Annual Drinking Water Quality Report

2024/25

Barwon Water

Wurdee Boluc Reservoir

Further information

Barwon Water

For more information on the 2024/25 Annual Drinking Water Quality Report, or any other concerns regarding water quality, including opportunities to work with us on improving water quality services, please contact our Product Quality Team on 1300 656 007 or email us at info@barwonwater.vic.gov.au.

barwonwater.vic.gov.au

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Message from the Managing Director

On behalf of Barwon Water, I am pleased to present our Annual Drinking Water Quality Report for 2024/25. This report provides an overview of our drinking water quality performance and highlights the high standards we maintain as we service more than 380,000 residents every day.

The Eastern Maar and Wadawurrung are the Traditional Owners of the lands and waters across our service region, and we pay our respects to their Elders past, present and emerging. Their enduring custodianship and connection to Country, which has sustained land and water for tens of thousands of years and continues today, continues to inspire and lead us. We are committed to strengthening our relationships with the Eastern Maar and Wadawurrung, centred around their Cultural, social and economic objectives, including self-determined water rights.

Drier conditions across most of our region, resulting in some of the lowest inflows to our storages in decades, posed a multitude of challenges across the financial year. Despite this, we maintained consistently high-quality drinking water and a secure supply across all our systems. More than 39,000 million litres of drinking water were provided to customers via a network of 12 reservoirs, 7 treatment plants, 23 disinfection sites and 8,837 kilometres worth of pipes.

We also proudly lay claim to the State's best tasting water, with the Lorne Water Treatment Plant crowned the winner of the 2025 Victorian IXOM Best Tasting Tap Water competition. This recognition is underpinned by the innovative work of our teams and a HACCP-certified quality management system, which was successfully re-certified in November 2024. This system ensures we meet the highest standards for protecting public health, from the catchments through to customers' connections.

We met the quality standards in 29 of our 30 sampling localities, with the exception of a single water quality result that did not pose a public health risk. More information about that event, which occurred at an unoccupied rural property without a dwelling, can be found in Section 7.2 of the report.

Our high levels of service were also reflected in a decrease in the number of drinking water complaints across all categories.

We know that ongoing investment is required to continually improve and build resilience in our systems, especially against the backdrop of a changing climate and ongoing population growth.
Significant progress was made this financial year on delivering commitments in our key long-term plans, such as Strategy 2030 and our 2023-2028 Price Submission. Our works program has included new treatment plants; new and expanded water pipelines; and an upgraded clear water storage. This has been supported by initiatives to improve water quality monitoring in West Barwon Reservoir, and waterway health across the Barwon and Moorabool catchments.

We remain accountable to our communities and our customers, and this report provides a guide to our performance. It is with pleasure that I present Barwon Water's 2024/25 Annual Drinking Water Quality Report.

Shaun Cumming
Managing Director
Barwon Water

Key Information

12 major reservoirs	**7** surface water treatment plants	**1** pre-treatment plant for ground water operations
23 secondary disinfection plants	**25** water distribution basins	**50** water distribution tanks
8,837 kilometers of water mains	**8,100** square kilometers serviced	**30** water quality localities
386,430 permanent population serviced	**589,460** peak population serviced	**193,732** properties serviced

1. Introduction

In accordance with the *Safe Drinking Water Act 2003*, this report provides an overview of Barwon Water's water supply system, the risk management processes in place to ensure the provision of safe drinking water, and water quality performance for the 2024/25 financial year.

Barwon Water supplied approximately 39,075 million litres of drinking water during 2024/25 through a network comprising of 12 reservoirs, 1 groundwater borefield, 7 water treatment plants, 23 disinfection sites and 8,837 kilometres of pipes.

To ensure customers receive safe, high-quality drinking water, Barwon Water maintains a HACCP-certified Drinking Water Quality Management System. This covers the entire water supply system, from the catchment to customers' connection, and includes:

- Detailed water quality risk identification processes.
- Audited control measures to manage identified risks.
- Verification systems, including an independent water quality monitoring program.
- Public reporting on water quality performance.
- Continuous improvement projects to enhance the system's capabilities.

Throughout 2024/25, we supplied drinking water to 29 of 30 water sampling localities in accordance with the quality standards prescribed in the Safe Drinking Water Regulations 2015.

2. Requirements for Drinking Water

2.1. Meeting Customer Expectations

Barwon Water is committed to managing its water supply effectively to deliver safe, high quality drinking water and ensure public health. This commitment is embedded in our Drinking Water Quality Policy and Customer Charter.

To ensure we remain responsive to customer expectations and community needs, Barwon Water seeks input through:

- **Complaints management system** – used to record and monitor all water quality related complaints received from customers.
- **Customer perception surveys** – broad surveys conducted to understand customer attitudes towards the quality of our water and services.
- **Customer Consultative Committee** – a representative committee comprising community members and Barwon Water customers.
- **Customer feedback at engagement events** – insights gathered during community panel workshops and other engagement activities.

2.2. Legislative Requirements

The *Safe Drinking Water Act 2003* (the Act) is the principal legislation governing the quality of drinking water supplied by Barwon Water. Under the Act, Barwon Water is required to:

- Prepare, implement, review and revise risk management plans for drinking water and some types of non-potable water.
- Ensure those plans are independently audited by approved auditors.
- Comply with the water quality standards specified in the Safe Drinking Water Regulations 2015.
- Publicly disclose information relating to the quality of drinking water supplied.

In addition, the *Health (Fluoridation) Act 1973* regulates the safe and effective addition of fluoride into drinking water supplies in Victoria, and requires Barwon Water to incorporate the *Code of Practice for the Fluoridation of Water Supplies* into its drinking water quality management system.

2.3. Undertakings, Variations and Exemptions

Barwon Water had no undertakings under Regulation 16(c) of the Safe Drinking Water Regulations 2015, during this reporting period.

No variations to aesthetic standards under Regulation 16(i)(i), nor any exemptions from water quality standards under Regulation 16(i)(ii) of the Safe Drinking Water Regulations 2015, were sought during the reporting period.

3. Defining Drinking Water

Drinking water supplied by Barwon Water must comply with the requirements of the *Safe Drinking Water Act 2003* and Safe Drinking Water Regulations 2015.

The *Australian Drinking Water Guidelines 2011* (ADWG) are used as the national benchmark for safe drinking water. These guidelines provide a framework for the effective management of drinking water supplies that ensure water is safe to consume at the point of use.

The ADWG define two types of guideline values:

- **Health guideline values** - concentrations or measures of water quality characteristics that, based on current scientific knowledge, do not pose a significant risk to health when consumed over a lifetime.
- **Aesthetic guideline values** - concentrations or measures associated with the sensory acceptability of water, such as appearance, taste, and odour.

Barwon Water supplies drinking water that is intended for:

- Immediate consumption by the general public without the need for further treatment or boiling for it to be considered safe and aesthetically acceptable; and
- Other domestic and commercial uses where the requirements for these other applications do not exceed government obligations.

The ADWG notes that:

> *"The Guidelines are derived so as to take account of the needs of an individual through a normal lifetime, including changes in sensitivity that may occur between life stages"* and *"sensitive sub-populations (including those who are severely immuno-compromised) should seek further medical advice"*

The water quality data presented in this report reflects water supplied in accordance with these guidelines and legislative requirements.

3.1. Regulated Water

Regulated water is *"…water that is not intended for drinking water but which could reasonably be mistaken as being drinking water."* (as defined in the Department of Health, Regulated Water – Drinking Water Regulation Guidance Note).

Barwon Water does not have any regulated water supplies.

4. System Description

4.1. Overview

Barwon Water supplied drinking water to a permanent population of approximately 386,430 across an area of more than 8,100 square kilometres.

A map of the water supply system, including an overview of Barwon Water's service area and major infrastructure, is provided in Figure 1.

Source water is harvested from water supply catchments and is stored in reservoirs.

A network of pipes, channels and pumps then conveys the water to treatment plants, where it is treated to produce drinking water. The water is then delivered to customers by a network of pipes, basins, tanks and pump stations.

Additional water was also accessed via the Melbourne-Geelong Pipeline (MGP), which interconnects the Melbourne and Geelong water supply systems.

Groundwater from the Anglesea Borefield was not utilised during the 2024/25 reporting period.

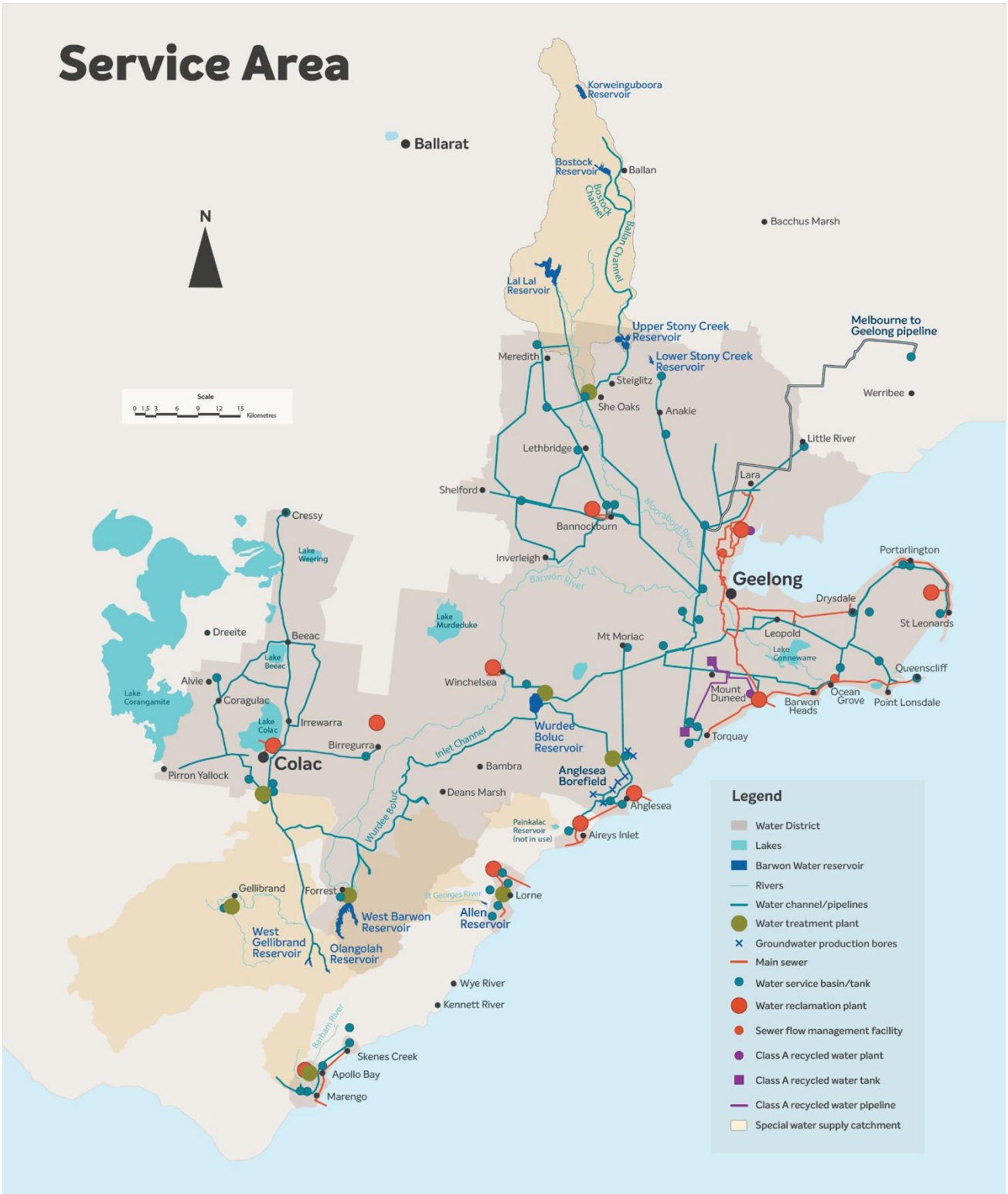


Figure 1: Barwon Water Service Area and Major Infrastructure

4.2. Water Sampling Localities

Barwon Water's distribution system is divided into water sampling localities for the purposes of monitoring and reporting.

Allocation of water quality localities allows for greater consistency in defining quality zones. This approach supports more meaningful data analysis, improved understanding of treatment-related water quality issues, consistency in monitoring and reporting, and a more targeted and informed response to water quality issues or non-compliances, should they arise.

Table 1 and Table 2 summarise the water sampling localities for the 2024/25 reporting period. A geographic overview is provided in Figure 2.

Table 1: Water Sampling Localities - Number of Connections and Population

Water Sampling Locality	Number of Connections [1]	Permanent Population [2]
Aireys Inlet	1,715	1,410
Anakie	302	650
Anglesea	3,259	3,130
Apollo Bay	2,539	2,540
Bannockburn	2,629	7,480
Batesford	431	1,390
Bellarine	107	190
Birregurra	433	890
Clifton Springs	6,471	13,440
Colac	8,280	15,340
Cressy	210	320
Forrest	150	200
Gellibrand	74	300
Highton	22,267	39,310
Highton High Level	1,215	3,270
Leopold	8,078	19,690
Little River West	155	390
Lorne	2,458	2,000
Lovely Banks	28,948	66,670
Lovely Banks – Carrs Rd	43	100
Montpellier	29,557	67,890
Moorabool	722	1,910
Moriac	350	970
Ocean Grove	12,327	24,520
Pettavel	24,065	63,410
Portarlington	8,618	10,840
Queenscliff	4,665	5,850
Teesdale	1,594	5,030
Torquay	11,845	24,630
Winchelsea	1,319	2,980

1. The total number of properties connected to Barwon Water's waters supply system. This number includes residential and non-residential properties.

2. This is an estimated number of the population serviced, rounded to the closest 10. Estimates are made by multiplying the number of residential connections by the occupancy rate (number of persons per dwelling) in ABS census data and adding any non-private dwellings (hospitals, nursing homes etc.).

Table 2: Water Sampling Localities - Water Sources and Treatment

Water Sampling Locality	Source Water	Raw Water Storage	Water Treatment Plant (WTP)
Aireys Inlet Anglesea Bellarine Clifton Springs Highton High Level Leopold Moriac Ocean Grove Pettavel Portarlington Queenscliff Torquay Winchelsea	Barwon catchments	Wurdee Boluc Reservoir	Wurdee Boluc WTP
	Anglesea Borefield (groundwater) [1]		
Anakie Highton Little River West Lovely Banks Lovely Banks – Carrs Rd Montpellier	Moorabool catchments	Stony Creek Reservoir	Moorabool WTP
	Barwon catchments	Wurdee Boluc Reservoir	Wurdee Boluc WTP
	Anglesea Borefield (groundwater) [1]		
	Melbourne – Geelong Pipeline		
Apollo Bay	Barham River	Apollo Bay Basin	Apollo Bay WTP
		Marengo Basin	
Bannockburn [2] Batesford [2] Moorabool Teesdale [2]	Moorabool catchments	Stony Creek Reservoir	Moorabool WTP
Colac Cressy	West Gellibrand & Olangolah Reservoirs	Colac Basins No. 4 & 5	Colac WTP
	Barwon catchments		
Forrest	West Barwon Reservoir	Forrest Raw Water Tank	Forrest WTP
Gellibrand	Lardners Creek	Gellibrand Raw Water Tank	Gellibrand WTP
Lorne	Lorne catchment	Allen Reservoir	Lorne WTP
Birregurra	Barwon catchments [3]	Birregurra Basins [3]	Birregurra WTP [3]
	West Gellibrand & Olangolah Reservoirs	Colac Basins No. 4 & 5	Colac WTP

1. The Anglesea Borefield is an alternative water source used during times of drought for improved water security. Water was not harvested from the Anglesea Borefield during the 2024/25 reporting period.

2. Bannockburn, Batesford & Teesdale Water Sampling Localities can also be fed from Wurdee Boluc WTP, however received water only from Moorabool WTP during the 2024/25 reporting period.

3. In October 2024, the Birregurra WTP was decommissioned and the Birregurra Water Quality Locality commenced supply from the Colac system via the Colac-Birregurra Pipeline.

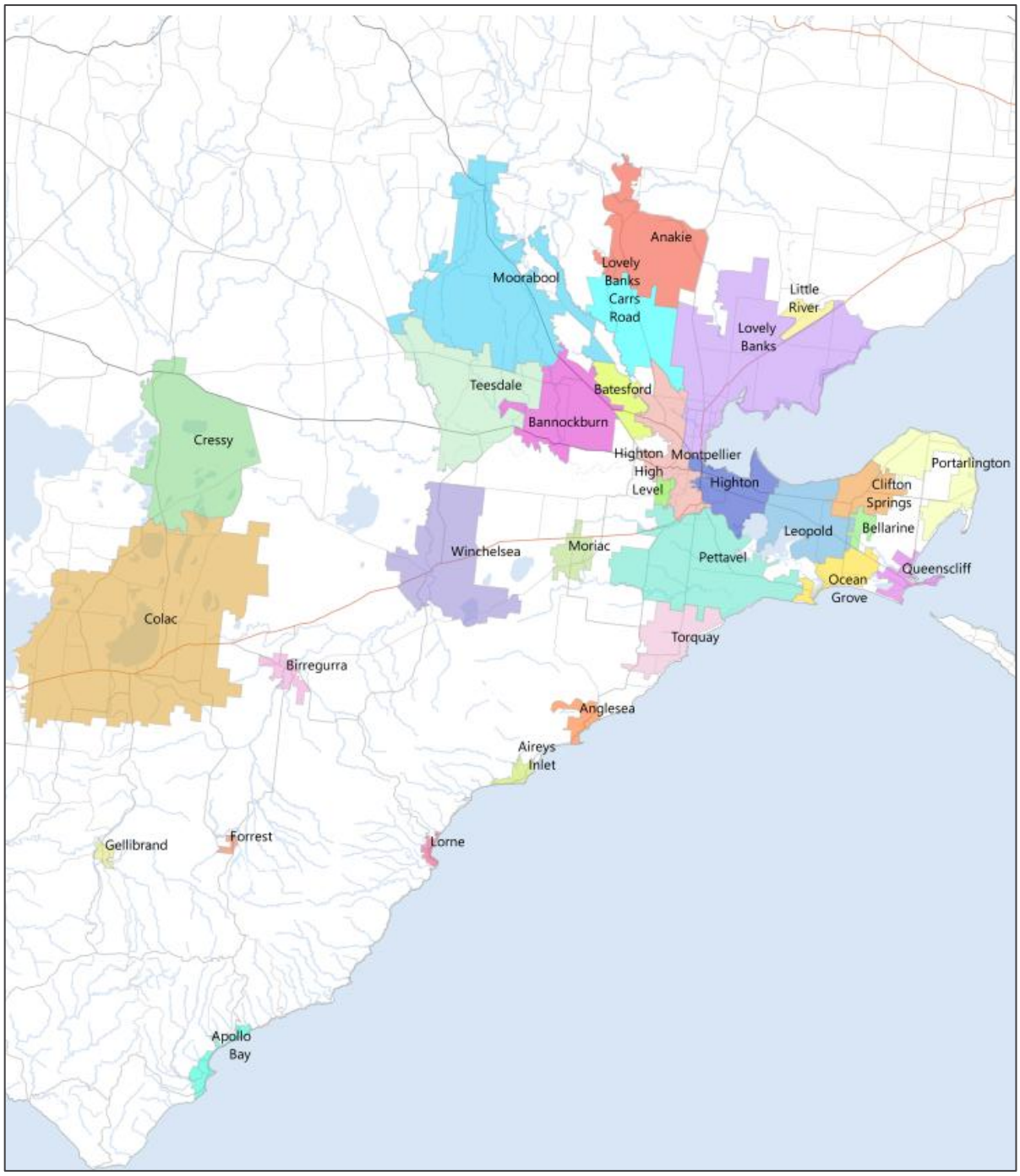


Figure 2: Water Sampling Localities 2024/25

4.3. Sources of Water

Drinking water is generally harvested from natural run-off into streams and reservoirs. Due to the size and geographical diversity of Barwon Water's service area, which includes many small towns, the supply system is relatively complex and draws from a variety of sources.

All surface water catchments are declared Special Water Supply Catchments under the *Catchment and Land Protection Act 1994*.

For improved water security, Barwon Water also maintains a connection to Melbourne's water supply via the Melbourne-Geelong Pipeline (MGP) and holds a licence to extract water from the Anglesea Borefield.

The following towns are all supplied from separate catchments located within the Otway Ranges:

- Apollo Bay
- Colac
- Gellibrand
- Birregurra
- Forrest
- Lorne

Supply arrangement for other areas include:

- **Torquay, Anglesea, Aireys Inlet, Winchelsea, Moriac, and the Bellarine Peninsula** - primarily supplied from the Barwon catchment and able to be supplemented by groundwater from the Anglesea Borefield during dry periods.
- **Geelong, Batesford, Anakie, Lara, and Little River West -** supplied by a combination of water from the Moorabool and Barwon catchments, and able to be supplemented by the MGP and groundwater from the Anglesea Borefield during dry periods.
- **Bannockburn, Teesdale, and Moorabool –** supplied from the Moorabool catchment.

The MGP was utilised to supplement drinking water supplies in the Lovely Banks, Little River West, Montpellier and Highton localities in 2024/25.

Catchment Management

Catchment management and protection forms the first barrier in Barwon Water's multi-barrier approach to providing safe drinking water. The condition of a catchment is the most critical factor influencing the quality of source water. It directly affects the level of treatment required to produce safe drinking water, and the associated costs. The effectiveness of catchment management relies heavily on strong, ongoing relationships with landholders, local communities, and other stakeholders.

While many of Barwon Water's catchment areas lie within protected national parks, others are accessible to the public and subject to a range of land uses, including townships, agriculture, forestry, rural living, and recreational activity such as fishing. Barwon Water has conducted comprehensive catchment risk assessments to evaluate potential water quality risks from these land uses. In addition, we conduct wide-ranging water quality monitoring in catchments, streams, and reservoirs to assess the impact of catchment activities on source water quality.

Barwon Water is committed to preventing water quality deterioration in line with the priorities outlined in the *Corangamite Regional Catchment Strategy*, *Corangamite Waterway Strategy*, and the *Victorian Waterway Management Strategy*. Key strategies and initiatives undertaken include:

- Planning and development controls
- Waterway protection and rehabilitation
- Fire management

- Prevention of soil erosion
- Community education and improving awareness of the impacts of human activities on water quality
- Promotion of appropriate land management practices
- Restrictions on recreational activities

4.4. Water Treatment

After water is harvested from streams and reservoirs, or extracted from groundwater sources, it undergoes filtration and disinfection - critical processes that form key barriers in ensuring safe drinking water.

Filtration involves the physical removal of contaminants from the water. Barwon Water uses five different filtration methods across its treatment plants:

1. Dissolved air flotation filtration (DAFF)
2. Direct filtration
3. Conventional clarification/filtration
4. Micro filtration
5. Ultra filtration

Disinfection is the process of inactivating pathogens to prevent disease. It plays a vital role in protecting public health. Since water travels through a complex distribution network, disinfection must be maintained from the treatment plant all the way to customers' taps to prevent bacterial regrowth. Barwon Water uses three main disinfection methods:

1. Chlorination
2. Chloramination
3. Ultraviolet light (UV)

The type of filtration and disinfection used depends on a range of factors including water quality, the size of the supply network, and the rate of water consumption. An overview of the treatment processes for each water sampling locality is provided in Table 3.

Over the 2024/25 reporting period there were no issues arising from the treatment plants.

Table 3: Water Treatment Processes and Treatment Aids

Water Sampling Locality	Water Treatment Plant (WTP)	Treatment Processes	Treatments aids *some only used seasonally*
Anakie Bannockburn Batesford Highton Little River West Lovely Banks Lovely Banks – Carrs Rd Montpellier Moorabool Teesdale	Moorabool WTP	Dissolved Air Floatation Filtration (DAFF)	- Aluminium Chlorohydrate - Polymer
		Chlorination	- Chlorine gas
		Fluoridation	- Fluorosilicic acid
		UV Disinfection *Supernatant return only*	
Lorne	Lorne WTP	Dissolved Air Floatation Filtration (DAFF)	- Potassium permanganate - Aluminium chlorohydrate - Sodium hydroxide - Polymer - Sodium hexametaphosphate
		Chlorination	- Sodium hypochlorite
Birregurra Colac Cressy	Colac WTP	Dissolved Air Floatation Filtration (DAFF)	- Potassium permanganate - Soda ash - Aluminium chlorohydrate - Polymer - Lime - Sodium hexametaphosphate
		Chlorination	- Sodium hypochlorite - Chlorine gas
		Fluoridation	- Fluorosilicic acid
Forrest	Forrest WTP	Dissolved Air Floatation Filtration (DAFF)	- Potassium permanganate - Sodium hydroxide - Polymer - Aluminium chlorohydrate - Sodium hexametaphosphate
		UV Disinfection	
		Chlorination	- Sodium hypochlorite
Apollo Bay	Apollo Bay WTP	Dissolved Air Floatation (DAF)	- Sulphuric acid - Aluminium chlorohydrate
		Ultrafiltration	- Sodium hydroxide* - Citric acid* *(*used for membrane cleaning only)*
		Granular Activated Carbon (GAC) filtration	
		Chlorination	- Sodium hypochlorite
Gellibrand	Gellibrand WTP	Clarification	- Aluminium chlorohydrate - Polymer - Soda ash
		Filtration	
		UV Disinfection	
		Chlorination	- Sodium hypochlorite

Table 3: continued

Water Sampling Locality	Water Treatment Plant (WTP)	Treatment Processes	Treatments aids *some only used seasonally*
Aireys Inlet Anakie Anglesea Batesford Bellarine Clifton Springs Highton Highton High Level Leopold Little River West Lovely Banks Lovely Banks – Carrs Rd Montpellier Moriac Ocean Grove Pettavel Portarlington Queenscliff Torquay Winchelsea	Wurdee Boluc WTP	Direct filtration	- Aluminium chlorohydrate - PolyDADMAC - Polymer
		Fluoridation	- Fluorosilicic acid
		Chlorination	- Chlorine gas
		*Pre-treatment only for Anglesea Borefield (aeration, oxidation & pH adjustment)	- Sodium hypochlorite - Lime - Potassium permanganate - Polymer
Birregurra	Birregurra WTP [1]	Clarification	- Aluminium chlorohydrate
		pH Correction	- Sulphuric acid
		Microfiltration	- Sodium hydroxide* - Citric acid* *(*used for membrane cleaning only)*
		Chlorination	- Sodium hypochlorite

1. In October 2024, the Birregurra WTP was decommissioned and the Birregurra Water Sampling Locality commenced supply from the Colac WTP via the Colac-Birregurra Pipeline.

4.5. Distribution

Once water has been filtered and disinfected, it is delivered to customers through a network of tanks, basins, pumps, and pipes.

Positive pressure and backflow prevention form the final barriers in Barwon Water's multi-barrier approach to ensuring safe drinking water. Positive pressure ensures that, in the event of a leak, any external contaminants are pushed away from the water supply system rather than drawn in. Barwon Water also requires the installation of testable backflow prevention devices at medium and high hazard properties when they are connected to the water supply. These devices prevent potentially contaminated water from flowing back into the public water supply during low pressure events.

4.6. Secondary Disinfection

As water travels through the distribution system, the level of disinfectant residual gradually decreases. To maintain effective disinfection levels throughout the network, Barwon Water operates 23 secondary disinfection plants.

Barwon Water aims to maintain a careful balance between ensuring adequate disinfectant residuals for safety and preserving the aesthetic quality of the drinking water.

Two methods of secondary disinfection are used across the Barwon Water system:

- **Chlorination –** a widely used disinfection method which is particularly effective against bacteriological organisms. It is most suitable for smaller systems or areas with shorter distribution networks.
- **Chloramination** – a process that combines chlorine with ammonia to form a more stable disinfectant. This method helps sustain disinfection over longer distances within the distribution system.

Table 4: List of secondary disinfection sites and disinfection method

Water Disinfection Plant (WDP)	Disinfection Method
Aireys Inlet	Chloramination
Alvie	Chlorination
Anakie	Chloramination (seasonal operation)
Anglesea	Chloramination
Bannockburn	Chloramination
Bellarine	Chlorination
Birregurra	Chlorination (seasonal operation)
Clifton Springs	Chloramination
Highton	Chlorination (seasonal operation)
Little River	Chlorination
Lorne	Chlorination
Lovely Banks 1, 2 & 3	Chloramination
Lovely Banks – Carrs Rd	Chloramination
Meredith	Chlorination
Montpellier 2 & 4	Chlorination (seasonal operation)
Ocean Grove	Chloramination
Pettavel 1 & 2	Chlorination (seasonal operation)
Portarlington	Chloramination
Queenscliff	Chlorination
Teesdale	Chloramination
Torquay	Chlorination
Torquay High Level	Chlorination

5. Quality Management System

5.1. Overview

Barwon Water applies both AS/NZS ISO 9001:2015 and HACCP (Hazard Analysis and Critical Control Points) principles within its Drinking Water Quality Management System to ensure the supply of safe and aesthetically acceptable drinking water. A summary of this system is provided in Figure 3 below.

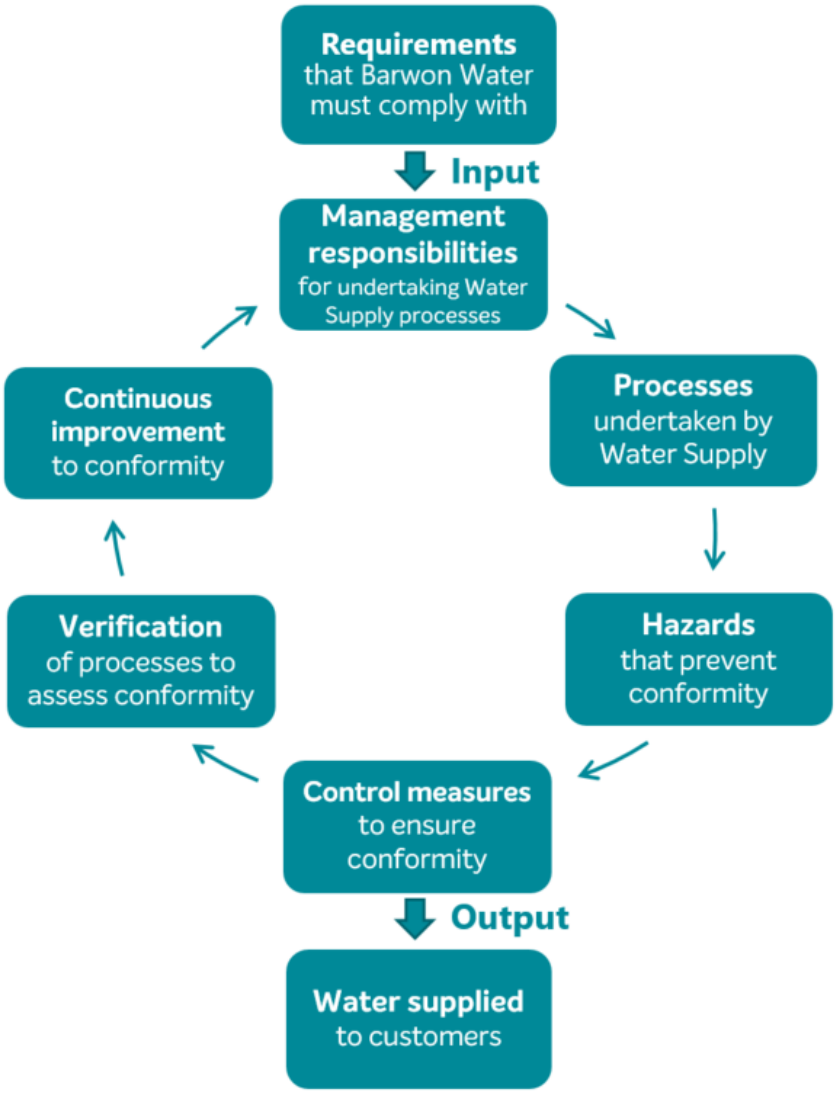


Figure 3: Quality Management System for the supply of drinking water

The requirements Barwon Water must meet, and the processes undertaken to meet these requirements, are described in previous sections of this report.

The following pages outline additional components of Barwon Water's Drinking Water Quality Management System, including hazard identification, control measures, verification, and continual improvement.

5.2. Hazard Identification

To identify key risks to the provision of safe and aesthetically acceptable drinking water, Barwon Water has undertaken a comprehensive hazard assessment across the entire water supply system from catchment to customer connection. This process involves input from independent experts, management, engineers, and operational staff.

The identified risks are regularly reviewed to account for changes in the system and the emergence of new hazards. In addition to the system-wide assessment, each water treatment plant is subject to a detailed risk assessment based on asset/component and potential process failures.

5.3. Control Measures

5.3.1. Critical Control Points

Control measures are implemented to reduce identified risks to an acceptable level and ensure the continued supply of safe drinking water. Where control is essential to preventing or eliminating a significant hazard, Critical Control Points (CCPs) are established in line with HACCP principles. CCPs in the Barwon Water system include key process steps such as filtration, disinfection and fluoridation.

5.3.2. Maintenance Programs

Barwon Water undertakes ongoing maintenance programs to support the delivery of safe, high-quality drinking water. These programs help ensure assets remain in good condition and operate effectively. Key activities include:

- Routine mains flushing and air scouring
- Routine cleaning of tanks and basins
- Risk-based treatment plant asset maintenance and replacement programs

5.3.3. Trained Operators

All operators involved in the drinking water supply process receive training to ensure a strong understanding of treatment processes and associated risks.

Operators are required to meet minimum qualification and experience standards in accordance with the National Water Industry Operator Certification Framework. Ongoing competency is maintained and demonstrated through individual competency plans, which support continuous development and assurance of operator capability.

5.4. Verification and Monitoring

Verification is used to confirm that the water supply system is performing as intended and meeting process requirements. At Barwon Water, verification and monitoring activities include:

- **Real-time operational monitoring**, which includes site-specific Supervisory Control and Data Acquisition (SCADA) systems, system-wide telemetry with 24/7 alarms, and on-call operators with remote access for rapid response.
- **Drinking water quality monitoring program**, conducted by an independent National Association of Testing Authorities (NATA) accredited laboratory, with extensive sampling and analysis at the source, treatment, and distribution stages.
- **Water treatment chemical assurance program**, which includes the use of quality-assured chemical suppliers and provision of certificates of analysis.
- **Customer feedback**, captured through the complaints management system and customer perception surveys, which provide valuable insight into system performance.

5.5. Continuous Improvement

Barwon Water is committed to the continuous improvement of its water supply processes to ensure ongoing compliance with regulatory obligations and to meet customer expectations. Improvement actions are identified through verification monitoring, incident investigations, and regular management reviews.

5.6. System Auditing and Peer Review

Barwon Water maintains an annual internal and external auditing program to assess the compliance and effectiveness of its Drinking Water Quality Management System. These audits help ensure the system is operating as intended, identify areas for improvement, and confirm alignment with regulatory requirements and HACCP certification standards.

5.7. Review of Risk Management Plan

Barwon Water's Risk Management Plan was reviewed during the reporting period as part of the internal and external audit program.

The annual external audit of Barwon Water's Quality Management System was conducted by BSI Group. This was a recertification audit for our HACCP system. The audit was successfully passed, providing assurance that Barwon Water continues to effectively identify, assess, and manage drinking water quality risks.

There was no regulatory audit scheduled under the *Safe Drinking Water Act 2023* during 2024/25. All actions and opportunities for improvement from the previous regulatory audit in 2022/23 are completed.

6. Water Quality for 2024/25

Barwon Water has developed a comprehensive Drinking Water Quality Monitoring Program (DWQMP), which is conducted by an independent laboratory accredited by the National Association of Testing Authorities (NATA) under a laboratory services contract.

The program supports early detection of potential water quality risks and verification of system performance through sampling at multiple points across the supply chain:

- **Source waters** (streams, channels, and reservoirs) are monitored to provide early warning of upstream water quality changes and to verify the effectiveness of catchment management activities.
- **Treated water** is analysed to support monitoring at critical control points and to verify that risks associated with treatment plant operation are being effectively managed.
- **Distribution system** and designated customer taps are sampled to confirm that safe, high-quality drinking water is consistently delivered throughout the network and at the point of use.

The DWQMP is based on sound risk management principles in accordance with Barwon Water's HACCP plan and the recommendations of the Australian Drinking Water Guidelines (ADWG).

The monitoring results and performance assessments of drinking water are presented in this report. Results provided in this report include all regulatory sampling conducted during the 2024/25 financial year.

In addition to this report, further water quality data, including information that may be of interest to the community (e.g. home brewers), is published on Barwon Water's website: www.barwonwater.vic.gov.au/water-and-waste/water-quality/results-and-data. This data is updated quarterly to ensure customers have access to timely and representative information.

In accordance with Section 23 of the *Safe Drinking Water Act 2003*, all results from Barwon Water's Drinking Water Quality Monitoring Program are available to the public upon request within seven days of being compiled.

6.1. Results of parameters specified in Schedule 2 of the Regulations

6.1.1. Escherichia coli (E. coli)

Escherichia coli (E. coli) is used as an indicator organism to detect potential faecal contamination in drinking water. It is monitored across all water sampling localities.

- Limit of detection = 0 cfu/100mL
- Regulatory standard: All samples of drinking water collected contain no *E. coli* per 100 mL of drinking water, with the exception of any false positive sample.

Table 5: *E.coli* Results

Water Quality Locality	Frequency of sampling	Number of samples	Maximum Result (organisms/100mL)	Number of detections and investigations conducted (s.22)	Number of samples where standard was not met (s.18)
Aireys Inlet	> weekly	99	0	0	0
Anakie	> weekly	77	0	0	0
Anglesea	> weekly	89	0	0	0
Apollo Bay	> weekly	91	0	0	0
Bannockburn	> weekly	89	0	0	0
Batesford	> weekly	77	0	0	0
Bellarine	> weekly	75	0	0	0
Birregurra	> weekly	103	0	0	0
Clifton Springs	> weekly	105	0	0	0
Colac	> weekly	217	0	0	0
Cressy	> weekly	77	0	0	0
Forrest	> weekly	77	0	0	0
Gellibrand	> weekly	77	0	0	0
Highton	> weekly	173	0	0	0
Highton High Level	> weekly	76	0	0	0
Leopold	> weekly	122	0	0	0
Little River	> weekly	76	0	0	0
Lorne	> weekly	101	0	0	0
Lovely Banks	> weekly	305	0	0	0
Lovely Banks-Carrs Rd	> weekly	77	0	0	0
Montpellier	> weekly	273	0	0	0
Moorabool	> weekly	101	0	0	0
Moriac	> weekly	78	0	0	0
Ocean Grove	> weekly	158	0	0	0
Pettavel	> weekly	247	0	0	0
Portarlington	> weekly	129	0	0	0
Queenscliff	> weekly	103	0	0	0
Teesdale	> weekly	82	0	0	0
Torquay	> weekly	149	0	0	0
Winchelsea	> weekly	77	0	0	0

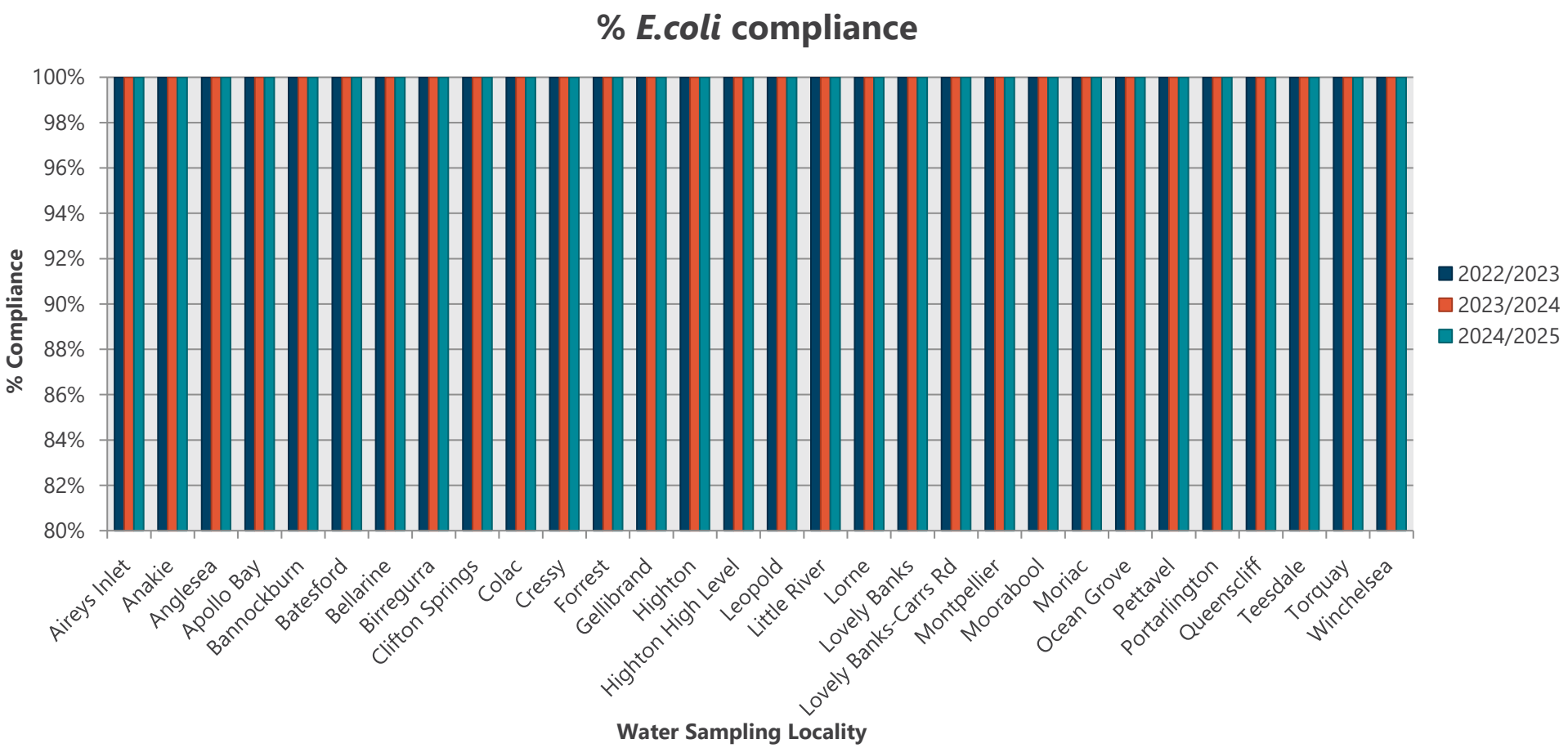


Figure 4: *E.coli* compliance for 2024/25

6.1.1.1. Analysis of Results – *E.coli*

Throughout the 2024/25 reporting period, all of Barwon Water's water quality sampling areas complied with the *E. coli* water quality standard, with no confirmed detections recorded.

In 2024/25, compliance with the *E. coli* water quality standard was maintained at 100%.

6.1.2. Trihalomethanes (THM's)

Trihalomethanes may be present in drinking water as a by-product of disinfection from chlorination or chloramination, where chlorine reacts with dissolved organic material.

- Limit of detection = 0.004 mg/L
- Regulatory standard: ≤ 0.25 mg/L.

Table 6: Trihalomethane Results

Water Quality Locality	Frequency of sampling	Number of samples	mg/L			Number of samples where standard was not met (s.18)
			Drinking water quality standard	Maximum	Average	
Aireys Inlet	> monthly	48	0.25	0.053	0.040	0
Anakie	> monthly	48	0.25	0.079	0.042	0
Anglesea	> monthly	48	0.25	0.076	0.062	0
Apollo Bay	> monthly	24	0.25	0.053	0.032	0
Bannockburn	> weekly	60	0.25	0.180	0.140	0
Batesford	> weekly	60	0.25	0.160	0.125	0
Bellarine	> monthly	48	0.25	0.088	0.068	0
Birregurra	> weekly	60	0.25	0.088	0.073	0
Clifton Springs	> monthly	48	0.25	0.092	0.077	0
Colac	> weekly	72	0.25	0.086	0.069	0
Cressy	> weekly	60	0.25	0.120	0.089	0
Forrest	> monthly	24	0.25	0.085	0.060	0
Gellibrand	> monthly	24	0.25	0.097	0.065	0
Highton	> monthly	48	0.25	0.150	0.101	0
Highton High Level	> monthly	48	0.25	0.086	0.068	0
Leopold	> monthly	48	0.25	0.080	0.067	0
Little River	> weekly	58	0.25	0.110	0.048	0
Lorne	> monthly	24	0.25	0.048	0.037	0
Lovely Banks	> weekly	118	0.25	0.086	0.043	0
Lovely Banks-Carrs Rd	> monthly	48	0.25	0.086	0.047	0
Montpellier	> weekly	72	0.25	0.130	0.092	0
Moorabool	> weekly	74	0.25	0.190	0.125	0
Moriac	> monthly	24	0.25	0.057	0.042	0
Ocean Grove	> monthly	46	0.25	0.120	0.063	0
Pettavel	> weekly	72	0.25	0.087	0.058	0
Portarlington	> weekly	60	0.25	0.110	0.083	0
Queenscliff	> monthly	48	0.25	0.096	0.076	0
Teesdale	> weekly	60	0.25	0.170	0.125	0
Torquay	> weekly	72	0.25	0.095	0.074	0
Winchelsea	> monthly	48	0.25	0.069	0.052	0

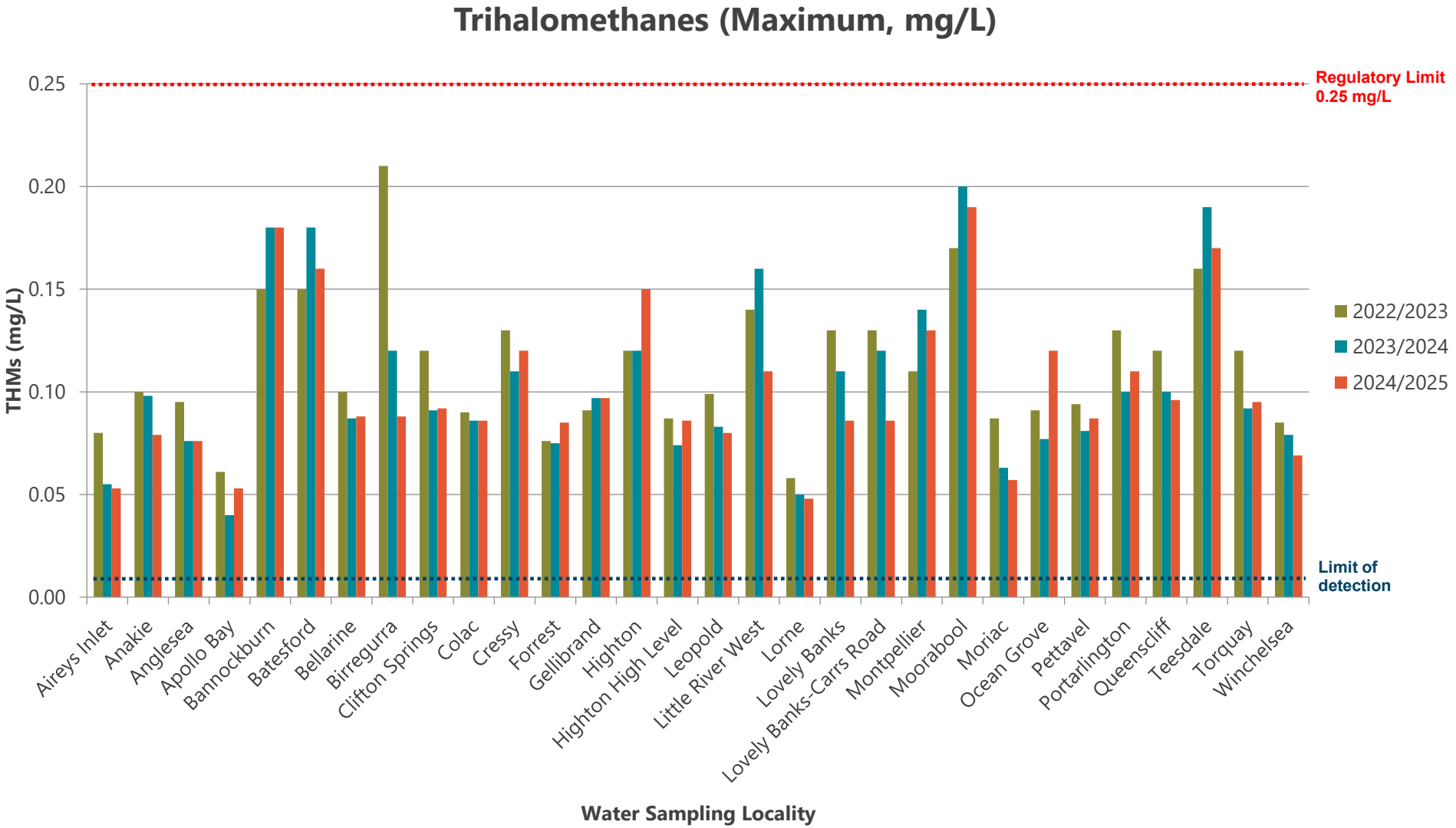


Figure 5: THM results trend

6.1.2.1. Analysis of results – THM's

Full compliance with the Trihalomethanes (THM's) water quality standard was achieved across all water quality localities in 2024/25. The highest recorded result for the year was 0.19 mg/L in the Moorabool water quality locality.

Elevated THM results are often observed in localities supplied by the Moorabool Water Treatment Plant. This is due to the inherent characteristics of the supply catchment, including higher levels of natural organic matter and the required chlorine dose for effective disinfection.

In 2024/25, average and maximum THM levels across most systems were consistent with previous years.

6.1.3. Turbidity

Turbidity is the measurement of water clarity and the light scattering properties of water. Turbidity is caused by the presence of fine suspended matter in the water supply. When water is clear, it has low turbidity levels.

- Limit of detection = 0.1 NTU
- Regulatory standard: The 95th percentile of results for samples in any 12-month period must be less than or equal to 5 NTU.

Table 7: Turbidity Results

Water Quality Locality	Frequency of sampling	Number of samples	Maximum Result (NTU)	95th Percentile of Results (NTU)	Number of 95th Percentile Results above the Standard (s.18)
Aireys Inlet	> weekly	72	0.7	0.2	0
Anakie	> weekly	53	1.1	0.5	0
Anglesea	> weekly	65	0.6	0.2	0
Apollo Bay	> weekly	67	0.2	0.2	0
Bannockburn	> weekly	65	0.3	0.3	0
Batesford	> weekly	53	0.6	0.3	0
Bellarine	> monthly	51	1.3	0.3	0
Birregurra	> weekly	53	0.9	0.5	0
Clifton Springs	> weekly	81	1.9	0.2	0
Colac	> weekly	88	1.0	0.3	0
Cressy	> weekly	53	0.4	0.4	0
Forrest	> weekly	53	0.6	0.5	0
Gellibrand	> weekly	53	4.4	0.4	0
Highton	> weekly	149	1.8	0.4	0
Highton High Level	weekly	52	0.4	0.5	0
Leopold	> weekly	98	0.3	0.4	0
Little River	weekly	52	0.7	0.5	0
Lorne	> weekly	77	0.3	0.2	0
Lovely Banks	> weekly	212	0.9	0.6	0
Lovely Banks-Carrs Rd	> weekly	53	15.0 [1]	0.7	0
Montpellier	> weekly	225	0.8	0.5	0
Moorabool	> weekly	53	0.8	0.2	0
Moriac	> weekly	54	0.6	0.4	0
Ocean Grove	> weekly	134	0.8	0.3	0
Pettavel	> weekly	199	2.7	0.2	0
Portarlington	> weekly	105	3.5	0.4	0
Queenscliff	> weekly	79	0.2	0.3	0
Teesdale	> weekly	58	0.5	0.4	0
Torquay	> weekly	130	0.4	0.2	0
Winchelsea	> weekly	53	1.7	0.3	0

1. This single result in Lovely Banks-Carrs Rd Water Quality Locality was attributed to the Section 18 notification described in Section 7.2 and did not pose a risk to public health. Refer to the relevant section of this report for additional information. All other results met the Standard.

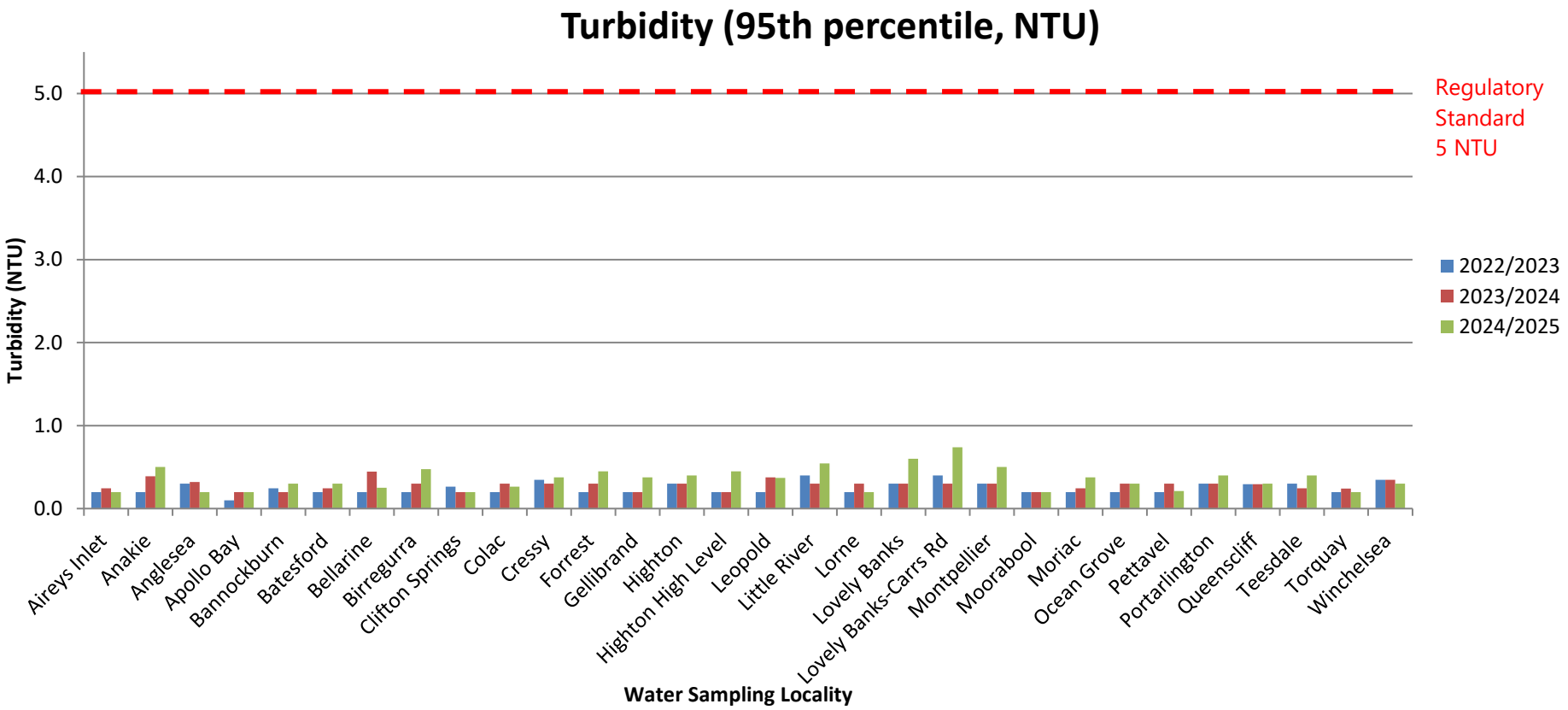


Figure 6: Turbidity results trend

6.1.3.1. Analysis of Results

The turbidity (95th Percentile) standard was met in all water sampling localities during the reporting period.

Turbidity results during 2024/25 followed a similar pattern to previous years. All water sampling localities displayed results well below the quality standard.

6.1.4. Analysis of results – Summary for Regulatory Standards

Table 8: Compliance with the standards in Schedule 2 of the Safe Drinking Water Regulations 2015 over time - by analyte

Parameter	Percentage of water quality localities receiving compliant water									
	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
E. coli	100	97	100	100	100	97	100	100	100	100
Trihalomethanes	100	100	100	100	100	100	100	100	100	100
Turbidity	100	100	100	100	100	100	100	100	100	100

In 2024/25, all results were compliant with the drinking water quality standards (Schedule 2 of the Safe Drinking Water Regulations 2015) in all 30 water sampling localities.

Table 9: Compliance with the standards in Schedule 2 of the Safe Drinking Water Regulations 2015 over time - by percentage of population

Reporting Period	Percentage of population with complying water
2015/16	100
2016/17	99.63
2017/18	100
2018/19	100
2019/20	100
2020/21	100
2021/22	99.99
2022/23	100
2023/24	100
2024/25	100

In 2024/25, 100% of the serviced population received water compliant with the drinking water quality standards.

6.2. Additional health-related parameters

In accordance with Regulation 12(b), Barwon Water monitors additional parameters as water quality standards, not listed in Schedule 2 but identified through our risk assessments. These are sampled as part of our drinking water sampling program to ensure that the drinking water supplied does not pose a risk to human health.

6.2.1. Total Chlorine

All of Barwon Water's drinking water supply is disinfected using chlorine. A residual level of chlorine is maintained after disinfection to help mitigate the risk of microbial re-contamination within the distribution system.

Secondary chlorination sites support this by maintaining adequate chlorine levels throughout much of the network, acting as an additional protective barrier against microbial risks.

Chlorine residuals can fluctuate due to seasonal variations in source water quality, temperature, and changes in network demand. Average chlorine levels can also vary significantly within water sampling localities, primarily due to differences in proximity to chlorine dosing points. Year-to-year variations within localities are influenced by adjustments to chlorine dosing rates and changes in bulk water sources.

- Limit of detection = 0.1 mg/L
- ADWG health guideline value:
    - <5.0 mg/L (chlorinated systems),
    - <4.1 mg/L (chloraminated systems)

Table 10: Total Chlorine results

Water Quality Locality	Frequency of sampling	Number of samples	mg/L		Number of samples where standard was not met (s.18)
			Maximum	Average	
Aireys Inlet	> weekly	99	1.30	0.38	0
Anakie	> weekly	77	1.40	0.76	0
Anglesea	> weekly	89	1.40	0.62	0
Apollo Bay	> weekly	91	1.80	0.80	0
Bannockburn	> weekly	89	1.10	0.50	0
Batesford	> weekly	77	1.20	0.36	0
Bellarine	> weekly	75	1.90	1.11	0
Birregurra	> weekly	103	2.20	0.99	0
Clifton Springs	> weekly	105	1.90	0.88	0
Colac	> weekly	217	2.20	1.13	0
Cressy	> weekly	77	1.80	0.71	0
Forrest	> weekly	77	2.10	0.92	0
Gellibrand	> weekly	77	2.00	1.22	0
Highton	> weekly	173	1.50	0.54	0
Highton High Level	> weekly	76	1.30	0.44	0
Leopold	> weekly	122	1.20	0.50	0
Little River	> weekly	76	1.30	0.74	0
Lorne	> weekly	101	1.50	0.57	0
Lovely Banks	> weekly	305	2.00	0.69	0
Lovely Banks-Carrs Rd	> weekly	77	1.90	1.19	0
Montpellier	> weekly	273	1.40	0.76	0
Moorabool	> weekly	101	2.00	0.69	0
Moriac	> weekly	77	1.80	1.32	0
Ocean Grove	> weekly	158	1.30	0.42	0
Pettavel	> weekly	247	1.60	0.70	0
Portarlington	> weekly	129	1.90	0.75	0
Queenscliff	> weekly	103	1.20	0.66	0
Teesdale	> weekly	82	2.10	0.62	0
Torquay	> weekly	178	1.30	0.65	0
Winchelsea	> weekly	77	1.60	0.88	0

6.2.1.1. Analysis of Results

In 2024/25, average total chlorine results across all water quality localities were within Barwon Water's target range, and maximum results were well below ADWG health limits. Variations between localities were influenced by factors such as storage configuration, network length, and water demand.

All water sampling localities also met the internal target of maintaining a minimum average total chlorine residual above 0.2 mg/L, helping ensure effective protection against microbial risk across the distribution system.

Average total chlorine levels in 2024/25 were consistent with previous years.

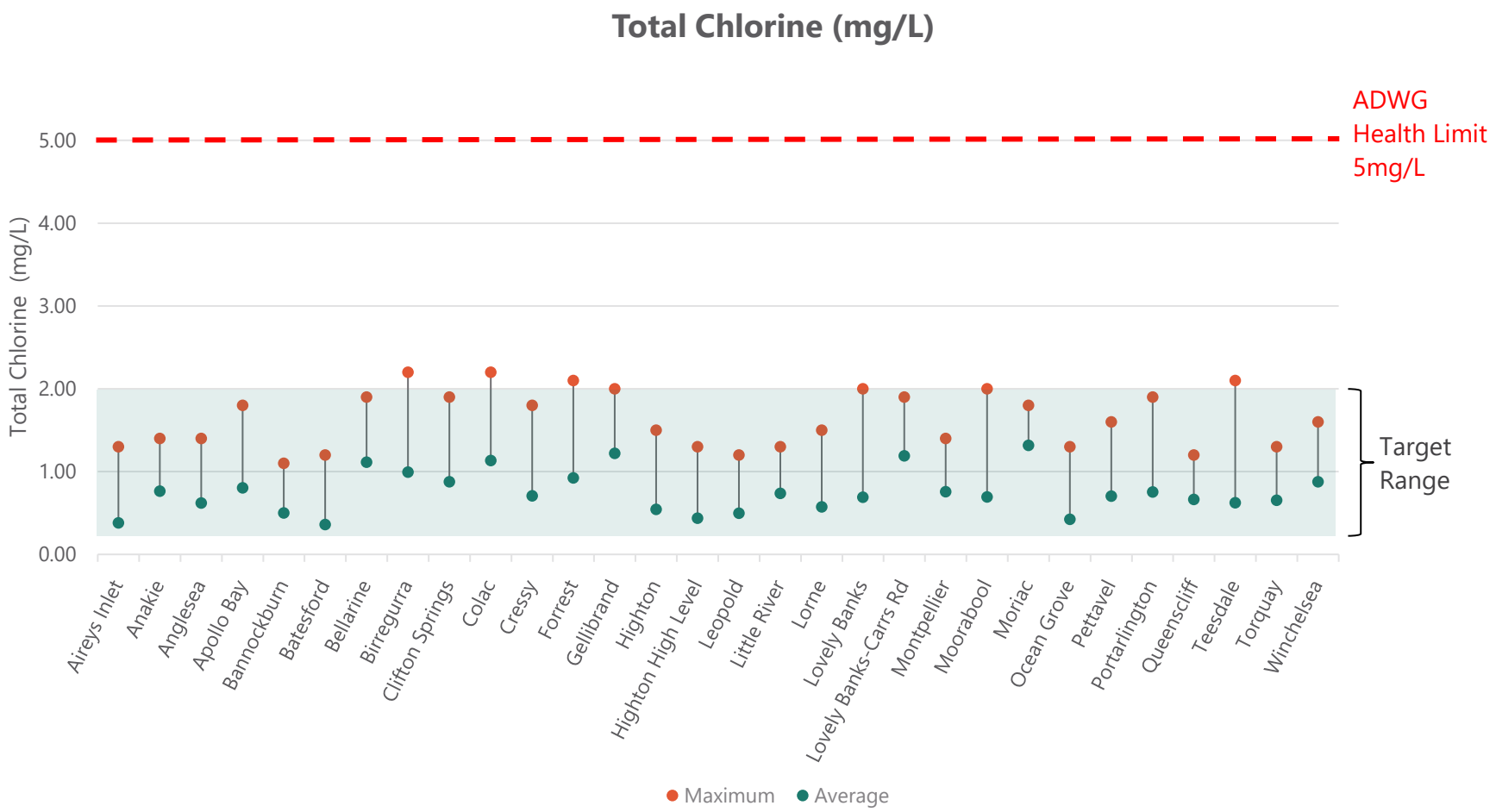


Figure 7: Total Chlorine (target)

6.2.2. Arsenic

Barwon Water monitors for the presence of arsenic in post-filtration water at its water treatment plants and at distribution entry points. Testing is conducted quarterly.

- Limit of detection = 0.001 mg/L
- ADWG health guideline value: <0.01 mg/L

Water Quality Locality	Water Treatment Plant / Source	Frequency of sampling	Number of samples	mg/L		Number of samples where standard was not met (s.18)
				Maximum	Average	
Anakie Little River West Lovely Banks Lovely Banks-Carrs Rd Montpellier Highton	Wurdee Boluc WTP	Quarterly	4	<0.001	<0.001	0
	Moorabool WTP	Quarterly	4	<0.001	<0.001	0
	Melbourne - Geelong Pipeline	Quarterly	4	<0.001	<0.001	0
Aireys Inlet Anglesea Bellarine Clifton Springs Highton High Level Leopold Moriac Ocean Grove Pettavel Portarlington Queenscliff Torquay Winchelsea	Wurdee Boluc WTP	Quarterly	4	<0.001	<0.001	0
Bannockburn Batesford Lethbridge Teesdale	Moorabool WTP	Quarterly	4	<0.001	<0.001	0
Colac Cressy Birregurra	Colac WTP	Quarterly	4	<0.001	<0.001	0
Apollo Bay	Apollo Bay WTP	Quarterly	4	<0.001	<0.001	0
Birregurra[1]	Birregurra WTP[1]	Quarterly	4	<0.001	<0.001	0
Forrest	Forrest WTP	Quarterly	4	<0.001	<0.001	0
Gellibrand	Gellibrand WTP	Quarterly	4	<0.001	<0.001	0
Lorne	Lorne WTP	Quarterly	4	<0.001	<0.001	0

1. In October 2024, the Birregurra WTP was decommissioned and the Birregurra Water Sampling Locality commenced supply from the Colac WTP via the Colac-Birregurra Pipeline.

6.2.3. Fluoride

Fluoride is added to drinking water to improve dental health. The fluoride results for areas supplied with fluoridated water are reported in Table 11.

The *Health (Fluoridation) Act 1973* and the Department of Health require that the optimal range of fluoride in drinking water supplied by Barwon Water must be between 0.8 mg/L and 1.0 mg/L. For further information on water fluoridation, please visit the Victorian Department of Health website.

In May 2024, fluoride dosing at Wurdee Boluc WTP was temporarily suspended to allow for plant upgrades. The Department of Health was notified as per the *Code of practice for fluoridation of drinking water supplies (Second edition)*. Works are expected to be completed and fluoride dosing will resume in late-2025. Further information on this project can be found in Section 9.5.

- Limit of detection = 0.05 mg/L
- ADWG health guideline value = <1.5 mg/L

Table 11: Fluoride results

Water Quality Locality	Frequency of sampling	Number of samples	mg/L				Number of samples where standard was not met
			Drinking water quality standard	Target fluoride concentration	Maximum	Average	
Aireys Inlet	monthly	12	1.5	0.9	0.98	0.78	0
Anakie	monthly	12	1.5	0.9	0.89	0.81	0
Anglesea	monthly	12	1.5	0.9	0.97	0.76	0
Bannockburn	monthly	12	1.5	0.9	0.83	0.72	0
Batesford	monthly	12	1.5	0.9	0.90	0.74	0
Bellarine	monthly	12	1.5	0.9	1.00	0.75	0
Birregurra	> weekly	59	1.5	0.9	0.94	0.61	0
Clifton Springs	monthly	12	1.5	0.9	0.98	0.77	0
Colac	> weekly	102	1.5	0.9	0.94	0.78	0
Cressy	> weekly	53	1.5	0.9	0.91	0.80	0
Highton	monthly	12	1.5	0.9	0.86	0.78	0
Highton High Level	monthly	12	1.5	0.9	0.96	0.77	0
Leopold	monthly	12	1.5	0.9	0.97	0.75	0
Little River	monthly	12	1.5	0.9	0.87	0.81	0
Lovely Banks	> weekly	58	1.5	0.9	0.88	0.73	0
Lovely Banks-Carrs Rd	monthly	12	1.5	0.9	0.87	0.81	0
Montpellier	> monthly	14	1.5	0.9	0.77	0.69	0
Moorabool	> weekly	55	1.5	0.9	0.95	0.68	0
Moriac	> weekly	65	1.5	0.9	1.00	0.69	0
Ocean Grove	> quarterly	11	1.5	0.9	0.97	0.81	0
Pettavel	monthly	12	1.5	0.9	0.97	0.73	0
Portarlington	monthly	12	1.5	0.9	0.96	0.78	0
Queenscliff	monthly	12	1.5	0.9	0.92	0.79	0
Teesdale	monthly	12	1.5	0.9	0.92	0.73	0
Torquay	monthly	12	1.5	0.9	0.99	0.79	0
Winchelsea	monthly	12	1.5	0.9	0.97	0.74	0

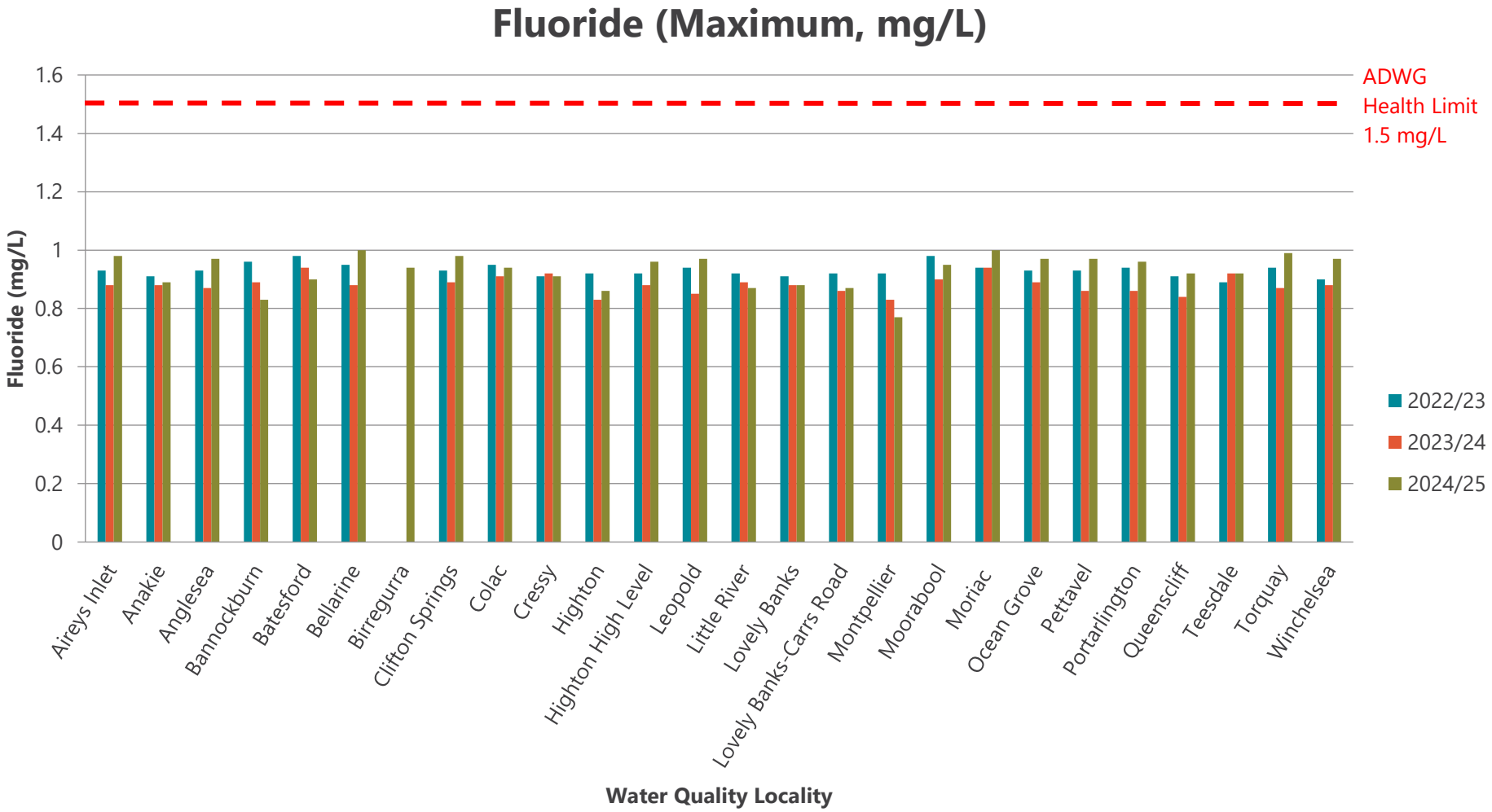
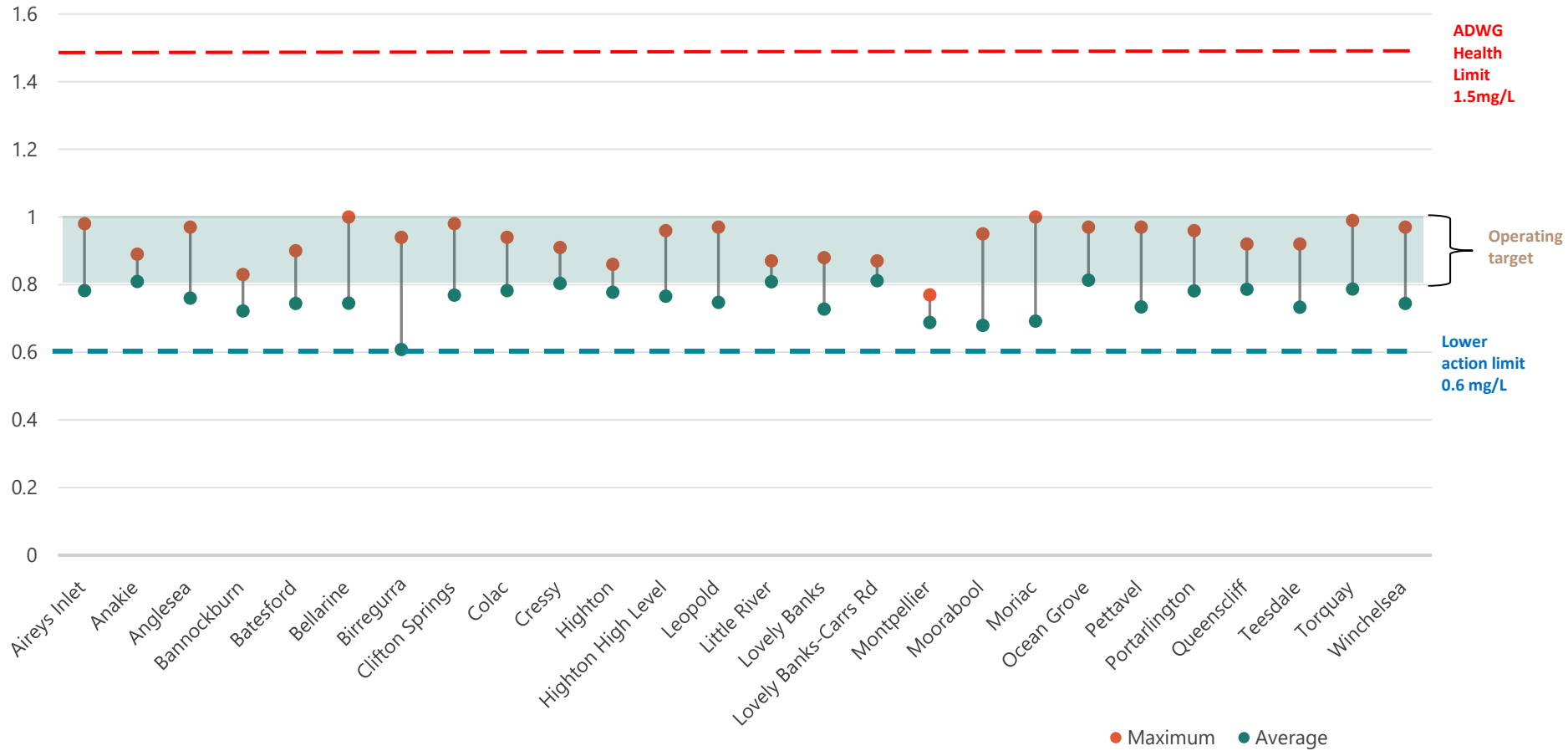


Figure 8: Maximum Fluoride results trend

Figure 9: Fluoride (target)



In supplies where fluoride is not added, naturally occurring sources, such as soils and rock, may impart fluoride to the water.

Table 12 provides a summary of the natural background fluoride levels from the catchment.

Table 12: Natural background fluoride

Water Quality Locality	Water Treatment Plant	Frequency of sampling	Number of samples	mg/L		
				Maximum	Minimum	Average
Anakie Little River West Lovely Banks Lovely Banks-Carrs Rd Montpellier Highton	Wurdee Boluc WTP	Monthly	12	0.13	0.07	0.10
	Moorabool WTP	Monthly	12	0.16	0.10	0.12
Aireys Inlet Anglesea Bellarine Clifton Springs Highton High Level Leopold Moriac Ocean Grove Pettavel Portarlington Queenscliff Torquay Winchelsea	Wurdee Boluc WTP	Monthly	12	0.13	0.07	0.10
Bannockburn Batesford Lethbridge Teesdale	Moorabool WTP	Monthly	12	0.16	0.10	0.12
Colac Cressy Birregurra	Colac WTP	Monthly	12	0.07	0.05	0.06
Apollo Bay	Apollo Bay WTP	Monthly	12	0.14	0.09	0.11
Birregurra [1]	Birregurra WTP [1]	Monthly	3	0.15	0.13	0.14
Forrest	Forrest WTP	Monthly	11	0.10	0.06	0.08
Gellibrand	Gellibrand WTP	Monthly	11	0.10	0.06	0.07
Lorne	Lorne WTP	Monthly	12	0.09	0.06	0.07

1. In October 2024, the Birregurra WTP was decommissioned and the Birregurra Water Quality Locality commenced supply from the Colac system via the Colac-Birregurra Pipeline.

6.2.4. Copper

Barwon Water monitors copper concentrations through quarterly sampling of post-filtration water at water treatment plants and monthly sampling at customer taps across all water quality localities.

- Limit of detection = 0.001 mg/L
- ADWG health guideline value: <2 mg/L

Table 13: Copper results

Water Quality Locality	Frequency of sampling	Number of samples	mg/L		Number of samples where standard was not met (s.18)
			Maximum	Average	
Aireys Inlet	monthly	12	0.012	0.006	0
Anakie	monthly	12	0.015	0.008	0
Anglesea	monthly	12	0.052	0.019	0
Apollo Bay	> monthly	16	0.013	0.007	0
Bannockburn	monthly	12	0.020	0.009	0
Batesford	monthly	12	0.035	0.019	0
Bellarine	monthly	12	0.089	0.020	0
Birregurra	> monthly	16	0.076	0.022	0
Clifton Springs	monthly	12	0.240	0.042	0
Colac	> monthly	16	0.051	0.013	0
Cressy	monthly	12	0.002	0.001	0
Forrest	> monthly	16	0.005	0.004	0
Gellibrand	> monthly	16	0.024	0.012	0
Highton	monthly	12	0.059	0.022	0
Highton High Level	monthly	12	0.058	0.014	0
Leopold	monthly	12	0.077	0.020	0
Little River	monthly	12	0.004	0.002	0
Lorne	> monthly	16	0.026	0.009	0
Lovely Banks	monthly	12	0.042	0.011	0
Lovely Banks-Carrs Rd	monthly	12	0.400	0.039	0
Montpellier	monthly	12	0.042	0.015	0
Moorabool	> monthly	15	0.048	0.016	0
Moriac	> monthly	16	0.020	0.009	0
Ocean Grove	> quarterly	11	0.067	0.023	0
Pettavel	monthly	12	0.030	0.012	0
Portarlington	monthly	12	0.043	0.020	0
Queenscliff	monthly	12	0.130	0.046	0
Teesdale	monthly	12	0.052	0.016	0
Torquay	monthly	12	0.064	0.021	0
Winchelsea	monthly	12	0.087	0.034	0

6.2.5. Lead

Barwon Water monitors lead concentrations through quarterly sampling of post-filtration water at water treatment plants and monthly sampling at customer taps across all water quality localities.

- Limit of detection = 0.001 mg/L
- ADWG health guideline value: <0.005* mg/L

* In June 2025, the ADWG's were updated and the health limit for lead was revised from 0.01 mg/L to 0.005 mg/L. For most of the reporting period, the previous limit of 0.01 mg/L applied.

Water Quality Locality	Frequency of sampling	Number of samples	mg/L			Number of samples where standard was not met (s.18)
			Maximum	Average (Mean)	Median	
Aireys Inlet	monthly	12	<0.001	<0.001	<0.001	0
Anakie	monthly	12	<0.001	<0.001	<0.001	0
Anglesea	monthly	12	<0.001	<0.001	<0.001	0
Apollo Bay	> monthly	16	<0.001	<0.001	<0.001	0
Bannockburn	monthly	12	0.001	<0.001	<0.001	0
Batesford	monthly	12	0.001	<0.001	<0.001	0
Bellarine	monthly	12	0.002	0.001	<0.001	0
Birregurra	> monthly	16	<0.001	<0.001	<0.001	0
Clifton Springs	monthly	12	<0.001	<0.001	<0.001	0
Colac	> monthly	16	<0.001	<0.001	<0.001	0
Cressy	monthly	12	<0.001	<0.001	<0.001	0
Forrest	> monthly	16	0.001	<0.001	<0.001	0
Gellibrand	> monthly	16	0.002	0.001	<0.001	0
Highton	monthly	12	<0.001	<0.001	<0.001	0
Highton High Level	monthly	12	<0.001	<0.001	<0.001	0
Leopold	monthly	12	0.007	0.002	<0.001	0
Little River	monthly	12	<0.001	<0.001	<0.001	0
Lorne	> monthly	16	0.001	<0.001	<0.001	0
Lovely Banks	monthly	12	0.002	0.001	<0.001	0
Lovely Banks-Carrs Rd	monthly	12	0.100	0.010 [1]	<0.001	1
Montpellier	monthly	12	<0.001	<0.001	<0.001	0
Moorabool	> monthly	15	0.001	<0.001	<0.001	0
Moriac	> monthly	16	0.003	0.001	<0.001	0
Ocean Grove	> quarterly	11	<0.001	<0.001	<0.001	0
Pettavel	monthly	12	0.003	0.001	<0.001	0
Portarlington	monthly	12	<0.001	<0.001	<0.001	0
Queenscliff	monthly	12	0.001	<0.001	<0.001	0
Teesdale	monthly	12	<0.001	<0.001	<0.001	0
Torquay	monthly	12	<0.001	<0.001	<0.001	0
Winchelsea	monthly	12	0.001	<0.001	<0.001	0

1. The average (mean) value for Lovely Banks-Carrs Rd is influenced by one elevated result (0.10 mg/L), which was reported to the Department of Health. This result did not present a public health risk. Details of this result, the investigation, and corrective actions are provided in Section 7.2 of this report. All other sample results for this locality were well below the ADWG health limit.

6.2.6. Manganese

Barwon Water monitors manganese concentrations through twice-monthly sampling of post-filtration water at water treatment plants, and at customer taps across all water quality localities.

- Limit of detection = 0.01 mg/L
- ADWG health guideline value: <0.1* mg/L

* In June 2025, the ADWG's were updated and the health limit for manganese was revised from 0.5 mg/L to 0.1 mg/L. For most of the reporting period, the previous limit of 0.5 mg/L applied.

Table 14: Manganese results

Water Quality Locality	Frequency of sampling	Number of samples	mg/L		Number of samples where standard was not met (s.18)
			Maximum	Average	
Aireys Inlet	> monthly	24	<0.01	<0.01	0
Anakie	> monthly	24	<0.01	<0.01	0
Anglesea	> monthly	24	<0.01	<0.01	0
Apollo Bay	> monthly	48	<0.01	<0.01	0
Bannockburn	> monthly	24	<0.01	<0.01	0
Batesford	> monthly	24	<0.01	<0.01	0
Bellarine	> monthly	24	<0.01	<0.01	0
Birregurra	> monthly	48	<0.01	<0.01	0
Clifton Springs	> monthly	24	<0.01	<0.01	0
Colac	> monthly	48	<0.01	<0.01	0
Cressy	> monthly	24	<0.01	<0.01	0
Forrest	> monthly	48	0.10 [1]	0.024	0
Gellibrand	> monthly	48	<0.01	<0.01	0
Highton	> monthly	24	<0.01	<0.01	0
Highton High Level	> monthly	24	<0.01	<0.01	0
Leopold	> monthly	24	<0.01	<0.01	0
Little River	> monthly	24	<0.01	<0.01	0
Lorne	> monthly	47	<0.01	<0.01	0
Lovely Banks	> monthly	24	<0.01	<0.01	0
Lovely Banks-Carrs Rd	> monthly	24	0.47 [1]	0.026	0
Montpellier	> monthly	22	<0.01	<0.01	0
Moorabool	> monthly	47	<0.01	<0.01	0
Moriac	> monthly	48	<0.01	<0.01	0
Ocean Grove	> monthly	22	<0.01	<0.01	0
Pettavel	> monthly	24	<0.01	<0.01	0
Portarlington	> monthly	24	<0.01	<0.01	0
Queenscliff	> monthly	24	<0.01	<0.01	0
Teesdale	> monthly	24	<0.01	<0.01	0
Torquay	> monthly	24	<0.01	<0.01	0
Winchelsea	> monthly	24	<0.01	<0.01	0

1. When this sample was taken, the previous ADWG health limit for manganese applied (0.5 mg/L), hence the standard was met.

6.2.7. Per- and Poly-Fluoroalkyl Substances (PFAS)

Per- and poly-fluoroalkyl substances (PFAS) are a group of human-made chemicals that have been widely used in industrial and consumer products since the mid-1900s. Due to their widespread use, these are now found widespread in the environment.

Barwon Water monitors a broad suite of different PFAS types through quarterly sampling in all raw and treated water at water treatment plants. After water is treated at our plants, it travels in a closed system to customers' water meters to protect the quality of the water.

- Limit of detection = 2 ng/L
- ADWG health guideline value: Perfluorooctanoic acid (PFOA) = 200 ng/L
  Perfluorooctane sulfonic acid (PFOS) = 8 ng/L
  Perfluorohexane sulfonic acid (PFHxS) = 30 ng/L
  Perfluorobutane sulfonic acid (PFBS) = 1000 ng/L

Table 15: Maximum PFAS results in treated drinking water 2024/25

Water Quality Locality	Water Treatment Plant	Frequency of sampling	Number of samples	Maximum, ng/L				Number of samples where standard was not met (s.18)
				PFOA	PFOS	PFHxS	PFBS	
Anakie Little River West Lovely Banks Lovely Banks-Carrs Rd Montpellier Highton	Wurdee Boluc WTP	Monthly	12	<2	<2	<2	<2	0
	Moorabool WTP	Monthly	12	<2	<2	<2	<2	0
Aireys Inlet Anglesea Bellarine Clifton Springs Highton High Level Leopold Moriac Ocean Grove Pettavel Portarlington Queenscliff Torquay Winchelsea	Wurdee Boluc WTP	Monthly	12	<2	<2	<2	<2	0
Bannockburn Batesford Lethbridge Teesdale	Moorabool WTP	Monthly	12	<2	<2	<2	<2	0
Colac Cressy Birregurra	Colac WTP	Monthly	12	<2	<2	<2	<2	0
Apollo Bay	Apollo Bay WTP	Monthly	12	<2	<2	<2	<2	0
Birregurra	Birregurra WTP	Monthly	7	<2	<2	<2	<2	0
Forrest	Forrest WTP	Monthly	12	<2	<2	<2	<2	0
Gellibrand	Gellibrand WTP	Monthly	12	<2	<2	<2	<2	0
Lorne	Lorne WTP	Monthly	12	<2	<2	<2	<2	0

6.2.8. Other health-related parameters

The complete list of other health-related parameters analysed in 2024/25 and the frequency of sampling are summarised in Table 16 below.

Table 16: Other health-related parameters tested in 2024/25

Analyte	Frequency of Sampling	Health Guideline Limit (Yes/No)
Antimony	Quarterly	Yes
Barium	Quarterly	Yes
Beryllium [1]	Annually	Yes
Boron	Quarterly	Yes
Cadmium	Quarterly	Yes
Chlorophenols [1 2]	Annually	Yes
Chromium	Quarterly	Yes
Cyanide [1]	Quarterly	Yes
Haloacetic Acids (Chloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid)	Monthly	Yes
Iodide [1]	Annually	Yes
Mercury	Quarterly	Yes
Molybdenum [1]	Quarterly	Yes
Monochloramine	Weekly	Yes
Nickel	Quarterly	Yes
Nitrate	Monthly	Yes
Nitrite	Monthly	Yes
Pesticides & Herbicides [1 2]	Quarterly	Yes
Radioactive constituents	Annually	Yes
Selenium	Quarterly	Yes
Silver [1]	Annually	Yes
Sulphate	Quarterly / Monthly	Yes
Uranium [1]	Annually	Yes
Volatile Organic Compounds [3]	Annually	Yes

1. Analytes only measured in source water pre-treatment. Measurement in source water is relevant to drinking water quality as it confirms that levels are below ADWG health limits prior to treatment.

2. See Table 17 for a full list of pesticides and herbicides analysed.

3. See

4. Table 18 for a full list of Phenols and Volatile Organic Compounds analysed.

Table 17: Pesticides & Herbicides tested in 2024/25 in source waters

2,4-D	Dicamba	Mecoprop
2,4-DB	Dichlorvos	Methoxychlor
2,4-DP	Dieldrin	Methyl Parathion
2,6-D	Diquat	Metiram
2,4,5-T	Diuron	Molinate
2,4,5-TP	Endosulphan 1 & 2	Monocrotophos
2,4,6-T	Endosulphan Sulphate	Paraquat
4-Chlorophenoxy acetic acid	Endrin	Parathion
4,4-DDD	Endrin Aldehyde	Phorate
4,4-DDE	Endrin Ketone	Picloran
4,4-DDT	EPN	Pirimicarb
Aldrin	Fensulfonthion	Propachlor
Amitrole	Fenthion	Prophos
AMPA	Glyphosate	Propiconazole 1 & 2
Atrazine	Heptachlor	Qunitozene
BHC (α, β, and δ isomers)	Heptachlor Epoxide	Ronnel
Chlordane (cis, oxy & trans)	Hexachlorobenzene	Simazine
Chlorfenvinphos E & Z	Hexazinone	Temephos
Chloropyrifos	Lindane	Tetrachlorvinphos
Chlorothalonil	Malathion	Tetraethyldithiopyrophos
Clopyralid	Mancozeb	Trichlopyr
Coumaphos	MCBP	Trichlorinate
Demeton-S	MCPA	Tukuthion
Diazinon		

Table 18: Phenols & Volatile Organic Compounds (VOC's) tested in 2024/25

1,1,1,2-Tetrachlorethane	2,2-Dichloropropane	Dichlorodifluoromethane
1,1,1-Trichloroethane	2-Chlorotoluene	Ethylbenzene
1,1,2,2-Tetrachloroethane	4-Chlorotoluene	Hexachloro-1,3-Butadiene
1,1,2-Trichloroethane	Benzene	Isopropylbenzene
1,1-Dichloroethane	Bromobenzene	Xylene (M, P & O)
1,1-Dichloroethene	Bromochloromethane	Methylenechloride
1,1-Dichloropropene	Bromodichloromethane	N-Butylbenzene
1,2,3-Trichlorobenzene	Bromoform	N-Propylbenzene
1,2,3-Trichloropropane	Bromomethane	Naphthalene
1,2,4-Trichlorobenzene	Carbon Disulphide	P-Isopropyltoluene
1,2,4-Trimethylbenzene	Carbon Tetrachloride	Sec-Butylbenzene
1,2-Dibromo-3-Chloropropane	Chlorobenzene,	Styrene
1,2-Dibromoethane	Chloroethane	Tert-Butylbenzene
1,2-Dichlorobenzene	Chloroform	Tetrachloroethene
1,2-Dichloroethane	Chloromethane	Toluene
1,2-Dichloropropane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
1,3,5-Trimethylbenzene	cis-1,2-Dichloropropene	trans-1,3-Dichloropropene
1,3-Dichlorobenzene	Dibromochloromethane	Trichloroethene
1,3-Dichloropropane	Dibromomethane	Trichlorofluoromethane
1,4-Dichlorobenzene	Dichloromethane	Vinyl Chloride

6.2.9. Analysis of results – Summary for other health-related parameters

There were no non-compliances for other health-related water quality parameters, including herbicides/pesticides and volatile organic compounds during 2024/25 in any locality. All results for these parameters were well below their respective health guideline values.

The results for these parameters in the 2024/25 reporting period are consistent with those experienced in previous years.

6.3. Results for Aesthetic Parameters (non-health related)

6.3.1. True Colour

True colour is a measure of the colour of water after suspended particles have been removed and is typically caused by dissolved organic matter such as tannins from vegetation. Whilst true colour does not pose a health risk, it can affect the aesthetic quality of drinking water, such as its appearance.

- Limit of detection = 1 HU
- ADWG aesthetic guideline value: <15 HU

Table 19: True Colour results

Water Quality Locality	Frequency of sampling	Number of samples	HU		
			Maximum	Minimum	Average
Aireys Inlet	> weekly	99	1	<1	<1
Anakie	> weekly	77	<1	<1	<1
Anglesea	> weekly	89	2	<1	1.03
Apollo Bay	> weekly	91	2	<1	1.01
Bannockburn	> weekly	89	3	<1	1.16
Batesford	> weekly	77	4	<1	1.26
Bellarine	> weekly	75	2	<1	1.01
Birregurra	> weekly	103	1	<1	<1
Clifton Springs	> weekly	105	1	<1	<1
Colac	> weekly	217	1	<1	<1
Cressy	> weekly	77	<1	<1	<1
Forrest	> weekly	77	2	<1	1.06
Gellibrand	> weekly	77	<1	<1	<1
Highton	> weekly	173	1	<1	<1
Highton High Level	> weekly	76	<1	<1	<1
Leopold	> weekly	122	2	<1	1.02
Little River	> weekly	76	1	<1	<1
Lorne	> weekly	101	<1	<1	<1
Lovely Banks	> weekly	305	4	<1	1.03
Lovely Banks-Carrs Rd	> weekly	77	<1	<1	<1
Montpellier	> weekly	273	2	<1	1.00
Moorabool	> weekly	101	3	<1	1.16
Moriac	> weekly	78	2	<1	1.01
Ocean Grove	> weekly	158	1	<1	<1
Pettavel	> weekly	247	<1	<1	<1
Portarlington	> weekly	129	1	<1	<1
Queenscliff	> weekly	103	<1	<1	<1
Teesdale	> weekly	82	3	<1	1.22
Torquay	> weekly	178	1	<1	<1
Winchelsea	> weekly	77	1	<1	<1

6.3.2. Hardness (Total)

Total hardness is the sum of the concentrations of calcium and magnesium ions expressed as a calcium carbonate equivalent.

Hard water requires more soap than soft water to obtain lather. It can also contribute to scale formation in hot water systems, pipes, fittings, and kettles.

Water across the Barwon Water region is generally considered 'soft' and poses no scaling problems.

- Limit of detection = 1 mg/L
- ADWG aesthetic guideline value: <200 mg/L

Table 20: Total Hardness results

Water Quality Locality	Frequency of sampling	Number of samples	mg/L		
			Maximum	Minimum	Average
Aireys Inlet	monthly	12	48	32	38
Anakie	monthly	12	56	17	29
Anglesea	monthly	12	50	32	38
Apollo Bay	monthly	12	67	46	55
Bannockburn	monthly	12	120	74	92
Batesford	monthly	12	110	74	93
Bellarine	monthly	12	45	28	38
Birregurra	monthly	24	37	17	27
Clifton Springs	monthly	12	40	29	35
Colac	monthly	12	31	18	23
Cressy	monthly	12	37	19	25
Forrest	monthly	12	37	22	30
Gellibrand	monthly	12	77	24	49
Highton	monthly	12	74	26	49
Highton High Level	monthly	12	40	28	34
Leopold	monthly	12	40	29	35
Little River	monthly	12	65	22	29
Lorne	monthly	12	36	20	27
Lovely Banks	twice monthly	156	69	15	29
Lovely Banks-Carrs Rd	monthly	12	65	20	27
Montpellier	monthly	24	68	22	50
Moorabool	monthly	24	120	61	89
Moriac	monthly	12	64	26	37
Ocean Grove	monthly	12	38	26	34
Pettavel	monthly	24	38	25	34
Portarlington	monthly	12	43	28	36
Queenscliff	monthly	12	42	28	35
Teesdale	monthly	12	110	69	93
Torquay	monthly	24	42	27	34
Winchelsea	monthly	12	40	25	34

6.3.3. pH

pH is a measure of the hydrogen ion concentration in water, indicating its acidity or alkalinity. A pH of 7.0 is neutral, values below 7.0 are acidic, and above 7.0 are basic.

The ADWG guideline range for pH is not health-based but is intended to minimise corrosion and encrustation of pipes and fittings. There is no direct link between pH and human health. Consumption of food and beverages with low or high pH is common and not associated with adverse health effects (ADWG, 2011).

- Range of detection = 0 to 14
- ADWG aesthetic guideline value: 6.5 – 8.5

Table 21: pH results

Water Quality Locality	Frequency of sampling	Number of samples	Maximum	Minimum	Average	Aesthetic operating range
Aireys Inlet	> weekly	99	7.9	6.9	7.5	6.5 – 8.5
Anakie	> weekly	77	7.8	6.5	7.2	
Anglesea	> weekly	89	7.8	7.1	7.5	
Apollo Bay	> weekly	91	7.8	6.9	7.4	
Bannockburn	> weekly	89	7.8	6.8	7.3	
Batesford	> weekly	77	7.8	6.8	7.3	
Bellarine	> weekly	75	7.9	6.7	7.3	
Birregurra	> weekly	103	7.9	6.8	7.2	
Clifton Springs	> weekly	105	7.5	6.5	7.2	
Colac	> weekly	217	7.6	6.4	7.1	
Cressy	> weekly	77	8.0	6.6	7.5	
Forrest	> weekly	77	8.6	7.0	7.5	
Gellibrand	> weekly	77	7.8	6.7	7.5	
Highton	> weekly	173	7.9	6.8	7.3	
Highton High Level	> weekly	76	7.6	6.6	7.2	
Leopold	> weekly	122	7.5	6.5	7.2	
Little River	> weekly	76	9.5	6.6	7.5	
Lorne	> weekly	101	7.5	6.7	7.2	
Lovely Banks	> weekly	305	7.7	6.5	7.1	
Lovely Banks-Carrs Rd	> weekly	77	7.9	6.6	7.1	
Montpellier	> weekly	273	8.0	6.7	7.3	
Moorabool	> weekly	101	8.2	6.7	7.4	
Moriac	> weekly	78	7.6	6.5	7.1	
Ocean Grove	> weekly	158	7.7	6.8	7.2	
Pettavel	> weekly	247	7.6	6.6	7.1	
Portarlington	> weekly	129	8.4	7.0	7.3	
Queenscliff	> weekly	103	7.6	6.8	7.2	
Teesdale	> weekly	82	8.9	6.9	7.6	
Torquay	> weekly	178	7.6	6.5	7.2	
Winchelsea	> weekly	77	7.5	6.5	7.1	

6.3.4. Conductivity

Conductivity measures the ability of water to conduct electricity, which increases with the concentration of dissolved solids, such as salts. As a general guide, total dissolved solids (TDS) can be estimated as roughly half the Electrical Conductivity (EC) value (e.g. an EC of 1000 µS/cm ≈ TDS of 500 mg/L).

While high TDS may affect the taste of drinking water, with a preferred limit of 500 mg/L, it is not associated with any known health effects (ADWG, 2011).

- Range of detection = 1 µS/cm
- ADWG aesthetic guideline value: <1000 µS/cm

Table 22: Conductivity results

Water Quality Locality	Water Treatment Plant / Source	Frequency of sampling	Number of samples	µS/cm		
				Maximum	Minimum	Average
Anakie Little River West Lovely Banks Lovely Banks-Carrs Rd Montpellier Highton	Wurdee Boluc WTP	twice monthly	24	240	210	226
	Moorabool WTP	twice monthly	24	590	380	483
	Melbourne - Geelong Pipeline	> twice monthly	46	130	73	112
Aireys Inlet Anglesea Bellarine Clifton Springs Highton High Level Leopold Moriac Ocean Grove Pettavel Portarlington Queenscliff Torquay Winchelsea	Wurdee Boluc WTP	twice monthly	24	240	210	226
Bannockburn Batesford Lethbridge Teesdale	Moorabool WTP	twice monthly	24	590	380	483
Colac Cressy Birregurra	Colac WTP	twice monthly	24	180	130	149
Apollo Bay	Apollo Bay WTP	twice monthly	24	350	280	307
Birregurra [1]	Birregurra WTP [1]	twice monthly [1]	10	250	230	242
Forrest	Forrest WTP	twice monthly	24	230	150	206
Gellibrand	Gellibrand WTP	twice monthly	24	470	220	368
Lorne	Lorne WTP	twice monthly	24	190	160	175

1. In October 2024, the Birregurra WTP was decommissioned and the Birregurra Water Quality Locality commenced supply from the Colac system via the Colac-Birregurra Pipeline.

6.3.5. Analysis of Results – Summary for Aesthetic Parameters

Across all localities, average colour levels remained well within the ADWG aesthetic value of <15 HU, with reported averages between <1 and 1.5 HU.

Average pH values in each locality were within the target range of 6.5–8.5. Isolated samples in several localities recorded maximum or minimum values outside this range. When these were identified, corrective actions were implemented, including increasing water turnover. Elevated pH may occur naturally due to the leaching of calcium and hydroxide ions from cement-lined pipelines and concrete storage tanks.

All zones complied with the recommended hardness and conductivity parameters.

Results were consistent with previous years.

7. Emergency / Incident Management

7.1. Emergencies / Events – Section 22 Reports

No Section 22 reports were made during the 2024/25 reporting period.

7.2. Emergencies / Events – Section 18 Notifications

There was one Section 18 report made to the Department of Health during 2024/25, as summarised in Table 23 below.

Table 23: Section 18 Notifications 2024/25

Date	Type	Water Quality Locality	Nature of s18 Notification	Corrective Actions Taken	Preventative Actions Taken
10 Jan 2025	Identification of a single sample exceeding the ADWG health limit for Lead (Pb)	Lovely Banks-Carrs Rd	In January 2025, Barwon Water was notified of a routine sample result for lead (Pb) from a reticulation sample point which exceeded the ADWG health limit. The Department of Health were notified under Section 18 of *the Act*. An investigation found that the property where the sample point was located was in a rural location, did not have a dwelling, and was unoccupied. The source of the contamination was found to be from the property's aging service line, which had become corroded due to very low consumption at the property.	- Investigative sampling throughout the locality to validate the extent of the issue and confirm that there was no broader public health risk. - Analysis of the property's consumption data, confirming the property in question had not consumed drinking water. - Inspection and replacement of the entire service line from main-to-meter, fittings, and meter assembly to remove any potential source of corrosion. - Follow up sampling at the property to confirm the source of the contamination had been resolved.	- Systematic review of all reticulation sample points, including asset age and consumption profiles, and re-locating sample points with very low consumption to ensure water quality samples are representative. - Improvements to sampling protocols, including a review of flushing times and changes to reporting forms to ensure any corrosion at customer meters is identified and rectified early. - Uplift in Barwon Water's internal Water Quality Data Alerts review processes to ensure any unusual results are identified and actioned early before escalating.

8. Water Quality Complaints

This section outlines the typical water quality issues reported by customers, most of which relate to the appearance of the water. It also describes the common causes of these issues and how Barwon Water manages them. Customer-reported water quality concerns generally fall into three categories: discoloured water, cloudy water, and taste and odour.

Discoloured Water

Discoloured water can be caused by a range of factors. Within Barwon Water's network, it is typically due to the disturbance of naturally occurring sediments following bursts or leaking mains, iron or manganese oxidation, operational changes, or in areas of low flow like dead-end mains.

In some cases, discoloured water is caused by internal plumbing issues at the customer's property, including corroded galvanised pipes, hot water system deterioration, or worn tap washers and rubber gaskets. It can also appear after water has been stagnant in pipes for extended periods (e.g. after returning from holidays).

Barwon Water manages discoloured water through proactive maintenance, routine monitoring of turbidity, and targeted mains cleaning programs. The response to individual complaints depends on the likely cause and may include reactive mains cleaning, reviewing treatment plant performance, or advising customers to consult a licensed plumber to inspect their internal plumbing.

Reports of blue discolouration are uncommon and are typically caused by copper corrosion. As Barwon Water does not use copper pipes or fittings in its network, these issues are generally traced to internal plumbing within the customer's property. In such cases, customers are advised to engage a licensed plumber to assess and address the issue.

White Water

White or "milky" water is typically caused by air becoming entrained in the water supply, giving it a cloudy appearance. This can occur following water main repairs or replacements. When water is under pressure in the mains, air can become dissolved and is then released as fine bubbles when the water is drawn from a tap and the pressure drops.

Barwon Water investigates each report of white water to determine whether flushing is required. This includes assessing:

- The safety and source of the supply
- Local topography (to identify where air may be accumulating)
- Number of connections in the area (to assess the likelihood of air clearing naturally)
- Duration of the issue
- Any customer-specific impacts

Where possible, mains are flushed at strategic locations to remove trapped air. In some cases, customers are advised to wait for the issue to resolve naturally, which typically occurs within two to three days. If the problem persists beyond this period or a second complaint is received, a flush is arranged.

Taste / Odour

Taste and odour complaints are most commonly associated with chlorine used for disinfection or changes in raw water quality, such as increases in organic matter or the presence of algae. When these complaints are received, Barwon Water reviews recent monitoring data and treatment processes to identify any contributing factors. Where appropriate, operational adjustments are made. For customers who are particularly sensitive to taste and odour, advice is provided on practical methods to improve the palatability of their drinking water.

Alleged Illness

Illness complaints are generally received from customers who wish to confirm whether the water they have been drinking may have made them ill. To address this type of complaint, a review of monitoring results is undertaken. In some cases, independent water quality testing at the customer's meter may also be arranged.

If there is no evidence indicating the delivered water has been unsafe, the customer is advised to consult a doctor if they have further concerns.

A standard operating procedure has been developed by Barwon Water which is aligned with Department of Health (DH) guidance. The procedure has been adopted to ensure all illness complaints prompt a thorough investigation of the water supply system to confirm there have been no system failures which could provide an opportunity for unsafe water to be supplied.

If at any point in time Barwon Water believes there has been potential for unsafe water to be supplied, DH will be notified (via a Section 22 notification).

If multiple illness complaints are received from the same water quality locality within a 7-day period, and investigations show there has been no potential for the water supply to be the cause, Barwon Water will notify DH as a courtesy to enable them to investigate further.

8.1. Complaint Response

Most complaints are received by Barwon Water's Customer Contact Centre and registered on our customer and complaints management system. Complaints may also be received through social media, email, the public website enquiry function, or through community engagement, all of which are recorded and managed similarly.

During business hours, the Product Quality team endeavour to respond on the same day, working directly with customers to investigate and resolve issues. Outside business hours, the Duty Officer will respond to complaints and immediately initiate corrective actions where required. Those cases are then reviewed by the Product Quality team on the next business day to determine if follow-up or further action is required.

8.2. Complaints Data and Analysis – 2024/25

In accordance with our commitment to providing high quality drinking water, complaints regarding drinking water quality are taken very seriously.

The complaints are compared to the number of connected properties to enable comparison with other water suppliers. In 2024/2025, there was 1.19 complaints per 1,000 properties. This is a decrease compared to last year (1.47 complaints per 1,000 properties), and consistent with the 3-year rolling average.

The largest complaints category was for Taste and Odour, primarily linked to chlorine or source changes to balance water resources due to dry conditions – resulting in natural taste profile changes.

All complaint categories saw a decrease compared to previous years. This may be attributed to proactive community engagement, including letter drops, social media campaigns, and media releases before any major planned works or changes in source waters.

The most significant decrease was seen for white/milky water complaints. Whilst the number of unplanned interruptions was consistent with previous years, this can be attributed to improved procedures for recharging mains after bursts/leaks to minimise air entrainment.

Where possible, opportunities to further reduce complaints have been sought.

Table 24: Comparison of complaints across financial years

Type of complaint	Number of complaints			Comparison to 2023/24 reporting period	Comments
	2022/23	2023/24	2024/25		
Alleged Diagnosed Illness	0	0	0	0	Comparable to previous year
Discoloured Water	80	88	67	-21	24% decrease compared to previous year
Taste or Odour	62	91	80	-11	12% decrease compared to previous year
White Water	19	36	24	-12	33% decrease compared to previous year
Other	48	52	46	-6	12% decrease compared to previous year
TOTAL	**209**	**267**	**217**	**-50**	**19% decrease compared to previous year**

Table 25: Complaints by type – 2024/25

Type of complaint	Number	Percentage of Total Complaints	Number of complaints per 1000 properties
Alleged Diagnosed Illness	0	0%	0.00
Discoloured Water	67	31%	0.37
Taste or Odour	80	37%	0.44
White Water	24	11%	0.13
Other	46	21%	0.25
TOTAL	**217**	**100%**	**1.19**

Table 26: Customer complaints summary for each Water Quality Locality - 2024/25

Water Quality Locality	Type of Complaint					Total
	Alleged Diagnosed Illness	Discoloured Water	Taste or Odour	White Water	Other	
Aireys Inlet	0	0	2	0	0	**2**
Anakie	0	0	0	0	1	**1**
Anglesea	0	1	0	2	1	**4**
Apollo Bay	0	0	1	1	0	**2**
Bannockburn	0	0	2	0	1	**3**
Batesford	0	0	0	0	1	**1**
Bellarine	0	0	0	0	0	**0**
Birregurra	0	1	4	3	0	**8**
Clifton Springs	0	2	0	0	0	**2**
Colac	0	6	2	2	1	**11**
Cressy	0	0	0	0	0	**0**
Forrest	0	9	0	0	3	**12**
Gellibrand	0	0	0	0	0	**0**
Highton	0	4	9	2	9	**24**
Highton HL	0	0	0	0	0	**0**
Leopold	0	3	2	7	6	**18**
Little River West	0	0	0	0	0	**0**
Lorne	0	1	0	0	0	**1**
Lovely Banks	0	7	6	1	4	**18**
Lovely Banks-Carrs Road	0	0	0	0	0	**0**
Montpellier	0	11	17	0	8	**36**
Moorabool	0	0	0	0	0	**0**
Moriac	0	0	0	0	0	**0**
Ocean Grove	0	3	2	0	0	**5**
Pettavel	0	9	20	1	5	**35**
Portarlington	0	0	4	1	1	**6**
Queenscliff	0	3	0	2	0	**5**
Teesdale	0	2	0	2	2	**6**
Torquay	0	5	9	0	3	**17**
Unknown locality - no address provided	0	0	0	0	0	**0**
Winchelsea	0	0	0	0	0	**0**
TOTAL	**0**	**67**	**80**	**24**	**46**	**217**

Figure 10: Complaints per 100 properties trend

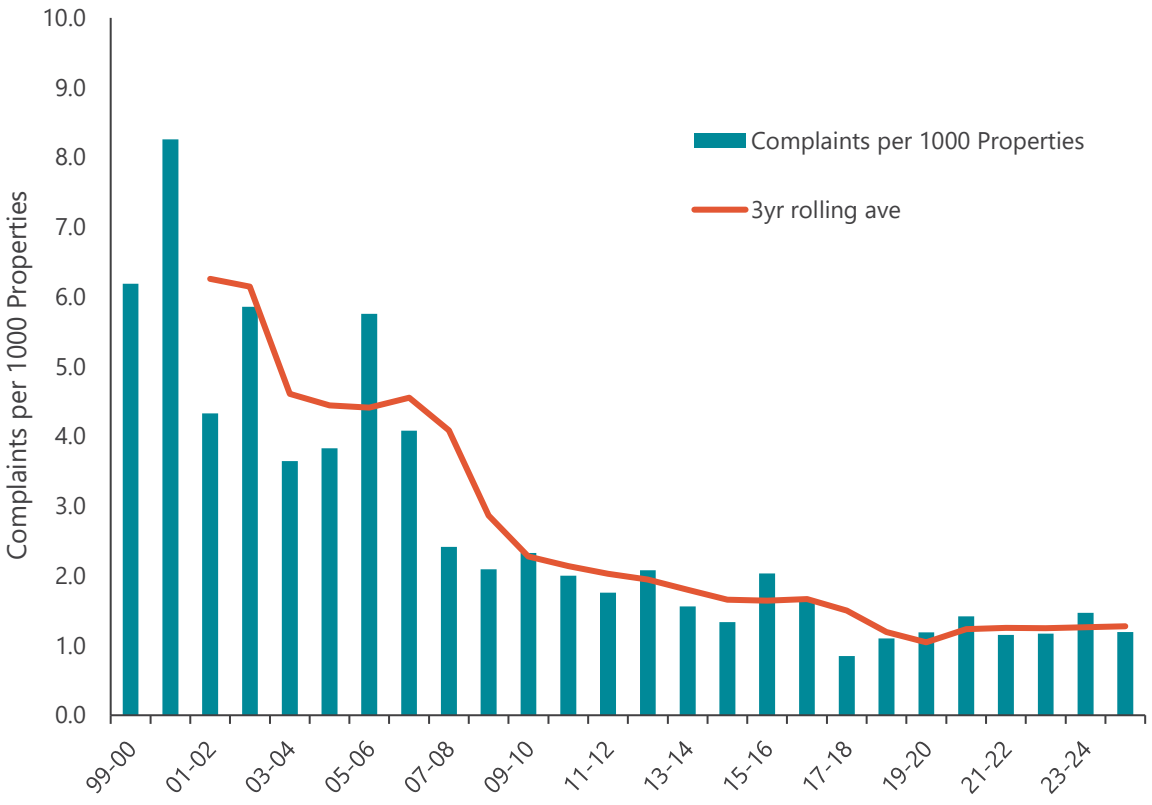
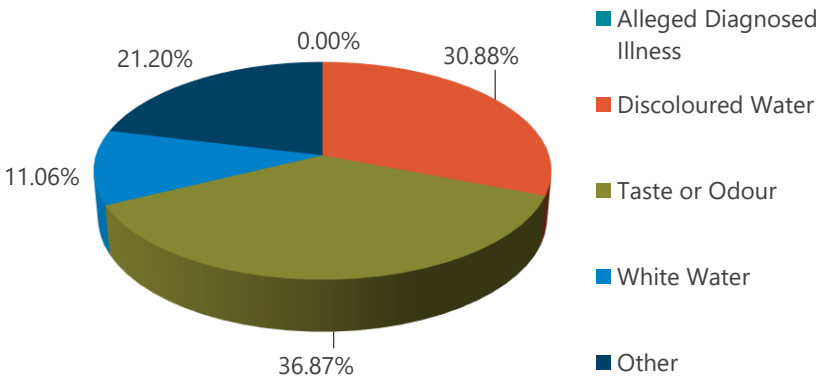


Figure 11: Complaint summary by type 2024/25



9. Water Quality Improvement Projects

9.1. Gellibrand WTP Upgrade Project

In 2024/25, construction was almost completed on the upgraded Gellibrand Water Treatment Plant, replacing the previous plant which was approaching the end of its service life.

The upgraded plant is within existing site footprint and has been designed to increase resilience against climate change and variable raw water quality.

The upgraded plant is expected to be completed early in the 2025/26 reporting period.

9.2. Colac-Birregurra Pipeline and Disinfection Plant

In October 2024, a new 19km pipeline between Colac and Birregurra was commissioned, as well as a new tank and disinfection plant at Dunlops Road. This infrastructure provides Birregurra a more-reliable water supply from Colac WTP and has allowed Barwon Water to decommission the Birregurra WTP, which was approaching end of asset life.

The project is expected to deliver numerous benefits, including:

- Improved water quality and resilience to climate change.
- Electricity and operational cost savings.
- Water savings due to evaporation.
- A fluoridated drinking water supply for Birregurra.

9.3. Melbourne-Geelong Pipeline Upgrades

Upgrades to the Melbourne-Geelong Pipeline are currently underway to increase its capacity and enable supply into the Pettavel Basin, which services a large portion of customers in Geelong and the Bellarine Peninsula. The project includes the construction of a new pump station, a new disinfection plant at Lovely Banks, and pipeline upgrades. These upgrades are expected to significantly enhance resilience during dry conditions and deliver improved water quality for customers receiving supply from the upgraded system.

9.4. Improved Water Quality Monitoring in West Barwon Reservoir

In March 2025, a vertical profiler water quality monitoring station was installed in West Barwon Reservoir. This online system continuously measures water quality throughout the water column. The enhanced monitoring capability is expected to improve Barwon Water's ability to respond to and manage water quality risks associated with blue-green algae (BGA) blooms and de-stratification events, strengthening overall source water resilience.

9.5. Clear Water Storage Renewal at Wurdee Boluc WTP

In May 2025, the 8 megalitre clear water storage tank at Wurdee Boluc WTP was drained, and works are ongoing to re-coat and renew the tank. This works will significantly extend the tank's lifespan and deliver improved water quality outcomes by reducing the potential for internal corrosion, leaks, and sediment accumulation, while also strengthening resilience of the network to meet customer needs well into the future. Works are expected to be completed and the tank will be returned to service early in the 2025/26 financial year.

9.6. Catchment Management & Waterway Health

We harvest water from declared drinking water supply catchments on the Barham, Barwon, Gellibrand, Moorabool, and St George rivers and their tributaries. While these are largely contained within publicly managed national parks and reserves, significant areas of private land also exist within some catchments.

We have a keen interest in ensuring the protection and rehabilitation of land and waterways within these catchments, in accordance with the priorities established in the *Corangamite Regional Catchment Strategy*, the *Corangamite Waterway Strategy* and the *Victorian Waterway Management Strategy*.

In 2024-25, we signed a new partnership agreement with Corangamite Catchment Management Authority (CMA), which focuses on improving the health of catchments and waterways across the Barwon region, and invested more than $950,000 to protect and improve catchment and waterway health. This included continuation of our ongoing partnership with the Corangamite CMA through our River Health Agreement and the Living Moorabool and Upper Barwon Flagship Projects. Key projects funded through these initiatives this year included:

- Embankment stabilisation, riparian restoration, and habitat protection for Little Galaxias along almost 1km of waterway frontage on Gosling Creek.
- The removal of significant choke-points along 1.6km of the East Barwon River near Barwon Downs.

We also continued our long-standing partnerships with the Moorabool Catchment Landcare Group, Southern Otway Landcare Network and Upper Barwon Landcare Network to support a coordinated approach to delivering on-ground protection and improvement works within drinking water supply catchments.

A key project being delivered under the Landcare Partnerships is the Moorabool Catchment Restoration Program. Extensive planning and engagement efforts from Moorabool Landcare Group this year resulted in the establishment of 7 management agreements, which will ensure the protection of almost 11 km of waterway frontage and 24 hectares of riparian area.

In collaboration with the Corangamite CMA and Landcare, we also continued ongoing maintenance of large river restoration projects on the East Barwon River and Dewing Creek, in the Upper Barwon River Catchment, and the East Moorabool River at Bolwarra Weir in the Moorabool Catchment. These projects saw us working together to remove willow, fence for stock exclusion and revegetate to improve water quality.

In 2024–25 we launched the Building a Resilient Barham initiative, which is a long-term project to protect water quality and environmental resilience in the Barham River Catchment. This project takes a whole-of-catchment management approach to mitigate public health risks, while delivering broader environmental and landholder benefits. The 30-year project will deliver on-ground waterway protection works, community engagement and monitoring and evaluation.

In addition, we continued to work with Conservation Ecology Centre and Parks Victoria to support monitoring and management of feral pig and deer populations at a number of locations within our drinking water supply catchments.

Barwon Water

Appendices

Appendix A – Current HACCP Certification

bsi.

Certificate of Registration

FOOD SAFETY MANAGEMENT SYSTEM - BSI HACCP & GMP

This is to certify that: BARWON REGION WATER CORPORATION
Office
55-67 Ryrie Street
Geelong VIC 3220

Holds Certificate Number: **HACCP 817734**

and operates a food safety management system that complies with the requirements of Codex Alimentarius Alinorm:2020 (HACCP) and Good Manufacturing Practice (GMP) for the accompanying scope:

The registration covers the food safety management system for the harvesting, treatment and distribution of drinking water to a broad range of customers.

For and on behalf of BSI:

Charlene Loo, Managing Director, BSI Group Australia & New Zealand

Original Registration Date: 2024-11-18
Effective Date: 2024-11-18
Latest Revision Date: 2024-11-22
Expiry Date: 2027-11-30

Page: 1 of 2

...making excellence a habit.™

This certificate was issued electronically and remains the property of BSI Group ANZ Pty Limited, ACN 078 659 211 and is bound by the conditions of contract. This certificate can be verified at www.bsi-global.com/clientdirectory. Printed copies can be validated at www.bsi-global.com/ClientDirectory. Further clarifications regarding the scope of this certificate and the applicability of BSI HACCP & GMP 2021 requirements may be obtained by consulting the organization. This certificate is valid only if provided original copies are in complete set.

Information and Contact: BSI Group ANZ Pty Limited, ACN 078 659 211: Suite 1, Level 1, 54 Waterloo Road, Macquarie Park, NSW 2113
A Member of the BSI Group of Companies.

Appendix B – 2022/23 Safe Drinking Water Audit Certificate & Correction Letter

RISK EDGE
STRATEGY PLANNING CONTROL
ABN 43 143 242 389 m +61 411 049 544 e contact@riskedge.com.au www.riskedge.com.au

Risk Management Plan Audit Certificate

Safe Drinking Water Regulations 2015

Certificate Number:	BW-346
Auditor Notice of Approval Conditions #:	181
Audit period:	1 January 2021 to 31 December 2022
To:	Ms Komal Dalal Product Quality Lead Asset, Systems & Environment Barwon Water 55-67 Ryrie Street (PO Box 659) Geelong VIC 3220
Australian Business Number (ABN):	86 348 316 514

I, Dr Annette Davison, after conducting a risk management plan audit of the water supplied by Barwon Water, am of the opinion that Barwon Water has not complied with the obligations imposed by section 8(1) of the *Safe Drinking Water Act 2003* during the audit period.

The details of the reasons for noncompliance (all minor) are detailed in the table below.

Signed:  **Date:** 2023-04-22

Auditable Area	Noncompliances	OFIs
1 Activities Conducted to Manage Risk	The Act requires development and implementation of preventative strategies (including appropriate control and monitoring measures). (s. 9(1)(d)). While minor, a GAC Filtration CCP was identified as part of the Apollo Bay WTP Process Control, but not listed on the CCP Locations list, creating potential for a gap in process understanding. OFIs (OFI 1D-1 and OFI 1D-3) have been captured to address this gap. The Act requires implementation and compliance with the requirements of the risk management plan (s. 7(1)(b), s. 8(1)(b)). Some minor noncompliances in implementation were observed including gaps in completion of chemical deliveries record requirements, omission of one test on PAC23 (Colac WTP), raw and treated water turbidity meters at Colac WTP not been externally calibrated when due and instrument numbers on calibration stickers at Colac WTP did not always align with the instrument number in SCADA (instrument numbers that do not match in the field and on SCADA can result in incorrect assumptions regarding the location of the instrument). OFIs (OFI 1E-1 and OFI 1E-2) have been captured to address these noncompliances.	OFI 1D-1: For completeness, add Apollo Bay WTP GAC Filtration CCP to the CCP Locations list. OFI 1D-3: Undertake a review, and revision as necessary, of all CCPs, and implement the revisions. OFI IE-1: Develop and implement processes to improve understanding of and adherence to the chemical delivery requirements by operational staff, including the importance of record keeping. OFI 1E-2: Undertake a systems-wide review of the annual calibration and implement the findings.
2 Risk Management Plan Contents	Regulation 8(1)(i) requires the development and maintenance of appropriate critical control points, and procedures for their implementation to ensure protection of public health outcomes. Colac WTP fluoridation critical limit was inconsistent between CCP documentation (1.5 mg/L) and SCADA (1.6 mg/L). This is considered a minor noncompliance as there are more conservative shutdown processes prior to the CCP limit. While an OFI (OFI 2M-3) has been captured for this noncompliance, it is noted that the limit has already been changed in SCADA.	OFI 2M-3: The Colac fluoridation CCP limit in the SCADA should be corrected to 1.5 mg/L (this was advised as completed on 2023-03-22).
3 Identification and Management of Risks to Water Supply	None	None
4 Risk Management Plan Documents	Based on a review of all supporting documentation including at the site visits, we were largely able to confirm compliance for all requirements of s. 10(2) of the Act, with the exception of an isolated incident for chemical receivals. Chemical delivery records were not available for the entire audit period at Colac WTP (older records had been thrown out as part of a tidy-up). This fact meant that the auditors were unable to confirm the audit guidance component: "During the audit **all documentation** must be available for inspection." [our emphasis]. This outcome is considered minor, because it was not found to be a systemic issue. An OFI captured under Area 1 (OFI 1E-1) covers the identified noncompliance.	See OFI IE-1.

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Ms Suzie Sarkis
Manager Water
Victorian Public Health Division
Department of Health
14 / 50 Lonsdale Street
Melbourne Victoria 3000

2023-06-06

Dear Ms Sarkis

Audit Correction

I confirm that the submitted risk management plan audit certificate for Barwon Water dated 22 April 2023 contained an incorrect section reference to the *Safe Drinking Water Act 2003* (Vic).

The incorrect section reference was: **section 8(1)**

The corrected section reference should be: **section 7(1)**

Please treat the certificate as having been amended accordingly.

Yours sincerely

Dr Annette Davison
HND, BSc(Hons), MEnvLGovLaw, PhD, PMAWA