

Christchurch Wastewater Treatment Plant

CWTP

Quarterly Report

CRC051724

November 2024 to January 2025

Submitted to the Canterbury
Regional Council on 28/02/2025

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Summary

This report summarises the results of monitoring at the Christchurch Wastewater Treatment Plant (CWTP) over the period November 2024 – January 2025 in accordance with CRC051724 'the consent'.

Condition 32 of the consent requires the Christchurch City Council to submit a Quarterly Monitoring Report to the Canterbury Regional Council for the previous quarter, on the last working day of February, May, August and November, each year.

The four quarters are:

- November to January
- February to April
- May to July
- August to October

Consent CRC051724 permits the discharge of treated wastewater from the CWTP Oxidation Ponds into the Pegasus Bay Coastal Marine Area via an ocean outfall. Of the comprehensive sampling programme required by the consent, all required samples were collected during the monitoring period.

We are still affected by ongoing impacts from a large fire that broke out on the 1 November 2021 and destroyed both trickling filters. These are a critical piece of the treatment process, and we had to implement a temporary and less effective treatment process, until the trickling filters are replaced with an activated sludge reactor which is expected to take up to 3 years to complete.

The 2 of the 4 clarification basins have been changed to activated sludge plants. Recently, damages caused by the Canterbury earthquake sequence between 2010-2011 have been causing issues with their ongoing operation that need to be repaired.

During this time, we are working tirelessly to keep the temporary treatment process running smoothly, to ensure that we can meet the consent standards as best we can.

1. Outfall Discharge Flow

1.1 Resource Consent Flow Conditions

Consent CRC051724 allows CWTP to discharge up to 518,000 cubic metres per day of treated wastewater from the CWTP Oxidation Ponds at a maximum rate of six cubic metres per second into the Pegasus Bay coastal marine area. Compliance conditions regarding the physical discharge to the estuary are summarised in Table 1.1.1. Daily records of maximum outfall discharge flow rates and volumes are attached as an appendix to this report and shown in summary in Figures 1.1.2 and 1.1.3.

Consent Condition	Parameter	Compliance Condition	Compliance			
			Nov 24	Dec 24	Jan 25	Overall
2	Discharge Content	Discharge is only wastewater from the CWTP ponds	😊	😊	😊	😊
3	Discharge Volume	Recorded	😊	😊	😊	😊
4	Discharge Rate	Recorded	😊	😊	😊	😊
9	Outfall Maintenance	Routine maintenance completed and recorded	😊	😊	😊	😊
10	Outfall Condition	Visual inspection of outfall, every 5 years	😊	😊	😊	😊
12	Pumping Pressure for a given flow	Monitored	😊	😊	😊	😊

Key: 😊 Full Compliance, 😐 Minor, Isolated or Risk of Non-Compliance, 😞 Major or Consistent Non-Compliance

Table 1.1.1 Pond Discharge Consent Compliance for Monitoring Period Nov 2024 to Jan 2025 CRC051724

1.1.1 Comments on Compliance

Flowrate and pressure data were recorded as per consent requirements.

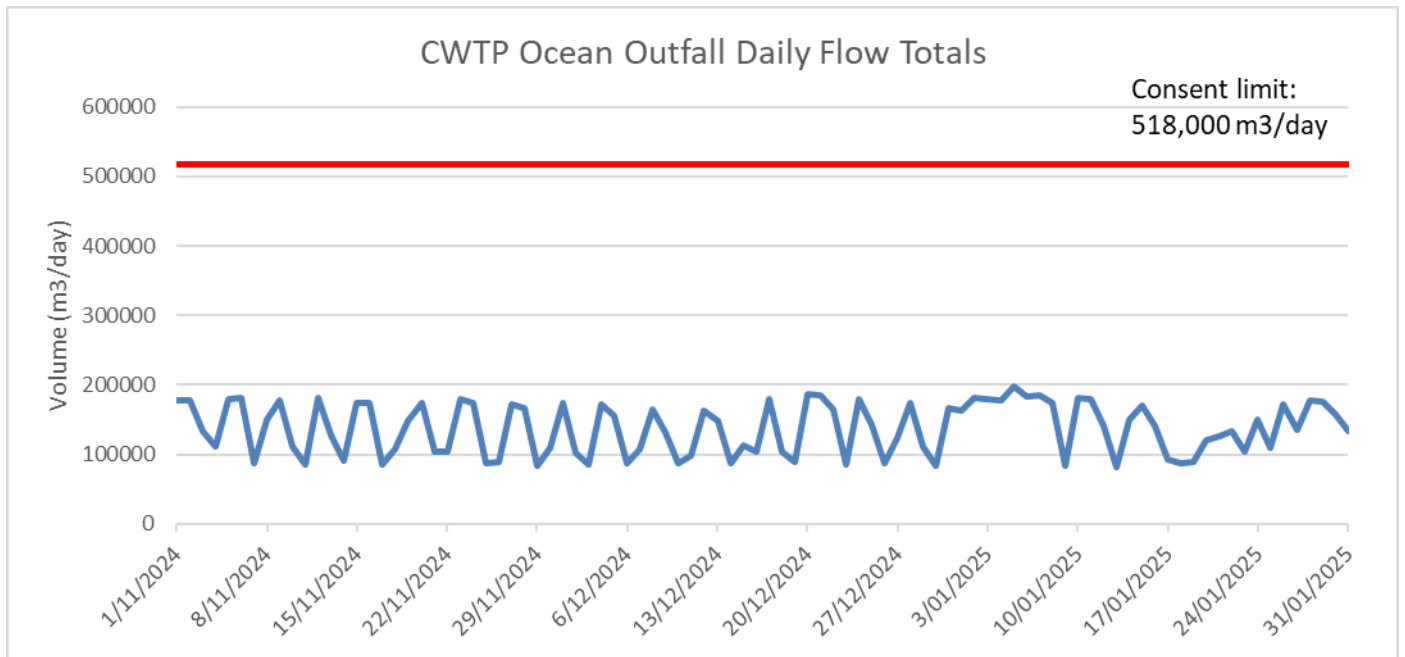


Figure 1.1.2 - Daily Outfall Flow Totals

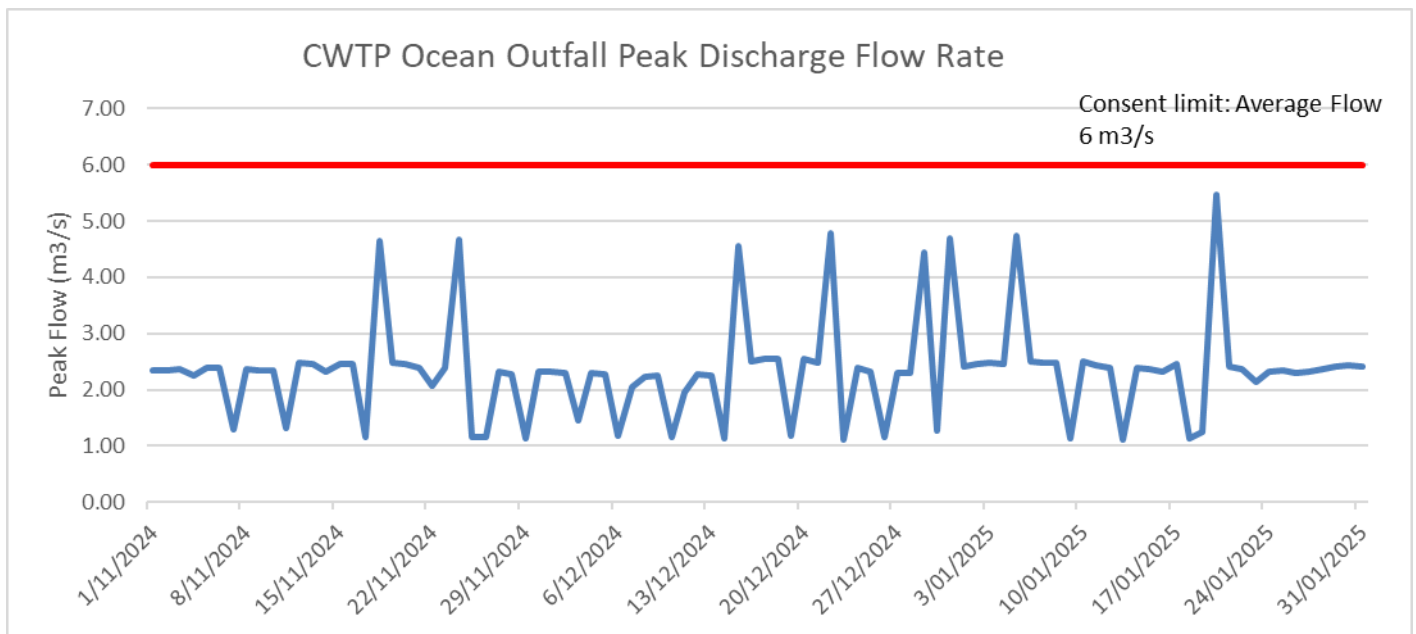


Figure 1.1.3 - Daily Peak Outfall Flows

2. Resource Consent Standard Conditions

Conditions 15 and 16 of consent CRC051724 set out concentration standards for a selection of parameters monitored in compliance with condition 13. No more than 16 samples in each rolling 26 week period should exceed the standard value for contaminants listed under condition 15a, and if more than seven from eight consecutive samples should exceed the standard value ECan must be notified within 48 hours. No more than six from eight consecutive samples should exceed the standard value for contaminants listed under condition 16a, and no more than two from eight consecutive samples should exceed the higher value. If more than seven from eight exceed the standard value, or three from eight exceed the higher value, ECan must be notified within 48 hours. Compliance conditions regarding adherence to these standard values are summarised in Table 2.1. Analysis results are supplied to Environment Canterbury at quarterly intervals. Contaminant monitoring results for consent CRC051724 are discussed further in Sections 1.4 – 1.9.

Consent Condition	Parameter	Compliance Condition	Compliance			
			Nov 24	Dec 24	Jan 25	Overall
15a	Dissolved BOD ₅	Concentration does not exceed 20 g/m ³				
	Total Suspended Solids	Concentration does not exceed 50 g/m ³				
	Ammoniacal Nitrogen	Concentration does not exceed 40 g/m ³				
16a	Faecal Coliforms	Concentration does not exceed 1,000(standard)/5,000(higher) MPN/100mL				
	Enterococci	Concentration does not exceed 1,500 MPN/100mL				

Key: Full Compliance, Minor, Isolated or Risk of Non-Compliance, Major or Consistent Non-Compliance

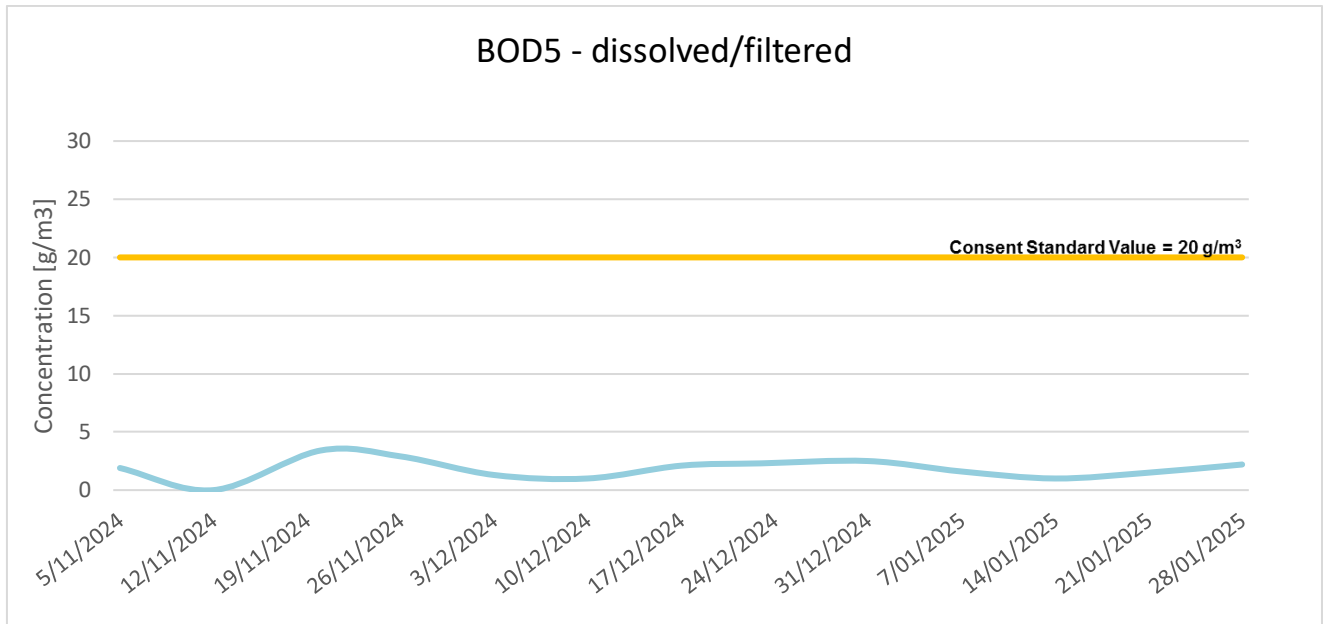
Table 2.1 Contaminant Limits Consent Compliance Nov 2024 to Jan 2025 CRC051724

2.2 Comments on Compliance Summary

All final effluent water quality samples were collected and analysed.

2.3 Dissolved BOD₅ Compliance

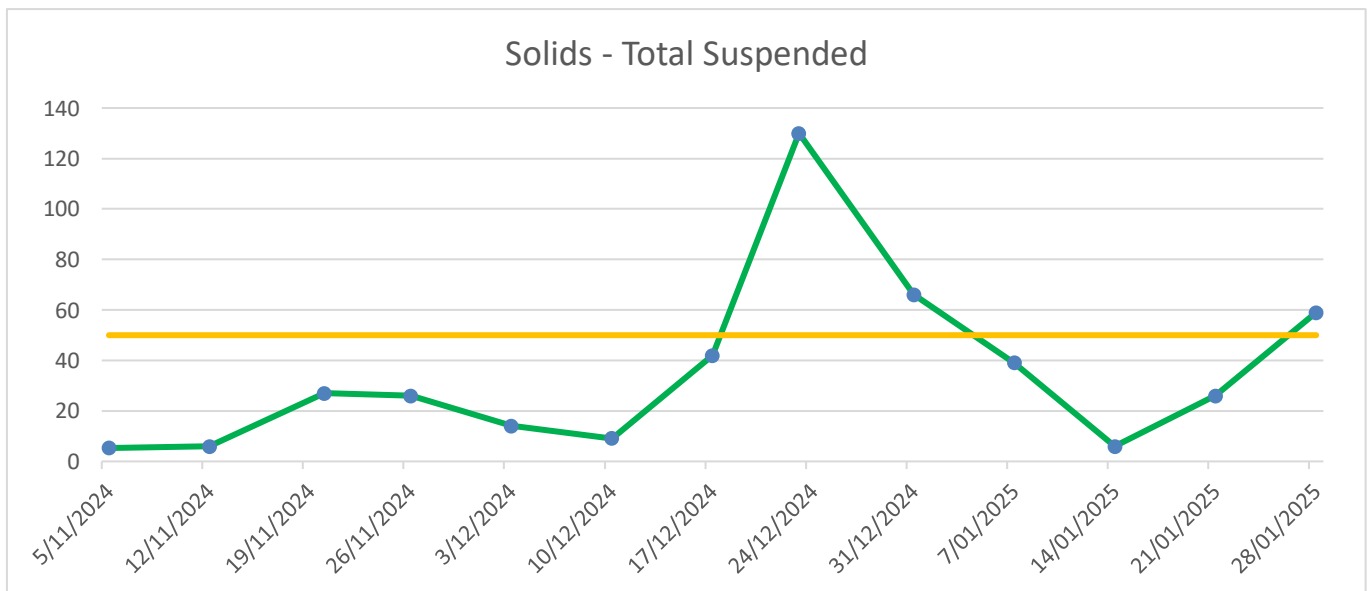
There were zero exceedances of the standard value (20.0 g/m³) in the current monitoring quarter.



2.3.1 Graph of Pond 6 Discharge Dissolved BOD₅

2.4 Total Suspended Solids Compliance

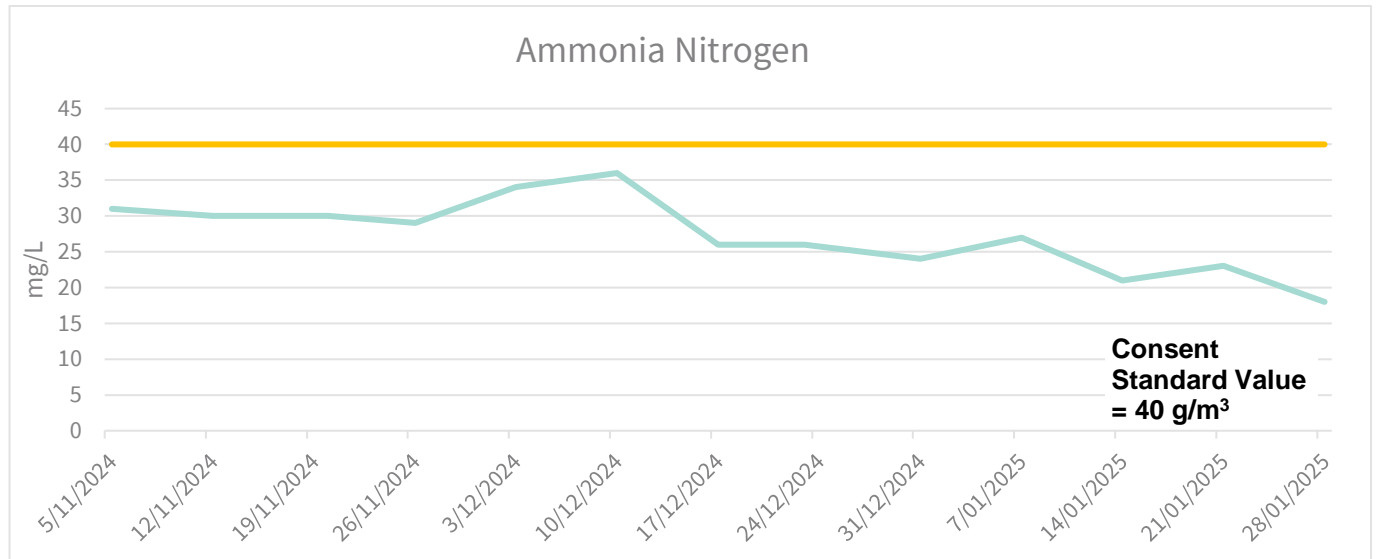
There were three exceedances of the standard value of 50 g/m³ this quarter, with values of 130 g/m³ on 23/12/24, 66 g/m³ on 31/12/24 and 59 g/m³ on 29/01/25.



2.4.1 Graph of Pond 6 Discharge, Total Suspended Solids

2.5 Ammonia Nitrogen Compliance

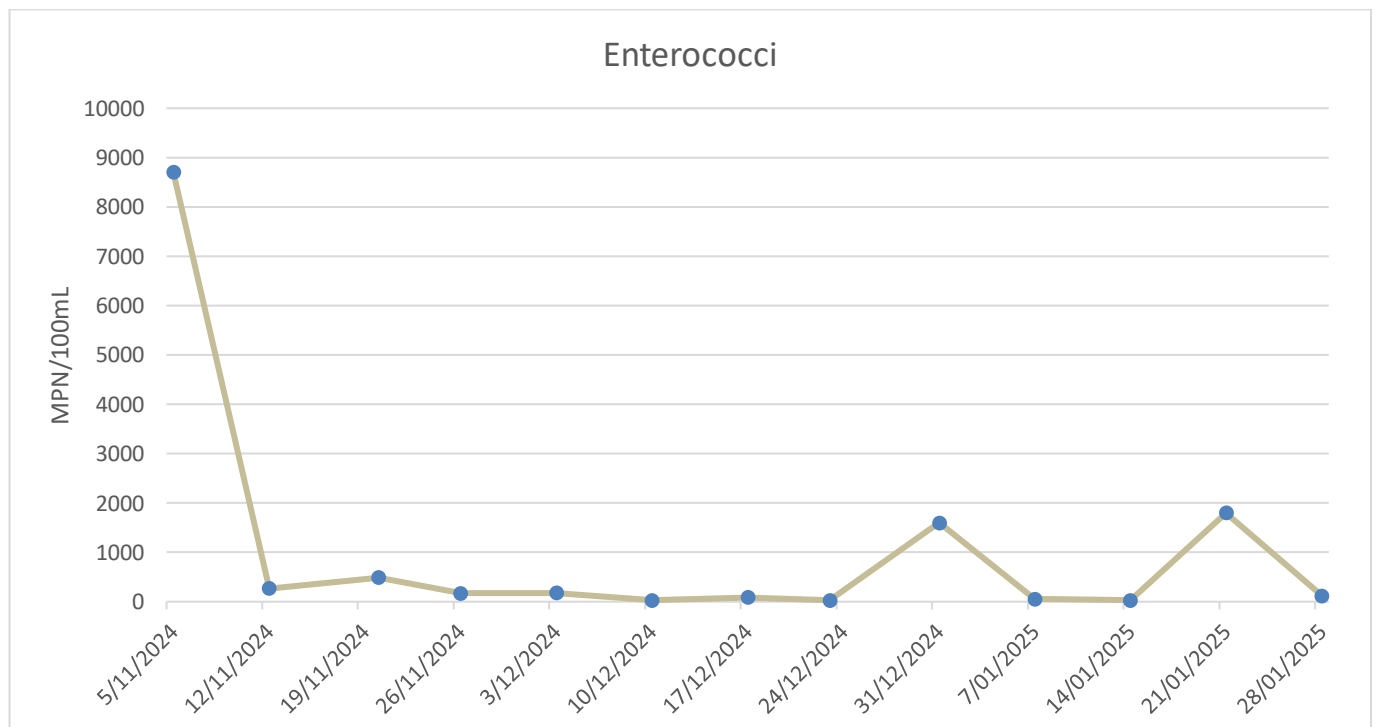
There were zero exceedances of the 40 g/m³ limit during this monitoring period.



2.5.1 Graph of Pond 6 Discharge Ammoniacal Nitrogen

2.6 Enterococci Monitoring

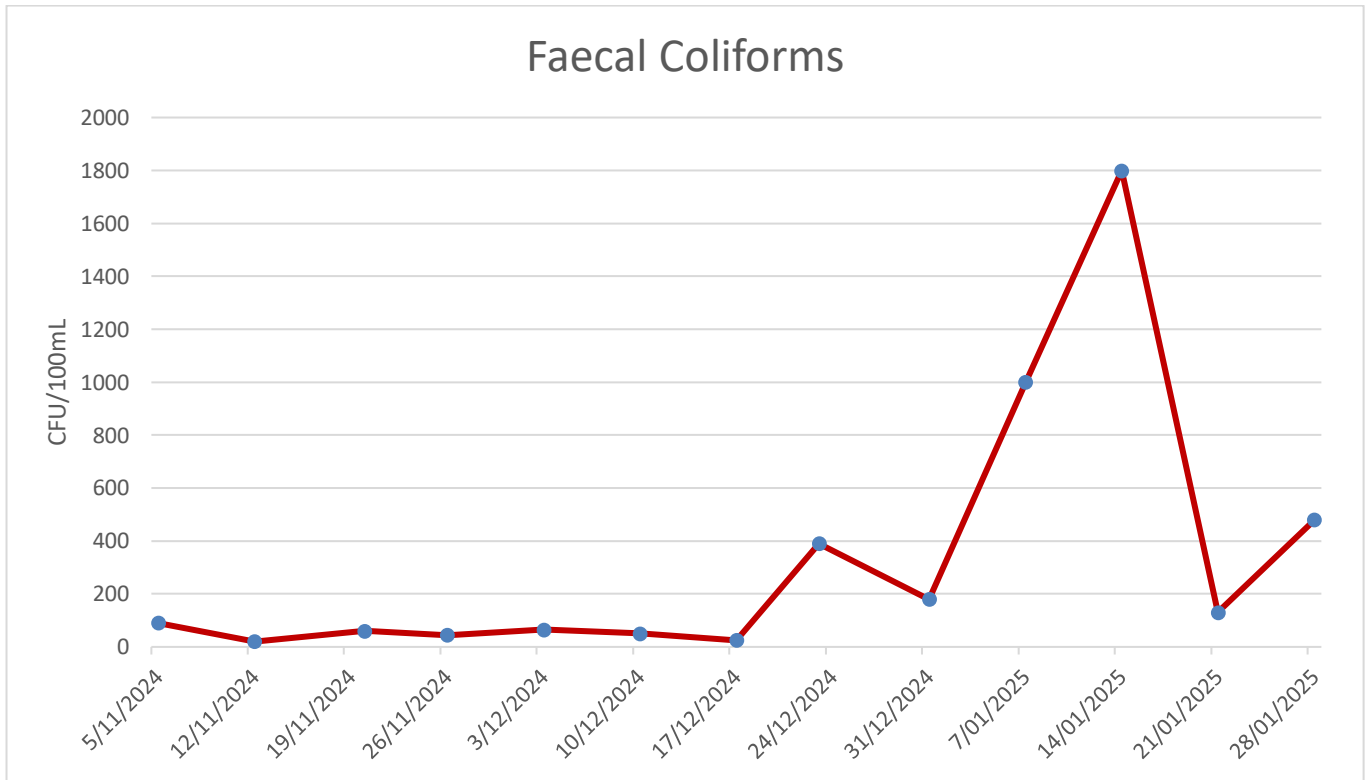
There were 3 exceedances of the 1,500 MPN/100ml consent limit during the reporting quarter, with a sample result of 8,700 MPN/100ml on 5/11/24, 1600 MPN/100ml on 31/12/24 and 1800 MPN/100ml on 21/01/25.



2.6.1 Graph showing level of Enterococci in final pond discharge

2.7 Faecal Coliform Compliance

The consent limit for Faecal Coliforms contains a lower and a higher standard value. The lower standard value is 1,000 CFU/100mL and the higher standard value is 5,000CFU/100mL. During this monitoring period, there was one exceedance of the lower standard value, with a sample result of 1,800 CFU/100mL on 14/1/25



2.7.1 Graph showing level of Faecal Coliforms in final pond discharge

3. Receiving Environment Monitoring

3.1 Water Quality Resource Consent Conditions

All samples were collected and analysed as required by consent condition 18. Samples for condition 18 are collected from South New Brighton Beach at Jellicoe Street, Sumner Beach at the surf club, and New Brighton at the Surf Club.

Consent Condition	Parameter	Compliance Condition	Compliance
			Nov 2024 to Jan 2025
18	Faecal Coliforms (limit 43 CFU/100mL)	Sampled and Analysed	😐
	Enterococci (limit 280 MPN/100mL)	Sampled and Analysed	😊
22a	Temperature	2 yearly	na
	DO	2 yearly	na
	Salinity	2 yearly	na
	Total Suspended Solids	2 yearly	na
	Nitrogen Oxides	2 yearly	na
	Ammoniacal Nitrogen	2 yearly	na
	Dissolved Reactive Phosphorus	2 yearly	na
	Chlorophyll-a	2 yearly	na
	Trace Metals	2 yearly	na
	Faecal Coliforms	2 yearly	na
	Enterococci	2 yearly	na
	Phytoplankton Species	2 yearly	na

Key: 😊 Full Compliance, 😐 Minor, Isolated or Risk of Non-Compliance, 😞 Major or Consistent Non-Compliance

Table 3.1.1 Receiving Environment Water Quality Consent Compliance

3.2 Comments on Compliance

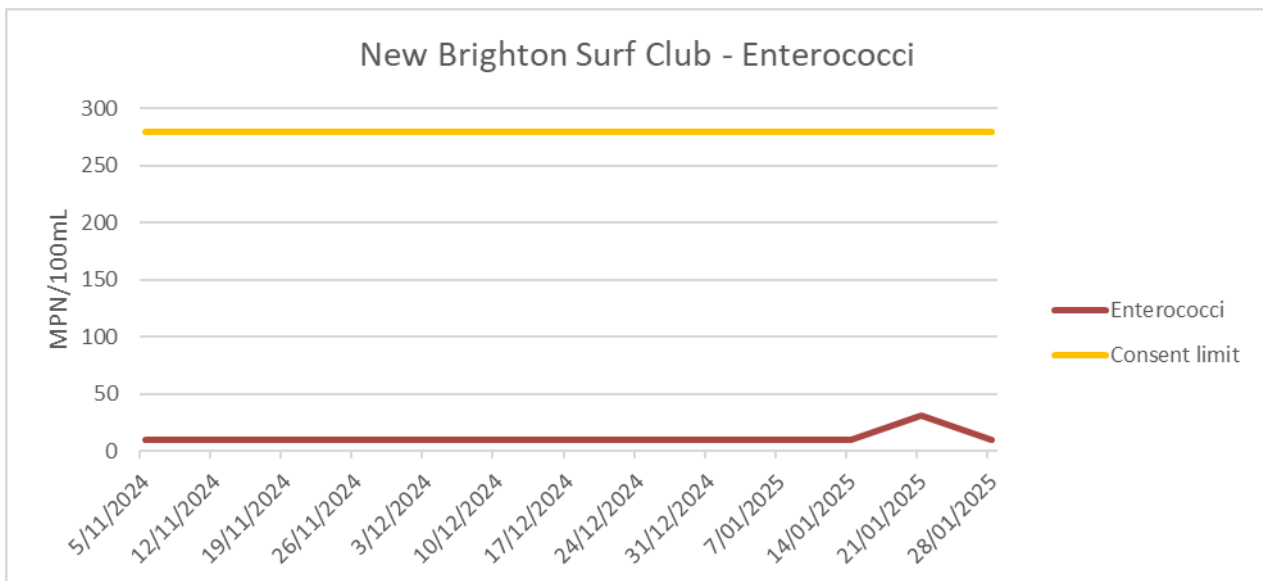
All results for the Pegasus Bay area were within consent limits for the recording period.

3.3 Beach Water Quality Analysis Results

Samples for condition 18 were taken at weekly intervals from the prescribed onshore locations. Results are presented below.

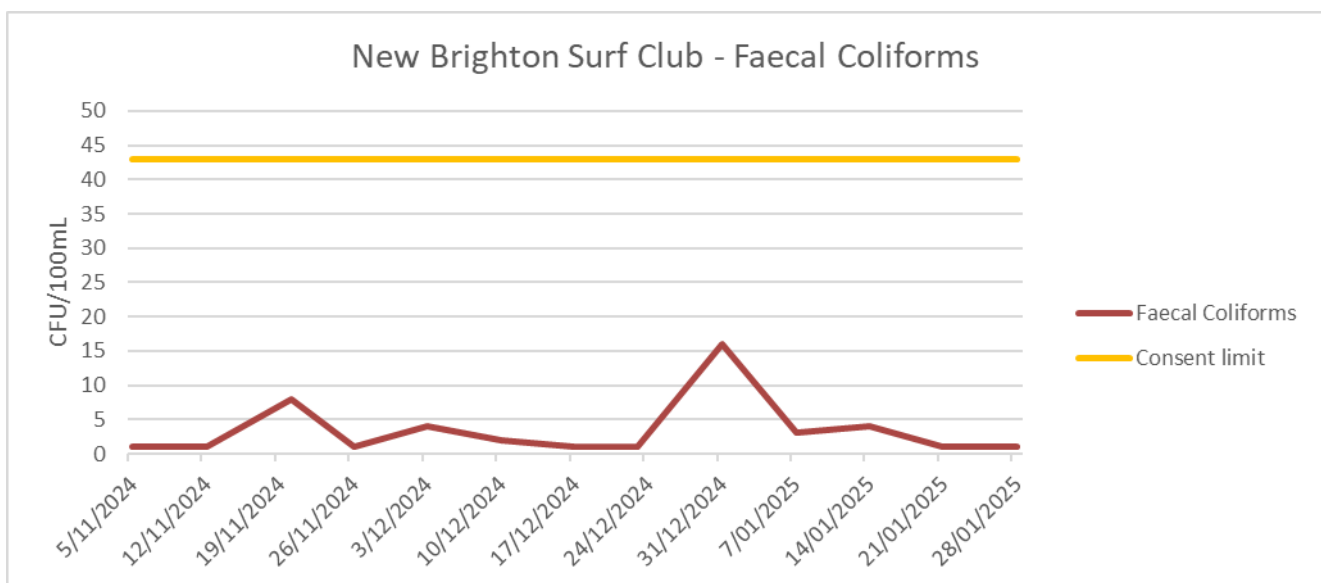
3.3.1 Enterococci Samples at New Brighton Surf Club

There were 0 exceedances of the 280 MPN/100mL limit in this reporting period.



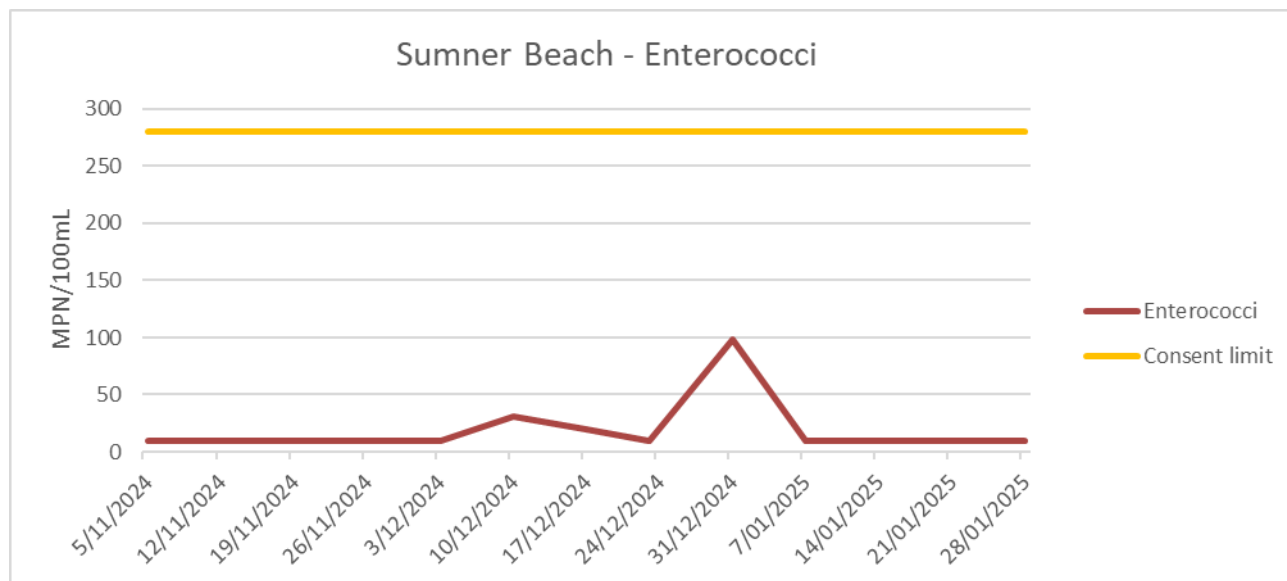
3.3.2 Faecal Coliform Samples at New Brighton Surf Club

There were 0 exceedances of the 43 CFU/100mL limit in this reporting period.



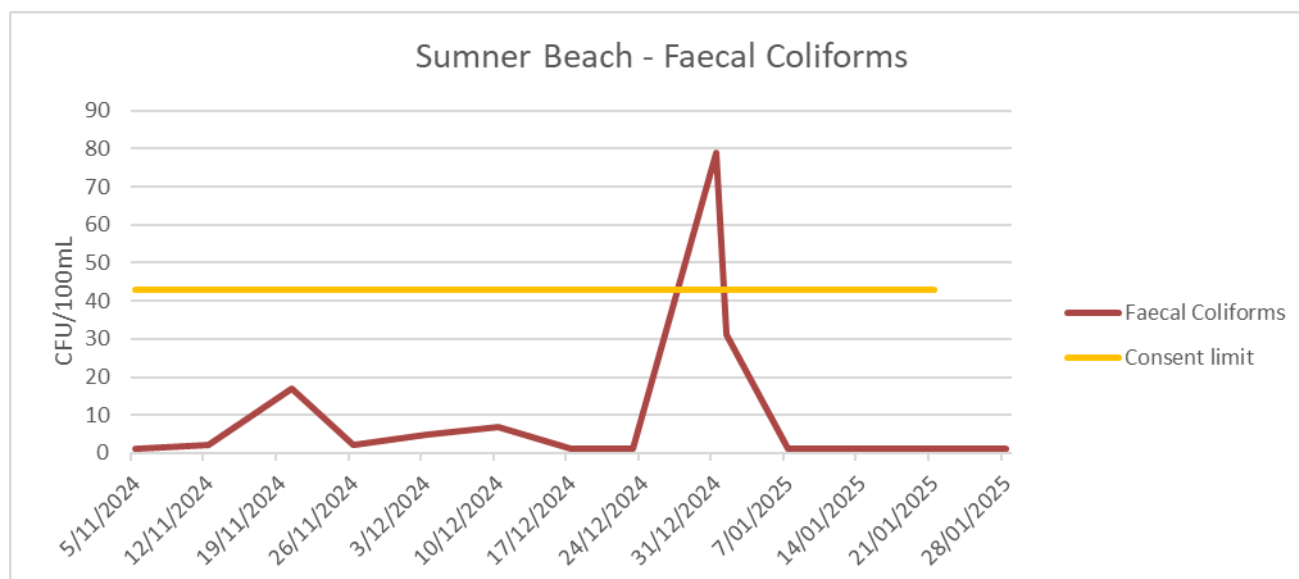
3.3.3 Enterococci Samples at Sumner Beach

There were 0 exceedances of the 280 MPN/100mL limit in this reporting period.



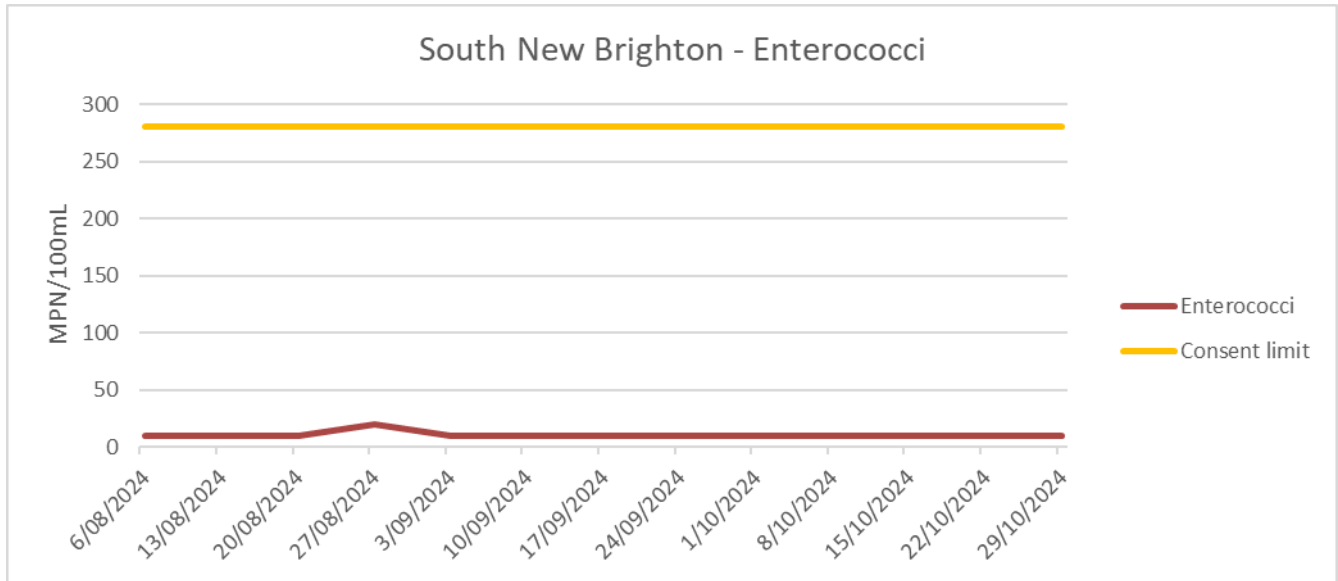
3.3.4 Faecal Coliform Samples at Sumner Beach

There was 1 exceedance of the 43 CFU/100mL limit in this reporting period, with a value of 79 CFU/100mL returned on 31/12/2024.



3.3.5 Enterococci Samples at South New Brighton Beach

There were 0 exceedances of the 280 MPN/100mL limit in this reporting period.



3.3.6 Faecal Coliform Samples at South New Brighton Beach

There were 0 exceedances of the 43 CFU/100mL limit in this reporting period.

