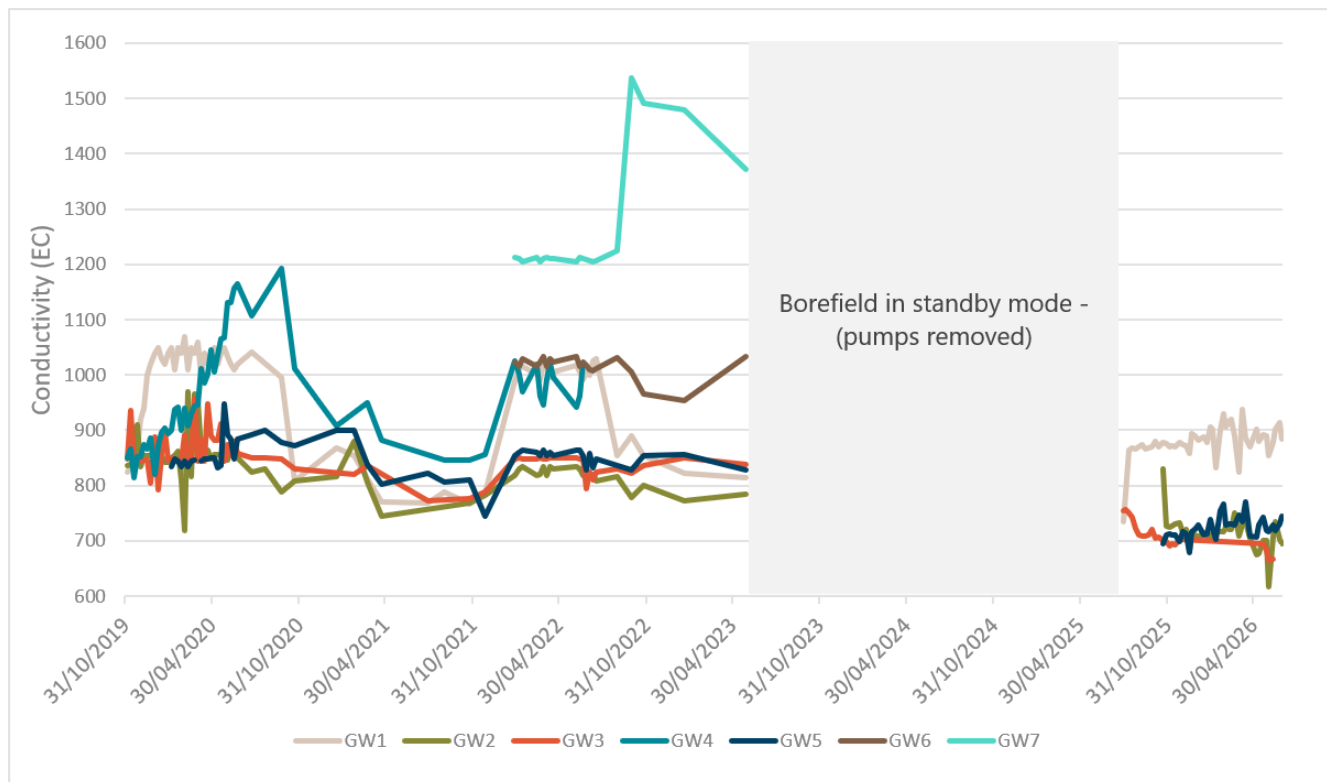


Figure 4: Groundwater quality results for salinity (EC) – production bores

Deep observation bores

The 2025-26 groundwater salinity results from the deep observation bores are provided in Table 3, while the results over the whole monitoring period (from April 2010 onwards) have been provided graphically in Figure 5. This figure depicts the salinity measurements against the groundwater extraction and recovery periods.

Laboratory testing of major cations and anions, salinity as Total Dissolved Solids (TDS) and Electrical Conductivity (EC), pH, and bromide (for bores P14) was also completed at these groundwater bores and has been provided in Appendix E.

Table 3: Groundwater Quality Results – Deep Observation bores

Bore ID	Aquifer	Depth (m)	Date	Field Parameters			Lab Result	
				Temp °C	pH	EC (µS/cm)	EC (µS/cm)	TDS (mg/L)
119348	LEVF	N/A	Jul-25	20.1	7.45	1317	1410	513
			Jan-26	23.7	8.16	1274	1380	685
SB2	UEVF	229	Jul-25	18.5	8.98	2105	2010	1160
			Jan-26	19.6	5.71	2056	2070	1180
NB2	UEVF	165	Jul-25	12.7	8.5	2490	2440	1500
			Jan-26	17.5	5.91	2432	2410	1270
P14	LEVF	504	Jul-25	15.7	6.12	847	875	466
			Jan-26	26.2	6.2	837	899	476
P15	LEVF	466	Jul-25	15.6	7.71	919	978	525
			Jan-26	22	4.97	916	903	642

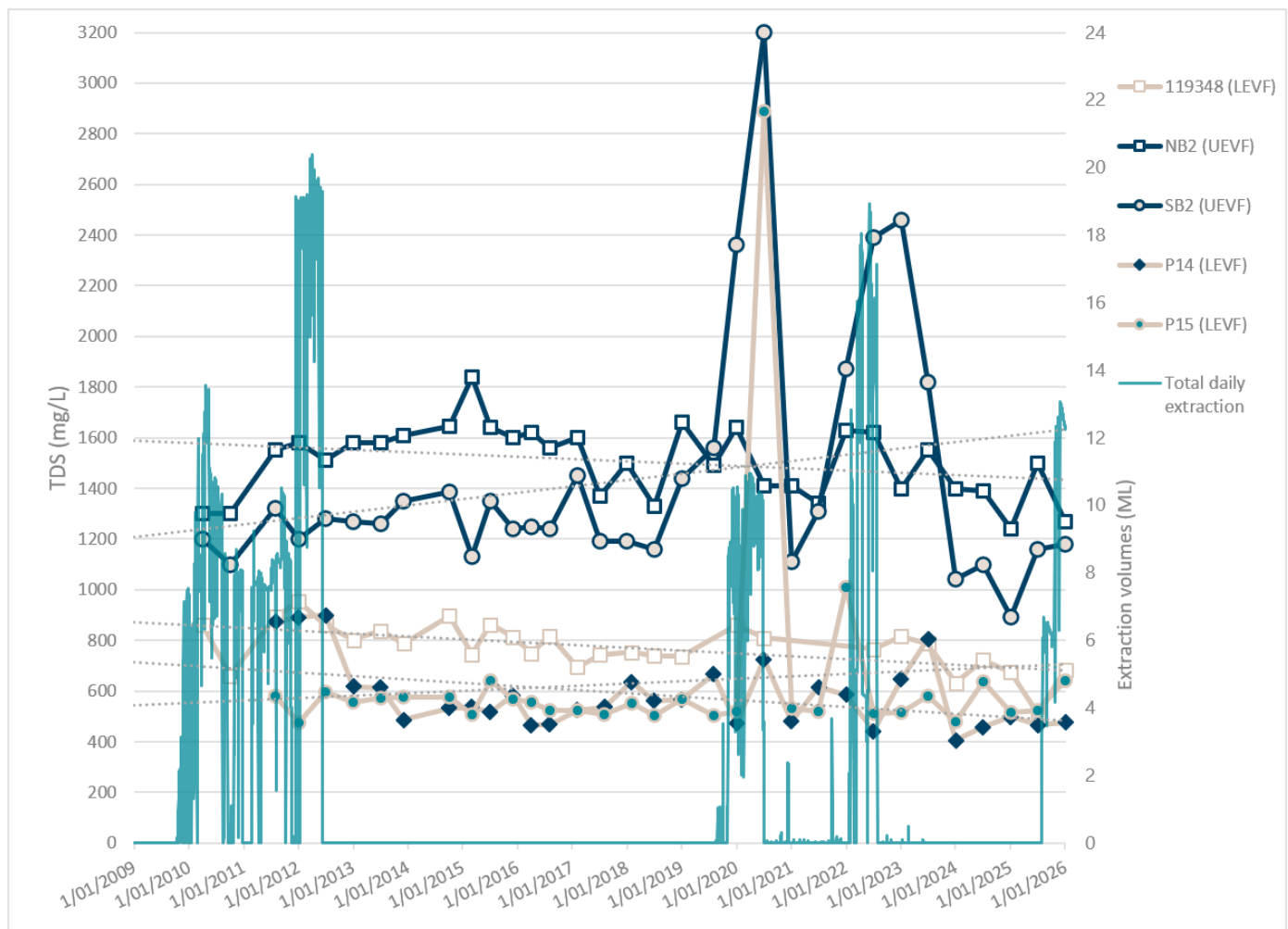


Figure 5: Groundwater quality results – deep observation bores. Linear regression lines were added for each bore to compare the results over the monitoring period. The results from the past 12 months were consistent with the historic record.

EC is measured in both field and laboratory, whereas TDS is only measured in the laboratory. Both are taken to measure the salinity in groundwater samples. The TDS readings are measured in controlled laboratory conditions by weighing the residual solids that remain after the water from the sample is evaporated. This method is proven to be much more accurate than the EC readings taken in the field, where an electrical current is passed through the sample and measured. Since the TDS yields more accurate results, these results have been used to analyse the trends in the groundwater salinity.

Given its proximity to the coastline, P14 is also tested for chloride and bromide to monitor for potential seawater intrusion. Testing began in December 2013 and has continued bi-annually since then. Seawater in an open ocean has a constant chloride/bromide ratio of approximately 285. Therefore, a decreasing chloride/bromide ratio, in conjunction with rising salinity can be indicative of saline intrusion. Results in Figure 6 show that there is no indication of saline intrusion at observation bore P14. The spike in chloride/bromide ratios in bore P14 in January 2026 – i.e. away from the sea water ratio, indicates potential recharge, rather than saline intrusion.

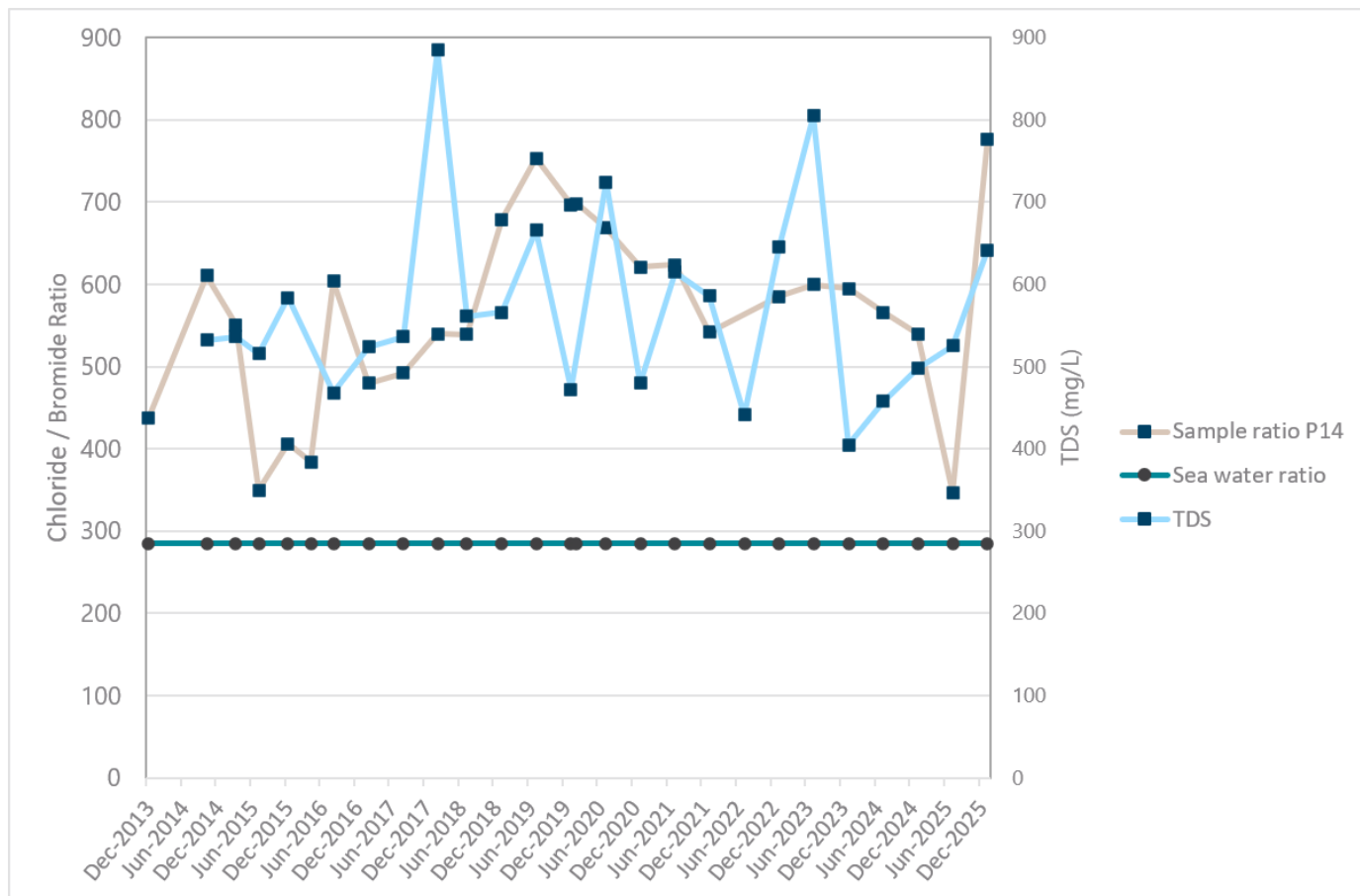


Figure 6 Chloride/bromide ratios over time. The trend remains above the 285:1 ratio associated with seawater. Hence there continues to be no indication of saline intrusion at P14 to date.

Shallow observation bores

The 2025-26 groundwater salinity results from the shallow observation bores are provided in Table 4. Groundwater salinity monitoring at the shallow observation bores commenced in April 2015, which provides the opportunity to look at longer-term trends. Figure 7 below shows the trend of each shallow observation bore over time using the data available.

The assessment of groundwater quality is primarily focused on salinity as the main indicator of changes in the aquifer system. Salinity levels in the ASA generally fluctuate more than in the upper or lower eastern view formations. This is potentially due to the variability in water levels in the ASA as a result of climatic conditions, as well as ongoing flushing of acidity and metals from naturally occurring acid sulfate soils within the ASA. Results for shallow observation bore water levels versus salinity levels are provided in Appendix G.

Table 4: Groundwater Quality Results – Shallow Observation bores

			Field Parameters			Lab Result	
Bore ID	Aquifer	Date	Temp °C	pH	EC (µS/cm)	EC (µS/cm)	TDS (mg/L)
Anglesea River Catchment							
WTOB3	ASA	Jul-25	14.5	6.22	1450	1560	824
		Jan-26	16.4	5.71	1432	1500	748
P7B	ASA	Jul-25	10.7	4.64	1450	1580	1070
		Jan-26	16.8	3.02	1430	1470	846
P8	ASA	Jul-25	12	5.61	2180	2270	1230

		Jan-26	15.5	4.29	2160	2110	2200
P19	UEVF	Jul-25	14.5	6.24	1216	1300	754
		Jan-26	15.9	4.95	1202	1200	530
P12	LEVF	Jul-25	10.2	6.26	1040	1180	612
		Jan-26	16	5.03	1140	1150	524
WTOB2	ASA	Jul-25	11.8	4.58	4960	5190	3180
		Jan-26	14.4	4.17	3518	3550	2140
Salt Creek Catchment							
P16	LEVF	Jul-25	11.1	5.01	503	554	465
		Jan-26	17.3	5.02	556	547	404
P17	ASA	Jul-25	12	6.93	1400	1520	823
		Jan-26	16.9	6.54	1180	1380	742
P1	ASA	Jul-25	12.5	4.97	368	371	467
		Jan-26	15.8	3.98	736	662	479
WTOB1	ASA	Jul-25	15.2	5.6	1217	1280	1740
		Jan-26	16	5.24	706	727	500

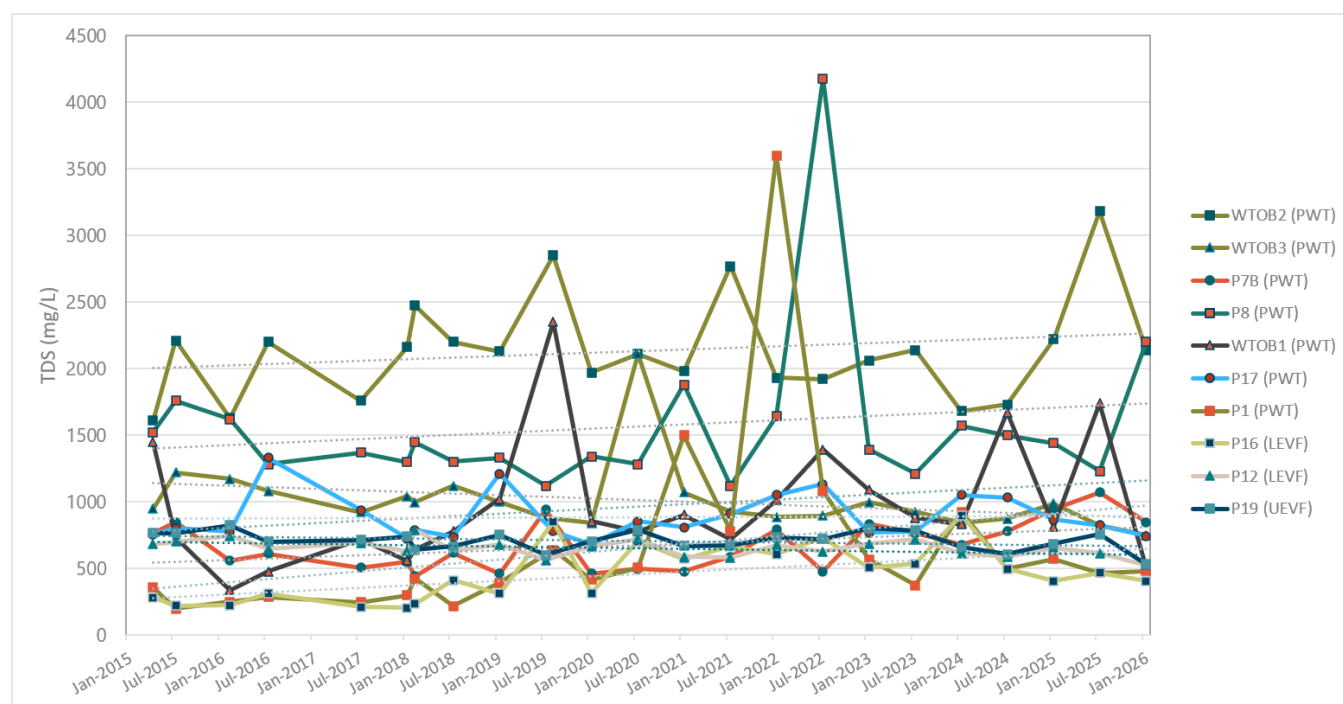


Figure 7: Groundwater TDS results – shallow observation bores

6.2 Surface water quality – field testing

In line with the MAP, Barwon Water monitors surface water quality at the sites and frequency listed in Table 5.

The objective of this sampling is to;

- monitor surface water quality over time, and identify any potential changes,
- assist in the assessment of groundwater and surface water interaction and changes over time,
- assist in understanding the water quality changes that are driven by acid sulfate soils within the catchment.

The water quality parameters tested are EC, TDS, pH, Dissolved Oxygen (DO) and temperature, and location of the surface water sites has been provided in Appendix B. The full results from the field testing of surface water sites are provided in Appendix C, with EC and pH results shown in an upstream to downstream direction provided below in Table 6 and Table 7, respectively.

Table 5: Surface water quality sites – field testing

Catchment	BW ID	Site ID	SINo.	Site description	Monitoring frequency
Salt Creek	SV3	GS7	235274A	Breakfast Creek Tributary @ V notch	Monthly
	SV1	GS1	235273A	Breakfast Creek @ Road Bridge	Monthly
	SV4	GS2	235276A	Salt Creek @ Denhams Track	Monthly
	SV2	GS3	235222A	Salt Creek (Encoder) @ Alcoa	Monthly
	SGP2-B (pool)	N/A	235275A	Salt Creek (Pool) above swamp @ Denham Track	Monthly
Anglesea River	AGP1-B (pool)	N/A	235271A	Upper Anglesea River @ AARC	Monthly
	AV1	GS4	235270A	Upper Anglesea River @ AARC (V Notch)	Monthly
	AV3	GS6	235277A	Anglesea River @ Gumflats Road	Monthly
	ASP7 (pool)	N/A	235280A	Anglesea Swamp @ Vegetation Site P7	Monthly
	AGP2 (pool)	N/A	235272A	Anglesea Wetlands @ Allardyne Track	Monthly
	AV2	GS5	235260A	Anglesea River (Marshy Creek) @ Alcoa	Monthly

Table 6: Surface water - EC results from field testing (2025-26)

Date	Salt Creek				Anglesea River		
	235274A	235273A	235276A	235222A	235270A	235277A	235260A
	SV3	SV1	SV4	SV2	AV1	AV3	AV2
	Upstream -> Downstream				Upstream -> Downstream		
Jul-25	572	785	355	294	452	Dry	Dry
Aug-25	489	574	275	No Access	1386	Dry	No Access
Sep-25	465	613	273	268	1395	Dry	6190
Oct-25	457	520	305	343	1486	Dry	5970
Nov-25	432	859	No Access	306	1321	Dry	5860
Dec-25	431	554	385	356	1448	Dry	5860
Jan-26	Dry	Dry	Dry	Dry	Dry	Dry	5830
Feb-26	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Mar-26	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Apr-26	Dry	Dry	Dry	Dry	Dry	Dry	Dry
May-26	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Jun-26	290	Dry	311	378	Dry	Dry	Dry

Note: 'Dry' indicates that no water was present at the site at the time of sampling. 'No Access' indicates access was restricted at time of sampling due to planned burns.

Table 7: Surface water – pH results from field testing (2025-26)

Date	Salt Creek	Anglesea River
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	235274A	235273A	235276A	235222A	235270A	235277A	235260A
	SV3	SV1	SV4	SV2	AV1	AV3	AV2
	Upstream -> Downstream				Upstream -> Downstream		
Jul-25	5.4	5.9	6.1	7.3	6.3	Dry	Dry
Aug-25	4.4	4.5	5	No Access	4.6	Dry	No Access
Sep-25	4.7	4.8	5.1	4.4	4.6	Dry	2.8
Oct-25	4.9	5.2	5.1	4.6	4.8	Dry	2.7
Nov-25	4.8	5.2	No Access	4.7	4.4	Dry	2.7
Dec-25	5.1	Dry	Dry	Dry	Dry	Dry	2.6
Jan-26	Dry	Dry	Dry	Dry	Dry	Dry	3.1
Feb-26	Dry	Dry	Dry	Dry	Dry	Dry	2.3
Mar-26	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Apr-26	Dry	Dry	Dry	Dry	Dry	Dry	Dry
May-26	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Jun-26	5.3	Dry	6.4	6.1	Dry	Dry	Dry

Note: 'Dry' indicates that no water was present at the site at the time of sampling. 'No Access' indicates access was restricted at time of sampling due to planned burns.

6.3 Surface water quality – laboratory testing

In line with the MAP, Barwon Water conducts laboratory testing from samples collected at all sites listed in Table 8. This sampling is conducted biannually (in summer and winter) and is analysed by Australian Laboratory Services (ALS), a NATA accredited laboratory (Accreditation Number 992), for major cations and anions, salinity (EC and TDS) and pH. The full results from the laboratory testing of surface water sites are provided in Appendix D.

Table 8: Surface water quality sites – laboratory testing

Catchment	BW ID	Site ID	SINo.	Site description
Salt Creek	SV3	GS7	235274A	Breakfast Creek Tributary @ V notch
	SV1	GS1	235273A	Breakfast Creek @ Road Bridge
	SV4	GS2	235276A	Salt Creek @ Denhams Track
	SV2	GS3	235222A	Salt Creek (Encoder) @ Alcoa
Anglesea River	AV1	GS4	235270A	Upper Anglesea River @ AARC (V Notch)
	AV3	GS6	235277A	Anglesea River @ Gumflats Road
	AV2	GS5	235260A	Anglesea River (Marshy Creek) @ Alcoa

6.4 Water Quality Sampling – Observations

In the production bores, salinity remained stable over the reporting period while temperature indicated a slight declining trend. These results were broadly consistent with previous periods of pumping, observed variation was within expected ranges for typical borefield operating periods.

Groundwater quality results for both deep and shallow observation bores over the reporting period were consistent with historic trends and there was no indication of saline intrusion at coastal monitoring bore P14.

Surface water quality results from both field and laboratory testing showed that changes in conductivity from upstream to downstream varied between Salt Creek and the Anglesea River (Table 6). This is known to vary between depending on catchments and with climate conditions. In the Anglesea River, pH values were consistently lower downstream of the swamp (Table 7). This is consistent with the current understanding that the source of acidity in the catchment is due to the presence of actual and potential acid sulfate soils within the swamp. When the catchments are subjected to wetting and drying cycles the pyritic sediments are oxidised, causing acid generation in the swamp which is then released downstream as rainfall flushes the stored acid.

7. Groundwater trigger levels (Clause 16.2 E)

As outlined in the Bulk Entitlement, groundwater trigger levels are set for two bores in the Anglesea Swampland:

- Bore P19: Monitoring the Upper Eastern View Formation (UEVF)
- Bore P8: Monitoring the Alluvial Swamp Aquifer (ASA)

The trigger levels have been developed to account for seasonal variation in groundwater levels by using groundwater levels from bore P17 as a reference. As such, the trigger levels are calculated using the monthly average groundwater level data based on the following formulae:

$$\begin{aligned}P8 &= 0.3131 * P17 + 9.4666 - 2 \text{ Standard Deviations of Error} \\P19 &= 0.2391 * P17 + 16.82 - 2 \text{ Standard Deviations of Error}\end{aligned}$$

The outputs from the trigger level monitoring are shown in Figure 8. At all times during 2025-26, groundwater levels within both of the trigger bores remained above the trigger levels. Should groundwater levels in the UEVF bore (P19) and ASA bore (P8) both fall below their respective trigger level, Barwon Water must immediately notify the Minister and reduce or cease pumping.

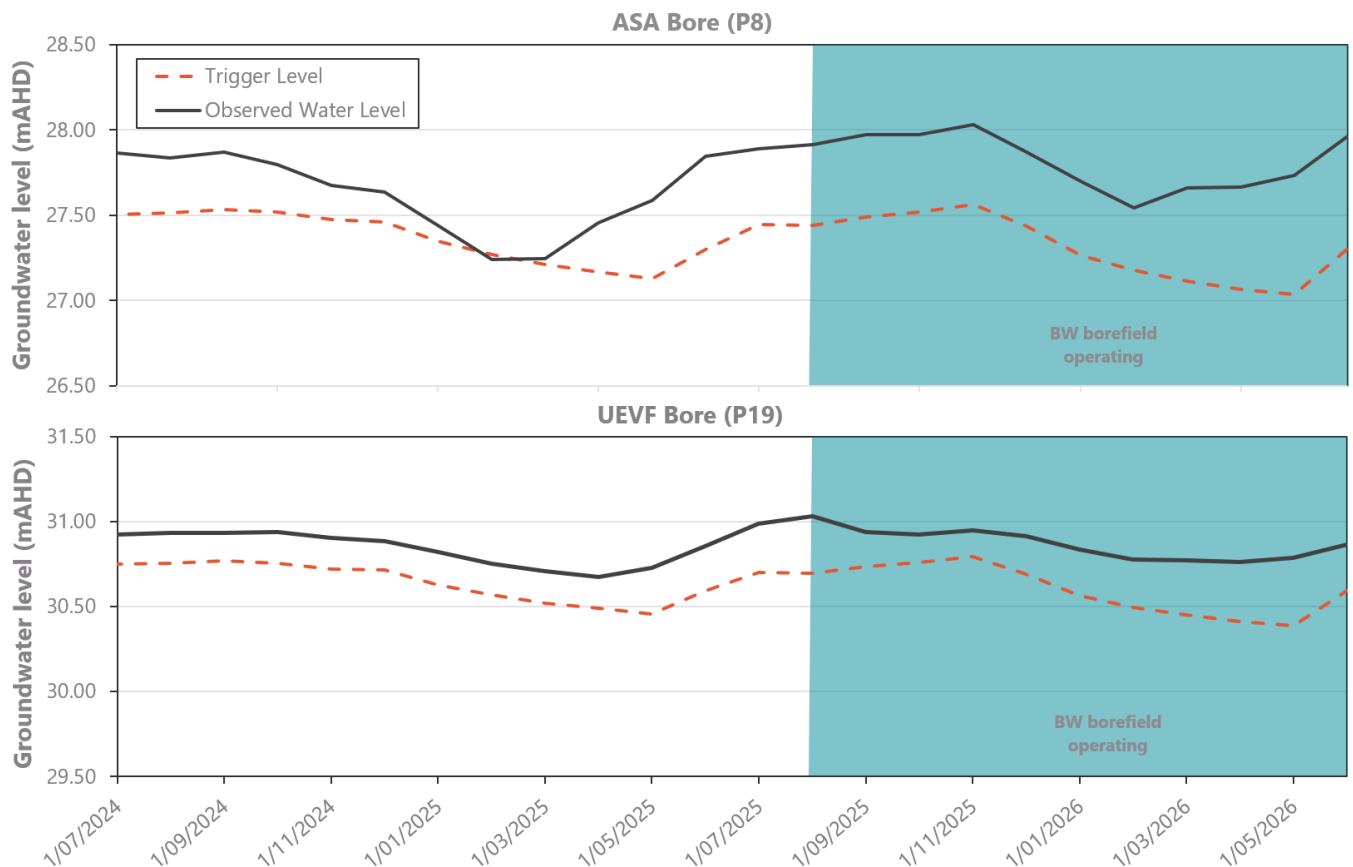


Figure 8: Previous two years groundwater and trigger levels for P8 and P19 bores. Alluvial Swamp Aquifer (ASA) bore P8 met the trigger level in early 2025 due to dry conditions which occurred when the borefield was in standby mode (not pumping)

8. Issues in implementing an approved program or restoring groundwater levels (Clause 16.2 D, 16.2 F)

8.1 Water quality sampling

Monthly water quality sampling is conducted at eleven surface water sites to monitor the pH, temperature, DO and EC. Some of the sampling sites were found to be dry during these monitoring events and therefore sampling could not be completed.

8.2 Typographical error in the Bulk Entitlement

As identified in 2014, there is an error in the trigger level formula outlined in the Bulk Entitlement for bore P19. This is a typographical error and it does not impact on the trigger levels. Noting that Barwon Water have recently developed a new trigger level approach based on the recommendations from the 2024 Bulk Entitlement review and will be seeking to adopt this via a Bulk Entitlement Amendment.

8.3 Changes to the Monitoring and Assessment Program (MAP)

Since the MAP was last approved in 2014, the following changes have occurred to the monitoring network:

- Barwon Water constructed new coastal bore P21 in 2021/2022 to replace DEECA's bore 119349 outlined in the MAP, as this bore was in poor condition and needed to be decommissioned.
- Alcoa bore WB9 was decommissioned by Alcoa in September 2020 and has been removed from the monitoring program.

- Bore 122149 was decommissioned by DEECA in 2016 due to integrity issues and has been replaced by bore 115867.

In addition to this, bore integrity issues have been identified in state monitoring bore 115868. On 28 June 2022, Barwon Water submitted a request for a section 27 consent with Parks Victoria to install a replacement bore at this location. Barwon Water continue to work with Parks Victoria on finalising the approvals required to construct a new observation bore at this location. In the meantime, monitoring of bore 115868 continues.

The MAP was also reviewed as part of the 2024 Bulk Entitlement Review and works are underway to adopt the recommendations from this review via a Bulk Entitlement Amendment.

9. Arrangements with existing groundwater users (Clause 16.2 G)

There have been no arrangements entered into that would trigger this clause.

10. Independent Arbitration (Clause 16.2 H)

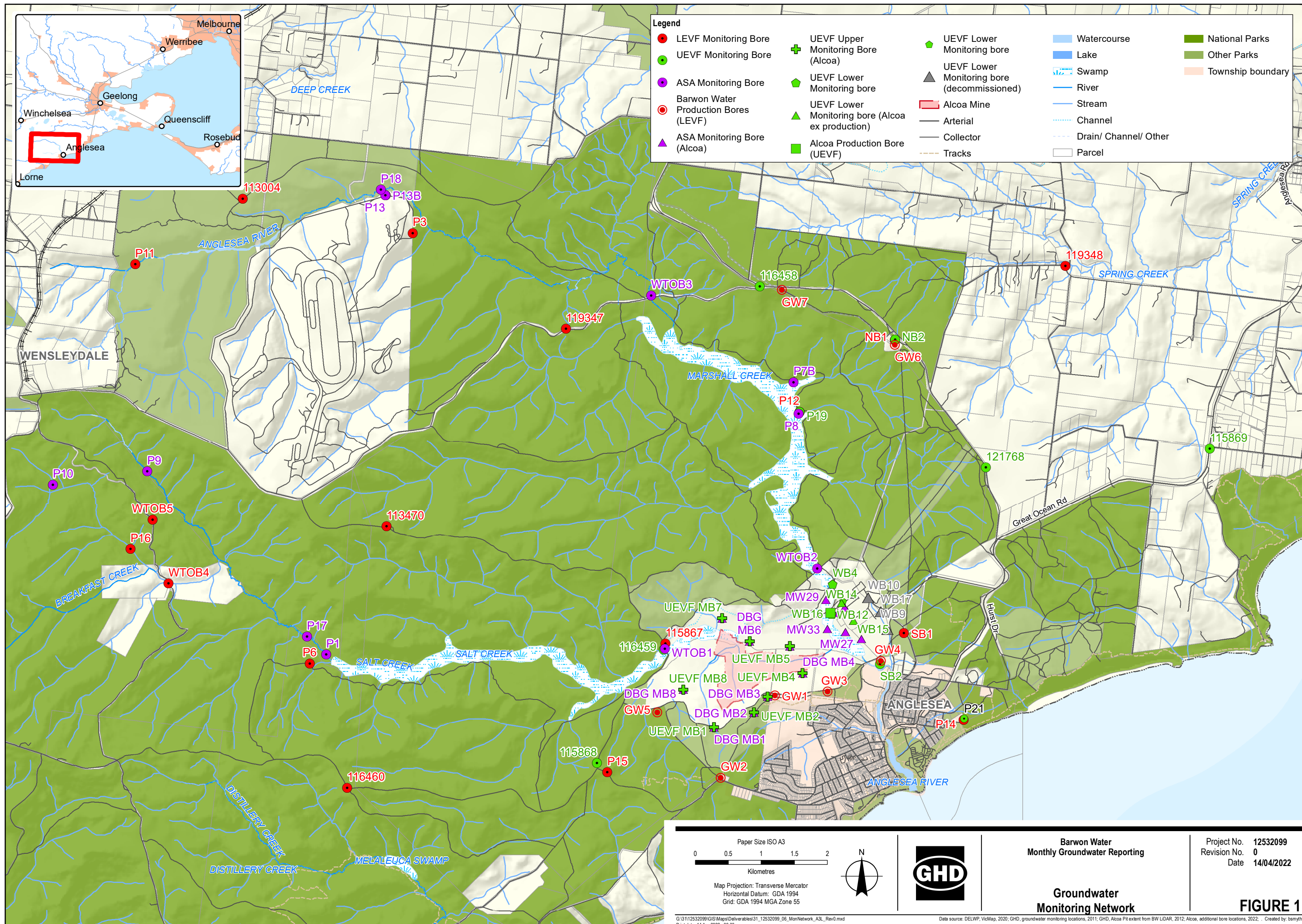
Independent arbitration has not been necessary.

11. Difficulties in compliance with the order (Clause 16.2 I)

Other than the issues outlined in Section 8, there have been no other difficulties in complying with the requirements of the Bulk Entitlement.

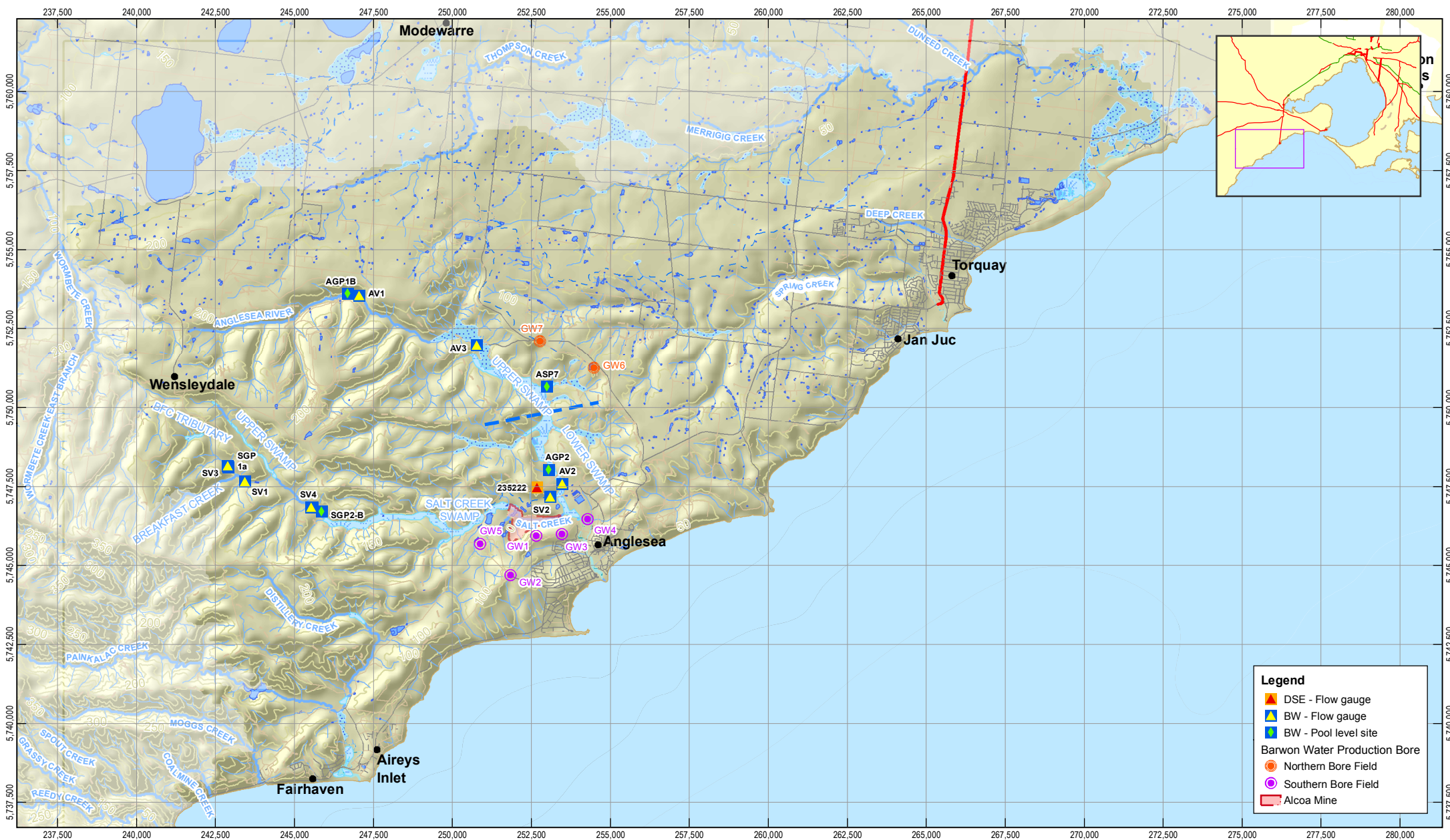
Appendix A

Observation bore locations



Appendix B

Surface water monitoring locations



1:160,000 Paper Size A4

0 0.5 1 2 3 4 5
Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Towns
- Highway
- Sealed Road (Arterial & Local)
- Unsealed Road
- Unsealed Track
- Estuary
- Lake
- Flat
- Swamp
- pondage
- River
- Stream
- Channel / Drain
- Connector
- Contours (50m)



Barwon Water
Anglesea Borefield
Numerical Modelling and Recalibration
Surface Water
Monitoring Locations

Job Number 31-32669
Revision A
Date 12 Jun 2015

Figure 2

G:\31\32669\GIS\Maps\Deliverables\0002_Anglesea_Monitoring_2014_SW_Locations.mxd

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Data source: VicMap, DSE, ABARES, Corangamite CMA, DPI, Barwon Water, BOM and SILO Created by:jeamonth

Appendix C

Surface water quality results - field testing

OFFICIAL

Name Breakfast Creek Tributary @ V notch
GHD/BW ID SV3
SINo. 235274A
BE Map ID GS7

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow at V notch	Weather conditions	Comments
2/07/2025	8:00	0.14	572	354.6	9.1	9.1	5.4	8.7	4.3	0.09	Sunny	Water clear. Not Backed up Falling over v-notch low flow
12/08/2025	7:50	0.106	489	303.2	10.25	10.25	4.4	8.7	8.5	0.003	Cloudy	Water clear
8/09/2025	12:15	0.111	465	288.3	9.37	9.37	4.7	10.2	15.3	0.01	Cloudy	Water clear
14/10/2025	6:20	0.12	457	283.3	9.55	9.55	4.9	10	9.4	0.03	Cloudy	Water clear
11/11/2025	8:40	0.136	432	267.8	9.28	9.28	4.8	11	11.5	0.08	Cloudy	Water clear
9/12/2025	7:00	0.098	431	267.2	8.39	8.39	5.1	13.3	15.6	0.01	Cloudy	Water clear, trickle flow
14/01/2026	7:15	DRY	DRY	DRY	DRY	DRY	DRY	DRY	15.4	0	Cloudy	Dry creek
10/02/2026	6:40	DRY	DRY	DRY	DRY	DRY	DRY	DRY	15.2	0	Cloudy	Dry creek
12/03/2026	11:15	DRY	DRY	DRY	DRY	DRY	DRY	DRY	14.8	0	Cloudy	Dry creek
15/04/2026	11:15	DRY	DRY	DRY	DRY	DRY	DRY	DRY	14.9	0	Cloudy	Dry creek
12/05/2026	9:30	DRY	DRY	DRY	DRY	DRY	DRY	DRY	6.2	0	Cloudy	Dry creek
11/06/2026	11:15	0.012	290	179.8	8.75	8.75	5.3	5.3	9.1	0	Cloudy	Water clear, Pool only

OFFICIAL

Name Breakfast Creek @ Road bridge
GHD/BW ID SV1 - Bridge
SINo. 235273A
BE Map ID GS1

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
2/07/2025	8:40	0.19	785	486.7	10.05	10.05	5.9	7.7	4.2	Flowing	Cloudy	Water clear, Slightly Backed up DS after road bridge low flow @ site
12/08/2025	8:30	0.17	574	355.9	8.37	8.37	4.5	7.4	8.5	Flowing	Cloudy	Water clear, Slightly Backed up DS after road bridge low flow @ site, Some sand and silt removed DS of road culverts to allow better flow
8/09/2025	12:45	0.153	613	380.1	8.1	8.1	4.8	11.3	15.7	Flowing	Cloudy	Water clear, Slightly Backed up DS after road bridge low flow @ site
14/10/2025	7:00	0.182	520	322.4	9.34	9.34	5.2	10.2	9.9	Flowing	Cloudy	Water clear, Slightly Backed up DS after road bridge low flow @ site
11/11/2025	9:10	0.21	859	532.6	9.78	9.78	5.2	11.1	9.2	Flowing	Cloudy	Water clear, Flowing freely over v-notch
9/12/2025	7:30	0.101	554	343.5	8.23	8.23	5.2	14.2	15.3	Flowing	Cloudy	Water clear, Flowing freely over v-notch TRICKLE FLOW
14/01/2026	7:40	DRY	X	X	X	X	X	X	11.1	DRY	Cloudy	Dry creek
10/02/2026	7:10	DRY	X	X	X	X	X	X	16.5	DRY	Cloudy	Dry creek
12/03/2026	11:30	DRY	X	X	X	X	X	X	14.9	DRY	Cloudy	Dry creek
15/04/2026	11:40	DRY	X	X	X	X	X	X	14.9	DRY	Cloudy	Dry creek
12/05/2026	10:00	DRY	X	X	X	X	X	X	6.4	DRY	Cloudy	Dry creek
11/06/2026	11:50	DRY	X	X	X	X	X	X	9.5	DRY	Cloudy	Dry creek

Name Salt Creek @ Denham's Track
GHD/BW ID SV4
SINo. 235276A
BE Map ID GS2

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
2/07/2025	11:15	0.217	355	220	9.84	9.84	6.1	7.7	7.9	Flowing	Sunny	Flowing
11/08/2025	12:55	0.161	275	171	8.91	8.91	5	7.6	13.4	Flowing	Sunny	Flowing
9/09/2025	12:15	0.162	273	169	8.95	8.95	5.1	10.1	16.4	Flowing	Cloudy	Flowing
14/10/2025	9:35	0.2	305	189	9.76	9.76	5.1	9.8	15.1	Flowing	Cloudy	Flowing
11/11/2025	NO ACCESS FFM PLANNED BURN											
9/12/2025	9:45	0.13	385	239	9.41	9.41	5.2	13.5	17.9	Flowing	Sunny	Flowing
14/01/2026	9:20	0	X	X	X	X	X	X	16	Dry	Cloudy	Dry
10/02/2026	8:40	0	X	X	X	X	X	X	17.3	Dry	Cloudy	Dry
13/03/2026	7:35	0	X	X	X	X	X	X	12.5	Dry	Cloudy	Dry
15/04/2026	13:00	0	X	X	X	X	X	X	15.2	Dry	Cloudy	Dry
12/05/2026	11:30	0	X	X	X	X	X	X	14.1	Dry	Cloudy	Dry
11/06/2026	13:45	0.16	311	193	7.73	7.73	6.4	10	12.1	Flowing	Cloudy	Flowing

Name Salt Creek (Encoder) @ Alcoa
GHD/BW ID SV2
SINo. 235222A
BE Map ID GS3

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
1/07/2025	9:45	0.021	294	182.3	10.21	10.21	7.3	8.9	9.7	Trickle flow	Cloudy	Muddy Milky colour
11/08/2025	NO ACCESS FFM PLANNED BURN											
11/09/2025	10:20	BELOW	268	166.2	10.66	10.66	4.4	12.2	11	Stagnant	Cloudy	Muddy Milky colour
13/10/2025	8:15	BELOW	343	212.7	9.81	9.81	4.6	15.3	6	Stagnant	Cloudy	Muddy Milky colour
10/11/2025	7:40	BELOW	306	189.7	9.02	9.02	4.7	13.2	12.4	Stagnant	Cloudy	Muddy Milky colour
8/12/2025	8:10	BELOW	356	220.7	9.74	9.74	4.8	15.2	11.5	Stagnant	Cloudy	Muddy Milky colour
13/01/2026	7:50	DRY	X	X	X	X	X	X	16.7	DRY	Cloudy	DRY
9/02/2026	8:10	DRY	X	X	X	X	X	X	18.8	DRY	Cloudy	DRY
12/03/2026	8:10	DRY	X	X	X	X	X	X	15.3	DRY	Cloudy	DRY
29/04/2026	9:00	DRY	X	X	X	X	X	X	10.2	DRY	Cloudy	DRY
11/05/2026	8:40	DRY	X	X	X	X	X	X	5.3	DRY	Sunny	DRY
10/06/2026	9:25	BELOW	378	234.4	10.29	10.29	6.1	12.7	14.4	Stagnant	Cloudy	Muddy Milky colour

Name Salt Creek (Pool)above swamp @ Denham Track (new downstream site)
GHD/BW ID SGP2-B
SINo. 235275A
BE Map ID

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
2/07/2025	10:50	1.973	316	195.9	10.76	7.51	6.5	8.8	7.7	Stagnant	Sunny	Water clear
11/08/2025	12:30	1.882	315	195.3	9.21	3.45	4.7	10.2	13.2	Stagnant	Sunny	Water clear
9/09/2025	12:20	1.913	276	171.1	9.73	3.32	5	10.3	16.2	Stagnant	Cloudy	Clear tanin stain. Algae cloud on pool bed strafied in bottom water layer
14/10/2025	9:05	1.979	403	249.9	10.04	10.04	5.1	11	15.2	Stagnant	Cloudy	Clear tanin stain. Algae cloud on pool bed strafied in bottom water layer
11/11/2025	NO ACCESS FFM PLANNED BURN											
9/12/2025	9:30	1.89	385	238.7	7.03	2.08	5.3	12.8	17.3	Stagnant	Sunny	Water clear
14/01/2026	9:05	1.194	498	308.8	7.88	3.11	5.8	17.1	16.9	Stagnant	Cloudy	Dark tanin stain. Slime on water surface.
10/02/2026	8:40	0.856	473	293.3	6.27	6.27	5.9	17.7	17.5	Stagnant	Cloudy	Dark tanin stain. Slime on water surface.
13/03/2026	7:20	0.66	469	290.8	9.66	9.66	7.7	12.3	12.3	Stagnant	Cloudy	Small milky brown pool. Slime on water surface.
15/04/2026	12:35	0.57	552	342.2	7.05	7.05	7.1	15.7	14.9	Stagnant	Cloudy	Dark tanin stain. Slime on water surface.
12/05/2026	11:10	0.538	526	326.1	9.41	9.41	6.8	9.4	13.9	Stagnant	Sunny	Dark tanin stain. Slime on water surface.
11/06/2026	13:00	1.873	300	186	8.21	8.21	6.1	12.2	12.2	Stagnant	Cloudy	Water clear

Name Upper Anglesea River (Pool) @ Australian Automotive Research Centre - (New downstream pool site)
GHD/BW ID AGP1-B
SINo. 235271A
BE Map ID

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
1/07/2025	13:05	GH 0.327	1528	947.4	9.02	9.02	4.7	10	10.4	Stagnant	CLOUDY	Water tanin stained.
11/08/2025	10:55	GH 1.372	1789	1109.2	7.57	7.57	4.4	10.1	10.1	Stagnant	Sunny	Water clear tanin stained.
8/09/2025	11:00	GH 1.835	1706	1057.7	6.79	3.49	4.3	15	15	Stagnant	CLOUDY	Water tanin stained.
13/10/2025	11:50	GH 2.122	1634	1013.1	5.61	2.31	5.3	11.1	16.3	Stagnant	CLOUDY	Water tanin stained.
11/11/2025	7:50	GH 2.295	1583	981.5	8.72	3.11	5	12.2	11.8	Stagnant	CLOUDY	Water tanin stained.
8/12/2025	11:40	GH 2.280	1672	1036.6	6.41	2.11	5	12	23.3	Stagnant	CLOUDY	Water tanin stained.
13/01/2026	11:15	GH 2.038	1822	1129.6	4.91	4.91	5.4	16.9	20.2	Stagnant	CLOUDY	Water tanin stained.
9/02/2026	11:40	GH 1.716	1859	1152.6	5.28	2.71	5.7	18.9	19.2	Stagnant	CLOUDY	Water tanin stained.
11/03/2026	10:55	GH 1.380	1811	1122.8	7.89	7.89	7.1	17.9	20.1	Stagnant	CLOUDY	Water tanin stained.
15/04/2026	10:30	GH 1.104	1713	1062.1	7.54	7.54	7.3	14.8	14.8	Stagnant	CLOUDY	Water tanin stained.
11/05/2026	12:30	GH 0.930	1708	1059	8.45	8.45	6.8	15.6	15.2	Stagnant	SUNNY	Water tanin stained.
11/06/2026	9:55	GH 0.916	1399	867.4	7.29	7.29	6.2	8.4	8.2	Stagnant	CLOUDY	Water tanin stained.

Name Upper Anglesea River @ AARC (V notch site)
GHD/BW ID AV1
SINo. 235270A
BE Map ID GS4

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
1/07/2025	12:35	BELOW	452	280.24	7.7	7.68	6.3	10.5	10.4	Stagnant	Cloudy	Water Milky clear.
11/08/2025	10:35	0.053	1386	859.32	8.5	8.49	4.6	8	9.1	Stagnant	Sunny	Water clear.
8/09/2025	10:40	0.004	1395	864.9	7.4	7.4	4.6	11.6	14.9	Stagnant	Cloudy	Water Milky clear.
13/10/2025	11:25	BELOW	1486	921.32	7.3	7.3	4.8	11.8	15.1	Stagnant	Cloudy	Water Milky clear.
11/11/2025	7:30	0.139	1321	819.02	9.4	9.38	4.4	10.6	7.9	Stagnant	Cloudy	Water Milky clear.
8/12/2025	11:20	0.066	1448	897.76	6.9	6.85	4.8	13.8	20.9	Stagnant	Cloudy	Water Milky clear.
13/01/2026	10:55	DRY	X	X	X	X	X	X	18	DRY	Cloudy	DRY
9/02/2026	11:15	DRY	X	X	X	X	X	X	18.9	DRY	Cloudy	DRY
11/03/2026	10:35	DRY	X	X	X	X	X	X	18.2	DRY	Cloudy	DRY
15/04/2026	10:10	DRY	X	X	X	X	X	X	14.4	DRY	Cloudy	DRY
11/05/2026	12:10	DRY	X	X	X	X	X	X	15	DRY	Sunny	DRY
11/06/2026	9:20	DRY	X	X	X	X	X	X	12.9	DRY	Cloudy	DRY

Name Anglesea River @ Gumflats Road
GHD/BW ID AV3
SINo. 235277A
BE Map ID GS6

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
1/07/2025	12:00	DRY	X	X	X	X	X	X	10.4	Dry	Cloudy	No Sampling as pool dry
11/08/2025	9:05	DRY	X	X	X	X	X	X	1	Dry	Cloudy	No Sampling as pool dry
8/09/2025	9:35	DRY	X	X	X	X	X	X	14.8	Dry	Cloudy	No Sampling as pool dry
13/10/2025	10:30	DRY	X	X	X	X	X	X	9	Dry	Cloudy	No Sampling as pool dry
10/11/2025	10:30	DRY	X	X	X	X	X	X	14.1	Dry	Cloudy	No Sampling as pool dry
8/12/2025	10:05	DRY	X	X	X	X	X	X	16.8	Dry	Cloudy	No Sampling as pool dry
13/01/2026	9:45	DRY	X	X	X	X	X	X	17.5	Dry	Cloudy	No Sampling as pool dry
9/02/2026	10:15	DRY	X	X	X	X	X	X	19	Dry	Cloudy	No Sampling as pool dry
11/03/2026	10:10	DRY	X	X	X	X	X	X	20.3	Dry	Cloudy	No Sampling as pool dry
15/04/2026	9:10	DRY	X	X	X	X	X	X	14.3	Dry	Cloudy	No Sampling as pool dry
11/05/2026	11:05	DRY	X	X	X	X	X	X	12.1	Dry	Sunny	No Sampling as pool dry
10/06/2026	13:25	DRY	X	X	X	X	X	X	15.7	DRY	Cloudy	No Sampling as pool dry.

OFFICIAL

Name Anglesea Swamp @ Vegetation Site P7
GHD/BW ID ASP7
SINo. 235280A
BE Map ID

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
1/07/2025	11:20	0.05	2910	1804	10.57	10.57	3.4	10.4	10.1	STAGNANT	CLOUDY	Water clear
11/08/2025	NO ACCESS FFM PLANNED BURN											
11/09/2025	11:15	BELOW	2990	1854	7.49	7.49	2.7	14.6	11.3	STAGNANT	CLOUDY	Water clear
13/10/2025	9:50	BELOW	3460	2145	7.04	7.04	2.7	12.3	5.2	STAGNANT	CLOUDY	Water clear
10/11/2025	9:30	BELOW	2860	1773	9.05	9.05	2.6	14.9	14.3	STAGNANT	CLOUDY	Water clear
8/12/2025	9:25	BELOW	3320	2058	8.79	8.79	2.7	15.9	12	STAGNANT	CLOUDY	Water clear
13/01/2026	9:10	DRY	X	X	X	X	X	X	17.2	DRY	CLOUDY	DRY
9/02/2026	9:35	DRY	X	X	X	X	X	X	18.2	DRY	CLOUDY	DRY
12/03/2026	10:00	DRY	X	X	X	X	X	X	14.7	DRY	CLOUDY	DRY
15/04/2026	8:35	DRY	X	X	X	X	X	X	11	DRY	CLOUDY	DRY
11/05/2026	10:30	DRY	X	X	X	X	X	X	8.2	DRY	SUNNY	DRY
10/06/2026	12:25	DRY	X	X	X	X	X	X	15.9	DRY	CLOUDY	DRY

OFFICIAL

Name Anglesea Wetlands @ Allardyle Track
GHD/BW ID AGP2
SINo. 235272A
BE Map ID

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
1/07/2025	9:20	0.203	5930	3676.6	6.32	6.32	3.6	11.7	10.3	Stagnant	Cloudy	Water clear
11/08/2025	8:10	0.168	4870	3019.4	12.6	12.6	3.1	3.4	2.2	Stagnant	Sunny	Water clear
9/09/2025	10:10	0.117	4480	2777.6	9.49	9.49	2.7	16.8	13.2	Stagnant	Cloudy	Water clear
13/10/2025	8:50	0.053	4080	2529.6	9.31	9.31	3.1	16.2	11	Stagnant	Cloudy	Water clear
10/11/2025	8:25	0.218	4260	2641.2	8.65	8.65	2.7	13.8	12.5	Stagnant	Cloudy	Water clear
8/12/2025	8:35	DRY	X	X	X	X	X	X	6.5	DRY	Cloudy	DRY
13/01/2026	8:10	DRY	X	X	X	X	X	X	16.8	DRY	Cloudy	DRY
9/02/2026	8:40	DRY	X	X	X	X	X	X	18.1	DRY	Cloudy	DRY
12/03/2026	8:55	DRY	X	X	X	X	X	X	15.1	DRY	Cloudy	DRY
15/04/2026	7:45	DRY	X	X	X	X	X	X	11.1	DRY	Cloudy	DRY
11/05/2026	10:30	DRY	X	X	X	X	X	X	8.2	DRY	Cloudy	DRY
10/06/2026	10:30	DRY	X	X	X	X	X	X	15.7	DRY	Cloudy	DRY

Name Anglesea River (Marshy Creek) @ Alcoa
GHD/BW ID AV2
SINo. 235260A
BE Map ID GS5

Date	Time (EST)	Gauge Height (m)	EC (µS/cm)	TDS (mg/L)	DO (mg/L) (Top)	DO (mg/L) (Bottom)	pH	Water Temperature (°C)	Air Temperature (°C)	Flow State	Weather conditions	Comments
1/07/2025	8:35	DRY	DRY	DRY	DRY	DRY	DRY	DRY	8.2	DRY	Cloudy	DRY
11/08/2025												NO ACCESS FFM PLANNED BURN
11/09/2025	8:10	0.121	6190	3837.8	6.48	6.48	2.8	10.5	6.8	Flowing	Cloudy	Water very clear
13/10/2025	7:30	0.043	5970	3701.4	6.37	36.37	2.7	12.3	5.2	Flowing	Cloudy	Water very clear
10/11/2025	7:10	0.08	5860	3633.2	6.99	6.99	2.7	10.9	9.4	Flowing	Cloudy	Water very clear
8/12/2025	7:25	0.047	5860	3633.2	6.82	6.82	2.6	12.5	11	Flowing	Cloudy	Water very clear
13/01/2026	7:10	BELOW	5830	3614.6	7.36	7.36	3.1	17.6	16.1	Stagnant	Cloudy	THICK SLIME LAYER ON WATER SURFACE
9/02/2026	7:15	BELOW	6720	4166.4	3.12	3.12	2.3	18.6	17.6	Stagnant	Cloudy	THICK SLIME LAYER ON WATER SURFACE
12/03/2026	7:30	DRY	X	X	X	X	X	X	15.2	DRY	Cloudy	DRY
15/04/2026	8:35	DRY	X	X	X	X	X	X	11	DRY	Cloudy	DRY
11/05/2026	8:20	DRY	X	X	X	X	X	X	5.1	DRY	Cloudy	DRY
10/06/2026	8:50	DRY	X	X	X	X	X	X	14.6	DRY	Cloudy	DRY

Appendix D

Surface water quality results - laboratory testing

						Alkalinity			Anions by IC		Total Metals by ICP				pH
Catchment	Site	Date	Time (EST)	TDS (mg/L)	EC (µS/cm)	Total Alkalinity (mg CaCO ₃ / L)	Bicarbonate Alkalinity (mg CaCO ₃ / L)	Carbonate Alkalinity (mg CaCO ₃ / L)	Chloride (mg/L)	Sulphate (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	pH (Lab)
Salt Creek	SV3	10/02/2026	6:40:00 AM	Dry											
		2/07/2026	8:00:00 AM	520	730	<2	<2	<2	110	210	2	39	1	73	4
	SV1	10/02/2026	7:10:00 AM	Dry											
		2/07/2026	8:45:00 AM	450	680	11	11	<2	190	38	9	18	3	96	6
	SV4	10/02/2026	8:40:00 AM	Dry											
		2/07/2026	9:50:00 AM	450	680	11	11	<2	190	38	9	18	3	96	6
	SV2	9/02/2025	8:10:00 AM	Dry											
		1/07/2025	8:30:00 AM	150	260	3	3	<2	48	49	6	5	3	37	5.9
Anglesea River	AV1	9/02/2025	11:15:00 AM	Dry											
		1/07/2025	11:50:00 AM												
	AV3	9/02/2025	10:15:00 AM	Dry											
		1/07/2025	10:30:00 AM												
	AV2	9/02/2025	7:15:00 AM	4600	6700	<2	<2	<2	1400	1900	82	120	20	630	2.7
1/07/2025		7:50:00 AM	4100	5200	<2	<2	<2	1100	1800	79	120	12	530	3.1	

Appendix E

Groundwater quality results - laboratory testing

						Alkalinity				Major Ions					Ionic Balance		
Bore	Date	pH	TDS (mg/L)	EC (µS/cm)	Sulphate as SO4 (mg/L)	Carbonate as CaCO3	Bicarbonate as CaCO3 (mg/ L)	Hydroxide as CaCO3	Alkalinity (total) as CaCO3	Calcium (mg/L)	Chloride (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Total Cations (meq/l)	Total Anions (meq/L)	Ionic Balance
Inter-aquifer Flow Monitoring																	
119348	24/07/2025	7.48	513	1,410	<1,000	<1	159	<1	159	21	346	12	24	209	11.7	12.9	4.85
	21/01/2026	7.22	685	1,380	<1,000	<1	114	<1	114	21	388	11	23	214	11.8	13.2	5.48
NB2	16/07/2025	6.32	1,500	2,440	122,000	<1	34	<1	34	63	739	50	18	281	19.9	24.1	9.37
	15/01/2026	6.20	1,270	2,410	105,000	<1	67	<1	67	78	599	47	17	279	20.3	20.4	0.22
SB2	16/07/2025	5.31	1,160	2,010	136,000	<1	<1	<1	<1	19	616	49	35	242	16.4	20.2	10.4
	15/01/2026	5.99	1,180	2,070	103,000	<1	48	<1	48	19	527	45	33	227	15.4	18.0	7.80
P15	17/07/2025	6.15	525	978	48,000	<1	38	<1	38	6	283	18	12	116	7.13	9.74	15.4
	22/01/2026	5.52	642	903	51,000	<1	3	<1	3	4	285	17	9	123	7.18	9.16	12.1
Saline Intrusion Monitoring																	
P14	22/07/2025	6.42	466	875	<1,000	<1	92	<1	92	12	219	11	44	101	7.02	8.02	6.60
	19/01/2026	6.34	476	899	<1,000	<1	75	<1	75	10	237	12	47	117	7.78	8.18	2.54
Swamp GDE																	
WTOB2	15/07/2025	4.07	3,180	5,190	539,000	<1	<1	<1	<1	89	1,380	114	38	720	46.1	50.2	4.19
	14/01/2026	3.99	2,140	3,550	465,000	<1	<1	<1	<1	72	754	72	27	449	29.7	31.0	2.00
P7B	14/07/2025	4.03	1,070	1,580	104,000	<1	<1	<1	<1	23	452	32	6	208	13.0	14.9	6.93
	13/01/2026	4.15	846	1,470	89,000	<1	<1	<1	<1	21	421	33	6	207	12.9	13.7	3.03
P8	14/07/2025	4.09	1,230	2,270	119,000	<1	<1	<1	<1	45	654	52	13	318	20.7	20.9	0.57
	13/01/2026	4.62	2,200	2,110	112,000	<1	4	<1	4	41	635	51	13	305	19.8	20.3	1.20
WTOB3	15/07/2025	6.02	824	1,560	68,000	<1	9	<1	9	5	456	25	2	253	13.4	14.4	3.94
	14/01/2026	6.11	748	1,500	63,000	<1	16	<1	16	5	356	22	2	224	11.9	11.7	0.77
P17	15/07/2025	6.93	823	1,520	14,000	<1	101	<1	101	29	435	23	4	220	13.0	14.6	5.68
	12/01/2026	6.64	742	1,380	56,000	<1	131	<1	131	44	399	25	4	181	13.4	15.0	5.89
P1	15/07/2025	5.15	467	371	35,000	<1	<1	<1	<1	3	80	7	2	52	3.04	2.98	0.89
	12/01/2026	5.92	479	662	20,000	<1	30	<1	30	7	205	11	3	105	7.24	6.80	3.14
WTOB1	15/07/2025	5.77	1,740	1,280	70,000	<1	10	<1	10	6	376	19	2	212	11.1	12.3	4.82
	14/01/2026	5.66	500	727	55,000	<1	16	<1	16	4	191	11	2	114	6.26	6.85	4.54
Upper Anglesea Swamp and Trigger Level Site																	
P19	15/07/2025	6.45	754	1,300	18,000	<1	41	<1	41	12	380	17	22	183	10.5	11.9	6.21
	13/01/2026	6.38	530	1,200	17,000	<1	60	<1	60	13	376	19	23	187	10.9	12.2	5.30
P12	14/07/2025	6.35	612	1,180	8,000	<1	66	<1	66	14	330	15	23	179	10.3	10.8	2.31
	13/01/2026	6.53	524	1,150	8,000	<1	74	<1	74	12	341	15	24	180	10.3	11.3	4.58
Breakfast Creek Tributary																	
P16	14/07/2025	4.49	465	554	38,000	<1	<1	<1	<1	4	126	14	2	74	4.62	4.34	3.08
	12/01/2026	5.37	404	547	51,000	<1	8	<1	8	2	160	13	2	73	5.05	5.74	6.33

Appendix F

Monitoring and Assessment Activities Completed in 2025- 26

1. Purpose

Under the bulk entitlement for the Anglesea borefield, Barwon Water has established a comprehensive Monitoring and Assessment Program (MAP) that has been reviewed by independent experts and approved by the Minister for Water.

The objective of the MAP is to protect environmental values and the health of groundwater dependent ecosystems, whilst also continuing to collect data to build our understanding of the long-term sustainability of groundwater resources in the Anglesea area.

The following section provides an update on the MAP for the period of the annual report.

2. Groundwater level monitoring

Groundwater level monitoring was conducted at a daily frequency at 42 observation bores during the 2025-26 reporting period. For the two trigger bores (P8 and P19) and reference bore (P17) Barwon Water has maintained daily monitoring and installed telemetry for constant oversight.

3. Groundwater quality monitoring

As the Anglesea Borefield was operated during 2025-26, weekly field salinity and temperature monitoring for production bores GW1-GW7 took place.

Field and laboratory water quality parameters required under the MAP were recorded in 2025-26 for both deep and shallow observation bores.

4. Surface water flow & level monitoring

Seven surface water sites, with four located in the Salt Creek catchment and three located in the Anglesea River catchment were monitored during 2025-26. All sites have permanent data loggers recording on a minimum daily frequency.

Surface water level was also monitored at one location in Salt Creek and at three locations in the Anglesea River during 2025-26. Three of these locations were collected using data loggers and one measured during monthly field sampling.

5. Surface water quality monitoring

11 sites were monitored for water quality across the Salt Creek and Anglesea River catchments. Monitoring consisted of laboratory testing twice yearly along with monthly field sampling. Note: 'Dry' indicates that no water was present at the site at the time of sampling. 'No Access' indicates access was restricted at time of sampling due to planned burns. below indicates the flow state of each site at the time of each monthly visit.

Table 9: Surface water sites flow state

Date	Salt Creek					Anglesea River					
	SV3	SV1	SV4	SGP2-B (pool)	SV2	AGP1-B (pool)	AV1	AV3	ASP7	AGP2	AV2
	Upstream -> Downstream					Upstream -> Downstream					
Jul-25	Flowing	Flowing	Flowing	Stagnant	Trickle flow	Stagnant	Stagnant	Dry	Stagnant	Stagnant	Dry
Aug-25	Flowing	Flowing	Flowing	Stagnant	No Access	Stagnant	Stagnant	Dry	No Access	Stagnant	No Access
Sep-25	Flowing	Flowing	Flowing	Stagnant	Stagnant	Stagnant	Stagnant	Dry	Stagnant	Stagnant	Flowing
Oct-25	Flowing	Flowing	Flowing	Stagnant	Stagnant	Stagnant	Stagnant	Dry	Stagnant	Stagnant	Flowing

Nov-25	Flowing	Flowing	No Access	No Access	Stagnant	Stagnant	Stagnant	Dry	Stagnant	Stagnant	Flowing
Dec-25	Flowing	Flowing	Flowing	Stagnant	Stagnant	Stagnant	Stagnant	Dry	Stagnant	Dry	Flowing
Jan-26	Dry	Dry	Dry	Stagnant	Dry	Stagnant	Dry	Dry	Dry	Dry	Stagnant
Feb-26	Dry	Dry	Dry	Stagnant	Dry	Stagnant	Dry	Dry	Dry	Dry	Stagnant
Mar-26	Dry	Dry	Dry	Stagnant	Dry	Stagnant	Dry	Dry	Dry	Dry	Dry
Apr-26	Dry	Dry	Dry	Stagnant	Dry	Stagnant	Dry	Dry	Dry	Dry	Dry
May-26	Dry	Dry	Dry	Stagnant	Dry	Stagnant	Dry	Dry	Dry	Dry	Dry
Jun-26	Stagnant	Dry	Flowing	Stagnant	Stagnant	Stagnant	Dry	Dry	Dry	Dry	Dry

Note: 'Dry' indicates that no water was present at the site at the time of sampling. 'No Access' indicates access was restricted at time of sampling due to planned burns.

6. Aquatic ecology monitoring

Despite the monitoring program only requiring macroinvertebrate sampling to be conducted every 3 years, and this being conducted in 2024, four existing and two proposed new macroinvertebrate monitoring sites were sampled in 2025-2026 to help inform the proposed revisions to the MAP prior to a Bulk Entitlement Amendment.

Southern Pygmy Perch and Otway Bush Yabbie were sampled at two locations (BCT1 and SC1) during 2025-26. Fish and crayfish monitoring was also undertaken at two additional sites in 2025-26 to help inform the proposed revisions to the MAP prior to a Bulk Entitlement Amendment.

7. Terrestrial ecology monitoring

Vegetation monitoring was conducted at six sites within the Anglesea River Swamp and four sites within the Anglesea River Estuary during 2025-26. Two historic sites and one new vegetation monitoring site were also monitored in 2025-26 to help inform the proposed revisions to the MAP prior to a Bulk Entitlement Amendment.

Frog monitoring was conducted at eight sites within the Anglesea River Swamp and at four sites within the Anglesea River estuary during 2025-26. Four additional locations (2 broader ecological monitoring sites, and 2 new sites) were also monitored in 2025-26 to help inform the proposed revisions to the MAP prior to a Bulk Entitlement Amendment.

8. Acid sulfate soil investigations

No additional acid sulfate soil investigations were completed during 2025-26. A copy of the [2020 acid sulfate soil report and summary report](#) can be found on the Barwon Water website.

9. Land level surveying

The regional subsidence network consisting of 30 existing survey points were monitored during 2025-26. No subsidence outside the permitted range was recorded during 2025-26.

10. Rainfall gauging

Rainfall is recorded via rain gauges at three sites across the catchment. This data is downloaded on a monthly basis and maintained in accordance with approved Bureau of Meteorology standards.

Rainfall was recorded at three gauges across the catchment during 2025-26. This data has been maintained in accordance with approved Bureau of Meteorology standards and uploaded to the [Water Measurement Information System \(WMIS\)](#).

11. Failure of monitoring infrastructure

During the 2025-26 period, three data loggers failed and were replaced with new loggers.

Appendix G

Shallow observation bore water
level versus salinity level

